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THE EFFECT OF GREEN ACCOUNTING, CARBON EMISSION, ECO-EFFICIENCY, AND GENDER DIVERSITY ON FIRM VALUE

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Abstract:

This study aims to explore the complex relationship between Green Accounting, Carbon Emission, Eco-efficiency, and Gender Diversity on firm value in the raw material sector. The research sample consists of 50 companies in the raw materials sector on the Indonesia Stock Exchange. Data were obtained from financial statements, annual reports, and corporate sustainability reports. The analysis was conducted using multiple regression with the SMARTPLS 3 tool. The results showed a substantial relationship between Carbon Emission, Eco-efficiency, Gender Diversity and firm value in the raw goods sector. This study uses cross-sectional, this study limits the ability to see the development of the relationship between variables in the long term. Longitudinal studies or long-term trend analysis may be required to provide deeper understanding. The findings provide new insights into the complex relationship between environmental, social and firm value factors. Companies in the raw goods sector can utilize Carbon Emission, Eco-efficient and Gender Diversity practices to increase their long-term value. This research contributes to the understanding of the intricate connection between environmental, social and firm value factors, and offers new perspectives for business practitioners and academics.

Keywords: *Green Accounting, Carbon Emission, Eco-Efficiency, Gender Diversity, Firm Value.*

I. Introduction

Firm value has become a major concern in the world of business and finance. Firm value reflects how well a company is performing and how valuable an investment is to shareholders. Firm value, which is directly related to a company's share price, is an investor's estimate of the size of a company's success rate. (Yuliani & Prijanto, 2022).. If the share price is higher, the company value will be better and the prosperity of the shareholders will increase. (Iskandar &

Fran, 2016). Therefore, a good indicator of a business is reflected in the company's value, because the company's value reflects the current state of the company and can also describe the company's prospects in the future. (Fitriani et al., 2023).. So this will make the company have the ability to grow and develop if it is able to manage the company's value better in the future.

In measuring company value, there are various factors that can influence, one of which is sustainable business practices or

better known as *Green Accounting*. Sustainable and environmentally friendly business practices are becoming increasingly important in maintaining a balance between economic growth and environmental preservation. One concept that has emerged to address this challenge is *Green Accounting*, which integrates environmental aspects in the measurement and reporting of corporate financial performance. The application of *Green Accounting* or called MEMA (*Monetary Environmental Management Accounting*) has a very large role in waste reduction, financial management and cost savings related to the environment as well as improvements to company value which can help corporate environmental managers in making decisions. (M. Lestari, 2023). Companies need to have a full commitment to the environment and the social environment as the main thing and inseparable from the company's operational activities considering that companies in managing natural resources have the potential to have negative risks to environmental aspects. (Ningsih & Rachmawati, 2017). *Green Accounting* is not only about considering environmental impacts in business decisions, but also about ensuring that companies are responsible for their impact on the environment and society. In addition, it is important to recognize that a company's actions to reduce *carbon emissions* not only impact the environment, but also have significant consequences for various aspects of the economy and investment. In Indonesia, disclosure of greenhouse gas emissions is still voluntary (Gabrielle & Toly, 2019). Companies that are able to reduce their *carbon emissions* not only make a positive contribution to the environment, but can also reduce their operating costs in the long run. For an investor, *carbon emission* disclosure is also a question of whether carbon emissions represent a material risk to investors that is reflected in the cross-section of stock returns and portfolio holdings. (Bolton et al., 2020). Reducing *carbon emissions* can improve

a company's competitiveness and provide long-term benefits to the environment. In the context of corporate sustainability which has become a major concern in the business world, the ability of companies to manage their sustainability for the better is crucial. *Eco-Efficiency* is therefore a key factor in improving resource efficiency and reducing environmental impacts. *Eco-efficiency* can be applied as an environmental management system to manage the resources owned by the company. (Panggau & Septiani, 2017).. Companies that implement *Eco-Efficiency* practices tend to be more innovative and competitive in an increasingly tight market. The concept of *Eco-Efficiency* has also emerged as an important approach in achieving sustainable business goals. Company value can provide prosperity for each shareholder if the share price in a company increases. (Anjarsari et al., 2023).. Therefore, efforts are needed from corporate responsibility for the environment (*Eco-Efficiency*) with ISO 14001 standards because it not only has an impact on environmental damage but also has an impact on the value / image of the company itself. (Valencia & Sri, 2022). In addition, *Gender Diversity* can also create an inclusive atmosphere in the workplace, improve the company's reputation, and expand diverse business networks and relationships. Board diversity (*Gender Diversity*) is needed in companies because the more varied the company's board, the more varied the thinking, expertise, and knowledge. (Lie & Setyani, 2023). On the other hand, *Gender Diversity* in the workplace has been recognized as an important factor in improving creativity, innovation, and overall company performance. Women who have a significant role in business decision-making can bring a good perspective to the company. *Gender diversity* in the workplace has been shown to have a positive impact on company performance. Greater diversity in board personnel may lead to more

clashes but can offer more diverse alternative solutions to solve problems than homogeneous board personnel. (Fauziah, 2018). Companies with inclusive *Gender Diversity* tend to be more adaptive in the face of market changes and produce more creative solutions.

By considering the influence of *Green Accounting*, *Carbon Emission*, *Eco-Efficiency*, and *Gender Diversity* on firm value, this study aims to explore the complex relationship between these factors and their implications for business sustainability. Through in-depth analysis, this study is expected to provide new insights that are useful for business practitioners and academics in understanding the dynamics of the modern business environment.

II. Legal Materials and Methods

Agency Theory

is a theoretical framework that studies the relationship between owners (principals) and managers (agents) in a company. This theory highlights the information asymmetry between the two parties and the conflict of interest that may arise as a result. According to (Jensen & Meckling, 1976) Agency costs are costs arising from conflicts of interest between owners and managers in achieving company goals. This concept highlights that managers tend to act in their own self-interest rather than the interests of shareholders. Empirical studies have shown that control mechanisms, such as performance-based incentives and ownership structure, can be used to reduce agency problems and improve firm performance. (Fama & Jensen, 1983). Overall, *Agency Theory* provides an important understanding of how conflicts of interest between owners and managers can affect managerial behavior and firm outcomes.

Signaling Theory

Signaling Theory is an important theoretical framework in economic and financial studies, which highlights how

individuals or entities use signals or signs to communicate important information to other parties. According to (Spence, 1973) in the context of signal theory, individuals or entities that have private information about certain qualities or characteristics often use signals to disclose this information to other parties who may not have direct access to the information. For example, in the context of the labor market, individuals seeking employment might use their education or work experience as a signal to communicate their qualities or abilities to potential employers. (Spence, 1973). Further studies highlight the importance of signaling in the context of a contractual relationship between two parties who have asymmetric information (Milgrom & Roberts, 1973). (Milgrom & Roberts, 1986).. They show that signaling can help reduce uncertainty and improve efficiency in economic decision-making. Overall, *Signaling Theory* provides important insights into how individuals and entities use signals to communicate important information and reduce uncertainty in an environment rife with information asymmetry.

Environment

The importance of the environment in maintaining ecosystem balance has become a major topic in environmental studies. According to research by (Jones, A., 2019)(Jones, A., 2019), the environment plays an important role in maintaining the sustainability of existing ecosystems. They stated, "A healthy environment supports a diverse range of living things and natural processes that maintain ecosystem balance."

Other research by (B. Smith, 2020) highlights the impact of climate change on the environment. Smith asserts, "Rapid climate change can disrupt natural weather patterns and cause irreparable environmental damage". This shows how important it is to keep the environment in balance to prevent further damage.

In the context of environmental conservation, (C. Johnson, 2018)

highlights the importance of protecting natural habitats as an effort to maintain biodiversity. Johnson revealed, "Converting land for development purposes can threaten the survival of certain species and disrupt the ecosystem as a whole."

Diversity and Inclusivity theory

In today's increasingly connected and diverse world, it is important to understand and apply the concepts of diversity and inclusivity broadly. Diversity refers to the diversity of individuals in terms of identity, background and experience, while inclusivity focuses on creating an environment that accepts and supports such diversity. According to research, diversity and inclusivity in the workplace can in fact increase creativity, innovation, and team productivity. However, the challenges of implementing this concept cannot be ignored, especially in terms of conflict management, negative perceptions, and resistance to cultural change. Therefore, a holistic and comprehensive approach is needed in promoting diversity and inclusivity in order to create a fair and empowering work environment for all individuals.

Green Accounting

In order to quantify economic well-being holistically, green accounting combines traditional accounting concepts with environmental and social variables. The study by (Hossain et al., 2020) highlights the significance of green accounting in assessing the financial impact of environmental operations and assisting businesses, governments, and other institutions in transparently identifying the costs and benefits associated with environmental initiatives. Despite its significance, this strategy has been criticised by (Deegan, 2002), who emphasised the difficulties in evaluating complex environmental consequences, integrating environmental data into traditional accounting systems, and determining the value of environmental assets.

But according to research by (Saeidi et al., 2018), green accounting can be a potent tool in accelerating the shift to a more sustainable economy by offering incentives for businesses to take environmental factors into account when making decisions, as well as by promoting creativity and efficiency in the management of natural resources.

Carbon Emission

In the international discussion on climate change, carbon emissions have grown in importance. The effects of carbon emissions on the environment and human health have been the subject of several research. study by (J. et al. Smith, 2015) found that increasing airborne carbon dioxide concentrations can result from carbon emissions from cars and big companies, which in turn fuels climate change and global warming. Furthermore, studies conducted by (Johnson, 2018) discovered that carbon emissions are a part of air pollution, which raises the risk of respiratory illnesses and other health problems for people.

Reducing the effects of carbon emissions necessitates international collaboration and proactive measures from all societal segments. A multidisciplinary approach and additional study are also required to properly comprehend the effects of carbon emissions and create workable remedies. It is hoped that by working together, we can drastically cut carbon emissions and save the environment and public health for coming generations.

Eco-Efficiency

Eco-efficiency is a notion that blends environmental preservation and economic effectiveness. Eco-efficiency is the effective use of resources to minimise environmental effects and promote sustainable economic growth. (Hinterberger, F., 2017) asserts that eco-efficiency is a key factor in fostering sustainable economic growth. They stress how crucial it is for society, business, and government to work together to execute the idea of eco-efficiency.

On the other hand, some argue that putting eco-efficiency into practice is not always simple. (Gupta & Sharma, 2018) states that many businesses find it difficult to alter their ways of thinking and doing business in order to become more environmentally friendly. Based on a variety of current research and points of view,

eco-efficiency has a significant chance of shifting the corporate paradigm in the direction of sustainability. On the other hand, difficulties with implementation and the requirement for precise performance evaluation indicate that more work from a variety of sources is still required to fully achieve the idea of eco-efficiency.

Gender Diversity

The subject of gender diversity is becoming more and more popular in a variety of contexts, such as the workplace and educational system. A survey of the literature demonstrates the many advantages gender diversity offers businesses, including improved teamwork, creativity, and innovation. However, there are obstacles to establishing gender diversity, such as perceptions of gender stereotypes, the pay gap, and representation in leadership roles. Gender diversity in teams can give businesses a competitive edge, according to study by (A. Smith & Jones, 2018), but it also means that leaders must be resolute in their efforts to foster an environment that is welcoming and encouraging to all team members.

Green Accounting on firm value

The development of *Green Accounting* has become an increasingly important topic in modern accounting literature. *Green Accounting* is an approach that integrates environmental aspects in corporate accounting practices. The application of *Green Accounting* is carried out by allocating costs for environmental costs, this certainly affects the profit generated by the company, but it is not able to weaken the role of the application of *Green Accounting* on firm value. (A. D. Lestari & Khomsiyah, 2023). In the study, it was found that companies that apply sustainable accounting practices tend to have a higher market value compared to their competitors who do not apply *Green Accounting*.

Based on research conducted by (Dewi & Edward Narayana, 2020) it is proven that the application of *Green Accounting* has a significant positive impact on firm value. By taking into account environmental aspects in financial reports, companies can build trust and loyalty from consumers and investors.

H₁ : *Green Accounting* has a positive relationship with firm value.

Carbon Emissions to company value

Carbon emissions have become an increasingly important topic in relation to environmental impact as well as firm value. In recent research, many studies have tried to uncover the relationship between corporate carbon emissions and firm value. Therefore, companies that want to increase their value must manage their environmental and social performance well. (Hardiyansah et al., 2021).. Companies that disclose carbon emissions tend to increase public trust in the company which will increase the company's value (Rahmanita, 2020). (Rahmanita, 2020). Thus, companies that perform well in managing their *Carbon Emissions* can attract more investors and increase their company value.

H₂ : *Carbon Emissions* has a positive relationship with firm value.

Eco-Efficiency on firm value

Eco-efficiency is one of the concepts that emerged in response to the need to reduce the environmental impact of economic activities. *Eco Efficiency* is a management philosophy that encourages business activities to generate economic benefits coupled with environmental improvements that allow companies to be more responsible for the environment and reduce the resulting impact. (Aviyanti & Isbanah, 2019). Eco-efficiency according to the Dictionary of Environment and the Ministry of Environment of the Republic of Indonesia is defined as an efficiency concept that includes aspects of natural resources and energy or a production process that minimizes the use of raw

materials, water, energy and environmental impacts per unit of product (Sari et al., 2011). (Sari et al., 2011). Business actors who have implemented *Eco-efficiency* in the company have benefits including improving the company's image itself, increasing stock prices and having a greater company value. (Panggau & Septiani, 2017).. They found that *Eco-efficiency* practices can improve operational efficiency and reduce production costs, which in turn can increase firm value.

In addition, research conducted (Satrio & Kunto, 2020) which found that *Eco-efficiency* has a positive effect on firm value. Thus, companies that perform well in managing their carbon emissions can attract more investors and increase their company value.

H₃ : *Eco-Efficiency* has a positive relationship with firm value.

***Gender Diversity* on firm value**

Framework

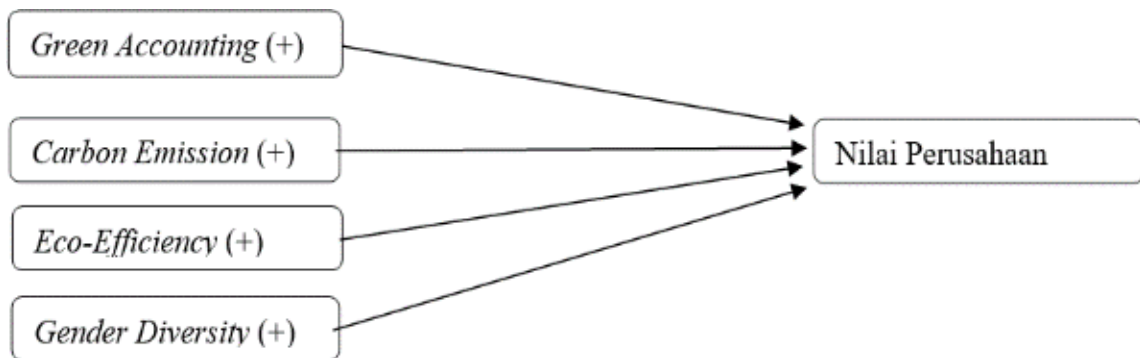


Figure 1
Thinking Framework

Research Population and Sample

The research sample used was 100 companies listed in the raw goods sector on the Indonesia Stock Exchange in 2021-2022. The sampling technique in this study uses purposive sampling with the criteria that the company is listed on the Stock Exchange, publishes

Gender diversity in the workplace is becoming an increasingly relevant topic in the modern business context. One question that arises is whether the presence of gender diversity among employees of a company can have an impact on the value of the company. In this study, the hypothesis is proposed that a high level of *gender diversity* in a company will have a positive impact on firm value.

Gender Diversity in a company is evidence of the implementation of *Good Corporate Governance* which has a very large share in changing the value of the company (Sari Kusumastuti et al., 2007). (Sari Kusumastuti et al., 2007).. This can be seen from the perspective of diverse ideas, experiences, and thoughts that can bring innovation, creativity, and a broader perspective to the company. This indicates a positive relationship between *gender diversity* and firm value.

H₄ : *Gender Diversity* has a positive relationship with firm value.

annual reports, publish sustainability reports, and report financial statements consistently. The final result of the sample that falls within the criteria is 50 companies. The research sample consists of determination using purposive sampling technique, namely the selection of samples according to certain standards shown in table 1

Table 1

Research Sample

Criteria	Total
Raw goods companies listed on the Indonesian stock exchange from 2021-2022	100
Companies that do not publish annual reports from 2021-2022	(22)
Companies that do not publish sustainability reports from 2021-2022	(28)
Total	50

Table 2
Operational Variables

VARIABLES	INDICATOR	REFERENCES	SCALE
Company value (Y)	$Q = \frac{MVE + D}{TA}$ <p>Description: Q = Tobin's Q MVE = Stock market value (Number of outstanding common shares of the company multiplied by price closing of the stock), D = Book Value of total debt TA = Total Assets</p>	(Dzahabiyya et al., 2020) (Desmiza, 2023)	Ratio
<i>Green Accounting</i> (X1)	<p>Indicators in the application of <i>Green Accounting</i> in this study are measured using Dummy Variables with the following criteria: 1 = Companies that have an environmental cost component 0 = Companies that do not have an environmental cost component</p>	(Salim et al., 2023) (Susanti et al., 2023)	Ordinal
<i>Carbon Emission</i> (X2)	$CED = \frac{\sum di}{M}$ <p>Ket: CED= Pengungkapan Emisi Karbon $\sum di$ = Skor total yang diungkapkan oleh perusahaan M = Jumlah maksimum yang dapat diungkapkan perusahaan (18 item)</p>	(Aeni & Murwaningsari, 2023) (Safutri et al., 2023)	Ratio
<i>Eco-Efficiency</i> (X3)	<p>1 = companies that have ISO 140010 certification 0 = companies that do not have ISO 140010 certificate</p>	(Yuliandhari et al., 2022) (Damas et al., 2021)	Ordinal

<p><i>Gender Diversity</i> (X4)</p>	$\text{Gender Diversity} = \frac{\text{Number of Female Members in the Board of Directors}}{\text{Total Number of Director Members}}$	<p>(Renaldo & Murwaningsari, 2023) (Pareek et al., 2023)</p>	<p>Ratio</p>
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Data Collection Sources and Methods

The data used in this study are secondary data in the form of financial reports, annual reports, and company sustainability reports. Data obtained from the database of financial reports, annual reports, and sustainability reports for 2021-2022 published by the Indonesia Stock Exchange. Documentary data collection techniques, by taking from second sources that are available on the official *website* of the Indonesia Stock Exchange.

Analysis

The method used to analyze the data in this study is multiple regression using the *SMARTPLS* tool.

Inner model

Inner models are constructs in set theory that are used to understand structures in set theory and large set theory. In set theory, inner model refers to a set structure that satisfies certain set theory axioms. The inner model helps us to understand the properties that may exist in the set structure. According to research, the inner model is also used to study the concept of the strength of certain axioms, such as the Zermelo-Fraenkel choice axiom or the finite axiom. (Steel, 2019).

In his research, (Steel, 2019) explained that the inner model has become an integral part in the development of modern set theory. Inner models play an important role in understanding complex concepts in set theory, such as set cardinality, finite set theory, and hierarchical structures in large set theory. Further research on the inner model helps uncover possible structural properties in set theory.

Outer model

In *Structural Equation Modeling* (SEM), there are two main models used to analyze the relationship between variables, namely the inner model and outer model. Outer model refers to the relationship between latent variables (variables that are not directly observed) and their indicators (variables that can be measured). The outer model is used to measure how well the latent variable is represented by its indicators.

According to (J. F. Hair et al., 2019) According to (J. F. Hair et al., 2019), the outer model is used to test construct validity and reliability. Construct validity refers to the extent to which the indicators used actually represent the construct being measured. While construct reliability measures the extent to which the indicators are consistent in measuring the same construct.

In the outer model analysis, researchers can use various methods, such as confirmatory factor analysis (CFA) to test construct validity, and calculate *Cronbach's* alpha to measure construct reliability. Good outer model analysis results indicate that the indicators significantly contribute to measuring the desired latent variable.

Thus, the outer model has an important role in SEM to ensure that the construct under study is measured precisely and reliably. By conducting a careful analysis of the outer model, researchers can ensure the validity and reliability of the SEM analysis results.

III. Result and Discussion

Measurement Model Analysis

To test the measurement model (Outer model) in SEM-PLS there are several

steps: the outer loadings test, which gauges how well the indicators used to measure the construct being tested, comes after the validity and reliability test. Subsequently, conduct the Cross Loading, Convergent, and Discriminant tests.

As indicated in Table 4, the outside loading is tested as part of the validity and reliability test, which is the first one conducted. By observing

Based on the data presented in Table 4, it can be inferred that all indicators have excellent construct measurement capabilities. Because outer loading is considered favorable if its value is greater than 0.7 or 0.5, per J. Hair et al. (2020). Testing the construct's reliability is the next essential step. There are two ways to administer this test: Cronbach's Alpha and Composite Reliability (CR).

Table 4. Outer Loading

	EC	EE	GA	GD	LK	NP	PF
LIK					1,000		
ROA							1,000
X1			1,000				
X2	1,000						
X3		1,000					
Y						1,000	
Z				1,000			

Next, test the reliability of the construct. Construct reliability will be measured using two approaches, namely *Cronbach's Alpha* (α) and *Composite Reliability* (CR). *Cronbach's Alpha* is measured by calculating the consistency between indicators used to measure constructs, while *Composite Reliability* (CR) determines the reliability of a structure by considering the weight of each indicator (J. Hair et al., 2020). (J. Hair et al., 2020). The data in Table 5

shows that the data used is reliable. Because, a data can be said to be reliable if it has a *Cronbach's Alpha* value of more than 0.6 and a *Composite Reliability* (CR) value above 0.7. In addition, from the data in table 5, we can see the convergent validity value of the data displayed in the *Average Variance Extracted* (AVE) column. The standard AVE value must be more than 0.5. It can be concluded that this research data is safe in the convergent validity test.

Table 5. Construct Reliability and Validity

	<i>Cronbach's Alpha</i>	ρ_A	<i>Composite Reliability</i>	<i>Average Variance Extracted (AVE)</i>
EC	1,000	1,000	1,000	1,000
EE	1,000	1,000	1,000	1,000
GA	1,000	1,000	1,000	1,000
GD	1,000	1,000	1,000	1,000
LK	1,000	1,000	1,000	1,000
NP	1,000	1,000	1,000	1,000
PF	1,000	1,000	1,000	1,000

Doing a discriminant test is the last step. Cross-loading is used to test this. As indicated in tables 6 and 7, there are two tests for closure loading: Fornell Lecker and HTMT. The outcomes of

The discriminant validity test using the Fornell Lecker criteria is shown in Table 5, demonstrating that the data used satisfies the criterion where the value at the top is the highest value.

Whereas in table 6, the discriminant validity test with HTMT is shown which shows that the data used is also in accordance with the criteria or is

classified as safe. This is because from table 6 it can be seen that the *Importance* value of each data is below 0.9 (J. Hair et al., 2020).

Table 6. Discriminant validity Discriminant validity-Fornell Lacker criteria

	EC	EE	GA	GD	LK	NP	PF
EC	1,000						
EE	0,413	1,000					
GA	-0,040	0,047	1,000				
GD	0,082	-0,128	-0,076	1,000			
LK	0,088	-0,067	-0,130	0,046	1,000		
NP	0,493	0,322	0,162	0,164	-0,005	1,000	
PF	-0,197	-0,199	0,132	-0,111	-0,108	0,166	1,000

Table 7. Discriminant validity-HTMT

	EC	EE	GA	GD	LK	NP	PF
EC							
EE	0,413						
GA	0,040	0,047					
GD	0,082	0,128	0,076				
LK	0,088	0,067	0,130	0,046			
NP	0,493	0,322	0,162	0,164	0,005		
PF	0,197	0,199	0,132	0,111	0,108	0,166	

Structural Model Analysis

This model's structural analysis involves multiple steps, including determining whether the model is collinear for structure, analyzing the path coefficients' extent and significance, calculating the value of R2 using endogenous factors for in-sample prediction, calculating the effect size f2 for in-sample prediction, and determining the significance of Q2 prediction (J. Hair et al., 2020).

Structural Model Collinearity

It is evident from the data in Table 8 that there is no discernible multicollinearity in the model's

findings of the correlation test. This is demonstrated by the bivariate correlation between construct scores being less than 0.50 and the VIF value of all variables being less than 3.0. This is consistent with the study's (J. Hair et al., 2020) argument that there isn't a collinearity issue if the VIF value is less than 3. Additionally, there is a multicollinearity issue that may affect the sign of the large or small route coefficient for the VIF value of the bivariate correlation between construct scores if the correlation between the two variables is greater than 0.50.

Table 8. Outer and Inner VIF

VIF outside		VIF in						
	VIF	EC	EE	GA	GD	LK	NP	PF
EC	1,000						1,265	
EE	1,000						1,300	
GA	1,000						1,040	
GD	1,000						1,058	
LK	1,000						1,045	

NP	1,000							
PF	1,000						1,104	

Path Analysis and Hypothesis Testing

With reference to Table 9's route analysis results, the bootstrapping analysis's results at a significance level of alpha 0.05 or 5% indicate that Green Accounting has a p-value of $(0.112) \geq (0.05)$. This suggests that there is no discernible impact of green accounting on business value, leading to the rejection of H1. The market has not fully taken into account environmental factors in company valuation. Investors focus more on traditional financial performance rather than environmental factors when assessing the value of a company.

On the other hand, the disclosure of *Carbon Emission* has a p-value $(0.000) \leq (0.05)$, this indicates that there is a substantial relationship between the disclosure of *Carbon Emission* and firm value. So it can be concluded that the disclosure of *Carbon Emission* has a positive effect on firm value, then H2 is accepted. The issue of *Carbon Emission disclosure* affects firm value because it can affect firm value. By providing clear and transparent information about their *carbon emissions*, companies can gain a competitive advantage in a market that is increasingly concerned about the environment. Investors tend to be more interested in investing in companies that have sustainable and environmentally responsible practices.

In addition, *Eco-Efficiency* is seen to have a p-value of $(0.019) \leq (0.05)$, this indicates that there is a substantial relationship between *Eco-Efficiency* and firm value. so it can be said that H3 is accepted. *Eco-Efficiency* practices tend to achieve better financial performance and have a higher market value in the long run. such as, companies that reduce their

Carbon Emission can reduce future energy costs and regulatory risks, which in turn can improve their financial sustainability.

Meanwhile, *Gender Diversity* has a p-value $(0.007) \leq (0.05)$. This indicates that there is a substantial relationship between *Gender Diversity* and firm value. so it can be said that H4 is accepted. These results suggest that *Gender Diversity* on the board of directors can lead to better and more balanced decision-making, which in turn contributes to better firm performance.

R Squared analysis is the next phase. Because it indicates how much of a variable's volatility can be accounted for by the variables that predict the model, this stage attempts to assess the predictive capacity of the model. The model's ability to predict outcomes is stronger the higher its R Squared value. The test findings are presented in Table 10, where it is evident that the adj R Squared value is 35.9% and the R Squared value is 39.8%. This demonstrates that a portion of the dependent variable's volatility may be explained by 39.8% of the independent variables. As other, not accounted for in the model factors account for the remainder. The Q-Square (Q2) value is tested in the study's last stage, which employs the SmartPLS blindfolding test. The Q-Squared test gives an estimate of how effectively the PLS-SEM model can predict the dependent variable, according to J. Hair et al. (2020). The Q2 value in Table 10 is 0.261, indicating a reasonable assessment of the model prediction. This is in line with the explanation given by J. Hair et al. (2020), who claim that moderate and large predictive power are indicated by Q2 values above 0.25 and 0.50.

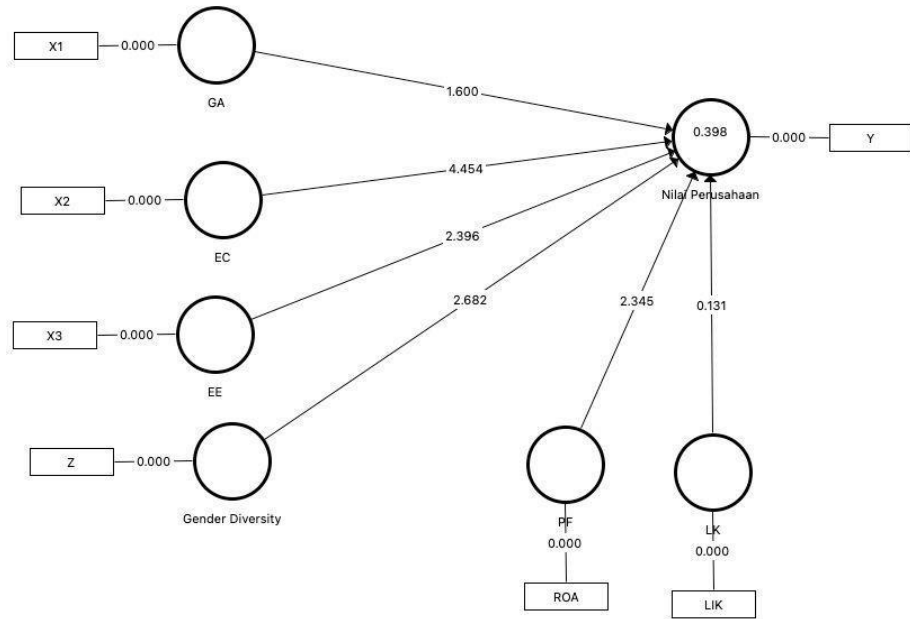


Figure 2. Path Coefficient

Table 9. Structural model and hypothesis testing

	<i>Original Sample (O)</i>	<i>Sample Mean (M)</i>	<i>Standard Deviation (STDEV)</i>	T Stat	P Values
Direct Effect					
EC -> NP	0,452	0,442	0,101	4,491	0,000
EE -> NP	0,215	0,218	0,092	2,347	0,019
GA -> NP	0,147	0,148	0,092	1,588	0,112
GD -> NP	0,199	0,195	0,074	2,697	0,007
LK -> NP	0,012	0,015	0,090	0,130	0,897
PF -> NP	0,302	0,285	0,128	2,363	0,018

Table 10. R squared data

	R Square	R Square Adjusted
NP	0,398	0,359

Table 11. Building cross-validated Redundancies

	SSO	SSE	Q² (=1-SSE/SSO)
EC	98,000	98,000	
EE	98,000	98,000	
GA	98,000	98,000	
GD	98,000	98,000	
LK	98,000	98,000	
NP	98,000	72,419	0,261
PF	98,000	98,000	

Discussion

The Effect of Green Accounting on Firm Value

The results of this study state that *Green Accounting* has no effect on firm value in the raw goods sector. Studies conducted by (A. Johnson et al., 2019) shows that companies that implement *Green Accounting* tend to be valued higher by the market and investors. However, other studies show that the implementation of *Green Accounting* does not always have an impact on increasing firm value. In a study conducted (A. Smith & Jones, 2019)(A. Smith & Jones, 2019), the results show that *Green Accounting* practices do not have a significant impact on firm value.

One of the main reasons why *Green Accounting* has no effect on firm value is that the market does not fully take into account environmental factors in valuing a company. Although companies implement green accounting practices, investors and shareholders may focus more on financial performance and other more traditional factors in valuing their investments. Thus, although companies have adopted environmentally friendly practices, this is not directly reflected in an increase in firm value.

Nevertheless, it is important to keep in mind that although this study shows that *Green Accounting* does not significantly impact firm value, this does not mean that green accounting practices have no value or benefit. With the growing awareness of environmental issues, companies that implement *Green Accounting* can benefit from their reputation as socially and environmentally responsible entities. In addition, such practices can also help companies to comply with increasingly stringent environmental regulations, which in turn can reduce future legal and financial risks.

Effect of Carbon Emission on Company Value

The results of this study state that *Carbon Emission* affects the value of companies in the raw goods sector. The study of the effect of *Carbon Emission* on firm value in the raw goods sector is an interesting and important topic in the context of sustainability and corporate social responsibility. A study conducted by (Jones & Revell, 2019) found that companies that produce high levels of *carbon emissions* tend to experience a decrease in market value. This is due to increased pressure from the public and regulators related to environmental issues, which can lead to decreased consumer and investor confidence in the company. Therefore, companies that are committed to reducing *carbon emissions* and implementing environmentally friendly business practices are likely to benefit in terms of firm value. This can have an impact on corporate reputation, market access, as well as the cost of capital. Therefore, prudent strategic management of *carbon emissions* in the raw goods sector can provide significant long-term benefits to firm value and strengthen the firm's market position in the face of increasingly complex global challenges.

The Effect of Eco-Efficiency on Firm Value

The results showed that *Eco-Efficiency* has a significant influence on firm value in the raw goods sector. *Eco-Efficiency*, which combines the concept of resource efficiency with environmental considerations, can improve the company's financial performance through operational cost savings, increased productivity, and compliance with environmental regulations. Research conducted by (Jones & Selby, 123 C.E.) highlighted the relationship between *Eco-Efficiency* and firm value. The results of this study indicate that companies that implement *Eco-Efficiency* practices tend to have higher firm value. Thus, the integration of *Eco-Efficiency* not only supports environmental sustainability, but also positively impacts the value of

companies and their brand image in the eyes of stakeholders.

The Effect of *Gender Diversity* on Firm Value

The results of this study state that *Gender Diversity* has no effect on firm value in the raw goods sector. With *Gender Diversity* in the management team, companies tend to be able to access diverse views and experiences that can increase innovation and better decision making. According to a study conducted by (Adams et al., 20019)(Adams et al., 20019), an increase in *Gender Diversity* on the board of directors and senior management has been shown to be positively correlated with the financial performance of the company.

IV. Conclusion and Suggestion

Testing how *Green Accounting*, *Carbon Emission*, *Eco-Efficiency*, and *Gender Diversity* affect firm value is the main objective of this study. Specifically, this study uses *Green Accounting*, *Carbon Emission*, *Eco-Efficiency*, and *Gender Diversity* to test their impact on firm value using raw goods companies as the object of research. Table 9 displays the research findings, which show the direct results of each variable on firm value as well as the influence of each variable. The summary and findings of this study are as follows: Based on the information provided, it can be concluded that there is a significant relationship between *Eco-Efficiency*, *Gender Diversity*, and *Carbon Emission* on firm value in the raw goods sector. *Eco-efficiency* and *Gender Diversity* have a significant positive influence on firm value, while *Carbon Emission* also has a positive impact on firm value. Although *Green Accounting* has no significant impact, the practice is still important for reputation and compliance with environmental regulations. Prudent management in managing *Carbon Emission* and implementing *Eco-efficiency* practices can provide long-term benefits to firm

In this study, researchers found that companies that have a more balanced gender composition at the leadership level tend to achieve better financial outcomes, including higher profitability and higher market value. In addition, the presence of women in leadership positions can also reflect inclusive and responsible management practices, which in turn can enhance the company's reputation in the eyes of stakeholders and investors. Nonetheless, research also shows that the implementation of *Gender Diversity* needs to be done right and not just as a cosmetic measure, so that its positive impact on firm value can be significantly realized.

value. This research provides valuable insights into the factors affecting firm value in the context of *Green Accounting* and other sustainable practices.

References

- Adams, R. B., Ferreira, D., & Ferreira, M. A. (20019). Women on boards: The superheroes of tomorrow? *SSRN Electronic Journal*.
- Aeni, N. A. N. N., & Murwaningsari, E. (2023). The effect of carbon emission disclosure and green investment on firm value. *3*(2), 3135-3148.
- Anjarsari, F., Ilmiddafiq, M. B., & Hartono. (2023). *Mufakat Mufakat*. 2, 528-542.
- Aviyanti, S. C., & Isbanah, Y. (2019). The Effect of Eco-Efficiency, Corporate Social Responsibility, Ownership Concentration, and Cash Holding on the Value of Consumer Goods Sector Companies on the IDX for the 2011-2016 Period. *Journal of Management Science*, 7(1), 77-84.
- Bolton, P., Kacperczyk, M., Allen, F., Bouyé, E., Daniel, K., Donovan, C., Garvey, G., Pomorski, L., Roell, A., Sautner, Z., Shrimali, G., Verardo, M., & Wurgler, J. (2020). NBER WORKING PAPER SERIES DO INVESTORS CARE ABOUT CARBON RISK? We thank you. *Do*

- Investors Care About Carbon Risk*, 269(12), 2-80.
<http://www.nber.org/papers/w26968>
- Damas, D., Maghviroh, R. El, & Indreswari, M. (2021). THE EFFECT OF ECO-EFFICIENCY, GREEN INNOVATION AND CARBON EMISSION DISCLOSURE ON FIRM VALUE WITH ENVIRONMENTAL PERFORMANCE AS. 8(2), 85-108.
- Desmiza, D. (2023). The Effect of Corporate Governance on Firm Value (Tobins 'Q) in Manufacturing Companies Listed on the Indonesia Stock Exchange. *MUKADIMAH: Journal of Education, History, and Social Sciences*, 7(1), 91-99.
<https://doi.org/10.30743/mkd.v7i1.6558>
- Dewi, P. P., & Edward Narayana, I. P. (2020). Implementation of Green Accounting, Profitability and Corporate Social Responsibility on Firm Value. *E-Journal of Accounting*, 30(12), 3252.
<https://doi.org/10.24843/eja.2020.v30.i12.p20>
- Dzahabiyya, J., Jhoansyah, D., & Danial, R. D. M. (2020). Analysis of Company Value with the Tobin's Q Ratio Model: *Dewantara Journal of Accounting & Financial Research*, 3(1), 46-55.
<https://doi.org/10.26533/jad.v3i1.520>
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Corporate Governance: Values, Ethics and Leadership*, 163-188.
<https://doi.org/10.1086/467037>
- Fauziah, F. E. (2018). Gender Diversity and Firm Value with Corporate Social Responsibility as an Intervening Variable. *Media Economics and Management*, 33(2), 187-204.
<https://doi.org/10.24856/mem.v33i2.668>
- Fitriani, F., Anggarini, D. R., Angelica, S., & Sihono, C. (2023). ANALYSIS OF THE EFFECT OF FINANCIAL RATIOS ON FIRM VALUE IN PHARMACEUTICAL SECTOR COMPANIES LISTED ON THE INDONESIAN STOCK EXCHANGE IN 2016-2021. 3(1), 43-52.
- Gabrielle, G., & Toly, A. A. (2019). The Effect Of Greenhouse Gas Emissions Disclosure And Environmental Performance On Firm Value: Indonesia Evidence. *Scientific Journal of Accounting and Business*, 14(1), 106-119.
<https://doi.org/10.24843/jiab.2019.v14.i01.p10>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2019). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage Publications.
- Hair, J., Howard, M., & Nitzl, C. (2020). *Assessing measurement model quality in PLS-SEM using confirmatory composite analysis*. 109.
- Hardiyansah, M., Agustini, A. T., & Purnamawati, I. (2021). The Effect of Carbon Emission Disclosure on Firm Value: Environmental Performance and Industrial Type. *Journal of Asian Finance, Economics and Business*, 8(1), 123-133.
<https://doi.org/10.13106/jafeb.2021.vol8.no1.123>
- Iskandar, D., & Fran, E. (2016). The Effect of Carbon Emissions Disclosure and Corporate Social Responsibility on the Firm Value with Environmental Performance as Variable Control. *Research Journal of Finance and Accounting*, 7(9), 122-130.
www.iiste.org
- Jensen, M. C., & Meckling, W. H. (1976). THEORY OF THE FIRM: MANAGERIAL BEHAVIOR, AGENCY COSTS AND OWNERSHIP STRUCTURE. *The Corporate Financiers*, 3, 305-360.
<https://doi.org/10.1057/9781137341280.0038>
- Johnson, A., Smith, B., & Lee, C. (2019). The Impact of Green Accounting on Firm Value: Evidence from the Energy Sector. *Journal of Sustainable Finance & Accounting*, 5(2), 112-130.
- Johnson, C. (2018). Conservation of Natural Habitats for Biodiversity Protection. *Conservation Biology Journal*, 8(1), 78-89.

- Jones, A., et al. (2019). The Role of Environment in Ecosystem Balance. *Journal of Environmental Studies*, 14(2), 45-58.
- Jones, A., & Revell, A. (2019). The impact of carbon emissions on firm value. *Journal of Sustainable Finance & Investment*, 10(3), 275-289.
- Jones, A., & Selby, M. (123 C.E.). The Impact of Eco-Efficiency on Firm Value. *Journal of Business Ethics*, 123(2), 365-378.
- Lestari, A. D., & Khomsiyah. (2023). The Effect of Environmental Performance, Implementation of Green Accounting, and Disclosure of Sustainability Report on Firm Value. November, 527-539.
- Lestari, M. (2023). THE INFLUENCE OF GREEN ACCOUNTING, GREEN INTELLECTUAL CAPITAL AND DISCLOSURE OF CORPORATE SOCIAL RESPONSIBILITY (CSR). 3(2), 2955-2968.
- Lie, C. A., & Setyani, A. Y. (2023). The Effect of Profitability and Gender Diversity on the Extent of CSR (Corporate Social Responsibility) Disclosure. 243-256.
- Milgrom, P., & Roberts, J. (1986). MilgromRoberts86-advertising-quality-signals.pdf. In *Journal of Political Economy* (Vol. 94, Issue 4, p. 796).
- Ningsih, W. F., & Rachmawati, R. (2017). Implementation of Green Accounting in Improving Company Performance. *JABE (Journal of Applied Business and Economic)*, 4(2), 149. <https://doi.org/10.30998/jabe.v4i2.2142>
- Panggau, N. D., & Septiani, A. (2017). The Effect of Eco-Efficiency on Firm Value with Leverage and Profitability as Moderating Variables. *Diponegoro Journal of Accounting*, 6, 1-8. <http://ejournal-s1.undip.ac.id/index.php/accounting>
- Pareek, R., Sahu, T. N., & Gupta, A. (2023). Gender diversity and corporate sustainability performance: empirical evidence from India. *Vilakshan - XIMB Journal of Management*, 20(1), 140-153. <https://doi.org/10.1108/xjm-10-2020-0183>
- Rahmanita, S. (2020). The Effect of Carbon Emission Disclosure on Firm Value with Environmental Performance as a Moderating Variable. *Accounting: Journal of Integrative Accounting*, 6(01), 54-71. <https://doi.org/10.29080/jai.v6i01.273>
- Renaldo, N., & Murwaningsari, E. (2023). Does Gender Diversity Moderate the Determinant of Future Firm Value? *Review of Economics and Finance*, 21 (June), 680-689. <https://doi.org/10.55365/1923.x2023.21.72>
- Safutri, D., Mukhzarudfa, M., & Tiswiyanti, W. (2023). The Effect of Carbon Emissions Disclosure, Corporate Governance and Financial Performance: A Study in Indonesia. *Journal of the Academy of Accounting*, 6(2), 273-293. <https://doi.org/10.22219/jaa.v6i2.25065>
- Salim, M. J. M., Eksandy, A., & Sofia, I. P. (2023). the Effect of Green Accounting and Firm Size on Financial Report Performance (Empirical Study of Mining Sector Companies Listed on the Indonesia Stock Exchange in 2017-2021). *International Journal of Accounting, Management, Economics and Social Sciences (IJAMESC)*, 1(4), 432-441. <https://doi.org/10.61990/ijamesc.v1i4.13>
- Sari, D. P., Hartini, S., Rinawati, D. I., & Wicaksono, T. S. (2011). Measurement of Eco-efficiency Level Using Life Cycle Assessment to Create Sustainable Production in Batik Small and Medium Enterprises. *Journal of Industrial Engineering*, 14(2). <https://doi.org/10.9744/jti.14.2.137-144>
- Sari Kusumastuti, Supatmi Supatmi, & Perdana Sastra. (2007). The Effect of Board Diversity on Firm Value in the Perspective of Corporate Governance. *Journal of Accounting and Finance*, 9(2), 88-98. <http://puslit2.petra.ac.id/ejournal/index.php/aku/article/view/16819>
- Satrio, D., & Kunto, S. (2020). THE RELATIONSHIP BETWEEN ECO-

- EFFICIENCY ON FIRM VALUE MODERATED BY PROFITABILITY AND LEVERAGE. July 2020, 242-251.*
- Smith, A., & Jones, B. (2019). *The Impact of Green Accounting on Firm Value. 15(2), 45-58.*
- Smith, B. (2020). Impact of Climate Change on the Environment. *Environmental Science Review, 8(3), 112-125.*
- Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics, 87(3), 355-374.*
<http://www.jstor.org/stable/1882010>
- Steel, J. (2019). *Inner Models In Handbook of the History of Logic.* Elsevier.
- Susanti, I. D., Hertati, L., & Putri, A. U. (2023). the Effect of Green Accounting and Environmental Performance on Company Profitability. *Cashflow: Current Advanced Research on Sharia Finance and Economic Worldwide, 2(2), 320-331.*
<https://doi.org/10.55047/cashflow.v2i2.552>
- Valencia, G., & Sri, D. (2022). The Effect of Deegan, C. (2002). Introduction: The Legitimizing Effect of Social and Environmental Disclosures – A Theoretical Foundation. *Accounting, Auditing & Accountability Journal, 15(3), 282–311.*
- Gupta, A., & Sharma, S. (2018). Diversity and Inclusion at the Workplace: A Review of Research and Implications for Future Research. *Human Resource Development Review, 17(2), 216–243.*
- Hinterberger, F., et al. (2017). Eco-Efficiency: Opportunities and Challenges. *Springer.*
- Hossain, M., Islam, M. A., & Andrew, J. M. (2020). Green Accounting: A Panacea for Environmental and Economic Sustainability. *Journal of Accounting, Auditing & Finance, 35(1), 142–153.*
- Johnson, A. et al. (2018). “Carbon Emissions and Air Pollution: Effects on Human Health.” *Environmental Health Perspectives, 122(3), 315–330.*
- Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., & Saaeidi, S. A. (2018). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *Journal of Business Research, 68(2), 341–350.*
- Smith, A., & Jones, B. (2018). Gender Diversity in the Workplace: Benefits and Challenges. *Journal of Management Studies, 45(3), 301–315.*
- Smith, J. et al. (2015). “The Impact of Carbon Emissions on Global Climate Change.” *Journal of Environmental Studies., 10(2), 245–260.*
- Eco-efficiency on Firm Value with the Independent Board of Commissioners as a Moderating Variable in Manufacturing Companies Listed on Bei in 2017-2019. *Journal of Accounting Information (JIA), 1(2), 1-16.*
- Yuliandhari, W. S., Saraswati, R. S., Muhammad, Z., & Safari, R. (2022). The Effect of Carbon Emission Disclosure, Eco-Efficiency and Green Innovation on Firm Value. 7(April), 1526-1539.
- Yuliani, E., & Prijanto, B. (2022). The effect of implementing green accounting on firm value with profitability as a moderating variable in coal mining sub-sector companies listed on the Indonesia Stock Exchange for the 2019-2021 period. *Fair Value: Scientific Journal of Accounting and Finance, 5(5), 2275-2284.*
<https://doi.org/10.32670/fairvalue.v5i5.2347>