The Influence of Proper Rating, Industrial Type, Gender Diversity on Carbon Emission Disclosure (Case Study at LQ45 Companies Listed On The Indonesia Stock Exchange 2019-2021 Period)

Wahdan Arum Inawati, Muhammad Taufiqi
Faculty of Economics and Business
Telkom University
Dayeuhkolot, 40257, Kabupaten Bandung, Indonesia
wahdanaruminawati@telkomuniversity.ac.id
muhammadtaufiqi@student.telkomuniversity.ac.id

Abstract

This study aims to examine the effect of Proper Rating, Industrial Type, and Gender Diversity on Carbon Emission Disclosure. The population used in this study is LQ45 companies listed on the Indonesia Stock Exchange with a research period of 2019-2021. The method of sample selection is done by purposive sampling. Only 23 companies meet the criteria. The hypothesis in this study was tested using the F-test and t-test. The data analysis technique used in this study is the classic assumption test and multiple linear regression test. The results of the study showed that all variables were declared free of interference from existing classical assumptions. From the result of multiple linear regression tests, the results of the f test are obtained at 4.839184 with a significant value of 0,004 less than 0,05. This means that Proper Rating, Industrial Type and Gender Diversity on Carbon Emission Disclosure in LQ45 Companies listed on the Indonesia Stock Exchange in 2019-2021 have a significant simultaneous effect. Partial testing shows results Gender Diversity has a negative effect on Carbon Emission Disclosure, while Proper Rating and Industrial Type do not affect Carbon Emission Disclosure.

Keywords:
Carbon Emission Disclosure, Gender Diversity, Industrial Type, LQ45 Companies, Proper Rating

1. Introduction

Climate change is the result of the phenomenon of global warming which has a negative impact on people's life activities. The negative impacts of climate change include a rise in sea surface temperature, extreme weather intensity, changes in rainfall patterns and large waves (Nurhayati et al., 2020). Carbon pollution is one of the problems found in carbon accounting. Explained that the company's carbon accounting reporting can be combined with corporate social responsibility (CSR) reporting. Through carbon emission disclosure, stakeholders can assess a company's participation in reducing greenhouse gases (GHG) and as a sign of the company's concern for the surrounding environment. (Figure 1). The phenomena related to the environment that are happening today are not only related to the company's responsibility to the surrounding environment. However, the global issue is climate change caused by the activities of companies that produce excessively emitted gases. Climate change makes it mandatory for companies to reduce the gas emissions produced by conducting carbon trading (emission trading). Companies must be able to maximize greenhouse gas (GHG) reductions and be able to include accounting and management capabilities in the context of budgeting for the purchase or sale of emission loans in the future (Pratiwi, 2018)

In 2021, Indonesia is the country with the fifth largest producer of carbon emissions in the world with an average number of emissions of 4.1% of the total of 2,500 billion tons from 1850 to 2021. So that Indonesia produced 102.5 billion tons from 1850 to 2021 (Sari, 2022). One example of a decrease in environmental quality is the case of air pollution carried out by the company PT. Adaro Power is a subsidiary of PT. Adaro Energy in 2018. The company causes damage to the surrounding environment, from rare and even polluted clean water, mud polluting rice fields, and less productive agricultural areas to air pollution due to the dust of coal transportation traffic.
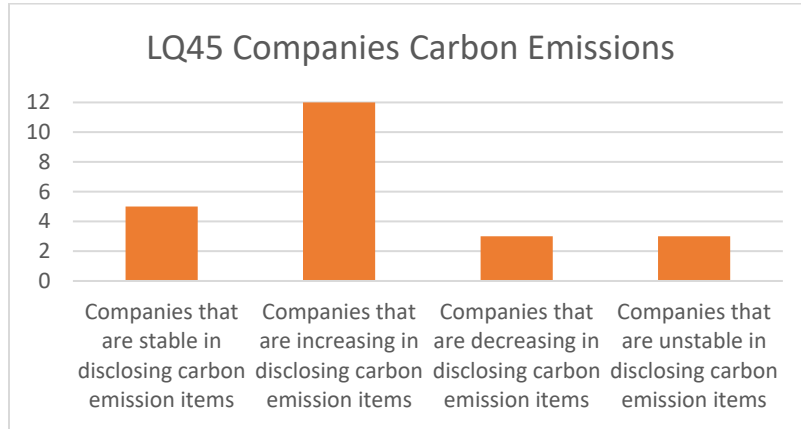
Source: *Processed data (2022)*

Figure 1. The figure of Quality Checklist Items of Carbon Emissions Disclosure of an LQ45 Company in 2019-2021

There are 18 items on the carbon emission disclosure quality checklist, in the table above it can be seen that LQ45 companies in 2019-2021 still have diversity in disclosing carbon emissions. After eliminating the company sample, it was explained that 5 companies were stable in disclosing carbon emission items, 12 companies increased in disclosing carbon emission items, 3 companies decreased in disclosing carbon emission items, and the last 3 companies were unstable in disclosing carbon emission items (Ramadhani & Venusita, 2020). Therefore, with the results that are still diverse, it is a phenomenon of this research

Companies with high Proper Ratings explain that these companies have been active in tackling environmental problems and contributing directly to environmental conservation, therefore companies will take the initiative to disclose information about the environment, especially carbon emissions in the annual report to inform their environmental performance which will be indirectly observed by external parties. (Nurlis, 2019)

Industrial Types are divided into 2 types, namely companies that are intensive in producing carbon such as the agricultural sector, mining, basic industries & chemicals, and infrastructure, utilities & transportation tend to disclose information related to environmental aspects but rather with companies that are not intensive in producing carbon from their operational activities. (Apriliana et al., 2019)

Gender Diversity and the Greenhouse Gas Voluntary Disclosure, showing that gender-diverse councils can serve a broader and more diverse stakeholder, it is also stated that women can perform better in addressing environmental issues. important than men because they tend to be more sensitive to social issues. (Tingbani et al., 2020)

1.1 Objectives
The goal of our research is to find out the influence of Proper Rating, Industrial Type and Gender Diversity on Carbon Emission Disclosure in the LQ45 Companies Listed on The Indonesia Stock Exchange (IDX) in 2019-2021.

2. Literature Review

2.1 Carbon Emission Disclosure
Carbon emission is a gas that arises from the combustion of compounds containing carbon, for example CO_2 which is the exhaust gas from the combustion of gasoline, diesel, wood, leaves, LPG gas and other fuels containing hydrocarbons. the impact of these 15 activities causes environmental pollution such as climate change, air pollution, rising earth temperature and others. Seeing these conditions, companies are expected to participate in protecting the environment by revealing activities that play a role in climate change, one of which is the disclosure of carbon emissions. This disclosure is expected to reduce the volume and extent of carbon emissions produced by the company. by using the carbon emissions index where if the company discloses the specified item, it will be given a score of 1, while if the item found is not disclosed, it will be given a score of 0 in its entirety and divided by the maximum number of items that can be disclosed and then multiplied by 100%. (Dewi & Aldhani, 2021)

2.2 Proper Rating

Environmental Performance is the company's ability to protect the surrounding environment as a form of responsibility for the company's operational impacts, such as the processing of raw materials and energy use. Companies can improve their environmental performance by using environmentally friendly energy, using raw materials efficiently, and participating in environmental programs made by the government. The program is PROPER (Company Performance Rating Assessment Program in Environmental Management). It was created by the Indonesian Ministry of Environment and Forestry to encourage observance of environmental regulations by a company (Maulidiavitasari & Yanthi, 2021). The purpose of this PROPER assessment program is to encourage companies to implement a good system in environmental management, to increase efficiency in waste reduction. The assessment of the program is divided into five levels, namely gold, green, blue, red, and black. With this program, the government hopes that companies can improve their environmental management performance by disclosing carbon emissions regularly.

2.3 Industrial Type

Type of industry that comprises a company based on the scope of operations; company risks as well as ability in facing business challenges. Industrial types can be distinguished into high profile and low profile. High-profile industry types in general companies that get attention from the public because their operating activities are related to broad interests, so in case of negligence in securing processes and results production will be fatal to society, an example is industry mining, plantations, and others. In contrast, low-profile industrial types do not get the attention of the public if it experiences negligence in their operation, as an example is the banking industry, companies that have an impact great against the environment will be required to disclose that information to explain the environment more compared to companies that have a small impact on the environment (Dewi & Aldhani, 2021). The type of industry referred to in this study is the global industry classification according to the international standard Global Industry Classification Standard (GICS), which is classified into 2 large types, namely high profile and low profile adopted from the International Global Industry Classification Standard (GICS). Score 1 is awarded to enterprises belonging to intensive industries of earning emissions (Firms in emission-intensive industries) which include types of industries engaged in energy, transportation, raw materials (materials), and chemistry (Mulya & Rohman, 2020).

2.4 Gender Diversity

Several notions have been issued regarding Good Corporate Governance (GCG). Forum for Corporate Governance in Indonesia (FCGI) describes corporate governance as a set of regulations governing the relationship between holders, administrators (managers) companies, creditors, governments, employees, and stakeholders other internal and external relating to their rights and obligations or in other words a system that regulates and controls the company. The purpose of GCG according to FCGI is to create added value for stakeholders. FCGI also argues that if the company implements GCG, then the profit is can be obtained by companies, including companies easier to obtaining additional; the cost of capital becomes lower; Increase business performance; and has a good impact on the company's share price (Ulfa & Asyik, 2018). Gender diversity is the composition of women in the ranks of the highest leaders in the company. The existence of diverse gender can influence decision-making and company policies. deep women's decision-making is more careful compared to men who tend to be practical. The composition of women in the company has a role important. Women within the company can play a role in decision-making and can serve in important positions in the company (Ziaul-Haq & Suryani, 2021).

3. Methods

This study uses quantitative methods because test theories and hypotheses that use variables and analyze data from Proper Rating, Industry Type, and Gender Diversity to Carbon Emission Disclosure. inner population This research is an LQ45 company listed on the Indonesia Stock Exchange (IDX) in 2019-2021 there were 55 companies. The documentation used in this study is annual reports and sustainability reports of companies listed on the Exchange Indonesia's effect in 2019-2021. The annual report is used to calculate and analyze independent variables, namely Proper Rating, Industrial Type and Gender Diversity. Meanwhile, the sustainability report is used to analyze dependent variables, namely Carbon Emission Disclosure. This research applies quantitative research using secondary data. A sample methodology with considerations was utilized in this investigation, namely: (1) LQ45 companies listed on the Stock Exchange Indonesia in 2019-2021 a total of 55 companies. (2) Inconsistent companies go inside LQ45 listed on the Indonesia Stock Exchange in 2019-2021 a total of 21 (3) LQ45 Companies listed on the Stock Exchange

Inconsistent 2019-2021 Indonesia revealed a Sustainability Report of 11. The total of observations obtained from 23 companies for 3 years with 69 research samples

Based on the research objectives mentioned in the previous section, to complete the analysis, multiple linear regression analysis was used. Based on the analysis of multiple linear regression analysis using the EViews program, the following hypothesis will be proposed:

H1	:	Proper Rating, Industrial Type and Gender Diversity simultaneously affect Carbon Emission Disclosure of LQ45 Companies Listed on The Stock Exchange Indonesia (IDX) for the 2019-2021 Period
H2	:	Proper Rating has a positive effect partially on Carbon Emission Disclosure of LQ45 Companies Listed on The Stock Exchange Indonesia (IDX) for the 2019-2021 Period
H3	:	Industrial Type has a positive effect partially on Carbon Emission Disclosure of LQ45 Companies Listed on The Stock Exchange Indonesia (IDX) for the 2019-2021 Period
H4	:	Gender Diversity has a positive effect partially on the Carbon Emission Disclosure of LQ45 Companies Listed on The Stock Exchange Indonesia (IDX) for the 2019-2021 Period

3.1 Variable Measurement
In this section, each of the measurements for each variable is presented in Table 1.

Table 1. Research Variable

Variable	Information	Measurement
Carbon Emission Disclosure	Carbon Emission Disclosure is a form of one of the forms Concern company guard neighborhoods which is due to carbon impact the resulting by the company. Forms of concern company with Reveal carbon emissions on its annual report (Dewi & Aldhani, 2021)	Total score 1 obtained by a company divided by Max item total that can be expressed
Proper Rating	PROPER is an assessment program towards efforts person in charge of undertakings or activities to control pollution and Damage Environment and management of waste that is dangerous and Toxic (Maulidiavitasari & Yanthi, 2021)	0 means excluding ordinal participants, 1 means black or Very Bad, 2 means red or Bad, 3 means blue or Good, 4 means green or Very Good, 5 means gold or Perfect
Industrial Type	Industrial types can distinguished be between high profile and low profile. high profiles that be large companies so that will be looked at by society. While low profile company the Opposite did not get more attention from society. So a company with a high profile should be concerned for the environment. (Latifah, 2019)	1 means the company that is intensive in producing emissions. 0 means that the company does not produce emissions
Gender Diversity	Gender diversity is composition females in lead-up highest in the company. The existence of Diversity in gender can affect deep Retrieval decisions and policy companies. (Ziaul-Haq & Suryani, 2021)	Women on board divided by Total members on board

4. Results and Discussion

4.1 Numerical Results

Table 2. Descriptive Statistical Analysis

Information	*Carbon Emission Disclosure* (Y)	Proper Rating (X_1)	Type Industri (X_2)	*Gender Diversity* (X_3)
Mean	0.504206	2.159420	0.695652	0.129525
Maximum	0.666667	5.000000	1.000000	0.437500
Minimum	0.166667	0.000000	0.000000	0.000000
Std. Dev.	0.108348	2.033710	0.463502	0.104616
Observations	69	69	69	69

Source: *Processed data (2022)*

Descriptive statistical analysis is a type of statistic to analyze the data that has been collected by explaining and describing the data in the actual situation and not concluding in general (Sugiyono, 2019). Table 2 shows statistical reports for variables used in regression calculations

A classical assumption test is an analysis carried out to assess whether in a linear regression model ordinary least square (OLS) or the least squares method there is a problem of classical assumption problem. In regression analysis, several assumptions must be met so that the resulting regression equation will be valid if used to predict a problem. Four classical assumption tests must be carried out in multiple linear regression models, namely the Normality Test, the Multicholinearity Test, the Autocorrelation Test, and the Heteroskedasticity Test. (Mardiatmoko, 2020)

Table 3. Normality Test

Probability	0.167318

Source: *Processed data (2022)*

Based on Table 3. shows the results of the normality test, the obtained a probability value of 0.167318. This probability value is greater than the error value which is worth 0.05. These results explain that the data in this study are distributed normally, and no problems occurred on the normality test.

Table 4. Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.000837	5.751868	NA
X1	4.93E-05	2.959781	1.380477
X2	0.000950	4.543996	1.382955
X3	0.013925	2.637584	1.032150

Source: *Processed data (2022)*

Based on Table 4. shows the results of the multicollinearity test, obtained the centered variance inflation factor (VIF) value of each Proper Rating variable worth 1.380477, Industrial Type worth 1.382955, and Gender Diversity worth 1.032150. The VIF value of the variables is less than 10 (VIF fewer than 10). The result explains that the data used in this study did not there is a problem of multicollinearity and there is no correlation between independent variables contained in the study.

Table 5. Autocorrelation Test

F-Statistic	0.730989	Prob. F(2,63)	0.4855
Obs*R-Squared	1.564900	Prob. Chi-Square	0.4573

Source: *Processed data (2022)*

Based on Table 5. which shows the results of the autocorrelation test, obtained prob value. Chi-Square in this study was valued at 0.4573. The value is greater than 0.05 (Prob. Chi-Square more than 0.05). The results explain that on the data used in this study there were no autocorrelation problems.

Table 6. Heteroskedasticity Test

F-Statistic	1.428975	Prob. F(8,60)	0.2033
Obs*R-Squared	11.04262	Prob. Chi-Square (8)	0.1993
Scaled Explained	12.87063	Prob. Chi-Square (8)	0.1164

Source: *Processed data (2022)*

Based on Table 6. which shows the results of the Heteroskedasticity test, obtained prob value. Chi-Square in this study was worth 0.1164. The value is larger than 0.05 (Prob. Chi-Square more than 0.05). The results explain that in the data used in this study there was no heteroskedasticity problem.

Table 7. Coefficient of Determination

R-squared	0.182570
Adjusted R-squared	0.144843

Source: *Processed data (2022)*

Based on Table 7. shows the adjusted R-squared value contained in the random effect model testing model in this study is 0.144843 or about 14.48%. The adjusted R-squared value shows that the variables Proper Rating, Industrial Type, and Gender Diversity can explain the dependent variable Carbon Emission Disclosure of 14.48%, and the rest of the 0.855157 or 85.51% is explained by other different variables outside research.

Table 8. Simultaneous Hypothesis Test (F Test)

F-Statistic	4.839164
Prob(F-Statistic)	0.004220

Source: *Processed data (2022)*

Based on table 8. known if the probability value is Prob(F-Statistic) in this research model of 0.004220. The value is less than the value 0.05 (0.004220 fewer than 0.05), this explains that in this study H_0 was rejected and H_a is accepted, this explains that the independent variables present in the study (Proper Rating, Industrial Type and Gender Diversity) simultaneously affect the dependent variable is Carbon Emission Disclosure.

Table 9. Partial Hypothesis Test (T-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.504697	0.028928	17.44654	0.0000
X1	0.004173	0.007020	0.594455	0.5543
X2	0.045774	0.030828	1.484826	0.1424
X3	-0.320596	0.117994	-2.717048	0.0084

Source: *Processed data (2022)*

Based on Table 9. Proper Rating (X1) has a probability value of 0.5543 more than 0.05 and the value of the Proper Rating regression coefficient of 0.004173. Therefore, it is concluded that proper rating (X1) has no effect partially on Carbon Emission Disclosure. Industrial Type (X2) has a probability value of 0.1424 more than 0.05 and the value of the Industrial Type regression coefficient of 0.045774. Therefore, it is concluded that Industrial Type (X2) has no effect partially on Carbon Emission Disclosure. Gender Diversity (X3) has a probability value of 0.0084 fewer than 0.05 and the value of the Gender Diversity regression coefficient is -0.320596. Cause that, it is concluded that Gender Diversity (X3) is partially influential negative to Carbon Emission Disclosure.
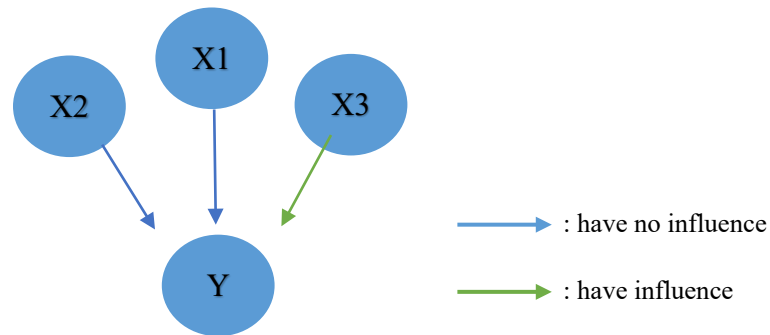
4.2 Graphical Results

Figure 2. Directed graph of the relationship of all variables

Directed graphs for all variables in Figure 2, concluded the following points
1.   X1 (Proper Rating) does not affect Y (Carbon Emission Disclosure)
2.   X2 (Industrial Type) does not affect Y (Carbon Emission Disclosure)
3.   X3 (Gender Diversity) influences Y (Carbon Emission Disclosure)

4.3 Proposed Improvements
By expanding the object and period of research, research results change. For example, the LQ45 Industry was expanded into the manufacturing sector and the research period was increased to 5 years. Figure 3 below shows the approximate trending graph obtained after expanding the object and research period.
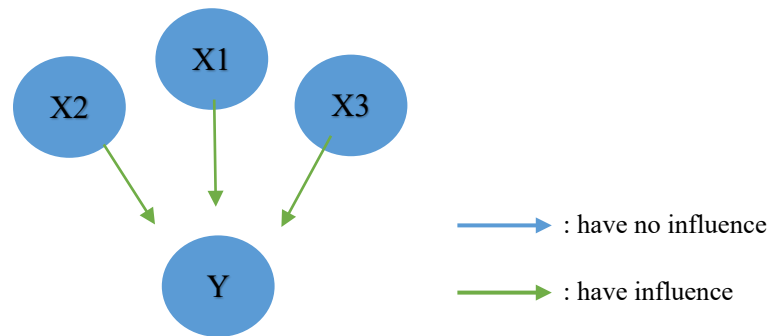

Figure 3. A directed graph of the relationship of all independent variables affects the dependent variable

4.4 Validation
The Effect of Proper Rating, Tipi Industry and Gender Diversity on Carbon Emission Disclosure
Based on the results of tests that have been completed, it shows that the significance value (Prob. F-statistics) using a Simultaneous Hypothesis Test (F Test) of 0.004220 is fewer than 0.05, so then H_0 is rejected and H_a is accepted as a result of which it can be deduced that Proper Rating, Industrial Type and Gender Diversity simultaneously have a notable impact on Carbon Emission Disclosure in the LQ45 Companies Listed On The Indonesia Stock Exchange (IDX) in 2019-2021.

This means that Proper Rating, Industrial Type and Gender Diversity substantially impact Carbon Emission Disclosure, so companies must pay attention to these three independent variables or free variables to produce and improve the company's concern for the environment.

The Effect of Proper Rating on Carbon Emission Disclosure

Partial hypothesis test results or t-test in table 10. the probability value on the Proper Rating variable is worth 0.5543 with a regression coefficient of 0.504697. The results show that the Probability Value of Proper Rating is higher than the value of 0.05 or 5% which means that H_0 is accepted, and H_a is rejected, meaning that the Proper Rating variable does not affect Carbon Emission Disclosure. The results in table 4.4 show the relationship between Proper Rating and Carbon Emission Disclosure, it can also be seen that of the 69 research samples, the largest percentage in the proper rating is worth 0, namely Excluding Ordinal Participants with a Carbon Emission Disclosure value below the average of 21 research samples or 30.43%.

These results do not correspond to the study's hypothesis that Proper Rating has a positive effect on Carbon Emission Disclosure. Research results this is in line with the research conducted by Kholmi et al. (2020) Performance of the environment partially does not affect the disclosure of carbon emissions possible because companies that have a high PROPER rating are no guarantees that the company will make disclosures of carbon emissions. company will focus on environmental disclosures that are directly related to their production activities. Like Adaro Energy Tbk., the company is getting a gold predicate, but the information disclosed is not optimal, and Bumi Serpong Damai Tbk. which does not include ordinal participants, emission disclosure of the carbon is also not optimal.

The Effect of Industrial Type on Carbon Emission Disclosure

The results of the partial hypothesis test or t-test are in table 10. can be known that the value of the probability on the Industrial Type variable is worth 0.1424 with a regression coefficient of 0.045774. The result shows that the probability value of the Industrial Type is higher than a value of 0.05 or 5% which means H_0 is accepted, and H_a is rejected, meaning that the variable Type The industry does not affect Carbon Emission Disclosure. Results in table 4.6 show the relationship between Industrial Type and Carbon Emission Disclosure can be known also that of the 69 research samples, the largest percentage in Industrial Type is worth 1 that is, intensive companies produce emissions with a carbon emission value Disclosure above the average of 28 study samples or 40.57%.

These results do not correspond to the study's hypothesis that Type The industry has a positive effect on Carbon Emission Disclosure. The result of this research is in line with the research conducted by Gunawan & Meiranto (2020) which explains that companies that produce a lot of gas emissions greenhouses (high profile) tend not to reveal more greenhouse gas emissions complete compared to companies that produce greenhouse gas emissions, there are not many emissions (low profile). This is because companies that are low in emissions are also disclosing greenhouse gas emissions to gain legitimacy from society, government, and investors to have a good image to the stakeholders. So, it is explained that the Type of Industry does not affect Carbon Emission Disclosure.

The Effect of Gender Diversity on Carbon Emission Disclosure

Partial hypothesis test results or t-test in table 10. it can be known that the value of the probability on the Gender Diversity variable is worth 0.0084 with a coefficient regression of -0.320596. These results show that the probability value of Gender Diversity is lower a value of 0.05 or 5% which means H_0 is rejected, and H_a is accepted, meaning that the Gender Diversity variable negatively affects Carbon Emission Disclosure. The results in table 4.2 show the relationship between Gender Diversity and Carbon Emission Disclosure can also be seen that from 69 research samples, the percentage of the largest in Gender Diversity below average with Carbon Emission values Disclosure was above the average of 22 research samples or 31.88%.

These results do not correspond to the study's hypothesis that Gender Diversity positively affects Carbon Emission Disclosure. The results of this study are in line with the research results of Grediani et al. (2020) which explained that the female board of commissioners had a negative influence and was significant to the disclosure of greenhouse gas emissions, women's councils may be more supportive of greenhouse gas emission disclosure initiatives than members men's council. Nevertheless, the existence of women's councils has not been dominant in companies in Indonesia, as evidenced in this study the declining proportion of board women instead increased disclosure of greenhouse gas emissions. So that explains that Gender Diversity negatively affects Carbon Emission Disclosure.

5. Conclusion

This research was conducted to see the influence of Proper Rating, Industry Type, and Gender Diversity on LQ45 company's Carbon Emission Disclosure which was listed on the Indonesia Stock Exchange in the period 2019-2021. The total research sample totaled 69 samples totaling 23 companies. Based on the results of statistical analysis descriptive, simultaneous, and partial testing with multiple linear regression analysis. Independent variables such as proper rating, industrial type, and gender diversity simultaneously affect the Company's Carbon Emission Disclosure LQ45. Proper Rating has no effect partially on Carbon Emission Disclosure LQ45 companies listed on the Indonesia Stock Exchange in the period 2019-2021, Industry Type has no effect partially on Carbon Emission Disclosure LQ45 companies listed on the Indonesia Stock Exchange in the period 2019-2021 and Gender Diversity negatively affects partially Carbon Emission Disclosure of LQ45 companies listed on the Indonesia Stock Exchange on period 2019-2021.

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Biography

Wahdan Arum Inawati is a Lecturer and Researcher in Department of Economics and Business at Telkom University, Indonesia. She obtained her master's degree from Trisakti University. Her research interest includes financial accounting, governance, and sustainability disclosure.

Muhammad Taufiqi is a student at Telkom University – Faculty Economic and Business. Currently taking a bachelor's degree in accounting. Has qualified Tax Brevet Training certificate in 2021. Had an experience in internship at Babek TNI Cakung, Jakarta Utara in 2021. Apart from academics, he's a Singer and Producer that has multiple certificates in music. He's one of the founders of a start-up business named Varkaas that runs in creative fields such as music and visuals