

# Environmental Reporting: Four Ways Manufacturing Companies Should Aware

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## Abstract

The purpose of this research is to examine the effect of firm size, profitability, leverage on environmental disclosure with competitive advantage as moderation. The research period is 3 years starting from 2019 to 2021. There are 64 manufacturing companies listed on the Indonesian stock exchange. sample selection using purposive sampling method. Hypothesis testing is done by using panel data regression analysis. The results of the study indicate that company size has a positive effect on environmental disclosure. Profitability, leverage, and competitive advantage have no effect on environmental disclosure. Competitive advantage is not able to moderate the relationship between company size and environmental disclosure. Competitive advantage is not able to moderate the relationship between profitability and environmental disclosure. Competitive Advantage is unable to moderate Leverage's relationship to Environmental Disclosure.

**Keywords:** Environmental Disclosure, Company Size, Profitability, Leverage, Competitive Advantage.

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## Introduction

The problem of environmental damage in the era of globalization has become one of the important issues that is often discussed and has attracted a lot of attention from the government, political figures, religious leaders, and the wider community. The rapid development of industry is one of the causes of environmental damage. The economic activities carried out by the company are closely related to the negative effects that arise on the quality of the environment (Dyduch, 2017). The responsibilities of an entity are not only matters related to economic and legal issues. Disclosure of information related to the environment is one of the most important things that companies must do as a form of responsibility to the public (Elshabasy, 2018).

The phenomenon of environmental pollution by companies is common in Indonesia. One

of these phenomena occurred in Siak district, Riau by PT Indah Kiat Pulp and Paper. Wahana Lingkungan Hidup Riau conveyed firm demands to the government to stop the expansion and construction of PT Indah Kiat Pulp and Papper Tbk, review the AMDAL, re-examine the quality of water, air, and soil around the company and finally Walhi demanded a solution to the pungent smell of factory waste (Walhi, 2017). PT Greenfields Indonesia was sued by Blitar residents over the disposal of cow dung waste. PT Grenfiels, which has been operating since 2018, has been proven not to have a liquid waste disposal document permit. The impacts of PT Grenfiels' waste disposal include cloudy river water and a foul odor (Natalia, 2021). The following is data on environmental disclosures made by several manufacturing companies in Indonesia.

**Table 1. Environmental Disclosure**

CODE	2019	2020	2021
INTP	0.25	0.41	0.78
SMBR	0.16	0.22	0.44
SMCB	0.53	0.72	0.75
SMGR	0.28	0.72	0.84
WTON	0.25	0.25	0.38
INAI	0.16	0.22	0.50
CPIN	0.03	0.31	0.34
JPFA	0.28	0.66	0.66
SIPD	0.06	0.38	0.34
SLIS	0.09	0.16	0.34
CAMP	0.13	0.16	0.34
GOOD	0.09	0.09	0.50
ICBP	0.16	0.16	0.69
INDF	0.19	0.22	0.66
MLBI	0.38	0.38	0.47

*Source: Data Processed, 2022*

From table 1 above, there is an upward trend in environmental disclosures made by manufacturing companies. Companies increasingly realize the importance of implementing environmental disclosure practices in their business as a form of corporate ethics to the environment. Environmental disclosure is considered to have a positive impact on the company in the eyes of the public. The first factor that can affect environmental disclosure is company size. Large companies tend to have great financial strength as well, with this financial strength the costs related to environmental disclosure are not an obstacle for the company. Entities will always improve environmental performance communicated to the public through wider disclosure of environmental information. Large companies tend to care more about the company's image in the eyes of the public (Elshabasy, 2018). The second factor is profitability, the profit owned by the company is considered capable of influencing environmental disclosure. A high profitability ratio indicates the high resources owned by the company; therefore the company will be easier to carry out Enviromental Disclosure and gain legitimacy. Companies with a high level of profitability will try to improve the company's positive image in the eyes of the public to attract investors through environmental disclosure. The higher the profit generated by the company will make the company motivated to conduct environmental disclosure to show its good reputation in front of stakeholders (Maulana & Baroroh, 2022).

The third factor is leverage; the leverage owned by a company is considered to have a negative influence on environmental disclosure. The high leverage of an entity will make the

company's responsibility to creditors increase. Thus, the company will prioritize paying obligations in the form of debt rather than making voluntary disclosures such as environmental disclosure which is an additional burden for the company (Nugraha & Juliarto, 2015). Competitive advantage can be defined as the ability of a company to generate greater economic benefits compared to business competitors like the company. A company can be said to have a competitive advantage if the company has a character or differentiator that other similar companies do not have (Abbas, 2021).

The update contained in this study is to use the competitive advantage factor. When an entity has a competitive advantage, it will result in an increase in environmental disclosure by the company with the aim of obtaining legitimacy from the public. Competitive advantages The quality human resources owned by large companies tend to be abundant, so that with the competitive advantages possessed by large companies there will be less difficulty in making wider and higher quality environmental disclosures as one of the business strategies owned by the company. Competitive advantage can be utilized by companies to achieve large profits. With the high profitability owned by the company, the company will not encounter difficulties in terms of costs. Companies that have high profitability are considered well-established in terms of finance. So that the company will not encounter difficulties in issuing quality environmental disclosure. Companies that have a good competitive advantage will attract the attention of creditors and investors (Eksandy & Sari, 2020). Creditors will put their trust in providing loans to companies that have competitive advantages. Thus, the company will utilize leverage to carry out the company's business strategy, one of which is to issue Environmental Disclosure. Environmental information disclosure activities carried out by companies have a dependence on the competitive advantages of the company (Mohammad & Wasiuzzaman, 2021).

## Literature Review and Hypothesis Development

### *Legitimacy theory*

In 1975 Dowling and Pfeffer became the first people to propose legitimacy theory. It is stated in legitimacy theory that a company always tries to ensure that the activities carried out by the company are in accordance with the norms and rules that apply in the community (Dowling & Pfeffer, 1975). The relationship of legitimacy theory is on company size, profitability, and competitive advantage. When a large company, a company that has high profitability and a company that has a competitive advantage will produce environmental disclosures with a wider scope and higher quality with the aim of obtaining legitimacy from the public.

### *Stakeholder Theory*

In 1984 R. Edward Freeman was the first to propose stakeholder theory. Stakeholder theory is a theory that regulates business ethics, management organizations, morals, and values to regulate organizations. Stakeholder theory says the sustainability of a company is closely related to the role of internal and external stakeholders of a company, although this can occur with various interests and different backgrounds of existing stakeholders (Gray et al., 1995). The relationship between stakeholder theory and leverage is that companies with high leverage ratios have a large responsibility to creditors. Limited funds owned by the company will be used

to pay off obligations. So that the company will ignore environmental disclosure.

### ***Hypothesis Development***

The activities carried out by a company with a large size will be more in the spotlight by the public, media, and government, so the pressure obtained by large companies tends to be stronger than companies that have a small size. So that large companies will always be more concerned and sensitive to environmental disclosure which is then used by the company to answer the sharing of public pressure. Large companies will further improve the quality of environmental disclosures in both annual reports and corporate sustainability reports (Akhsa & Darsono, 2021). Based on the description above, the first hypothesis in this study is:

#### **H1: Company size has a positive effect on environmental disclosure.**

Society tends to put pressure on companies not to ignore the quality of the environment, entities that have high profitability in their production activities tend to be easier to meet the demands of stakeholders, companies with low profitability are considered to have difficulty meeting the demands of stakeholders. The higher the quality of an entity's environmental performance, the more opportunities the company must generate profits (Elshabasy, 2018). Based on this description, the second hypothesis is:

#### **H2: Profitability has a positive effect on environmental disclosure.**

Companies that have a high leverage ratio are obliged to present comprehensive information related to the condition of the company to meet the demands of stakeholders. High leverage encourages management to prioritize completing obligations, namely paying corporate debt rather than making environmental disclosures. The pressure obtained from creditors is also one of the reasons for companies to prioritize paying several obligations when compared to making environmental disclosures. The higher the leverage, the lower the environmental disclosure, and the lower the leverage, the wider the environmental disclosure. This is in line with research (Diantimala & Amril, 2018) which states that leverage has a negative effect on environmental disclosure. Based on this description, the third hypothesis is:

#### **H3: Leverage Affects Environmental Disclosure.**

Companies that have a competitive advantage can get a positive image in the eyes of stakeholders because the company is considered capable of optimizing the advantages and competitiveness that the company has. When an entity has a competitive advantage, it will result in an increase in environmental disclosure carried out by the company with the aim of obtaining legitimacy from the public. Based on the description above, the fourth hypothesis in this study is:

#### **H4: Competitive advantage affects environmental disclosure.**

Large entities have superior access to resources, gain market recognition and have a broad economic scope. Based on legitimacy theory, the wealth of competitive advantages possessed

by large companies makes the company more widely publish information related to environmental disclosure to gain legitimacy from the public. Entities analyze what advantages they have starting from corporate strategies, such as improving quality, more attractive advertising, creative ideas and optimizing the resources owned by the entity (Nainggolan, 2018). Based on the description above, the fourth hypothesis is:

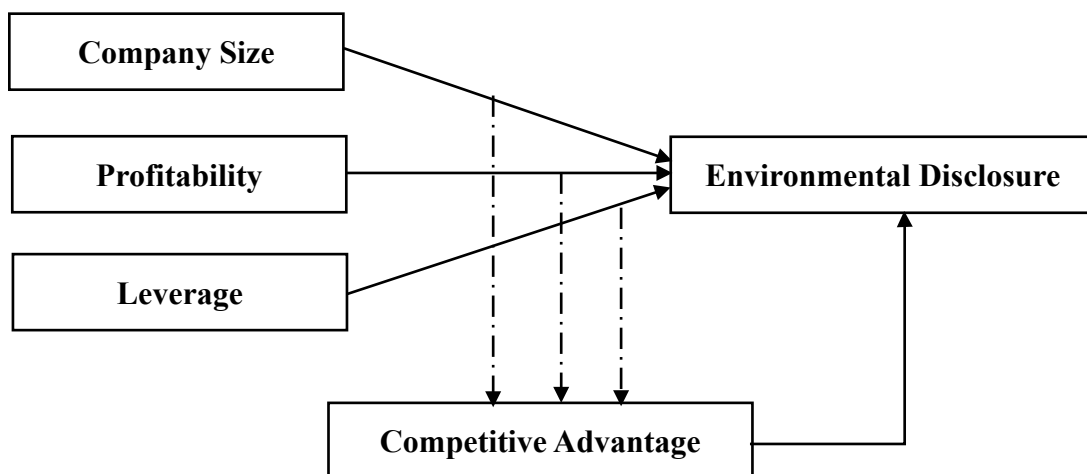
**H5: Competitive Advantage can strengthen the relationship between company size and environmental disclosure.**

Companies that have a competitive advantage are more observant in analyzing market opportunities and developing strategies to increase sales. Entities can achieve large profits when their sales increase. The competitive advantage possessed by an entity can indirectly affect the performance of the competitive advantage possessed by an entity can indirectly affect the performance of the entity in achieving profits. high profits will spur the company to issue good Enviromental Disclosure to gain public legitimacy. Based on the description above, the fifth hypothesis is:

**H6: Competitive Advantage strengthens the relationship between profitability and environmental disclosure.**

The competitive advantage of an entity can increases the trust of stakeholders and investors in the entity. So that the company will take advantage of this trust by carrying out business strategies, the strategies carried out include producing superior quality, unique products, and special services. Entities can utilize leverage to carry out these strategies while still being monitored by creditors. This can encourage companies to conduct environmental disclosure to gain the trust of creditors and investors. Environmental disclosure has a positive impact on the entity, in the eyes of creditors and investors. Based on the description above, the sixth hypothesis is:

**H7: Competitive advantage moderates the relationship between leverage and environmental disclosure.**



**Figure 1: Conceptual Framework**

## Research Methods

### *Population and sample*

The sample in this study were Manufacturing Companies listed on the Indonesian stock exchange in the 2019, 2020 and 2021 periods. The sampling technique used in this research is purposive sampling. After the sample selection process is carried out based on predetermined criteria, there are 68 manufacturing companies that meet the criteria. The sample selection criteria are contained in the following table 2.

**Tabel 2. Population and sample**

Criteria	Total
Manufacturing companies listed on the Indonesia stock exchange for the period 2019 - 2021	201
Non-loss invoicing companies 2019-2021	(79)
Manufacturing companies that do not publish annual reports / sustainability reports for the period 2019 - 2021	(33)
Companies that do not make environmental disclosures	(25)
Number of research samples	64
Number of research periods (Years)	3
Total	192

*Source of secondary data processed by the author 2022.*

### *Variable measurement definition*

Environmental Disclosure is the disclosure of the company's environmental performance published in the annual report or in the company's sustainability report (Akhsa & Darsono, 2021). The approach used in the Environmental Disclosure concept refers to the 2020 GRI standard. There are 32 environmental disclosure criteria in the 2020 GRI standard. Environmental Disclosure is formulated as follows referring to research conducted (Kiswanto et al., 2020) and (Ahada et al., 2016).

$$ED = \frac{\text{Total Disclosure}}{\text{GRI Criteria in 2020}}$$

The size of an entity is measured by the total assets owned; total assets can be known through the company's annual report. Referring to previous research (Elshabasy, 2018). Company size is calculated in the following way.

$$\text{Size} = \ln (\text{Total Asset})$$

Profitability is defined as an indicator of an entity's performance in managing its assets (Elshabasy, 2018). The profit generated by the company is considered as one of the indicators that can be used to meet the demands of shareholders, especially when ROA is used as a measure of profitability to measure company performance. Measurement of profitability refers to the measurement of research conducted (Naidia et al., 2017).

$$ROA = \frac{\text{Net Profit after tax}}{\text{Total Asset}}$$

Leverage is the ratio of debt owned by the entity used to finance the purchase of equipment, inventory, and various company assets. An entity with high leverage has a close

relationship with creditors (Naidia et al., 2017). Leverage calculation can be formulated as follows (Putri & Wahyuningrum, 2021).

$$DAR = \frac{\text{Total Debt}}{\text{Total Asset}}$$

Competitive advantage is described as an entity that can generate greater economic value compared to similar industries (Porter, 1996). Customer relationships, supplier relationships and R&D intensity are vital for an entity to realize a competitive advantage. It can be concluded that competitive advantage is measured using three approaches referring to research conducted (Abbas, 2021) and (Eksandy & Sari, 2020).

$$CA = \frac{CR + SR + R\&D \text{ Intens}}{3}$$

Where the calculation of customer relationship, supplier relationship and R&D intensity is measured as follows:

$$CR = \frac{\text{Adverstising Expense}}{\text{Sales} + \text{Account Receivable}}$$

$$SR = \frac{\text{Account Payble} + \text{Inventory}}{\text{Sales}}$$

$$R\&D \text{ Intens} = \frac{\text{R\&D Expense}}{\text{Sale}}$$

### **Data analysis technique**

In this study, panel data regression analysis with data processing was assisted using eviews 12 software. There are two panel data regression models in this study:

#### **Model 1**

$$ED(i, t) = \alpha + \beta_1 SIZE(i, t) + \beta_2 PROF(i, t) + \beta_3 LEV(i, t) + \dots + \beta_n X_n(i, t) + e(i, t)$$

#### **Model 2**

$$ED(i, t) = \alpha + \beta_1 SIZE(i, t) + \beta_2 PROF(i, t) + \beta_3 LEV(i, t) + \beta_4 CA(i, t) + \beta_5 SIZE * CA(i, t) + \beta_6 PROF * CA(i, t) + \beta_7 LEV * CA(i, t) + \dots + \beta_n X_n(i, t) + e(i, t)$$

Information:

Ed = Enviromental Disclosure

$\alpha$  = Constant

$\beta_n$  = regression coefficient of the independent variable

SIZE = Company Size

PROF = Profitabilitas

LEV = Leverage



CA	= Competitive Advantage
I	= Company
t	= year
i	= Component error

## Results and Discussion

### Model Feasibility Test Using Regression Data Search

**Table 3. Chow Test**

Effect Test	Statistic	d.f.	Prob
Croos - section F	4.006284	(63,121)	0
Croos - section F	216.354936	63	0

Table 3 shows the probability of the cross-section chi-square of 0.0000 is lower than 0.05. So according to the decision criteria this model uses the Fixed Effect Model, it is necessary to conduct further testing with the Hausman test to determine the Fixed Effect Model or Random Effect Model used.

**Table 4. Hausman Test**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f	Prob
Cross-section random	11	7	0.1363

The results of table 4 show that the cross-section random probabily value of 0.1363 is higher than 0.05, meaning that the results of the Hausman test choose to use the Random Effect Model.

**Table 5. Lagrange Multiplier Test**

	Cross-Section	Time	Both
Breusch-Pagan	41.97516	100.5333	142.5084
	(0,0000)	(0,0000)	(0,0000)

The results of table 5 show that the breusch-pagan cross-section probabily value of 0.000 is lower than 0.05, meaning that the results of the lagrange multiplier test choose to use the Random Effect Model.

**Table 5. Conclusions of The Model Used**

Methods	Testing	Result
Chow Test	CEM vs FEM	FEM
Hausman Test	REM vs FEM	REM
Lagrange Multiplier Test	CEM vs REM	REM

Based on the results of the three tests carried out, it is concluded that the panel data regression model used in this study is the Random Effect Model (REM).

## Hypothesis testing



**Table 6. F-test**

F-statistic	3.183303
Prob(F-statistic)	0.00333

Based on table 6, the f statistic value is 3.183303 while the F table with  $\alpha = 5\%$ ,  $df_1 (k-1) = 4$  and  $df_2 (192-5) = 187$ . The f table value is 2.42, thus the F statistic value (3.183303) > F table 2.42 and the Prob value (F-statistic) 0.003330 < 0.05, thus the regression equation model based on the research data is significant, meaning that the linear regression model meets the linearity criteria, or it can be interpreted that the variables of Company Size, Profitability, and Leverage simultaneously affect Enviroment Disclosure. So that the model in this study can and should be continued.

**Table 7. Adjust R- Square**

R-squared	0.108022
Adjud R-squared	0.074088

Based on table 7, it is known that the coefficient of determination or R-Square is 0.074088. It can be interpreted that Company Size, Profitability, Leverage, and competitive advantage have a 7% contribution influence on Enviromental Disclosure, and the other 93% is influenced by other factors outside the variables of Company Size, Profitability, Leverage and Competitive Advantage.

**Table 8. T-test before moderation**

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	-1.012316	0.338729	-2.988577	0.0032
Size	0.042684	0.011638	3.667697	0.0003
Prof	0.079699	0.215737	0.369425	0.7122
Lev	0.103196	0.105002	0.982798	0.3270

**Table 9. T-test after moderation**

Dependent Variable = ED

Method: Panel EGLS (Cross-section random effects)

Date: 09/04/22, Time: 22:01

Periods Included: 3

Cross-Sections Included: 64

Total Panel (balanced) observations: 192

Swam y and Arora Estimator of Componen variances

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	-1.759885	0.872580	-2.016876	0.0452
Size	0.065632	0.029450	2.228623	0.0270
Prof	0.244111	0.533479	0.457584	0.6478
Lev	0.010712	0.239917	0.044648	0.9644
CA	6.534241	8.015030	0.815248	0.4160
Size*CA	-0.199583	0.271125	-0.736128	0.4626
Prof*CA	0.086781	6.349872	0.013667	0.9891
Lev*CA	0.649861	2.230937	0.291295	0.7712

1. Based on the results of the t test, the data obtained the prob value of the Company Size of 0.0270 with a t-Statistic value of 2.228623 while the t-Table with an  $\alpha$  level of 5%,  $df (n-k) = 187$  is 1.653, with this t-statistic ( $2.228623 > t\text{-Table } (1.653)$ ) with a prob value of  $0.027 < 0.05$ . These results indicate that the company size variable partially affects the Enviromental Disclosure thus H1 in this study is accepted. Large companies show the company's ethics of conducting environmental disclosure activities as a form of corporate responsibility for the environment. Large companies are always more concerned and sensitive to environmental disclosure to gain legitimacy from the public.
2. The prob value of Profitability is 0.6478 and t-Statistic is 0.457584. While the t-Table with an  $\alpha$  level of 5%,  $df (n-k) = 187$  is 1.653, thus the t-statistic ( $0.457584 < t\text{-Table } (1.653)$ ) with a prob value of  $0.6478 > 0.05$ . Thus, it can be concluded that profitability has no partial effect on environmental disclosure. Thus, H2 in this study is rejected. When a company can generate high profitability, the company will ignore the quality of environmental disclosure. This is because the company has obtained financial success which is the main objective of the organization's formation. Companies with high profitability will prioritize mandatory disclosure rather than voluntary disclosure.
3. The probability value of Leverage is 0.9644 with a t-Statistic value of 0.044648. While the t-Table with an  $\alpha$  level of 5%,  $df (n-k) = 187$  is 1.653, thus the t-statistic ( $0.044648 < t\text{-Table } (1.653)$ ) with a prob value of  $0.9644 > 0.05$ . So, it can be concluded that leverage has no significant effect on environmental disclosure. The management of a company in preparing the Enviromental Disclosure report is not under the influence of stakeholders, especially creditors. Creditors do not put pressure on the management of a company in environmental disclosure activities. Because of the lack of influence and pressure from creditors in environmental disclosure activities, companies will tend to choose to make mandatory disclosures related to the company's financial condition to convince creditors regarding company performance. In decision making, creditors tend to be more interested in the company's financial performance than environmental performance.
4. The probability value of the Competitive Advantage variable is 0.4160 and the t-Statistic value is 0.815248 While the t-Table with an  $\alpha$  level of 5%,  $df (n-k) = 187$  is 1.653, thus the t-statistic ( $0.815248 < t\text{-Table } (1.653)$ ) with a prob value of  $0.4160 > 0.05$ . So, it can be concluded that Comprtitive Advantage has no partial effect on Enviromental Disclosure. Thus, H4 in this study is rejected. This result is caused by the company using competitive advantage as a corporate business strategy focused on creating profitability and good financial performance. Competitive advantage is a corporate strategy that focuses on improving financial performance, so the high and low competitive advantage that the company has is not related to environmental disclosure.
5. The probability value of the company size variable which is influenced by the moderating variable Competitive Advantage of 0.4626 is located and the t-Statistic value is -0.736128. While the t-Table with an  $\alpha$  level of 5%,  $df (n-k) = 187$  is 1.653, with the t-statistic ( $-0.736128 < t\text{-Table } (1.653)$ ) with a prob value of  $0.4626 > 0.05$ . So, it can be concluded that company size which is influenced by the moderating variable Competitive Advantage has no partial effect on Enviromental Disclosure. Thus, H5 in this study is rejected. This happens because companies will prefer to use their

competitive advantages to produce good financial performance rather than social performance.

6. The probability value of the Profitability variable which is influenced by the moderating variable Competitive Advantage is 0.9891 with a t-Statistic value of -0.013667. While the t-Table with an  $\alpha$  level of 5%,  $df (n-k) = 187$  is 1.653, thus the t-statistic (-0.9891) < t-Table (1.653) with a prob value of 0.9891 > 0.05. So, it can be concluded that profitability which is influenced by the moderating variable Competitive Advantage has no partial effect on Enviromental Disclosure. Thus, H5 in this study is rejected. When an entity has a good competitive advantage, the company will generate high business profits. The company no longer considers environmental disclosure as important, because without disclosing the environment the company has gained the trust of stakeholders and the public due to good financial performance.
7. The probability value of the Leverage variable which is influenced by the moderating variable Competitive Advantage is 0.7712 with a t-Statistic value of 0.291295. While the t-Table with an  $\alpha$  level of 5%,  $df (n-k) = 187$  is 1.653, thus the t-statistic (0.291295) < t-Table (1.653) with a prob value of 0.7712 > 0.05. So, it can be concluded that the Leverage variable which is influenced by the moderating variable Competitive Advantage has no partial effect on Enviromental Disclosure. Thus H6. in this study is rejected. The competitive advantage possessed by the entity is used as a business strategy in creating various innovations, the use of these business strategies in the short term will require large costs that will be considered by management, so that a company will allocate its costs to innovate to attract the attention of stakeholders. Comptitiv Advantage is utilized by the company to attract creditors to believe in the company by ignoring environmental disclosure.

## Conclusion

This study is used to determine whether company size, profitability, leverage, and competitive advantage have an influence on environmental disclosure made by the company. So empirical evidence is obtained that company size has an influence on environmental disclosure made by the company. Then the hypothesis in the study is prepared to prove, based on the test results, and the discussion that has been carried out, the following are the conclusions of this study:

1. The first hypothesis testing shows that company size has a positive influence on environmental disclosure made by the company. The bigger a company is, the more extensive the environmental disclosure will be, this is so that the company gets sympathy and and maintains a reputation in front of the public and company stakeholders.
2. The second hypothesis shows if the profitability owned by an entity has no influence on the environmental disclosure made by a company. This is likely to happen because environmental disclosure activities will cost a considerable amount of money so that the costs incurred by the company for environmental disclosure activities will make the profitability obtained by the company decrease.

3. The third hypothesis shows that leverage does not have a significant influence on environmental disclosure activities carried out by an entity.
4. The fourth hypothesis shows that competitive advantage has no influence on environmental disclosure. Research shows that the higher the competitive advantage of an entity, the less environmental disclosure is made.
5. The fifth hypothesis in this study shows that competitive advantage is not able to moderate the effect of company size on environmental disclosure.
6. The fifth hypothesis shows that competitive advantage is not able to moderate the relationship between profitability and environmental disclosure.
7. The sixth hypothesis shows that competitive advantage is not able to moderate the leverage relationship on environmental disclosure activities carried out by an entity.

The simultaneous test results show that company size, profitability, leverage, and competitive advantage together have an influence on environmental disclosure activities carried out by an entity.

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