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## BALANCING PROFITS AND ENVIRONMENTAL RESPONSIBILITIES: THE ROLE OF CARBON EMISSION DISCLOSURE ON CORPORATE SUSTAINABILITY

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### ABSTRACT

*The growing issue of climate change has heightened the demand for carbon emissions transparency, particularly among companies that contribute to carbon emissions. However, previous research has shown inconsistent results regarding the factors influencing carbon emissions disclosure, creating a research gap. This study aims to analyze the influence of profitability, leverage, and environmental performance on carbon emissions disclosure. The research method uses a quantitative approach with panel data in the form of annual reports and sustainability reports of energy sector companies listed on the Indonesia Stock Exchange for the period 2022-2024. The analysis was conducted using panel data regression with a Fixed Effect Model (FEM). The results show that profitability has a significant influence on carbon emissions disclosure, while leverage and environmental performance do not. Simultaneously, these three variables do not have a significant effect. This finding suggests that the ability to generate profits is more likely to encourage companies to disclose emissions than other structural and environmental factors*

**Keywords:** Profitability; Leverage; Environmental Performance; Carbon Emission Disclosure

### ABSTRACT

Issue change increasingly warm climate increase has increase need will transparency emission carbon, especially among show contributing results to emission carbon. However, research previously show results that are not consistent regarding the factors that influence disclosure emission carbon, so that create gap research. This study aims For analyze influence Profitability, Leverage and Performance Environment to Disclosure Carbon Emissions. Method study use approach quantitative with panel data in the form of report annual and reports sustainability company energy sector listed on the Indonesia Stock Exchange for period 2022-2024. Analysis done use panel data regression with *Fixed Effect Model (FEM)*. Results study show that Profitability own influence significant to disclosure carbon emissions, whereas Leverage and Performance Environment No own influence significant. Simultaneously, these three variables No own influence significant . This finding shows that ability produce profit more Possible push company For disclose emission compared to structural and environmental factors other.

**Keywords :** Profitability; Leverage; Performance Environment; Disclosure Carbon Emissions

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## INTRODUCTION

Change climate is global issues become attention main Because impact wide to environment and sustainability life. One of the reason main change climate is increasing greenhouse gas emissions glass produced from industrial activities, especially the energy sector is very dependent on fossil fuels. Therefore, transparency company in disclose emission carbon become aspect important in support effort mitigation change climate. Change climate currently become global attention because it is said as threat the biggest for environment. The consequences of changes this climate is global warming. The presence of greenhouse gases

glass that appears in the atmosphere earth, then the gas reflect radiation so that cover earth, that's it How global warming is happening. (Ferdiani & Susi Dwi Multani, 2023) More further, impact global warming too can reduce quality life present and future. Two main factors the cause is activity the industry that change function forests and use fossil fuels like coal, natural gas, and oil, which are source pollution air (Meiryani et al., 2023). Quoted from CNBC Indonesia on August 16, 2023, there are 5 things to worry about by Mr. Ir. H. Joko Widodo will happen year Front and Competition Inter- country subsidies be in order third. This is related with Competition Subsidy Green or giving subsidies in countries proceed For respond issue change climate. This development has cause competition between countries in give subsidy For green technology development and energy carbon- free. The Republic of Indonesia even reach five agreement For reduce emission carbon gas, including agreement Partnership The USD 20 billion Just Energy Transition (JETP) achieved on G20 Bali meeting in November. With JETP agreement, Indonesia promises For reach emission zero clean from industry electricity on 2050. This means country promise For balance emission carbon that released with carbon that collected. This is also confirmed return by Indonesia for ensure continuation The Republic of Indonesia's economic commitment at the G20 Bali Summit at the G20 New Delhi forum, quoted from the Coordinating Ministry for Economy of the Republic of Indonesia, Jakarta, September 2023. Changes climate currently become global attention because it is said as threat the biggest for environment. The consequences of changes this climate is global warming. The presence of greenhouse gases glass that appears in the atmosphere earth, then the gas reflect radiation so that cover earth, that's it How global warming is happening. (Ferdiani & Susi Dwi Multani, 2023) More further, impact global warming too can reduce quality life present and future. Two main factors the cause is activity the industry that change function forests and use fossil fuels like coal, natural gas, and oil, which are source pollution air. (Meiryani et al., 2023). Quoted from CNBC Indonesia on August 16, 2023, there are 5 things to worry about by Mr. Ir. Mr. Joko Widodo will happen year Front and Competition Inter- country subsidies be in order third. This is related with Competition Subsidy Green or giving subsidies in countries proceed For respond issue change climate. This development has cause competition between countries in give subsidy For green technology development and energy carbon- free. The Republic of Indonesia even reach five agreement For reduce emission carbon gas, including agreement Partnership The USD 20 billion Just Energy Transition (JETP) achieved on G20 Bali meeting in November. With JETP agreement, Indonesia promises For reach emission zero clean from industry electricity on 2050. This means country promise For balance emission carbon that released with carbon that collected. This is also confirmed return by Indonesia for ensure continuation The Republic of Indonesia's economic commitment at the G20 Bali Summit at the G20 New Delhi forum, quoted from the Coordinating Ministry for Economy of the Republic of Indonesia, Jakarta, September 2023.

Results study previously regarding the factors that influence disclosure carbon emissions show results that are not consistent, especially related profitability, leverage, and performance environment. The lack of This consistency shows existence *research gap* that need investigated return with use different objects and periods. Okay Therefore, this study aims to For analyze influence profitability, leverage, and performance environment to disclosure carbon emissions on company energy sector listed on the Indonesia Stock Exchange for the period 2022-2024.

According to Ministry of Energy and Natural Resources Mineral Resources (2013), partly big emission caused by by industry, which accounts for 70% of the total consumption energy and use fossil fuels. In the country developing, including Indonesia, sources main emission is the mining industry, which produces commodities like coal, oil, and gas. The company will be accepted by the public and stakeholders interest If they disclose activity operational they. Usually, companies that disclose carbon emissions are companies whose operations impact significant to environment. (Meiryani et al., 2023) Disclosure carbon emissions, which are disclosure voluntary, designed For increase awareness environment through implementation

accountability through disclosure emission carbon that produced by company (Regulation President No. 61 of 2011).

Based on the above phenomenon, can concluded that The Indonesian government has make agreement and commitment For reduce carbon emissions, but this has not yet been effective Because Lots companies in Indonesia have not yet apply confession carbon emissions . Carbon disclosure in Indonesia is still nature voluntary disclosure). Company Also must committed For behave fair in guard sustainability environment others. In Indonesia, there are still A little companies that include disclosure related emissions. Although Statement of Accounting Standards Finance (PSAK) has state obligation company For report disclosure its emissions, namely : (1) PSAK 57 Explains that company must make reserves If There is obligation constructive (not only obligation law) such as commitment company to sustainability environment, (2) PSAK 48 explains decline the value of their assets, for example , new technology For management waste owned company Already obsolete, (3) PSAK 60 explains that risk environment must managed and reported by companies, especially those related to with instrument financial changes climate is risk business that must considered by company. (Wiratno & Muaziz, 2020)

Can concluded that there is Lots factors that contribute to lack of awareness holder share about disclosure carbon emissions, which can impact negative to environment. One of these factors is profitability, namely ability company For produce benefits. Research previously done by Meiryani et al. (2023) and Selviana & Ratmono (2019) stated that profitability own impact negative, but research conducted by Tana & Nugraheni (2021) found that profitability own impact positive to disclosure carbon emissions.

Other factors that influence disclosure carbon emissions are Leverage, namely ability company For pay his debt, in line with study previously done by Wiranto & Muaziz (2020) and (Ariel, 2023) who stated that leverage own influence positive to disclosure carbon emissions, while research conducted by (Meiryani et al., 2023) and (Selviana & Ratmono, 2019) stated that leverage own influence negative to disclosure carbon emissions.

Research conducted by (Mutiara Dani & Harto, 2022) shows that performance environment own influence positive to disclosure carbon emissions. This means that the more Good performance environment something companies, increasingly tall level disclosure its carbon emissions. However, research by (Meirtani et al., 2023) showed something different This research modifies work Meirynai et al. (2023) entitled " *The Influence of Performance Industry Type Environment and Leverage to Proof Disclosure Carbon Emissions from Indonesian LQ45 Companies* " with take disclosure carbon emissions as an independent variable and taking profitability, leverage, and performance environment. Because difference results study Previously, this researcher studied return profitability, leverage, and also disclosure of environmental factors that are still low, so that This researcher is researchinreturn performance environment.

In addition, there are still there is limitations in study previous research that requires additional samples.previously Also give recommendation For company sampling carbon dense because related with release emission carbon and give accountability on activity production the company they do. By therefore, research about disclosure carbon emissions are required in the company energy sector. Considering that producer largest carbon emissions originate from the sector energy industry, then this research focuses on companies in the energy sector listed on the Indonesia Stock Exchange with quantitative research using secondary data in the form of report annual and reports sustainability company For period 2022-2024. This is different with study previously used population LQ45 companies listed on IDX.

Companies in the energy sector expected capable manage activity business they related emission carbon and give accountability on activity production they, so that study about

disclosure carbon emissions are required in companies energy sector.

### **Legitimacy Theory**

Legitimacy Theory explain that company make an effort For ensure that activity its operations can accepted by public with method adapt self to values, norms, and expectations social. Disclosure carbon emissions are Wrong One the form of legitimacy strategy used Company For show concern to environment and sustainability, especially for Company energy sector which has impact environment tall.

Legitimacy theory explain that company make an effort achieve and maintain positive public perception For ensure continuity life and prosperity. Disclosure carbon emissions can seen as method for company For show commitment they to not quite enough answer social and environmental, so that increase legitimacy they are among the stakeholders interests. In context company energy sector, disclosure carbon emissions can help company build trust with society and government, which is very important For get permission operations and public support. By therefore, in operate its operations, the company must comply norms applicable social norms and comply with them For ensure reception social and sustainability disclosure sustainable by consistent company with values social in report annual and reports sustainability they can help company increase values and reputation them in the eyes of investors and the public. (Ramadhani, 2023).

### **Theory Stakeholder**

Stakeholder Theory state that company No only responsible answer to holder shares, but Also to all over stakeholders interests, such as creditors, government, society, and the environment. Disclosure carbon emissions become means communication company For fulfil need information stakeholders related risk environment and responsibility answer social company

This theory shows that something company is not an entity that is solely concerned with interest internally, but Also own not quite enough answer For give values and benefits to stakeholders interest others (including holder shares, creditors, consumers, suppliers, analysts, workers, government, and other parties other like society which is part of the environment social) ((Lusiana et al., 2021)). Sustainability life something company depends on support from stakeholders interests and support the must (Wiratno & Muaziz, 2020) Support and trust from stakeholders interests will grow If company can reach balance between interests of stakeholders interests and companies. In context company energy sector, disclosure carbon emissions can help company build deeper relationship Good with public local and organizational environment.

### **Profitability**

Profitability reflect ability company in produce profit. Company with Level profitability tall own source more power adequate For do measurement, management and reporting carbon emissions. In addition, profitable companies tend more pushed For guard reputation and legitimacy through disclosure environment. Company with condition good finances capable provide source Power man or finance additional required For reporting voluntary and disclosure emission carbon that more Good use withhold pressure external (Wiratno & Muaziz, 2020). Company profitable energy sector Possible more tend disclose their carbon emissions Because they own more Lots source Power For invest in sustainable practices and because they Possible more reputation conscious they. By Therefore, from the description above, it is obtained hypothesis as following :

*H 1 : Profitability Own Influence Positive to Disclosure Carbon Emissions*

### **Leverage**

Leverage show level dependence company to funding debt. Company with leverage tall tend prioritize stability finance and fulfillment obligation to creditors, so that disclosure carbon emissions yet become the main focus. Companies in the energy sector that have level debt tall

Possible tend not enough disclose their carbon emissions Because they Possible more focused on minimize risk finance and because they Possible more reluctant For disclose information that can viewed negative by investors.

This is consistent with study Adi Wiratno et al. (2020), who found that company with leverage tall Possible No capable absorb impact finance negative of carbon disclosure. Description on supported by study Titania Neha Claudia et al. (2023), who stated that leverage influence disclosure carbon emissions, Based on description above, hypotension following formulated :

*H 2 : Use Leverage Own Influence Positive on Disclosure Carbon Emissions*

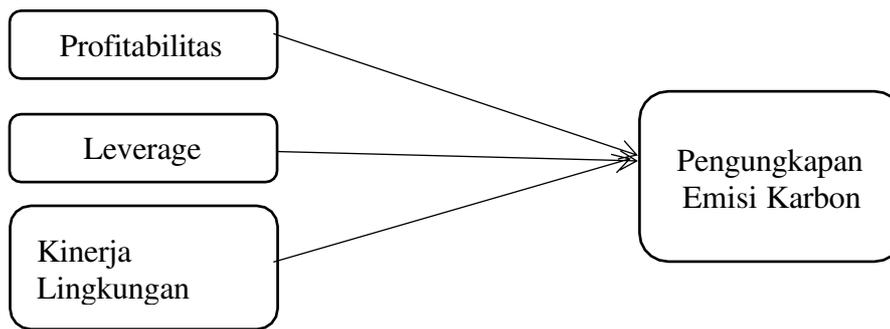
### **Performance Environment**

Performance environment reflect commitment company to management sustainable environment. The company with performance good environment expected more transparent in reveal carbon emissions as responsibility answer to the public. Companies in the energy sector with performance good environment Possible more tend disclose their carbon emissions Because they want to show commitment they to sustainability and because they Possible more confident in one's abilities they For manage risk related climate. In addition, the performance environment related with PROPER rating, meaning the more tall the ranking, the more big contribution company to environment, and by because it is increasingly wide disclosure company. The company that achieved performance a good environment will automatically voluntary disclose information performance they, for example, regarding handling change climate through their carbon emissions.

Study by Beautiful Pearls and Praise Harto (2022) shows connection positive between performance environment and disclosure carbon emissions. This finding is in line with with study by Maria Eka et al. (2023), who found that performance a better environment tall leading on disclosure emission carbon that more big.

Based on the above description, hypothesis following can formulated :

*H3: Performance Environment Own Influence Positive to Disclosure Carbon Emissions*



**Figure 1. Crowe's Fraud Pentagon Theory**

## **METHOD STUDY**

This research uses approach quantitative with secondary data in the form of report annual and reports sustainability company energy sector listed on the Stock Exchange Indonesia period 2022-2024. The sampling technique uses sampling with criteria certain.

### **Type study**

This research uses study quantitative For reveal the facts that related with the variables studied. The type of data used is secondary data, namely the information contained in sources like Report Annual and Reports Sustainability, with using purposive sampling techniques. Method Sampling and Data Analysis : Quantitative techniques used in method this research stated in form number or mark measurable. This research also use various model For analysis regression linear with panel data.

### **Research Variables**

Dependent variable in this research is Disclosure Measured Carbon Emissions use content analysis (method content analysis) for determine amount information provided on the dependent variable in this study. The value of this variable is given a score of "1" for companies that publish details the information disclosed, while a score of "0" indicates that No There is disclosures made by company (Ferdiani & Susi Dwi Mulyani, 2023). Meanwhile , for calculating the independent variables, this method is carried out with inspect report annual and reports sustainability companies that have chosen as a sample with measurement on the table below.

### **Measurement Variables**

1. **Disclosure Carbon Emissions** are measured use Carbon Disclosure Checklist through method analysis.
2. **Profitability** in[ rpkisikan with Return on Assets (ROA).
3. **Leverage** measured using Debt to Equity Ratio (DER).
4. **Performance Environment** measured based on PROPER rating from the Ministry Environment Life and Forestry.

**Table 1.** Information Variables Study

<b>Variables</b>	<b>Measurement</b>
Carbon Emission Disclosure	Carbon Disclosure Checklist CED = amount disclosed by the company : total disclosure Disclosure of carbon emissions $CED = (\sum di / M) \times 100\%$ Information: CED = Disclosure carbon emissions $\sum di$ = Total score 1 obtained by company M = Maximum number of items total amount that can be stated
Profit	ROA = Net Profit : Total Equity
Benefit	DER = Total liabilities : Total equity
Environmental performance	Referring to the assessment EXACT color obtained company as following : 0= no participant 1= Very bad / color black 2= bad / red 3= good / blue 4= very nice / color green 5=very good / color gold

### Research Techniques and Samples

Data analysis techniques used in this research is analysis panel data regression analysis regression multiple used For test the influence of independent variables on the dependent variable in something research. (Ayuningtyas et al., 2018), there are three tests For choosing panel data estimation techniques, with model best chosen through Test Chow, Uji Hausman, and LM. Population this research is company energy sector listed on the Indonesia Stock Exchange. Based on this population, the sample can be taken use *method purposive sampling* based on characteristics that considered closely related to population. The criteria set is :

1. Companies listed in the Energy Sector on the Indonesia Stock Exchange
2. Company publish report financial (reports) annual) and reports sustainability For year 2022-2024.
3. Company the get profit, not loss.
4. Companies that disclose at least one item on the checklist Index Carbon Disclosure.

### ANALYSIS AND DISCUSSION

This company operates in the field of production, exploration, distribution, and various energy sources, both from energy fossil like oil, gas, coal and renewable energy like power solar, wind, and water.

#### Uji Chow

This research uses Wrong One statistical tests in analysis panel data regression for determine whether the model used more appropriate follow *Common Effect Model (CEM)* or *Fixed Effect Model (FEM)*.

**Table 2.** Chow Test Results

Test Effect Still Redundant  
Equation : Without Title  
effect still period testing

Test Effect	Statistics	df	Possibility
Period F	324.814948	(2.162)	0.0000

In a way theoretical, Test Chow functioning For test whether there is differences between periods between unit or between periods time. When panel data has unique characteristics in each period, *model Effect Still* more appropriate used Because capable catch heterogeneity that is not can explained by *model Effect General*. Based on Table 2, can seen that Test Chow (Uji Effect Still Redundant), with mark Probability  $0.0000 < 0.05$ . This shows that there is difference significant between periods years that influence model. Based on taking decision In this case, H0 is rejected and H1 is accepted.

- H0: no There is difference significant between periods with the correct model is *Common Effect*.
- H1: There is difference significant between periods with the right model that is *Fixed Effect*.

By because of that, because results testing show p -value  $< 0.05$ , hypothesis H1 is accepted, which means there is difference significant between period years that influence model.

**Test Hausman**

Testing determine model panel data analysis which is more right, *Model Effect Fixed (FEM)* or *Model Effect Random (REM)*, with test whether There is correlation between effect individual (*cross part*) and independent variables.

**Table 3.** Hausman Test Results

Effect Random Correlate - Test Hausman  
Equation : Without Title  
Effect test random cross section

Summary Test	Chi- square statistics	Chi-Sq. df	Possibilit y.
Piece transverse random	9.087029	3	0,0282

In a way theoretical, *Model Effect Random Effect Model /REM*) only suitable used If effect individual nature random and not correlated with predictor variables so that the estimate efficient, whereas *Model Effect Fixed Effect Model /FEM*) is used when individual own correlation with independent variables so that REM becomes No consistent. Therefore, the

Hausman Test tests hypothesis the.

- H0: Effect random consistent and efficient (not There is correlation between effect individual and independent variable)
- H2: Effect random No consistent, meaning there is correlation between effect individuals and independent variables.

Based on results Test Hausman obtained from the Chi-Square value of 9.087029 with probability 0.0282 p- value (0.0282) <0.05. So H0 is rejected and H1 is accepted, with model regression the panel that most appropriate use *Fixed Effect Model (FEM)*. With Thus, there are correlation between effect individual and independent variables in this research, so that the most model appropriate For used is *Fixed Effect Model (FEM)* because give consistent and capable estimates capture special characteristics each company in panel data.

**Uji Legrage Multiplier (LM)**

Statistical testing in analysis panel data regression is used For determine whether the right model is *Common Effect Model (CEM)* or *Random Effect Model (REM)* as following :

**Table 4.** LM Test Results

Test Multiplier Lagrange For Effect Random  
 Hypothesis zero : No There is effect  
 Hypothesis alternative : Two sides (Breusch-Pagan) and one side  
 (all alternatives other)

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	Hypothesis Testing		
	Cross-section transverse	Time	Both of them
Breusch-Pagan	20.96003 (0.0000)	2677.647 (0.0000)	2698.607 (0.0000)

In theory, LM is based on assumptions that If component intercompany errors (*cross part*) or between times No The same or own variance that different in a way significant, then the use of *common effect model* No appropriate Because model the assume all individual own the same intercept. By Therefore, the LM test tests hypothesis the.

- H0: No There is effect random that state that the variance of the components intercompany errors (*cross parts*) and between periods time is The same or different in a way significant. This means that model the assume that all unit observation own the same intercept, so that the specific characteristics every company or period No influence model. If H0 is accepted, then the use of *common effect model* Already Enough Because No there is variance.
- H3: There is effect random, a hypothesis which states that there is component significant errors between companies or period so that the unique characteristics of each company or time cause difference in model. This condition shows that *common effect model* No capable catch this heterogeneity, so that *Random Effect Model* more appropriate Because capable accommodate variation random occurrences between units or time.

Based on results LM test, with p -value for test cross-section, time, and both, respectively of  $0.0000 < 0.05$ . This shows that  $H_0$  is rejected and the model is selected is *model Random Effect*, which is more in accordance For used than *Common Effect model*.

### Assumption Test Classic Test Multicollinearity

**Table 5.** Multicollinearity Test Results

Dependent Variable: Y				
Method: Panel EGLS (Cross-section random effects)				
Date: 11/14/25 Time: 11:58				
Sample: 2022 2024				
Periods included: 3				
Cross-sections included: 56				
Total panel (balanced) observations: 168				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.228655	0.035569	6.428578	0.0000
X1	0.000666	0.000331	2.014567	0.0456
X2	-0.002166	0.014344	-0.151041	0.8801
X3	0.025779	0.022691	1.136101	0.2576
Effects Specification				
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			0.384095	1.0000
Weighted Statistics				
R-squared	0.038712	Mean dependent var	0.244250	
Adjusted R-squared	0.021127	S.D. dependent var	0.344728	
S.E. of regression	0.341067	Sum squared resid	19.07757	
F-statistic	2.201453	Durbin-Watson stat	1.936865	
Prob(F-statistic)	0.089881			
Unweighted Statistics				
R-squared	0.038712	Mean dependent var	0.244250	
Sum squared resid	19.07757	Durbin-Watson stat	1.936865	

### Description General Object Study

Object in this research is company energy sector listed on the Indonesia Stock Exchange (IDX) during period 2022-2024. Company energy sector covers moving company in activity exploration, production and management good energy sources based on fossil like coal, oil and gas, and renewable energy. This sector was chosen Because is Wrong One contributor largest carbon emissions so that have responsibility answer tall in disclosure carbon emissions

Based on criteria purposive sampling, research sampling consists of companies that are consistent publish report annual and reports sustainability as well as record profit describes disclosure practices carbon emissions in the energy sector.

### Election Model Panel Data Regression

Election model panel data regression was performed through three stages testing, namely Test Chow, Uji Hausman and Uji Lagrange Multiplier (LM). Result Test Chow show that mark probability more smaller than the level significant 5%, so that model *Fixed Effect* more appropriate used compared to *Common Effect*. Next, Test Hausman Also show that *Fixed Effect Model* (FEM) more in accordance compared to *Random Effect Model* (REM). Although The LM test shows that REM is more Good compared to CEM, in general overall results testing leading on use *Fixed Effect Model* as model best.

The selection of FEM shows existence differences in characteristics between companies and between periods that influence level disclosure carbon emissions, so that This model is capable of catch heterogeneity the in a way more accurate.

## **Hypotension Test**

### **1. Influence Profitability against Disclosure Carbon Emissions**

Results testing show that profitability influential positive and significant to disclosure carbon emissions. This finding indicates that Company with Level greater profitability tall tend own ability more financial Good For do measurement, management, and reporting carbon emissions.

In addition, the Company has profit tall Also more pushed For guard reputation and legitimacy in the eyes of the public and investors. Disclosure carbon emissions are viewed as part of the strategy sustainability and reputation Company, so that the more tall profitability, increasingly there is also a big tendency Company For do disclosure environment in a way more area. Results This research is in line with the theory of legitimacy and support findings study previously stated that profitability is a driving factor main disclosure carbon emissions. Variable X1 (Profitability) has influence significant against Y (Disclosure Carbon Emissions), this is proven with mark probability p- value  $0.0456 < 0.05$ , so that variable X1 (Profitability) has influence real in explain change on Y (Disclosure Carbon Emissions). H1: These results support hypothesis 1 that probability own influence positive to disclosure carbon emissions. In theoretical and practical, company with profitability more tall tend own source power (slackness finance) and incentives reputation For prepare report a better environment complete (including disclosure carbon emissions). They Possible see disclosure as investment reputation, mitigation risk regulations and tools For interesting investors to increase level disclosure.

### **2. Influence Leverage to Disclosure Carbon Emissions**

Results study show that leverage No influential significant to disclosure carbon emissions. This shows that Level dependence Company to debt For be a determining factor in Decision Company For reveal information carbon emissions.

Company with leverage tall tend more focus on fulfillment obligation to creditors and maintain stability finance compared to with disclosure information environment that is voluntary. In addition, creditors in Indonesia generally Still more emphasize evaluation on performance finance Company compared to aspect environment, so that pressure from other parties creditors For disclosure relatively low carbon emissions. Variable X2 (Leverage) does not own influence significant against Y (Disclosure Carbon Emissions), with mark probability  $0.8801 > 0.05$ , which means No contribute against Y (Disclosure Carbon Emissions). H2: Results test Model Effect Random show that the Leverage variable (X2) has coefficient  $-0.002166$  with statistical value of  $t -0.151041$  and p value of  $-0.8802$  which is higher greater than the level significance of  $0.05$ . These results indicate that Leverage No own influence significant to disclosure carbon emissions. Although the coefficient negative, the relationship No Enough strong For show statistical influence. This condition can happen Because company with level high leverage tend more focused on stability finance and fulfill obligation to creditors rather than allocate source Power For reporting emission carbon that need cost additional. In addition, creditors in Indonesia generally No use information carbon emissions in evaluation credit risk, so that leverage No pressing company For do carbon disclosure.

### **Disclosure Performance Environment to Disclosure Carbon Emissions**

Performance Environment in this research measured through PROPER rating shows No existence influence significant to disclosure carbon emissions. Although direction connection nature positive, but statistically relationship the No Enough strong. This finding shows that Company carbon emissions in general more wide. This can caused by Because POPER assessment more focus on compliance to management environment in a way general, while disclosure carbon emissions still nature voluntary and not yet

become component main in evaluation the.

Variable X3 (Performance Environment) no own influence significant against Y (Disclosure Carbon Emissions), probability p -value is  $0.2576 > 0.05$  which shows that X3 (Performance Environment) no own statistical influence on Y (Disclosure Carbon Emissions). H3: Based on results estimate Model Effect Random, Performance variable Environment (X3) obtains coefficient positive of 0.025779 with The t-statistic value is 1.136 and the p -value is 0.2576. this probability exceeds limit significance of 5%, so that statistically performance environment No own influence significant to disclosure carbon emissions. Although direction coefficient show trend positive, the relationship No Enough strong For stated significant. This condition can explained by characteristic disclosure carbon that Still nature volunteerism in Indonesia and facts that company with performance good environment often focus on achievement of PROPER standards rather than reporting carbon that need costs and resources Power additional. In addition, the performance environment in PROPER no in a way direct reflect quality reporting emissions. These results are in line with a number of study previously also find that performance environment No own influence significant to carbon disclosure.

### 3. Testing Hypotension in a way Simultan

Results testing simultaneously show that profitability, leverage and performance environment in a way together No influential significant to disclosure carbon emissions . Value coefficient relatively low determination show that variation disclosure carbon emissions yet can explained optimally by third variable This indicates that that Still there is factor other than the model research that influences disclosure carbon emissions , such as size Company, pressure regulations, governance Manage Company, ownership institutional or Level awareness management to issue sustainability. X1, X2, and X3 simultaneously do not own influence significant against Y (Disclosure Carbon Emissions), with The p- value of the F test is  $0.089881 > 0.05$  so that these three variables together No capable explain the Y variable in detail significant.

Based on panel regression with *EGLS Random method Effect*, seen that simultaneously (F test), independent variables X1, X2, and X3 do not in a way significant influences the dependent variable Y on level significance 5% Probability (F-statistic) = 0.089881, although there is A little indication significance at 10%. Ability model For explain variation on Y very low, shown by  $R^2$  value of 0.038712. In general partial (t -test), only variable X1 has influence significant and positive against Y with p -value 0.0456, while X2 and X3 do not influential in a way significant with p value 0.8801 and p value 0.2576. About Test Multicollinearity, very high  $R^2$  value low and only one significant variable identify possibility No existence serious multicollinearity, whereas The Dubin -Watson Stat of 1.936865 indicates No existence problem autocorrelation.

When the variables are tested simultaneously, the results show that : Profitability is the most variable consistent and significant impact disclosure carbon emissions. Ratio debt to equity and performance environment No own significant influence, indicating that financial factors (profit) are more driving force strong for company For transparent in report carbon emissions than creditor pressure or performance scores formal environments such as PROPER.

With thus, it can concluded that ability financial company own role dominant, whereas leverage and performance environment Not yet become determinant main in disclosure practice carbon emissions in companies in the energy sector.

### **Implications Results Study**

Results This study shows that financial factors, especially profitability, having more roles dominant compared to leverage and performance environment in encourage disclosure practices carbon emissions on company energy sector. This finding strengthens view that disclosure carbon emissions in Indonesia are still pushed by ability internal company, not by pressure external nature regulatory.

Implications The practical implications of this research are the need the role of regulators in strengthen policy related obligation disclosure carbon emissions so that the practice No only depends on condition finance company. Meanwhile, for company this result is expected can push integration disclosure carbon emissions as sustainability strategy section term long.

### **CONCLUSION**

This study concludes that profitability influential positive to disclosure carbon emissions, whereas leverage and performance environment No significant. Simultaneously, the three variable Not yet capable explain variation disclosure carbon emissions in general strong. Limitations This research is located on period relative observation short as well as use variable limited independence. Results testing panel model shows that Model Effect Fixed Effect Model /FEM) is the most model appropriate For used. Test Chow and Uji Hausman You're welcome choose FEM, whereas LM test only show that Effect Random Effect) more Good than Effect Common Effect, but No change decision end that Model Effect Fixed (FEM) is model best selected.

In testing hypothesis, only Profitability (X1) which has influence significant to Disclosure Carbon Emissions (Y), Leverage Variable (X2) and Performance Environment (X3) no own influence significant. Simultaneously, the three variables (X1, X2, X3) are not own influence significant against Y.

Based on results data analysis and testing that has been done, can concluded that the variables Profitability, Leverage, and Performance Environment own different influences to Disclosure Carbon Emissions on research sample companies.

First, profitability has proven own influence positive to disclosure carbon emissions. These findings indicate that company with greater profitability tall tend have more financial capacity big For measure, manage, and report carbon emissions. More furthermore, a very large company profitable Also more motivated For increase legitimacy and image sustainability they through disclosure environment.

Second, leverage No own influence significant to disclosure carbon emissions. This shows that level dependence company on financing debt is not factors that push him For disclose information carbon emissions. In this study, creditors seem to Still prioritize performance finance company than transparency environment.

Third, performance environment Also No own influence significant to disclosure carbon emissions. Although company reach performance good environment, this is not in a way automatic translated become improvement disclosure carbon emissions. This shows that carbon reporting practices in Indonesian companies are still nature voluntary and not yet become part integral of evaluation performance adopted environment by company.

In a way together, these three variables are indeed contribute to variation disclosure carbon emissions, but only proven profitability be a significant factor. With thus, it can concluded that ability finance company play role dominant in push disclosure carbon emissions, while pressure finance through leverage and achievement performance environment Not yet be a determining factor in carbon reporting practices.

Limitations This research is located on period observation relatively short as well as limited use of independent variables. Further research is recommended For extend period

research, adding variables manage company, as well as use index disclosure carbon that more comprehensive.

## LIMITATIONS AND SUGGESTIONS

Limitations This research has limitations relative period short (2022-2024) and limited number of independent variables, so that Not yet capable explain variation disclosure optimal carbon emissions. In addition, the measurement disclosure carbon emissions using content analysis potential contain subjectivity and object research that only focus on energy sector limit generalization results research. exposes the real things covered in scope research, but Because methodological difficulties or procedural certain, no can covered in research and beyond control researcher.

Suggestion For extend period research, adding other variables as size company, governance manage company and pressure regulations, as well as use index disclosure carbon that more comprehensive. In addition, the expansion object study to other sectors expected can give more results general and deep.

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