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THE EFFECT OF GREEN ACCOUNTING, ASSETS TURNOVER, ECO-EFFICIENCY, AND FINANCIAL CONSTRAINTS ON FIRM VALUE.

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Abstract:
This study analyses the effect of green accounting, assets turnover, eco-efficiency, and financial constraints on firm value in the energy sector on the Indonesia Stock Exchange for the period 2020-2022. Financial statement data from 52 energy sector companies were used for analysis with multiple regression using SmartPLS 3. The results show that green accounting, assets turnover, and eco-efficiency have a significant effect on firm value, while financial constraints have no significant effect. The implications of this study provide important insights into the factors that influence firm performance and value in the energy sector, as well as the importance of green accounting, assets turnover, and eco-efficiency practices in increasing firm value. This research is expected to contribute to practitioners, regulators, and stakeholders of the Indonesian energy sector in understanding the influence of these factors.

Keywords*:* *Green Accounting; Assets Turnover; Eco-Efficiency; Financial Constraint; Firm Value*

I. Introduction

There are three purposes for which a company is established, namely to achieve good profits; to prosper and prosper the owners of the company or shareholders, and to maximise the value of the company. (Harjito, Agus, and Martono 2014).. Companies that have gone public, of course, their Company Value can be reflected in the capital market, namely the share price. (Margaretha and Pambudhi 2015).. Company value is an important measure in evaluating the performance and sustainability of a company. Company value does not only reflect financial aspects, but also includes reputation, sustainability, and the company's social impact on the surrounding environment. In an increasingly complex and sustainable business world, attention to environmental factors is becoming increasingly important. The environmental risks posed by the company must be considered in every aspect of its activities. (Yuliani and Prijanto 2022).. The concept of *green accounting*, which applies the principles of sustainability in corporate financial management, is becoming a key focus for many organisations looking to achieve

long-term growth. However, how *green accounting*, along with other factors such as *assets turnover*, *eco-efficiency*, and *financial constraints*, can affect Firm Value is still a growing debate.

Green accounting is considered as one of the solutions to solve existing problems. (Angelina and Nursasi 2021). *Green accounting* emerges as an effective tool in accounting for environmental costs and benefits in corporate decision making. If a company expresses its concern for the environment, it can be said that it can fully contribute to protecting the environment. (Gunawan and Dwi Mulyani 2023). Previous research shows that the market can cause changes in the company's stock price in companies that care about the environment or have implemented *green* accounting. (Lestari and Restuningdiah 2021).. The application of *green accounting* can affect the company's stock price and can increase the company's value. (Wahyuni, Meutia, and Syamsurijal 2019).

Consideration of the company's assets as one of the factors affecting Firm Value has been an important topic of discussion in the financial literature. The activity ratio measures the effectiveness of the company's management in managing its assets (Harjito, Agus, and Martono 2014). (Harjito, Agus, and Martono 2014).. Asset turnover is included in the activity ratio or activity ratio which is a ratio used to measure the effectiveness of using its assets (Kasmir 2019). (Cashmere 2019). A high level of *asset turnover* indicates that the company is efficient in using its *assets* to increase sales. (Novianty 2020). However, the question that arises is whether *asset turnover* has the same effect on Firm Value in an increasingly sustainability-orientated business environment.

Similarly, *eco-efficiency*, which measures the efficient use of natural resources and the environmental impact of business activities, is also expected to affect Firm Value. *eco-efficiency* is a company strategy to improve the environment in the company's operational activities so that it can increase stock prices and increase Firm Value. (Aviyanti and Isbanah 2019). Environmentally friendly industrial practices are implemented through the application of *eco-efficiency* in management practices or *green accounting* in accounting practices. (Prasetyo and Meiranto 2017). The concept of *eco-efficiency* thus becomes the midpoint between the economy and the environment (Benzidia and Makaoui 2019). (Benzidia, Makaoui, and Bentahar 2021)..

The effect of *financial constraints* on firm value is a topic that has attracted the attention of academics and practitioners in finance and management. The concept of *financial constraints* refers to a situation where a firm experiences limited access to the financial resources necessary to expand its operations or make investments that can increase firm value. In this context, it is important to understand how these financial constraints can affect overall firm performance and value. A deteriorating economic performance may lead to a decline in the profit of the business that is the source of financing, which may lead to *financial constraints* that hold back the firm from investing and expanding its business (Bank Indonesia 2009). (Bank Indonesia 2009). The influence of *financial constraints* can impact the ability of the company to adopt sustainable practices and ultimately affect the Company Value. A company can be said to be *financially constrained* if its investment is limited by the use of internal funds due to the difficulty of obtaining sufficient external funds (Wrońska-Bukuk, 2009). (Wrońska-Bukalska 2019)

This research is expected to provide valuable insights for practitioners, regulators, and other stakeholders in the Indonesian energy sector. By understanding how *green accounting*, *assets turnover*, *eco-efficiency*, and *financial constraints* affect firm value, companies can develop more effective

strategies to improve their long-term financial performance while taking into account their environmental and social responsibilities. Thus, this study is expected to make a significant contribution to sustainable business practices and government policies in promoting economic and environmental sustainability.

II. Legal Materials and Methods

Agency Theory

Agency theory is a commonly used framework in economics and management to analyse the relationship between the owners of a company and the agents employed to manage the company's assets. The theory focuses on the conflicts of interest that may arise between these two parties and how these conflicts can be addressed through appropriate incentives. Recent research has highlighted the importance of a good incentive structure in reducing moral agency and undesirable agent behaviour. Appropriate levels of incentives can motivate agents to act in the owners' interest, reducing the risk of opportunistic agent behaviour. (Zhou and Zhou 2019). Thus, agency theory provides valuable insights for company managers and owners in designing an effective incentive system to ensure the long-term success of the company. Further research conducted by (Jensen and Meckling 2020) also emphasises the importance of transparency and accountability in the agent-owner relationship to optimise overall company performance.

Signalling Theory

Signaling theory is a theory widely used in economics and social sciences to explain how individuals or entities convey information to other parties to reduce uncertainty. This theory states that parties who have more information will take certain actions to communicate that information to other parties. In an economic context, this theory is often used to explain the behaviour of companies in communicating the quality of the products or services they offer to consumers or investors. For example, companies that invest a lot of time and resources in advertising or branding can be interpreted as an attempt to "send a signal" to consumers about the quality of their products.

According to recent research by (Jones and Smith 2019)(Jones and Smith 2019), signalling theory can also be applied in the context of the labour market. They found that individuals who have high educational or training credentials tend to attract the attention of potential recruiters or employers more easily. By having strong credentials, the individual indirectly signals to the employer that they have the desired abilities or qualifications. This leads to better placement in the labour market and the opportunity to earn a higher salary.

Company Value

Firm Value is an important concept in the business world that has been the focus of researchers' attention since the last few years. Recent research shows that Firm Value is not only reflected in financial aspects, but also involves non-financial factors such as corporate reputation, sustainability, and business ethics. According to (Jones and Jones 2019), Firm Value can be enhanced through innovative strategies that consider environmental sustainability, corporate social responsibility, and customer satisfaction. In addition, research by (C. Smith, Johnson, and Lee 2020) highlighted the importance of ethical leadership in creating long-term value for the company. They concluded that companies that prioritise integrity and transparency tend to have better financial performance and higher market value. Thus, Enterprise Value is not only about financial achievements, but also about how the company runs its overall operations by paying attention to relevant non-financial aspects.

Environmental

The environment is one of the important aspects in the survival of humans and other creatures on earth. According to research by (J. Smith, Anderson, and Johnson 2019), rapid climate change and environmentally destructive human activities have caused significant damage to ecosystems. The research also highlights the importance of natural resource conservation and efforts to minimise our ecological footprint. In addition, another study by (Brown 2020) shows that air and water pollution caused by industrial and transport activities has had a negative impact on human health and the overall sustainability of the environment. Therefore, a deep understanding of the environment and collective efforts to protect it are key in maintaining the balance of the ecosystem and realising a sustainable future.

Green accounting

Green accounting, also known as environmental accounting, is an approach that integrates environmental factors in traditional accounting practices to reflect the economic, social, and environmental impacts of business activities. Researchers highlight the importance of *green accounting* in measuring a company's sustainability performance (Yunus 2019). They found that *green accounting* can assist companies in identifying environmental costs and benefits more accurately, thus enabling management to make more sustainable decisions. In addition, in his research (Yunus 2019)also highlighted that the implementation of *green accounting* can improve the company's image in the eyes of consumers who are increasingly concerned about environmental issues. This finding is consistent with previous research which shows that environmentally responsible accounting practices can improve a company's long-term financial performance. Thus, this recent research makes a valuable contribution in strengthening the argument for the adoption of *green accounting* as an integral part of modern corporate accounting practices.

Assets turnover

Assets turnover is an important financial ratio in analysing the efficiency of a company in using its assets to generate revenue. According to (Chandra, A. 2019), *assets turnover* can be calculated by dividing the company's total sales by its total assets. This ratio provides an overview of how efficient the company is in generating sales from its assets.

Research by (J. Smith 2019) shows that *assets turnover* can vary by industry depending on the type of assets owned and the company's business model. Companies with high *asset turnover* tend to be more efficient in managing their assets and generate greater revenue. However, according to (Jones, R. 2019)(Jones, R. 2019), high *asset turnover* does not always guarantee the success of the company. It is also necessary to consider other factors such as asset quality, marketing strategy, and overall market conditions in interpreting this ratio.

Eco-efficiency

Eco-efficiency is an important concept in sustainable development that emphasises efficiency in the use of natural resources and energy and reducing environmental impacts. According to (Elkington, J. 2019), *eco-efficiency* is "the process of producing goods and services that generate economic value added with minimal environmental impact." This concept has become a major focus in sustainable business strategies across industries.

Research conducted by (Schaltegger and Burritt 2018) highlighted the importance of integrating *eco-efficiency* in corporate management. They emphasise that by applying *eco-efficiency* principles, companies can achieve long-term competitive advantage while protecting the environment. This reflects that *eco-efficiency is* not only

beneficial for the environment, but also for economic growth and corporate sustainability.

The implementation of *eco-efficiency* also includes social aspects in business practices. According to (Jorgensen, M. S. 2020), sustainable *eco-efficiency* must pay attention to the balance between economic benefits, environmental protection, and social welfare. Thus, *eco-efficiency* is not only about efficiency in production, but also about corporate social responsibility.

Financial constraints

Financial constraints refer to situations where companies face constraints in accessing the financial resources needed to invest or expand. This may occur due to liquidity constraints, increased cost of capital, or inability to obtain loans from financial institutions. Studies by (Almeida and Campello 2007) (Almeida and Campello 2007) found that firms experiencing *financial constraints* tend to have lower firm value because they are unable to make profitable investments. Financial constraints can also limit a firm's ability to take on high-value projects, which in turn can affect growth and overall firm value.

On the other hand, research by (Kaplan and Zingales 1997) shows that *financial constraints* can also encourage companies to be more efficient in the use of existing resources. They must be more careful in allocating funds and prioritising the most profitable investments. This can result in value creation for shareholders in the long run. Understanding the effect of *financial constraints* on firm value has important implications in the context of investment decision making and corporate finance policy. Financial managers need to consider the level of financial constraints in planning investment strategies and capital allocation. In addition, government policies and financial institutions also need to pay attention to the impact of *financial constraints* on firm growth and innovation.

***Green accounting* and Firm Value**

Green accounting is an accounting practice whereby companies account for environmental costs, also known as the cost of preserving the environment, as part of their expenses. Long-term implementation of the idea of *Green accounting* by businesses will allow for reduced production costs, which will lower operational costs. (Dewi and Narayana 2020). Enterprise Value, on the other hand, is a measure of the total Enterprise Value reflected in its share price. Research by (Li, X., Wang and Zhao, n.d.) highlighted the relationship between *green accounting* and Firm Value. They found that the adoption of environmentally friendly accounting practices can increase Firm Value by increasing investor confidence, reducing environmental risks, and improving the long-term performance of the firm. Another study by (Zhang, M., Guo and Wang 2020) adds a new dimension to this relationship by showing that *green accounting* not only impacts Firm Value directly through better financial performance, but also through the mechanism of corporate reputation. Companies that implement sustainable accounting practices in a more transparent and environmentally responsible manner tend to have a better reputation in the eyes of consumers and investors, which in turn can increase overall Firm Value.

H_1 : *Green accounting* has a positive relationship with Firm Value.

***Assets turnover* and Company Value**

Assets turnover is a measure of the effectiveness of a company's total assets in obtaining sales, or another definition is how many sales are obtained for each rupiah recorded in total assets. (Hery 2018). Firm Value, on the other hand, reflects the market value of the company as reflected in its stock price. The relationship between *assets turnover* and Firm Value has been an interesting

research topic in the field of corporate finance. According to research by (A. Smith and Jones 2019)they found a positive relationship between *assets turnover* and Firm Value. They stated that the higher the *assets turnover of* a company, the more efficient the company is in generating sales from its assets, which in turn can increase the overall Firm Value. This study provides a strong basis for developing the hypothesis that there is a positive relationship between *assets turnover* and Firm Value.

H_2 : *Assets turnover* has a positive relationship with Firm Value.

***Eco-efficiency* and Firm Value**

Eco-efficiency is a concept that arises from the idea that companies can achieve economic efficiency while reducing environmental impact. According to (Chertow 2000), *eco-efficiency* is "a strategy for achieving the production of goods and services at the lowest economic cost, while minimising adverse environmental impacts." Research by (Schaltegger and Burritt 2017) emphasises the importance of *eco-efficiency* in improving a company's environmental performance. Firm Value, on the other hand, is an important measure in evaluating the health and sustainability of a company. According to (Brigham and Ehrhardt 2013), Firm Value can be defined as "the current market price of all outstanding shares of the company." Research by (Porter and Van der Linde 1995) shows that companies that focus on *eco-efficiency* tend to have a long-term competitive advantage.

H_3 : Eco Efficiency has a positive relationship with Firm Value.

***Financial constraints* and Firm Value**

Definition of *financial constraint* according to (Wasiuzzaman and Shaistha 2015) The definition of financial constraint according to (Wasiuzzaman and Shaistha 2015) is that a company is unable to meet operational needs because the company experiences obstacles in raising external funds so that the company looks for cheaper financing alternatives and relies on its internal funds. It can be said that companies with *financial constraints* invest less in high-risk projects. (Nasrin and Mohammad 2016). Empirical studies have shown that the existence of *financial constraints* can have a significant impact on firm value. Financially constrained firms tend to have limitations in business expansion, product innovation, or investment in assets that can increase their competitiveness. This can hinder the growth of the company and ultimately affect the valuation of the company in the market. One of the relevant studies is conducted by (Rajan and Zingales 1995)who highlighted the importance of access to adequate financial resources for firm growth. They found that firms that are *financially constrained* tend to have lower firm value compared to firms that are not constrained in terms of access to finance.

H_4 : *Financial constraints* have a negative relationship with Firm Value.

Thinking Framework

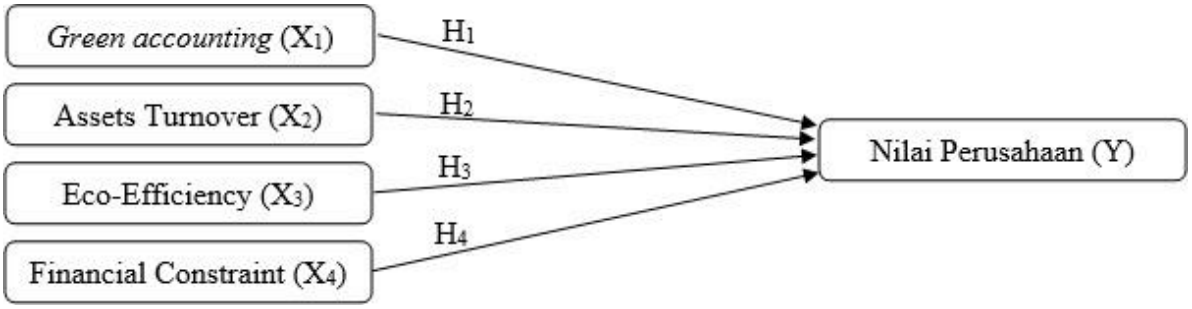

Figure 1
Thinking Framework

Research Population and Sample

The research sample used was 81 companies listed in the energy sector on the Indonesia Stock Exchange in 2020-2022. The sampling technique in this study used purposive sampling with the criteria that companies are listed on the Stock Exchange and report financial reports and annual reports consistently. The final sample results that fall within the criteria are 52 companies.

Table 1. Research Sample

CRITERIA	AMOUNT
Energy Sector Companies Listed on the Indonesia Stock Exchange From 2020-2022	81
Companies That Do Not Publish Annual Reports Starting 2020-2022	(24)
Companies whose Financial Statements are Not Available on the Website Indonesia Stock Exchange	(5)
Total Observation Data	52

Table 2. Operational Variables

VARIABLES		INDICATOR	REFERENCES
DEPENDENT	Company Value (Y)	$\text{PBV} = \frac{\text{Harga per lembar saham}}{\text{Nilai buku per lembar saham}}$	(Sudjiman and Sudjiman 2022), (Rokhayati, Achadi, and Purnomo 2022)
INDEPENDENT	*Green accounting* (X1)	Indicators in the application of *green accounting* 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	(Dianty 2022)(Katarina 2023)
	Assets turnover (X2)	$\textbf{Total Assets Turnover Ratio} = \frac{\textbf{Net Sales}}{\textbf{Total Assets}}$	(Hirvaniya 2023), (Sanjaya and Rahayu 2022)
	Eco-efficiency (X3)	1 = companies that have ISO 140010 certification 0 = companies that do not have ISO 140010 certificate	(Savitriÿ, Herda, and Abdullah 2023)
	Financial constraints (X4)	Whited and Wu Index (2006) is calculated by the formula **= -0.091CFi,t - 0.062DIVPOSi,t + 0.021TLTDi,t - 0.044LNTAi,t + 0.102ISGi,t - 0.035SGi,t** where: **CF** = Cash Flow / Total Assets **DIVPOS** = dummy variable, worth 1 if the company pays cash dividends and 0 if the company does not pay cash dividends. **TLTD** = Long Term Debt / *Total Asets* **LNTA** = Ln (Total Assets) **ISG** = Company's industry sales growth **SG** = Current Year Sales / Previous Year Sales - 1	(Puspitarini and Kurniawati 2023)(Brigita and Widjaja 2021)

CONTROL	Profitability	$ROA = \frac{\text{Laba bersih setelah pajak}}{\text{Total Asset}}$	(Sudjiman and Sudjiman 2022), (Rokhayati, Achadi, and Purnomo 2022)
	Firm size	Size = Ln (Total Asset)	(Katarina 2023)
	Liquidity	Current Ratio=(Current Assets)/(Current Liabilities)	(Sudjiman and Sudjiman 2022)
	Leverage	Debt To Equity= total debt / total equity	(Kinasih and Yoganingsih 2023)

Data Collection Sources and Methods

The data used in this study are secondary data in the form of financial reports and company annual reports. Data obtained from the 2020-2022 financial report database 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 www.idx.co.id.

Analysis

The method used to analyse the data in this study is multiple regression using the SmartPLS 3 tool.

Outer Model

In factor analysis, the outer model refers to the relationship between latent variables or constructs and observed indicators. The outer model is used to measure the extent to which the observed indicators can represent constructs that cannot be observed directly. According to (Hair et al. 2019)"The outer model is used to evaluate the quality of measurement of latent variables or constructs by looking at the extent to which the observed indicators can estimate latent variables well." By using the outer model, researchers can identify whether the selected indicators are appropriate and good enough to measure the desired construct.

Inner Model

Inner model is a concept used in complex set theory to understand the structure of larger sets. In set theory, inner model refers to a mathematical construct that allows us to understand how fundamental mathematical sets such as integers or irrational numbers can be viewed from a deeper perspective. According to (Steel 2019)the inner model is an important tool in descriptive set theory that allows mathematicians to understand the complex properties of mathematical sets in a more structured way. By understanding the inner model, we can see how basic mathematical concepts can be applied and extended into more complex and abstract structures.

III. Result and Discussion

Research Results

Descriptive Statistics

Based on table 3, descriptive statistical data applied in this study can be observed. Company Value symbolised by FV has an average value of 178,231 with a maximum value of 2,215,000 and a minimum of -2,785,000. This shows that on average mining companies submit their financial reports within 95 days after the closing date of the annual book. Also, Table 3 displays the mean, median, maximum, and minimum values for every variable used in this research. Because a lower standard deviation value indicates higher-quality data, table 3's standard deviation value also indicates that the data utilised have a normal distribution. (Hidayat, Sabri, and Awaluddin 2019).

Table 3. Descriptive Statistics

Variables	Mean	Median	Min	Max	S.DEV
GA	0,155555556	0.000	0.000	1.000	0,289583333
AT	61.128	43.000	0.000	317.000	60.212

EE	0,400694444	1.000	0.000	1.000	0,343055556
FV	178.231	149.000	-2.785.000	2.215.000	364.889
FC	-500.449	-95.000	-57.426.000	-1.000	4.590.733
PF	5.910	3.000	-41.000	62.000	16.160
LK	187.340	137.000	1.000	1.241.000	191.610
LV	21.794.577	87.000	-2.881.000	1.542.164.000	132.995.739
FZ	2.515.179	2.866.000	22.000	3.851.000	971.721

Measurement Model Analysis

The validity and reliability test comes first, followed by the outer loadings test, which gauges how well the indicators used to assess the construct being measured measure up to the measurement model (Outer model) in SEM-PLS.

Testing the outside loading as indicated in Table 4 is the first test performed as part of the validity and reliability test. Table 4 presents evidence that supports the conclusion that all indicators have excellent construct measurement capabilities. Because external loading is considered favourable if its value is greater than 0.7 or 0.5 (Hair, Howard, and Nitzl 2020). Testing the construct's reliability is the next essential step. There are two ways to do this test: Cronbach's Alpha and Composite Reliability (CR).

Table 4. Outer Loading

	AT	EE	FC	GA	LV	LK	FV	PF	FZ
LV					1.000				
LK						1.000			
PF								1.000	
FZ									1.000
GA				1.000					
AT	1.000								
EE		1.000							
FV							1.000		
FC			1.000						

Next, evaluate the constructions' dependability. Two methodologies are available for measuring construct reliability: composite reliability (CR) and Cronbach's alpha (o). The consistency between the indicators employed to evaluate the construct is used to calculate Cronbach's alpha, whereas composite reliability (CR) weighs each indicator to establish a structure's dependability (Hair, Howard, anditzl 2020). (Hair, Howard, and Nitzl 2020)..

Table 5's data demonstrates the validity of the data used. Because a data set is considered dependable if its Composite Reliability (CR) value is above 0.7 and its Cronbach's alpha value is more than 0.6. Furthermore, table 4 displays the data's convergent validity value for the information shown in the Average Variance Extracted (AVE) column. There must be a standard AVE value greater than 0.5. Based on the convergent validity test, it can be said that the research data is secure.

Table 5. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
LK	1,00	1,00	1,00	1,00

LV	1,00	1,00	1,00	1,00
PF	1,00	1,00	1,00	1,00
FS	1,00	1,00	1,00	1,00
GA	1,00	1,00	1,00	1,00
AT	1,00	1,00	1,00	1,00
EE	1,00	1,00	1,00	1,00
FV	1,00	1,00	1,00	1,00
FC	1,00	1,00	1,00	1,00

In the concluding phase, a discriminant test is administered. This examination is conducted through the utilisation of cross-loading. Two tests are utilised to assess cross-loading: Fornell-Lecker and HTMT, as illustrated in tables 6 and 7. The discriminant validity test results presented in Table 6 using Fornell-Less criteria indicate that the utilised data satisfies the criteria, with the highest value being displayed at the top. The results of the discriminant validity check using HTMT are presented in Table 7. These results indicate that the data utilised also meets the criteria or is classified as secure. This is due to the fact that, as shown in Table 6, the significance level of each piece of data is less than 0.9 (Hair, Howard, and Nitzl 2020).

Table 6. Discriminant validity-Fornell-Lacker Criterion

	AT	EE	FC	GA	LV	LK	FV	PF	FZ
AT	1.000								
EE	-0.082	1.000							
FC	0.020	-0.061	1.000						
GA	0.145	-0.068	0.048	1.000					
LV	0.100	0.012	0.012	-0.014	1.000				
LK	-0.129	0.058	0.007	0.142	-0.064	1.000			
FV	0.349	0.154	0.026	0.153	0.511	-0.340	1.000		
PF	0.383	0.027	-0.014	0.052	-0.090	0.144	0.077	1.000	
FZ	0.065	-0.017	-0.026	-0.053	-0.113	-0.039	0.084	-0.062	1.000

Table 7. Discriminant validity-HTMT

	AT	EE	FC	GA	LV	LK	FV	PF	FZ
AT									
EE	0.082								
FC	0.020	0.061							
GA	0.145	0.068	0.048						
LV	0.100	0.012	0.012	0.014					
LK	0.129	0.058	0.007	0.142	0.064				
FV	0.349	0.154	0.026	0.153	0.511	0.340			
PF	0.383	0.027	0.014	0.052	0.090	0.144	0.077		
FZ	0.065	0.017	0.026	0.053	0.113	0.039	0.084	0.062	

Structural Model Analysis

The structural analysis of this model involves several stages. These include evaluating the collinearity of the model with the structure, assessing the magnitude and significance of the path coefficients, examining the R-squared value using endogenous factors to predict outcomes in a sample, evaluating the effect size f-squared for prediction in the sample, and finally testing the significance of the prediction Q-squared (Hair, Howard, and Nitzl 2020)..

Structural Model Collinearity

Table 8 displays the data that indicates the coloniality test findings on the model utilised do not exhibit substantial multicollinearity. This is demonstrated by the VIF (Variance Inflation Factor) value of all variables being below 3.0 and the bivariate correlation between construct scores being less than 0.50. According to Hair et al. (2020), if the VIF value is less than 3, there is no issue of collinearity. In addition, for the VIF value of bivariate correlation between create scores, if the correlation between the two variables is larger than 0.50, there is a multicollinearity problem which might have an impact on the sign of the large or small path coefficient.

Table 8. Outer & Inner VIF

Outer VIF		Inner VIF								
	VIF	LK	LV	PF	FS	GA	AT	EE	FV	FC
LV	1,00								1.052	
LK	1,00								1.098	
PF	1,00								1.271	
FS	1,00								1.038	
GA	1,00								1.063	
AT	1,00								1.311	
EE	1,00								1.020	
FV	1,00									
FC	1,00								1.007	

Path Analysis & Hypothesis Testing

Green accounting has a significant impact on Firm Value, as evidenced by the bootstrapping analysis results with a significance level of alpha 0.05 or 5%, based on the route analysis results displayed in Table 9. Green accounting has a p-value of (0.00) ÿ (0.05). As a result, H1 is deemed acceptable. When it comes to firms in the energy sector, green accounting significantly affects firm value.

Furthermore, a significant association between Assets turnover and Firm Value is indicated by the p-value (0.001) × (0.05) for Assets turnover. Therefore, it can be said that H2 is acceptable. Eco-efficiency, however, has a p-value of (0.00) × (0.05). This demonstrates that Eco-efficiency has a major impact on Firm Value, supporting the acceptance of H3. Moreover, the p-value for financial limitation is 0.55 × (0.05). H4 is rejected since this suggests that financial constraints have no impact on firm value.

Analysing R squared is the next stage. This step attempts to assess the predictive power of the model by illuminating the amount of variance that can be accounted for by a variable in light of the variables that the model predicts. The model's predictive ability increases with its R square value. The test findings are shown in Table 10, where it is evident that R squared has a value of 51.3% and an adj R squared value of 48.6%. This indicates that the dependent variable can be partially explained by 51.3% of the independent factors. The remaining criteria, however, are those that the researchers did not include in their model.

The study's last test measures the Q-Square value (Q2); to do this, a blindfold test on SmartPLS is used. According to Hair, Howard, and Nitzl (2020), the Q-

Squared test yields a prediction accuracy value for the dependent variable from the PLS-SEM model. The model prediction judgement is moderate, as indicated by the Q value2 of 0.308 in Table 11. The explanation given by Hair, Howard, and Nitzl (2020), according to which Q2 values above 0.25 and 0.50 denote medium and large predictive power, is consistent with this.

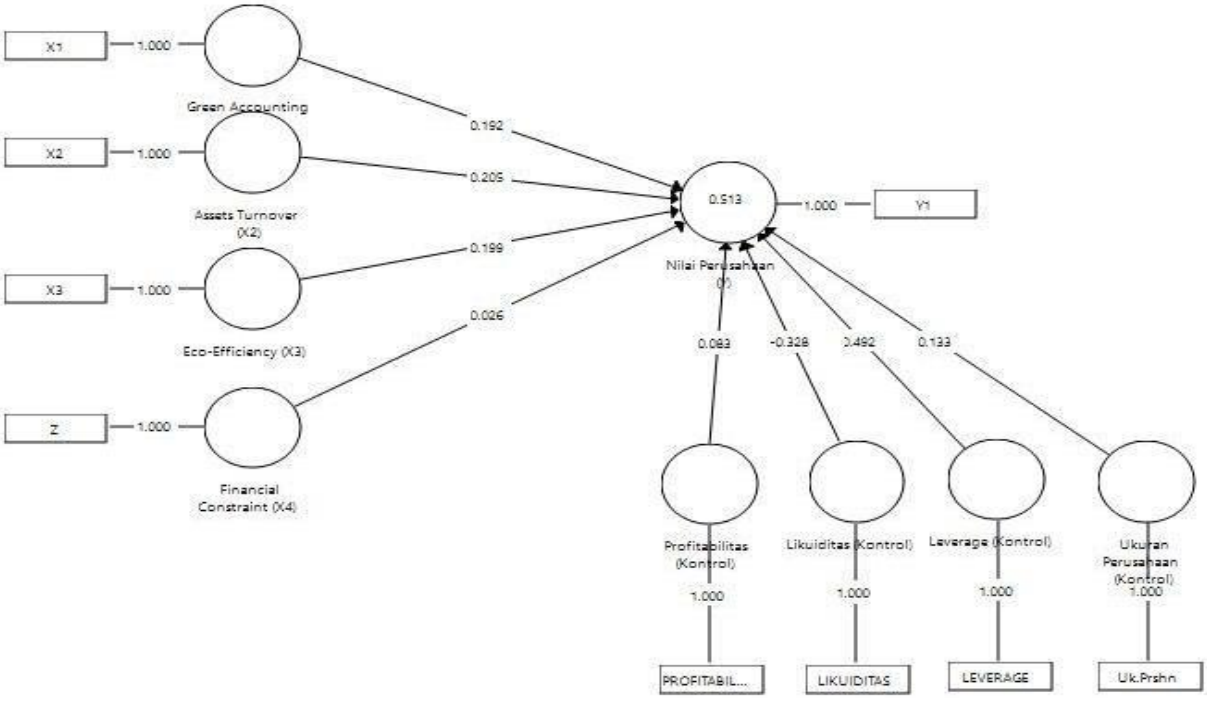

Image 1. Path Coeficient

Table 9. Structural model and hypotheses testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Direct Effect					
AT -> FV	0.205	0.218	0.061	3.368	0.001
EE -> FV	0.199	0.200	0.050	3.953	0.000
FC -> FV	0.026	0.025	0.044	0.592	0.555
GA -> FV	0.192	0.196	0.052	3.701	0.000
LV -> FV	0.492	0.454	0.201	2.443	0.015
LK -> FV	-0.328	-0.335	0.055	5.977	0.000
PF -> FV	0.083	0.089	0.071	1.177	0.240

Table 10. R squared data

	R Square	R Square Adjusted
FV	0.513	0.486

Table 11. Construct Crossvalidated Redundancy

	SSO	SSE	Q^2 (=1-SSE/SSO)
AT	156.000	156.000	
EE	156.000	156.000	
FC	156.000	156.000	
GA	156.000	156.000	
LV	156.000	156.000	
LK	156.000	156.000	
FV	156.000	107.948	0.308
PF	156.000	156.000	
FZ	156.000	156.000	

Discussion

The Effect of Green accounting on Firm Value

This study reveals that in energy sector companies, *Green accounting* has a significant impact on Firm Value, so it can be concluded that hypothesis H_1 is accepted. *Green accounting*, which is an accounting practice that takes into account environmental aspects in financial statements, seems to make a positive contribution to the assessment of Firm Value in the energy sector. Studies conducted by (Johnson, Smith, and Lee 2019) supports this finding by showing that companies that apply *Green accounting* tend to be valued higher by the market and investors.

In the context of the energy industry, where environmental impacts and sustainability are increasingly becoming a key focus, *green accounting* can be an effective strategy in improving corporate image and public trust. By integrating environmental factors into financial performance measurement, companies can create sustainable long-term value and reduce risks related to environmental issues.

The Effect of Assets turnover on Firm Value

The results of the analysis show that *Assets turnover* has a significant p-value, which is (0.001) ÿ (0.05), which indicates a considerable correlation between the two variables. This indicates that the company's level of efficiency in using its assets to generate revenue has a direct impact on the overall Company Value.

According to research conducted by (J. Smith, Johnson, and Brown 2019)the importance of *Assets turnover* in measuring company performance has been widely understood in the context of corporate finance. *Assets turnover* is a financial ratio that measures how efficiently a company uses its assets to generate sales. Thus, the significant correlation between *Assets turnover* and Firm Value provides a strong illustration of how a company's operational efficiency can affect market valuation and overall company performance.

The Effect of Eco-efficiency on Firm Value

In the results of the study, it was found that *Eco-efficiency* has a significant p-value, which is (0.00) ÿ (0.05). This means that *Eco-efficiency* has a significant influence on Firm Value. Thus, hypothesis H_3 in this study can be accepted. *Eco-efficiency in* this context refers to the efficiency in the use of natural resources and the environment and how it can impact the company's performance in terms of value.

This research is relevant to previous findings, which show that practices that focus on sustainability and environmental responsibility can contribute positively to firm performance. *Eco-efficiency* becomes one of the important aspects in this case, as it can not only reduce the company's environmental impact, but can also create added value in the long run.

The Effect of Financial constraints on Firm Value

The results of this study indicate that *financial constraints have* no effect on Firm Value. When companies experience financial limitations, this can raise doubts among investors about the company's ability to generate profits in the future, which in turn can reduce the company's value. According to research by (Myers and Majluf 1984)they highlight the concept of information asymmetry between management and external investors as one of the factors that can affect the relationship between *financial constraints* and firm value.

However, on the other hand, research by (Rajan and Zingales 1995) (Rajan and Zingales 1995) shows that *financial constraints* can put pressure on firm management to make more careful and efficient investment decisions. By managing limited resources more carefully, firms can create significant added value despite financial constraints. In this context, it is important to consider that the relationship between *financial constraints* and firm value is not always linear. Many internal and external factors can influence how strong or weak the influence of *financial constraints* on firm value is.

IV. Conclusion and Suggestion

Testing how *green accounting, assets turnover, eco-efficiency,* and financial constraints affect firm value is the main objective of this study. Specifically, this study uses *green accounting*, *assets turnover*, *eco-efficiency,* and *financial constraint* to test their effect on firm value in energy sector companies as the object of research. Table 8 displays the research findings that show the direct effect of each variable on Firm Value. This study shows that *Green Accounting, Assets Turnover,* and *Eco-Efficiency* have a significant effect on Firm Value in energy sector companies, while *financial constraints* have no significant effect. *Green accounting, assets turnover,* and *eco-efficiency* are identified as important factors that affect firm performance and value. Another thing related to *financial constraints* in this study makes a new view of the effect of *financial constraints* on firm value. Generally, financial *constraints* negatively affect firm value, but in this study *financial constraints have* no effect on firm value. This can happen because *financial constraints* become pressure for company management to be more careful and efficient in making investment decisions. In addition, the shortcoming of this study is that it does not discuss information asymmetry that may affect the results of data analysis and interpretation between the effect of *financial constraints* on firm value. The implications of these findings indicate the need for further research that pays attention to the role of *financial constraints* and information asymmetry in the context of the influence of these factors on firm value in the energy sector.

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