

Is Green Innovation Moderate Firm Value?

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Abstract:

Background: Firm value and firm performance can maintain competitive advantage by reducing information asymmetry¹ and can improve financial performance and by strengthening corporate social image through disclosure channels. Firm value in improving their financial performance.

Materials & Methods: The population in this study is all companies in Indonesia focusing on manufacturing companies listed on the IDX in 2018 to 2020. The sample is part of the population that has the same characteristics as the population. The sampling technique in this study uses probability sampling technique, which is a sampling technique that provides equal opportunities for each element (member) of the population to be selected as a sample member.

Measurement of carbon emissions using a check list obtained from the CDP or carbon disclosure project. This study adapted the CDP Questionnaire, which consisted of 18 items. Competitive advantage variable, measured using the question whether the company is better in terms of cost level, product and service quality, ability in R & D, managerial ability, profit, revenue growth, first move. Green innovation is obtained through an analysis of the contents of the company's report in the form of an annual report. Firm Value is a perception of stakeholders, especially investors, on the level of company achievement in relation to the stock market price and is measured by a percentage.

Result: The results show that the effect of competitive advantage on firm value by 25% affects firm value and other percentages are influenced by other variables.

Conclusion: The results of this study indicate that green innovation does not moderate competitive advantage by looking at the probability level that exceeds 0.05 or more than 5%. For further research, it is hoped that other authors can develop the value of the company which is influenced by carbon emissions' disclosures.

Keyword: carbon emission disclosure, competitive advantage, green innovation, firm value

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I. Introduction

The problems that occur in top leaders can be resolved during the process of management accounting change that has spread throughout the organization, the role of management accounting strengthens leadership disputes by opening up the reach of other organizational actors, but leadership disputes can shape and strengthen a fragmented organization with several organizational members creating leader-follower relationships converge while others divert and divide with increased turnover, this reinforcement can lead to unexpected outcomes from a process of change in how and by whom accounting is done².

Research conducted by examining the relationship between competitive advantage and firm value is still quite rare, for example research conducted by^{3, 4} which examines the effect of competitive advantage on firm value. However, in his research^{3, 4} using sources of competitive advantage based on geography rather than company resources which are its own competitive strengths^{6, 7, 8} and non-competitive advantages of company resources^{9, 8}.

Quoting from The Intergovernmental Panel on Climate Change (2018)¹⁰, the average global surface temperature increases by 1.50 °C so that climate change will occur in several places, including in Indonesia. One of the causes for this to happen is among others greenhouse gases that are produced from human activities, but unfortunately the disclosure of carbon emissions (carbon emission disclosures) or CED in Indonesia is still voluntary in taking precautions in several companies. Disclosure of carbon emissions is one way to assess carbon emissions and reduce greenhouse gases⁸.

Support the synergistic effect between environmental innovation and company performance, arguing that environmentally friendly product innovation increases company profitability and enhances financial risk mitigation. Moreover, this synergy is strengthened by market and technology volatility¹¹. Environmental innovation trends not only contribute to sustainable development but also pave the way for enterprise-level

efficiency through better allocation of resources. Given the growing magnitude of environmental problems related to business, a solid theoretical foundation can explain the relationship between environmental management, environmental innovation and financial performance¹².

Analysis in difference indicates that innovation performance is worse as well as greater innovation diversity the Alternative Simplified Credit¹³. Firm innovation performance investigates the various innovation determinants proposed in the literature in establishing one variable associated with the introduction of new innovations to firms and new to the world with the purpose of measuring the overall health of the literature¹⁴. The performance of technological innovation encourages technological innovation to be weaker when the intensity of market competition is high, environmental development and technological innovation are sustainable¹⁵.

II. Materials And Methods

Agency theory (agency theory) provides an explanation of the relationship between agencies that arise when one or more people (principal) employ another person (agent) and provide a service which is then delegated authority and decision making to the agent¹⁶. Contingency theory assumes that each leader is a process in which the leader is able to exert influence depending on the task situation of the team as well as the levels of his leadership style, personality and approach that are appropriate to the group[15]. Contingency theory asserts that management's preference over practice reporting is related to the nature of the environment and organizational constraints rather than the relative income effect[15].

A. Carbon Emission Disclosure

The type of gas that emits the most emissions apart from greenhouse gases, one of which is carbon dioxide (CO₂), this is also inseparable from the companies that carry out their activities and are required to reduce the carbon emissions they produce, so that the carbon emissions produced can be reduced[16].

B. Competitive Advantage

Competitive advantage is a process of finding a better method of positioning a company relative to competitors in the context of currently expected market developments⁴. This is also an important goal of all companies, the achievement of which can only occur through a sustainability orientation¹⁹.

C. Green Innovation

Moderating variables are variables that can strengthen or weaken the direct relationship of the independent variable and the dependent variable²⁰. This variable can also directly affect the independent variable on the dependent and can strengthen or weaken the variable²¹.

Green Innovation can be interpreted as an implementation as well as organizational change that has a focus on the environment, with implications for the company's products, manufacturing processes, and marketing, with a different level of novelty²².

D. Control Variable

Control variables are variables that are intentionally controlled or made constant by researchers in an effort to minimize or even eliminate other influences besides independent variables that may affect the results of the dependent variable²¹. Firm size is a measure of the size of a company which is indicated or assessed by total assets, total sales, total profits, tax burden and others²³. According to²⁴ an industry that has been around for a long time, may have had a lot of experience, so that the industry became a lot of data that residents got about the industry.

Study Design: *Causal Comparative Research*

Study Location: Focus on manufacturing companies listed on the IDX

Study Duration: 2018 s.d 2020

Sample Size: 46 Companies

Sample Size Caculation: 46 Firms x 3 = 133 Firms

Subject & Selection Methode: Sampling for research according²⁵, if the subject is less than 100 companies then all are taken, if the subject is greater or more than 100 companies then 10-15% or 20-25% or more are taken.

Inclusion criteria:

1. The data used is secondary data that is taken from the company's financial statements whose source is www.idx.go.id,
2. In this study, the object of research is manufacturing companies listed on the Indonesian stock exchange, the number of manufacturing companies listed for the 2018 - 2020 period is 182 companies.
3. for companies whose financial reports use dollars or other currencies other than rupiah, the researcher will remove them from the sample studied, then for companies whose IPO are above 2018 for example in 2019 and 2020, the researchers will remove them from the sample of this study.

Procedure methodology

Hypothesis Development

A. The effect of carbon emission disclosures has a positive effect on firm value.

Currently, people are increasingly aware of the impact caused by the environment, thus companies running their companies have started to think about environmental needs such as air pollution and environmental pollution caused by waste from the rest of their operations. Stakeholders think that profit is not the only thing that must be considered but the environment must also be considered while running its business²⁶. climate change is increasingly concerning^{26, 18}. Based on the description above, the hypothesis proposed in this study is as follows:

H₁: Carbon emission disclosures have a positive effect on firm value.

B. Competitive advantage has a positive effect on firm value.

The effect of competitive advantage on firm value¹⁸ which states that competitive advantage can increase market value, share price, income, and income. According to signal theory, companies will send positive signals to investors and other stakeholders to respond positively to higher stock prices²⁷. Based on signaling theory, the competitiveness of high-profit companies will indicate the company's current situation and future growth potential. A positive signal will increase stock prices so as to make a positive contribution to company value^{8, 18}. Based on the explanation above, we formulate the following hypothesis:

H₂: Competitive advantage has a positive effect on firm value

C. Green innovation moderates the effect of carbon emission disclosures on firm Value

Companies have reasons for carrying out their business activities, one of which is an innovation strategy that is beneficial and has a positive impact on the company so that the company will grow³⁰, several studies that illustrate the positive relationship between innovation strategy and company performance^{8, 18, 28, 29, 30, 31}. Many studies have observed the relationship between innovation strategy and company performance. The research is only an association, so it doesn't really explain the evidence that actually exists between innovation strategy and company performance. Based on the explanation above, we formulate a hypothesis as follows:

H₃: Green Innovation weakens the effect of carbon emissions disclosures on firm Value.

D. Green Innovation moderates the effect of competitive advantage on firm Value

Green process innovation plays a very important role and plays an important role in optimizing the utilization of materials and streamlining unit costs in the production process so as to produce high quality products³². Green process innovation creates a mechanism in the utilization of all aspects in a well-coordinated manner so as to enable the organization to obtain great benefits. Green process innovation has a positive influence on financial performance³³. Based on the explanation above, we formulate the following hypothesis:

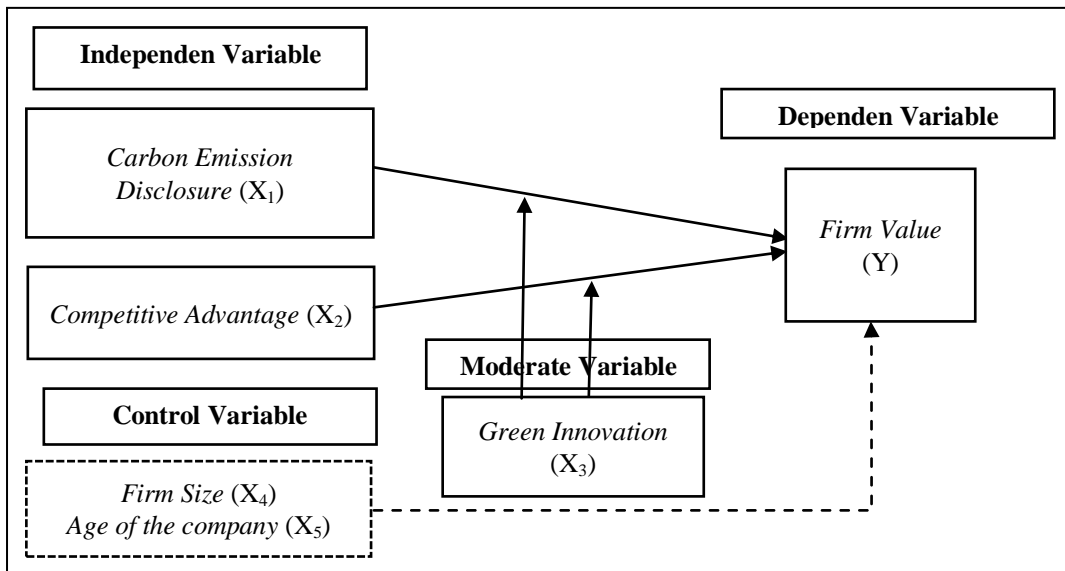
H₄: Green Innovation weakens the influence of competitive advantage on firm Value

Statistical analysis

This study uses a statistical measuring instrument, namely Eviews which is to find out descriptive statistics, correlation tests, classical assumption tests, and multiple regression tests. Descriptive statistics describe existing data into clearer and easier-to-understand information in descriptive statistical tests using eviews version 9. The correlation test aims to measure the strength of the linear relationship between two variables³⁴.

The population correlation value (p) ranges from (interval) $-1 < p < 1$. If the correlation is positive, then the relationship between the two variables is unidirectional. Conversely, if the correlation is negative, then the relationship between the two variables is in the opposite direction. Testing the relationship between variables based on the following criteria: a) If the coefficient is between -1 or 1, then the relationship is "strong". b) If the coefficient is between 0, then the relationship is "Weak". Then there are the classical assumptions which include normality, heteroscedasticity, multicollinearity and regression testing.

Picture 1. Path Concept



Perform multiple regression analysis using Eviews 9 to examine the effect of carbon emissions disclosures, competitive advantage, moderated by green innovation, on firm value. The regression model used in this study is as follows:

$$FV = \alpha_0 + \alpha_1 CED + \alpha_2 CA + \alpha_3 CED * GI + \alpha_4 CA * GI + \alpha_5 FS + \alpha_6 AC + e$$

Where:

FV= Firm Value, CED= Carbon Emission Disclosure, CA= Competitive Advantage, GI= Green Innovation, FS= Firm Size, AC= Age of the company.

III. Result

Descriptive statistics

The following is a statistical descriptive table:

Table 1. Descriptive Analysis

	X1_CED	X2_CA	X3_FS	X4_AC	X5_GI	Y_FV
Mean	0.810507	0.846812	12.41681	17.47826	0.889493	0.432536
Median	1.000000	0.890000	12.24000	20.00000	1.000000	0.305000
Maximum	1.000000	1.000000	14.55000	39.00000	1.000000	2.000000
Minimum	0.110000	0.440000	10.99000	1.000000	0.250000	0.010000
Std. Dev.	0.272229	0.137544	0.747139	11.29512	0.202669	0.418344
Skewness	-1.242642	-0.698037	0.782131	-0.048595	-1.755718	2.045342
Kurtosis	3.311082	2.827972	2.974563	1.613837	5.045990	7.561191
Jarque-Bera	36.07213	11.37704	14.07349	11.10264	94.96845	215.8444
Probability	0.000000	0.003385	0.000879	0.003882	0.000000	0.000000
Sum	111.8500	116.8600	1713.520	2412.000	122.7500	59.69000

Sum Sq.						23.9766
Dev.	10.15286	2.591797	76.47560	17478.43	5.627264	1
Observations	138	138	138	138	138	138

Table 1 above shows that the carbon emission disclosure variable has an average value of 0.81 with a maximum value of 1.00, a minimum value of 0.11 and a distribution value or deviation of 0.27. The competitive advantage variable has an average value of 0.84 with a maximum value of 1.0 and a minimum value of 0.44 and the level of data distribution is 0.13. The firm size variable has an average value of 12.41 with a maximum value of 14.55 and a minimum value of 10.99 and a standard deviation of 0.74. The company age variable has an average value of 17.47 with a maximum value of 39.00 and a minimum value of 1.0 and a standard deviation of 11.29. The green innovation variable has an average value of 0.88 with a maximum value of 1.0 and a minimum value of 0.25 and a standard deviation of 0.20.

Chow Test

The Chow test is a test determination where the test is between two methods, namely the common effect method and the fixed effect method³⁵. The hypothesis in this Chow test is as follows:

H0: Common Effect Model (Prob Value > 0.05)

Ha: Fixed Effect Model. (Prob value < 0.05)

If the chi square probability value is < 0.05 then the model is fixed effect model and if the chi square value is > 0.05 then the common effect model will be selected.

Table 2. Uji Chow

Effects Test	Statistic	d.f.	Prob.
Cross-section F	5.022562	(45,87)	0.0000
Cross-section Chi-square	176.687463	45	0.0000

Dengan melihat dari data diatas maka hasil output uji chow diatas maka nilai probability dari chi square sebesar 0.00, maka < 0.05 sehingga model yang di pilih untuk sementara fixed effect model.

Hausman Test

Hausman test is a statistical test to choose whether to use the Fixed Effect or Random Effect model³⁵. The following hypotheses:

H0: Random Effect Model (prob>0.05)

Ha: Fixed Effect Model (prob < 0.05)

Or it can also be said like this, the Hausman test accepts P Value < 0.05, then the method chosen is the fixed effect.

Tabel 3. Uji Hausman

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.105576	5	0.4031

By looking at the data above, the output of the Hausman test above means that the probability value of random is 0.40, so > 0.05 so that the selected model is temporarily random effect model.

Langrange Multiplier Test

To find out whether the random effect model is better than the common effect model, the Lagrange Multiplier (LM) test is used. The hypothesis used is as follows:

H₀= random effect model

H_a= common effect model

The Lm test is based on a chi-square distribution with a degree of freedom of a number of independent variables. If the p value > 0.05 then accept H₀ which means that the best estimation method is the common effect and p value < 0.05 then the random effect is chosen.

Tabel 4. Uji Langrange Multiplier

	Cross-section	Time	Both
Breusch-Pagan	42.76577 (0.0000)	0.491155 (0.4834)	43.25692 (0.0000)
Honda	6.539554 (0.0000)	-0.700825 --	4.128605 (0.0000)
King-Wu	6.539554 (0.0000)	-0.700825 --	0.663256 (0.2536)
Standardized Honda	7.123930 (0.0000)	-0.358286 --	-0.306561 --
Standardized King-Wu	7.123930 (0.0000)	-0.358286 --	-1.552739 --
Gourierieux, et al.*	--	--	42.76577 (< 0.01)

Multiple Linear Regression Analysis

In this study using Multiple Linear Regression analysis tools to determine the effect of the independent variables (CED, CA, FS AC and GI) on the dependent variable (FV).

Tabel 5. Multiple Linear Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.12165	6.924891	2.761293	0.0066
LOG(X1_CED)	0.025243	0.209543	0.120465	0.9043
X2_CA	0.189537	0.745235	0.254332	0.7996
LOG(X3_FS)	-7.827894	2.757381	-2.838887	0.0052
X4_AC	0.034004	0.017601	1.931907	0.0555
LOG(X5_GI)	0.083099	0.327912	0.253419	0.8003

From the table above, the results of multiple regression analysis are obtained as follows:

$$Y = 19.12165 + 0.025243(X_1) + 0.189537(X_2) - 7.827894(X_3) + 0.034004(X_4) + 0.083099(X_5)$$

Based on the function of the linear regression equation, it can be explained as follows:

- Constant (the absolute value of Y) if the carbon emission disclosure, competitive advantage, firm size, age of the company, green innovation is equal to 0, then the value of the company will have an effect of 19.12165.
- The X_1 coefficient (carbon emission disclosure) is 0.025243, which means that if the carbon emission disclosure increases once, it will cause an increase in firm value of 0.025243 if other variables are constant.
- The coefficient of X_2 (competitive advantage) is 0.189537, which means that if the competitive advantage increases in value once, it will cause an increase in firm value of 0.189537 or a positive effect, if the other variables are constant.
- The coefficient of X_3 (firm size) is 7.827894 which means that if the firm size increases once, it will cause a decrease of 7.827894 or have a negative effect, provided that the other variables are constant.
- The X_4 coefficient (company age) is 0.034004, which means that if the age of the company increases its value by one time, it will increase the value of the company by 0.034004, or has a positive effect with the other values being constant.
- The X_5 coefficient (green innovation) is 0.083099, which means that if green innovation increases by one, the firm value will increase by 0.083099 or have a positive effect with other values constant.

Hypothesis test and Ttest (partial)

The hypothesis is an assumption of the relationship between two or more variables. Hypothesis testing consists of partial test (t), simultaneous test (f), and determination test. Partial testing is intended to determine whether or not there is an effect of independent variables on the dependent variable with the hypothesis. In this t-test is carried out at degrees of freedom ($n-k-1$), where n = the number of data and k = the number of independent variables, for the confidence level is 0.05. So the degrees of freedom are: ($46-5-1=40$), so the t table obtained is 1.68385. If the significance level is less than 0.05 then the proposed hypothesis is accepted or said to be significant (H_a is accepted and H_0 is rejected).

Table 6. Ttest

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.12165	6.924891	2.761293	0.0066
LOG(X1_CED)	0.025243	0.209543	0.120465	0.9043
X2_CA	0.189537	0.745235	0.254332	0.7996
LOG(X3_FS)	-7.827894	2.757381	-2.838887	0.0052
X4_AC	0.034004	0.017601	1.931907	0.0555
LOG(X5_GI)	0.083099	0.327912	0.253419	0.8003

From table 6 the results of multiple linear regression analysis t test are as follows:

1. Testing on the variable carbon emission disclosure (X_1) from the results of the regression analysis, it was found that the t-count value of the X_1 variable was $|0.120465| = 0.120465 < t$ table 1.69726 with prob. $0.90 > 0.05$ then H_0 is accepted and H_a is rejected. It can be concluded that carbon emissions' disclosures have no significant effect on firm value.
2. Testing the competitive advantage variable (X_2) from the results of the regression analysis obtained the t-count value of the X_1 variable worth $|0.254332| = 0.254332 < t$ table 1.69726 with prob. $0.79 > 0.05$ then H_0 is accepted and H_a is rejected. It can be concluded that competitive advantage has no significant effect on firm value.

F-test simultant

F-test is a means of testing to determine whether the independent variables simultaneously (simultaneously) affect the dependent variable.

Table 7. F-test

R-squared	0.075395	Mean dependent var	0.031070
Adjusted R-squared	0.040372	S.D. dependent var	0.504411
S.E. of regression	0.494124	Sum squared resid	32.22891
F-statistic	2.152732	Durbin-Watson stat	1.524671
Prob(F-statistic)	0.063116		

In this f test, it is carried out at degrees of freedom ($k1$), ($n-k$) where n = the number of data and k = the number of independent and dependent variables, for the level of confidence is 0.05. So the degrees of freedom ($46-2$) = 44 then the f table obtained is 3.22. If the significance level is less than 0.05 then the proposed hypothesis is accepted or said to be significant (H_a is accepted and H_0 is rejected).

From table 7 the results of multiple linear regression analysis can be stated that the value of F-statistic (2.152732) $< F$ table (3.22) with a probability (F-statistic) of $0.06 > 0.05$ then H_0 is accepted and H_a is rejected. It can be concluded that carbon emission disclosure and competitive advantage simultaneously have no effect on firm value.

Coefficient of Determination Test (R_2)

The coefficient of determination (R_2) is used to measure how far the regression model's ability to explain the variation of the dependent variable.

Table 8. Coefficient of Determination Test

R-squared	0.075395	Mean dependent var	0.031070
Adjusted R-squared	0.040372	S.D. dependent var	0.504411
S.E. of regression	0.494124	Sum squared resid	32.22891
F-statistic	2.152732	Durbin-Watson stat	1.524671
Prob(F-statistic)	0.063116		

From the results of multiple linear regression calculations seen from table 8, the results obtained from the number of samples as many as 46 with an Adjusted R-squared (R_2) value of 0.040372 which can be interpreted that the variation of the independent variable carbon emission disclosure (X_1), competitive advantage (X_2), can explain the variation of the dependent variable firm value (Y) of 4%. This means that the regression model can provide the information needed to predict the variation of the dependent variable. The remaining 96% is explained by factors other than the three factors in the model.

Regression Analysis Moderating (RAM)

a. Green Innovation moderates the effect of carbon emissions' disclosures on firm Value

Table 9. Regression Analysis Moderating 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.535499	1.072152	-0.499461	0.6183
LX1_CED	-0.230724	0.419690	-0.549749	0.5834
LX5_GI	-0.212966	0.606933	-0.350888	0.7262
M1	0.793924	1.174893	0.675742	0.5004

The hypothesis proposed in this study is to test whether green innovation is able to moderate the relationship between carbon emission disclosures and firm value. In table 9 the probability value of the interaction of carbon emission disclosure with green innovation (Z_1) is 0.5834 which is greater than 0.05 with a t-Statistic value of -0.549749. This means that green innovation is not able to moderate the relationship between CED and firm value, so it can be concluded that the results of this hypothesis state that GI is not able to moderate the relationship between CED and firm value.

b. Green Innovation moderates the effect of competitive advantage on firm Value

Table 10. Regression Analysis Moderating 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.047663	0.699323	-0.068156	0.9458
X2_CA	1.295808	2.139101	0.605772	0.5457
LX5_GI	0.501781	0.864015	0.580755	0.5624
M2	-1.086310	2.149256	-0.505436	0.6141

The hypothesis proposed in this study is to test whether green innovation is able to moderate the relationship between competitive advantage and firm value. In table 10 the probability value of competitive advantage interaction with green innovation (Z_2) of 0.5457 is greater than 0.05 with a t-statistic value of 0.605772. This means that green innovation is not able to moderate the relationship between CA and FV, so it can be concluded that the results of this hypothesis state that GI is unable to moderate the relationship between CA and FV.

IV. Discussion

In this discussion, the author initially tested the classical assumptions first, then the research model used in this study was declared to have passed the classical assumption test through the collected data. The discussion of the results of this study is as follows:

The First, carbon emission disclosure on company value. The results of data analysis show that the variable carbon emission disclosure (X_1) on the value of the company shows an insignificant value of 0.9043. This indicates that the value is greater than 0.05 and the results obtained show that the t-count value of the variable carbon emissions disclosure is less than t 0.120465. < T-table 1.69726 with prob. 0.90 > 0.05 then H_0 is accepted and H_a is rejected. It can be concluded that carbon emissions' disclosures have no significant effect on firm value.

The second, competitive advantage on company value. The results of data analysis show that the Competitive advantage variable (X_2) shows an insignificant value of 0.7996, this indicates that the value is greater than 0.05 and from the results of the regression analysis, the t-count value of the X_1 variable is $|0.254332| = 0.254332 < t$ table 1.69726 with prob. 0.79 > 0.05 then H_0 is accepted and H_a is rejected. It can be concluded that competitive advantage has no significant effect on firm value.

The third, moderation of green innovation on carbon emission disclosures on firm value. The results of the data analysis show that the green innovation variable cannot moderate carbon emissions' disclosures to firm value. This result is shown by the probability value of interaction of carbon emission disclosure with green innovation (Z_1) of 0.5834 which is greater than 0.05 with a t-Statistic value of -0.549749. This means that green innovation is not able to moderate the relationship between CED and firm value, so it can be concluded that the results of this hypothesis state that GI is not able to moderate the relationship between CED and firm value.

The fourth, moderation of green innovation on competitive advantage against firm value. The results of the data analysis show that the green innovation variable cannot moderate competitive advantage against firm value. This result is indicated by the probability value of competitive advantage interaction with green innovation (Z_2) of 0.5457 which is greater than 0.05 with a t-statistic value of 0.605772. This means that green innovation is not able to moderate the relationship between CA and FV, so it can be concluded that the results of this hypothesis state that GI is unable to moderate the relationship between CA and FV.

V. Conclusion

Based on the results of data analysis and discussion, the authors obtain conclusions that can be drawn from research on the effect of carbon emission disclosures, competitive advantage on firm value for the period 2018-2020 as follows:

1. The results of the study which show the effect of carbon emissions' disclosures on firm value by 12% affect the value of the company and other percentages are influenced by other variables.
2. The results of the study show that the effect of competitive advantage on firm value by 25% affects firm value and other percentages are influenced by other variables.
3. The results of the study show that green innovation does not moderate carbon emissions with a probability level of more than 0.05 or more than 5%.
4. The results of this study indicate that green innovation does not moderate competitive advantage by looking at the probability level that exceeds 0.05 or more than 5%

The limitation of this research is that there are still a few titles that use green innovation as a moderating variable, while in this study green innovation affects the development of green products and carbon emission disclosures.

The benefits expected from the results of this study include for readers, the results of this study are expected to add insight to knowledge related to company value and the factors that influence it. Especially those who are interested in knowing more about company values, it is necessary to modify the independent variables, either adding variables or adding time series data. So it will be more objective and varied in conducting research. For students and educators, as a reference in developing knowledge for the future in an effort to increase knowledge related to company value which is influenced by carbon emission disclosures. For the general public and practitioners, I hope this research can provide notice of how important it is to protect the environment caused by companies because companies are only profit-oriented, not environmentally oriented.

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