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DETERMINANT OF EMISSION CARBON DISCLOSURE WITH INDEPENDENT BOARD OF COMMISSIONERS AS MODERATION IN INDONESIAN MANUFACTURING COMPANIES

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Abstract: *A proper disclosure of carbon emissions might indicate that the corporation has conducted its operations in accordance with societal norms. Companies that obtain public support might encourage investors to invest their capital. A company's product sales can increase if it has gained public trust. The purpose of this study was to determine the effect of environmental performance, growth earnings, audit committee, on emission carbon disclosure with board of independent commissioners as moderating. Researchers employed a quantitative study. The population in this study were all companies in the manufacturing sector listed on the Indonesia Stock Exchange totaling 201 companies which were always listed for 4 consecutive years. The sample was selected using purposive sampling and obtained 60 research objects. The study findings indicated that environmental performance and revenue growth affected carbon emission disclosure, , while the audit committee had no effect on emission carbon disclosure. Board of commissioners as moderating was able to strengthen the effect of the environmental performance, and growth earnings and audit committee on the emission carbon disclosure.*

Keywords: *Audit Committee, Board of Independent Commissioners, Emission Carbon Disclosure, Environmental Performance; Growth Opportunity*

INTRODUCTION

In the era of globalization and tight economic competition today, companies compete in business or operational activities to obtain high profits (Preuss, Barkemeyer, and Glavas 2016 and Epuran et al. 2017). It benefits the condition for maintaining the company's business continuity and fulfilling its responsibilities to related parties (Bouraoui et al. 2019). In addition to seeking profits, companies are also required to be able to carry out social activities and environmental care as a form of dedication to the impact of the activities carried out by the company (Meiryani et al. 2023; Bouraoui et al. 2019; Tonay and Murwaningsari 2022). Companies need to gain legitimacy from the public to survive in economic competition, especially in the digital era, where information is quickly spread. Companies affected by cases of environmental destruction will get a bad image from the community, which will have an impact on company sales (Kurnia, Emrinaldi Nur, and Putra 2021 and Tobing, Zuhrotun, and Rusherlistyani 2019)

The operational activities carried out by companies in Indonesia often ignore the impact on the environment (Hermawan et al. 2018 and Osman 2024). Environmental destruction that occurs due to the effect of company operations can disrupt the sustainability of natural resources, which will have a negative impact in the long term and the short term (Meiryani et al. 2023). Manufacturing is one of society's most crucial industrial sectors, and its operational activities often intersect with the environment and society (Hermawan et al. 2018 and Meiryani et al. 2023). One of the pollutants that are harmful to humans is carbon pollution, which can cause forest fires, major storms, and diseases of the human respiratory tract (Hermawan et al. 2018; Meiryani et al. 2023; Huseynli 2024)

Companies can disclose their environmental responsibility by publishing an emission carbon disclosure report in the sustainability report (Kurnia, Emrinaldi Nur, and Putra 2021; Hermawan et al. 2018; Meiryani et al. 2023). Regulated by the Global Reporting Initiative (GRI) (Meiryani et al. 2023; Saraswati, Puspita, and Sagitaputri 2021)

Emission carbon disclosure is a company must measure, recognize, record, present, and disclose carbon emissions. Through carbon emission disclosure, companies can prevent and reduce carbon emissions. Disclosure of carbon emissions can allow investors, governments, and the general public to monitor and regulate carbon emissions that impact the company's environmental performance (Ramadhan, Ermaya, and Wibawaningsih 2021).

Companies with good carbon emission disclosures indicate that the company is responsible for its operational activities (Herawaty, Lambintara, and Daeli 2021). Good carbon disclosure can maintain resource sustainability for the future. Companies that report carbon emissions disclosure well can improve their good image in the eyes of the public because they support and preserve clean air, which will encourage investors to be interested in investing their capital in these companies and will also encourage consumers to buy products from companies that have a good image.

The low level of carbon emission disclosure made by a company indicates the company's irresponsibility to the surrounding environment where the company operates. The negative impact of a company not caring about the environment and not publishing carbon emission disclosures is the destruction of natural resources around it. The damage to the company's good name in the eyes of the public can impact users of financial statements, such as investors and creditors losing confidence in the company. Worse yet, companies can receive sanctions from the government (Anna and R.T 2019). Companies affected by cases of environmental damage will also receive material losses such as fines given by the government (Jurnali and Manurung 2023). The duties of independent commissioners have become important after the strengthening of environmental regulations that must be complied with by every company in Indonesia, the supervision carried out on companies has become more and more strict, including the role of the independent board of commissioners. In addition to overseeing opportunity growth, they are also responsible for the company's environmental activities, including carbon emissions disclosures.

Several factors can influence carbon disclosure, including environmental performance, growth opportunity, and audit committee characteristics. Low levels of supervision and internal control carried out by an independent board of commissioners can cause companies not to act under applicable regulations, including carbon emissions that do not comply with the limits permitted by the government, which will reduce the quality of carbon emissions disclosure (Meiryani et al. 2023). The first factor that can affect carbon emissions disclosure is environmental performance. Environmental performance may be monitored using environmental management systems, policies, objectives, and targets.

(Meiryani et al. 2023). Environmental performance is made in the form of a ranking called as PROPER (Program Pemeringkatan Rangking/Ranking Program) (Meiryani et al. 2023).

Companies with good environmental performance will gain legitimacy from the community and will be free from conflicts with the community where the company operates and with the government (Agustina and Setyaningrum 2020). Companies with good environmental performance can improve their good name, which will have an impact on consumers who are interested in buying the company's products, as well as investors who are interested in investing their capital in the company. It improves the company's environmental performance by increasing carbon emission disclosure, which significantly impacts society (Kurnia, Emrinaldi Nur, and Putra 2021; Emmanuel et al. 2024). Companies with good environmental performance indicate that environmental management and their environmental responsibility reporting follow indicators and regulations according to GRI Standards, including emission carbon disclosure (R. Rahmawati et al. 2024). On the other hand, companies with poor environmental performance indicate their irresponsibility towards the environment, including in the carbon emissions they emit (Rahmawati et al., 2024; Amaliyah, 2019). It will have an impact on the company's good name being tarnished, which can make investors and consumers lose trust in the company (Herawaty, Lambintara, and Daeli 2021).

The next factor that can influence carbon emissions disclosure is profit growth. High company profit growth indicates an increase in profits generated by the company in one period (Meiryani et al. 2023; Ladewi et al. 2024). An increase in company profits can increase the availability of funds for carbon emissions disclosure, affecting the quality of reported carbon emissions disclosure (Hermawan et al. 2018). Companies with good profit growth will be encouraged to provide information about the company's good performance to stakeholders, including information that can attract investors through good carbon emission disclosure (Saraswati, Puspita, and Sagitaputri 2021). On the other hand, companies with declining profits will have difficulty carrying out carbon disclosure properly due to the low availability of funds (Saraswati, Puspita, and Sagitaputri 2021). Companies that experience a decline in profits are also trying to reduce the burden they have so that they can increase their earnings, one of which is the tools used to filter the carbon emitted by the company so that it is not dangerous or outside the limits permitted by the government, this will cause carbon disclosure to suffer decline (Meiryani et al. 2023).

The next factor that can influence carbon emissions disclosure is the audit committee. The audit committee is tasked with supervising management and reports issued by the company so that they do not violate regulations and work as well as possible (Saraswati, Puspita, and Sagitaputri 2021; Jurnali and Manurung 2023). More competent audit committee in carrying out its duties can increase emission carbon disclosure reports (Saraswati, Puspita, and Sagitaputri 2021). An audit committee that works effectively supervises the creation of emission carbon disclosures and makes them increasingly stringent, which will encourage the quality of emission carbon disclosures to increase (Saraswati, Puspita, and Sagitaputri 2021). On the other hand, an audit committee that works ineffectively can cause emission carbon disclosure reporting to decrease (Saraswati, Puspita, and Sagitaputri 2021). An audit committee that does not work effectively, credibly, and transparently can result in weak supervision, which can impact the low quality of emission carbon disclosure reporting. (Saraswati, Puspita, and Sagitaputri 2021).

The next factor that can influence carbon emissions disclosure is the independent commissioners. An independent commissioner who works well will make management carry out its duties effectively and monitor that the company has acted following applicable regulations, including the carbon emissions released (Saraswati, Puspita, and Sagitaputri 2021); this will encourage increased carbon emissions disclosure reported. Supervision carried out by the independent board of commissioners also ensures that the reports issued by the company are transparent and under applicable regulations, which will improve the quality of the emission carbon disclosure report (Aruning Puspita and Tanjaya 2022). Low levels of supervision and internal control carried out by an independent board of commissioners can cause companies not to act under applicable regulations, including carbon emissions that do not comply with the limits permitted by the government, which will reduce the quality of carbon emissions disclosure (Meiryani et al. 2023).

The latest of the research is the addition of the independent Commissioner variable as input from the research (Saraswati, Puspita, and Sagitaputri 2021), (Aruning Puspita and Tanjaya 2022) & (Meiryani et al. 2023) because the results of previous research stated that the duties of independent commissioners are inconsistent in the sub-sector of companies in Indonesia, therefore, the researcher is interested in raising this issue to achieve information disclosure on the role of independent commissioners in supervising disclosure activities in companies, including activities regarding more comprehensive disclosure of carbon emissions from companies.

In addition, this study uses research objects in Indonesian manufacturing companies to complement the answers from the results of previous research by (Saraswati, Puspita, and Sagitaputri 2021), (Aruning Puspita and Tanjaya 2022) & (Meiryani et al. 2023) and to find out the importance of the role of independent commissioners in a company. The duties of independent commissioners have become important after the strengthening of environmental regulations that must be complied with by every company in Indonesia, the supervision carried out on companies has become more and more strict, including the role of the independent board of commissioners. In addition to overseeing them, they are also responsible for the company's environmental activities, including carbon emissions disclosures.

Legitimacy Theory

According to (O'Donovan 2002; Mousa and Hassan 2015) legitimacy is the value of an entity that is equivalent to the most significant social value that belongs to that entity, which means that an entity's actions are considered legitimate if the entity is socially acceptable.

Good carbon emission disclosure indicates that the company has performed operational activities per community norms (O'Donovan 2002). Companies that gain legitimacy from the public can attract investors to invest their capital (O'Donovan 2002). Sales of a company's products can increase if it has earned the public's trust. Companies that have been accepted by society because they comply with existing norms are considered more stable because they are not disturbed by social and environmental issues that can make the company lose the trust of investors and consumers (O'Donovan 2002).

Stakeholders need a variety of information related to company activities that are used in decision-making. One of the information that the company must provide is carbon emissions disclosure information. (Herawaty, Lambintara, and Daeli 2021). Companies that have reported carbon emissions well are considered under stakeholder theory because they have been responsible for operational activities and company performance to stakeholders (Freeman 2015).

Good carbon emission disclosure indicates that the company has acted under stakeholder theory, and has legitimacy because it has been responsible to its stakeholders regarding carbon emissions (Aruning Puspita and Tanjaya 2022; Kurnia, Emrinaldi Nur, and Putra 2021). Good carbon emission disclosure also indicates that the company is under legitimacy theory because good carbon emission reporting shows that the company has acted under the norms of the surrounding community (Kurnia, Emrinaldi Nur, and Putra 2021).

Environmental Performance

Poor environmental performance can cause pollution and pollution from the company's operational activities to the surrounding environment (Widodo 2020). It can reduce the company's good name in the eyes of the surrounding community, which can even result in sanctions being imposed by the government on the company (Emmanuel et al. 2024).

Growth Opportunity

According to (Huseynli 2024) Profit growth is an increase or decrease in profits over an annual period. Good company profit growth reflects the economic condition, which is in good condition and growing. According to (Gantino and Dewi 2019) shareholders will receive dividends if the company's profits have good profit growth (Huseynli 2024).

Audit Committee

The audit committee functions as a supervisor and ensures the reliability or accuracy of published financial reports, the reliability of risk control, and the effectiveness of the company's internal dealings (Madona and Khafid 2020). The importance of effective supervision carried out by the audit committee on management can improve the publication of social and environmental information carried out by the company for the better (Tobing, Zuhrotun, and Rusherlistyani 2019). Effective supervision carried out by the audit committee supports good corporate governance so that companies can publish information on emission carbon disclosure reports to the public. society in a relevant and reliable manner (Tobing, Zuhrotun, and Rusherlistyani 2019).

Independent Board of Commissioners

The function of an independent board of commissioners is to supervise management performance in making carbon emission disclosures. The more effectively an independent board of commissioners works, the more influential the company's carbon emission disclosure will be (Abbas et al. 2021 and Madona and Khafid 2020). An excellent independent commissioner also encourages the company's responsibility to financial (economic) and non-financial (social and environmental) stakeholders more optimally and continues to maintain minority share interests to increase the company's social and environmental responsibility. which will increase carbon disclosure (Mujiani and Jayanti 2021).

Environmental performance, emission carbon disclosure, and independent board of commissioners

Carbon performance is a part of environmental performance. Companies with good environmental performance will gain legitimacy from the community and will be free from conflicts with the community where the company operates and with the government (Agustina and Setyaningrum 2020). In order to show their good environmental performance, companies will disclose more of their environmental activities. One of their environmental activities is carbon emission reduction. Research conducted by (Meiryani et al. 2023; Ramadhan, Ermaya, and Wibawaningsih 2021; R. Rahmawati et al. 2024) argues that if environmental performance has a positive effect on carbon emissions disclosure, that indicates the company has good management, environment, and environmental responsibility, this will encourage an increase in the quality of carbon emission disclosures carried out by companies (Meiryani et al. 2023;

Ramadhan, Ermaya, and Wibawaningsih 2021; R. Rahmawati et al. 2024), while research conducted by (Susilo et al. 2022) proves that environmental performance does not affect carbon emissions disclosure.

Low levels of supervision and internal control carried out by an independent board of commissioners can cause companies not to act under applicable regulations, including carbon emissions that do not comply with the limits permitted by the government, which will reduce the quality of carbon emissions disclosure (Meiryani et al. 2023). Although companies have good environmental performance, they will not disclose their carbon emissions reduction activity if they don't know the disclosure regulation (Rudyanto and Siregar 2018). Research conducted by Rahmawati et al. (2022) succeeded in proving that an independent commissioner can moderate the influence of environmental performance on carbon emissions disclosure, while research conducted by Madona and Khafid (2020) proved that an independent commissioner cannot moderate the influence of environmental performance towards carbon emissions disclosure. Research conducted by Aprianti et al. (2022) and Mujiani and Jayanti (2021) argues that independent commissioners can moderate profit growth's impact on carbon emissions disclosure. Based on these arguments, the hypothesis proposed are:

H1a: Environmental performance has a positive effect on carbon emissions disclosure

H1b: Independent Board of Commissioners can improve the relationship between environmental performance on carbon emissions disclosure.

Growth Opportunity, carbon emission disclosure, and independent board of commissioners

An increase in company profits can increase the availability of funds for carbon emissions disclosure, affecting the quality of reported carbon emissions disclosure (Hermawan et al. 2018). Companies with good profit growth will be encouraged to provide information about the company's good performance to stakeholders, including information that can attract investors through good carbon emission disclosure (Saraswati, Puspita, and Sagitaputri 2021). Research conducted by (Kurnia, Emrinaldi Nur, and Putra 2021) proves that profit growth positively influences carbon emissions disclosure. The increase in company profits will encourage companies to provide financial and non-financial information about their performance, such as responsibility. In contrast, previous research argues that growth opportunity does not affect carbon emission disclosure (Hermawan et al. 2018).

Supervision carried out by the independent board of commissioners also ensures that the reports issued by the company are transparent and under applicable regulations, which will improve the quality of the emission carbon disclosure report (Aruning Puspita and Tanjaya 2022). Independent board of commissioners can ensure that the profit growth is used to fund the carbon emissions disclosure. Research conducted by (Aruning Puspita and Tanjaya 2022) argues that if an independent board of commissioners positively affects carbon emissions disclosure, supervision by an independent commissioner will improve the quality of carbon emissions reports issued by companies. Meanwhile, research conducted by (Putri and Pramudiati 2019) argues that an independent board of commissioners influences carbon emissions disclosure. Based on these arguments, the hypothesis proposed are:

H2a: Growth Opportunity has a positive effect on carbon emissions disclosure.

H2b: independent board of commissioners can improve the relationship between growth opportunity on carbon emissions disclosure.

Audit committee, emission carbon disclosure, and independent board of commissioners

Audit committee's role is to make sure that the companies' information are appropriately disclosed (Rudyanto 2024). More competent audit committee in carrying out its duties can increase emission carbon disclosure reports (Saraswati, Puspita, and Sagitaputri 2021). An audit committee that works effectively supervises the creation of carbon emission disclosures and makes them increasingly stringent, which will encourage the quality of carbon emission disclosures to increase (Saraswati, Puspita, and Sagitaputri 2021). Research conducted by Saraswati et al. (2021) proves that audit committees have a positive effect on carbon emissions disclosure, supervision carried out by audit committees will improve the quality of carbon emissions reports issued by companies, while research conducted by Aditya (2017) proves that the audit committee does not affect carbon emissions disclosure.

An independent commissioner who works well will make audit committee carry out its duties effectively and monitor that the company has acted following applicable regulations, including the carbon emissions released (Saraswati, Puspita, and Sagitaputri 2021); this will encourage increased carbon emissions disclosure reported. Research conducted by Puspita and Tanjaya (2022) argues that independent commissioners can moderate the influence of the audit committee on carbon emissions disclosure. Based on these arguments, the hypothesis proposed are:

H3a: Audit committee has a positive effect on carbon emissions disclosure

H3b: independent board of commissioners can improve the relationship between audit committees on carbon emissions disclosure.

METHOD

This research employed a quantitative approach. This study investigated manufacturing businesses listed on the Indonesia Stock Exchange (BEI) between 2017 and 2021. It is accessible through the idx.co.id website and other sources. This research population was comprised of manufacturing sector businesses listed on the Indonesia Stock Exchange from 2017 to 2021. The sample was drawn using a purposive sampling strategy. This research's data-collecting method included library study techniques and documentation. This study's data analysis strategy makes use of numerous linear analyses.

The existence of the Independent Board of Commissioners (IBC) is a *Pure Moderator, Quasi Moderator, Predictor Moderator* or *Homologizer Moderator variable.* (Baron and Kenny 1986).

Table 1: Definition, measurement, and source variables

Var	Description	Type	Measurement Techniques	Source
ECD	Carbon emissions disclosure	DV	Number of Items Reported divided by Total Indicators disclosed	Sustainability Report & Web company private
E.P	Environmental Performance	IV	The proper ranking results system for a company is symbolized by five colors, namely gold, green, blue, red, and black	Sustainability Report & Web company private
P.G	Profit Growth	IV	Profit after tax t-Profit after tax last year divided by Profit after tax last year	Annual Report & Web IDX
AC	Audit Committee	IV	the total number of audit committees reported by the company	Annual Report & Web IDX
IBC	Independent Board of Commissioners	IV	The number of Independent Commissioners is divided by the Total Board of Commissioners.	Annual Report & Web IDX

RESULT

Table 2 Model Estimation Test Results

Effect Test	Prob>F	Best Model		
		Determining test	(Prob>F) / (Prob>Chibar2) / (Prob>Chi2)	Description
CEM	0.0405	Chow test (CE vs FE)	0.0405	FEM
FEM	0.9970	Hausman test (FE vs RE)	0.9970	REM
REM	0.0127	LM test(CE vs RE)	0.0127	REM

Source: Data Processed, 2024

Table 3: Regression Analysis for Testing H1 to H6

Hyp	Details	Coeff	S.E	t-Stat	Sig	Remarks
H_1	Environmental Performance	2.067380	1.063222	4.053774	0.049**	Supported
H_2	Growth Opportunity	1.004445	2.989158	5.436030	0.0383**	Supported
H_3	Audit Committee	0.272328	0.666346	0.608699	0.7345	Not Supported
H_4	Environmental Performance * *Independent Board of Commissioners*	1.040632	1.607916	3.647193	0.0205**	Supported
H_5	Growth Opportunity * *Independent Board of Commissioners*	2.462511	3.989685	3.927219	0.0399**	Supported
H_6	Audit Committee * *Independent Board of Commissioners*	0.26468	1.510448	2.175233	0.0016***	Supported
	F-statistic	8.960380		R-squared	0.751326	
	Prob(F-statistic)	0.025777		Adjusted R-squared	0.736821	

Notes *: ECD , Emission carbon disclosure; EP, Environmental Performance; PG , Profit Growth; AC, Audit Committee; IBC, Independent Board of Commissioners; **p < 0.05; ***p < 0.01*

Table 4 Identify moderation test results

Independent Variable	t-Statistics / Prob	Variable Moderation	t-Statistics / Prob	Independent * Moderation	t-Statistics / Prob	Information
(EP --> ECD)	4.053774/ 0.049	(IBC --> ECD)	2.785111/ 0.0361	(EP *IBC →ECD)	3.647193/ 0.0205	Quasi Moderator
(PG --> ECD)	5.436030/ 0.0383			(P.G * IBC →ECD)	3.927219/ 0.0399	Quasi Moderator
(AC --> ECD)	0.608699/ 0.7345			(AC * IBC →ECD)	2.175233/ 0.0016	Pure Moderator

Source: Data Processed, 2024

The pair test results on the three models can be seen in Table 2 as follows: Based on the results of the three tests, it can be seen that the random effect model (REM) is the most appropriate model for this research.

The table above shows that the F-statistic value (8.960380) > F $_{Table}$ (2.3828) and the prob value (F$_{-statistic}$) is 0.025777 < 0.05. Then, it can be concluded that the hypothesis is accepted. The variables of environmental performance, profit growth, audit committee, and independent board of commissioners simultaneously influence carbon emissions disclosure.It can be seen in the table above that the adjusted r-squared value is 0.73, which means that carbon emissions disclosure can be explained. Changes can be predicted by the variables environmental performance, profit growth, audit committee, and managerial independent board of commissioners by 73 percent. In comparison, the other 27 percent can be explained by variables other independent variables outside the independent variables used in this research.

The investigation of the t-test revealed that the t-$_{statistic}$ value of environmental performance (ep) is 4.053774, and the probability value is 0.0497, which means that environmental performance has a positive effect on carbon emissions disclosure. The results of the H1 prove a relationship between the legitimacy theory in this research and environmental performance regarding emission carbon disclosure. Good environmental performance indicates that the company has good environmental management. Companies with good environmental management have the quality to carry out environmental responsibility disclosures well. It will encourage increased disclosure of carbon emissions. Good environmental performance also indicates that the company is strictly compliant with environmental regulations and is considered environmentally responsible for its operational activities, including its greenhouse gas emissions. The investigations above follow the proposed hypothesis, so the hypothesis is accepted and is also following research conducted by (Meiryani et al. 2023; Ramadhan, Ermaya, and Wibawaningsih 2021; and R. Rahmawati et al. 2024).

The investigation of the t-test above shows that the t-$_{statistic}$ value of profit growth (pg) is 5.436030, and the probability value is 0.0383, which means that profit growth has a positive effect on carbon emissions disclosure. The results of the H2 prove that there is a relationship between legitimacy theory in this research and profit growth on carbon emissions disclosure. A company with profits that continue to increase indicates that it is in good development because it has stable financial performance and continues to improve. It will encourage management to be able to provide information about their performance both financially and non-financially, such as disclosing carbon emissions contained in *sustainability reports* to attract investors to invest their capital in the company. Companies with good profit growth also do not face difficulties in providing costs to carry out good carbon emission disclosures and under the standards set by the GRI (Global Reporting Initiative) so that they can produce quality carbon emission disclosures. The findings of this study are consistent with the presented hypothesis, therefore, the hypothesis is accepted. The findings of this study are consistent with studies undertaken by (Kurnia, Emrinaldi Nur, and Putra 2021)which prove that profit growth has a positive effect on carbon emissions disclosure.

The investigation of the t-test above shows that the t-$_{statistic}$ of the audit committee (ka) is 0.608699. The probability value is 0.7345, meaning that the audit committee contributes a positive effect on carbon emissions disclosure, based on the results of the H_3, proving that there is no connection between the legitimacy theory in this research and the audit committee towards carbon emissions disclosure. This is because the audit committee's role in many corporations is limited to supervising financial report issuing rather than providing complete oversight like an independent board of commissioners. The audit committee does not affect carbon emissions disclosure since its work indirectly impacts the company's environmental responsibility reporting. The investigation of this research does not follow the proposed hypothesis, so the theory is rejected. However, the investigations of this research are following research conducted by (Saraswati, Puspita, and Sagitaputri 2021) which succeeded in proving that audit committees do not affect carbon emissions disclosure, but these results are in line with (Aditya 2017) which states that the audit committee does not influence carbon emissions disclosure.

The investigation of the t_{test} above shows that the t-$_{statistic}$ value of the independent commissioners as a moderator of environmental performance (ep*ibc) is 3.647193, and the probability value is 0.0205. This indicates that the board of commissioners is autonomous and can manage the link between the performance environment and carbon emissions disclosure. The results of testing H1b prove a connection between the two. This investigation uses stakeholder theory and an independent board of commissioners to moderate the relationship between environmental performance and emission carbon disclosure. The test findings on the independent board of commissioners' moderation of environmental performance on carbon emissions disclosure are a quasi-moderator relationship (pseudo-moderation) variable that can moderate the relationship between environmental performance and carbon emissions disclosure. It also demonstrates that the Board of Commissioners is an independent variable.

The findings of this research indicate that an independent commissioner can moderate the influence of environmental performance on carbon emissions disclosure. The effectiveness of an independent commissioner in their work will encourage companies to practice environmental management and high environmental responsibility, resulting in high-quality carbon emissions disclosure. The independent board of commissioners also guarantees that the corporation complies with applicable legal laws and is transparent in its operational actions, increasing carbon emission disclosure. These investigations follow research conducted by N. Rahmawati et al. (2022), which proved that an independent board of commissioners can strengthen a company's environmental performance, which positively affects *carbon emissions disclosure.*

The t-$_{statistic}$ value of the independent board of commissioners as a moderation of profit Opportunity (pg*ibc) is 3.927219, and the probability value is 0.0399. This shows that the board of commissioners can independently moderate the relationship between profit growth and *carbon emissions disclosure.* The results of testing H2b prove a connection between stakeholder theory in this research and the independent board of commissioners as a moderator between profit growth and *carbon emissions disclosure.* The investigation found that the effect of the independent board of commissioners' moderation of profit growth on carbon emissions disclosure is a form of quasi-moderator relationship (pseudo-moderation). This variable can moderate the link between growth opportunity and carbon emissions disclosure. It also demonstrates that the independent commissioner is an independent variable.

The findings of this study suggest that an independent board of commissioners can moderate the impact of profit growth on carbon emissions disclosure. An independent board of commissioners, ensuring management works effectively, can improve the company's financial performance, increasing profits generated in each period and resulting in adequate funding availability. The company's environmental duty grows, potentially increasing its carbon emissions disclosure. Companies with successful independent boards of commissioners will boost the openness of their reporting, both financial and non-financial, such as emission carbon disclosure. The investigation of this research follows the proposed hypothesis, the hypothesis is accepted. The results of this research align with research conducted by (Putri and Pramudiati (2019), which proved that an effective independent board of commissioners could strengthen the influence of profit growth on *carbon* emissions disclosure.

The t-statistic value of the independent board of commissioners as moderation of the audit committee (ac*ibc) is 2.715233, and the probability value is 0.0016. It shows that independent commissioners can moderate the relationship between the audit committee and carbon emissions disclosure. The results of the H3c Test show a link between stakeholder theory in this study and the independent board of commissioners functioning as mediators between audit committees on carbon emissions disclosure. The investigation of the moderation of the independent commissioners and the audit committee on carbon emissions disclosure is a Pure Moderator type of relationship, which means that the variable that can moderate the relationship between the audit committee variable and the pure moderation variable interacts with the independent variable doesn't have to be an independent variable.

The investigation of this research means that the independent commissioners can moderate the effect of the audit committee on carbon emissions disclosure. The audit committee is a committee formed by the independent commissioners to assist the duties of the independent commissioners. The delegation given by the independent board of commissioners can supervise the audit committee's duties and control financial and non-financial reports. An effective independent commissioner aids the audit committee in monitoring the openness of environmental management and environmental responsibility, increasing the company's carbon emissions disclosure. The findings of this study are consistent with the presented hypothesis. The investigation of this research is also in line with research conducted by (Aruning Puspita and Tanjaya 2022) argue if, that an independent board of commissioners can strengthen the influence of the audit committee on carbon emissions disclosure.

CONCLUSION

This study aims to examine the influence of Environmental Performance; Growth Opportunity; Audit Committee; against Emission Carbon Disclosure in manufacturing companies in Indonesia with the Board of Independent Commissioners; as a moderation variable. Based on a with carbon emissions disclosure as dependent, the results show that environmental performance and growth opportunity positively and significantly influence carbon emissions disclosure. Meanwhile, the audit committee positively and significantly influences carbon emissions disclosure.

Next is the investigation of moderate hypothesis testing influenced by the independent board of commissioners. The investigation of the tests reveals that the independent commissioners can moderate the relationship between environmental performance and growth opportunity on carbon emissions disclosure. The results of the moderation test are a type of Quasi Moderator relationship (pseudo moderation), namely that the independent commissioners can moderate the relationship between environmental performance and growth opportunity on carbon emissions disclosure. Meanwhile, the independent commissioners were able to moderate the relationship between the audit committee and carbon disclosure. The investigation of the moderation test is a Pure Moderator type of relationship, namely that the independent commissioners can moderate the relationship between the audit committee regarding carbon emissions disclosure. However, the audit committee has no relationship to carbon emission disclosure.

Research Implications

The existence of supervision carried out by the company's independent commissioners in reporting carbon emission disclosures properly can improve the company's good image among investors. The level of supervision carried out by independent commissioners will attract investors to invest their capital in these companies. This is inseparable from the results of the company's environmental performance and the supervision of independent commissioners in reporting carbon emission disclosures. In addition, a company with good environmental performance and good independent commissioner supervision will gain legitimacy from the community and will be free from conflicts with the community where the company operates and with the government. The funds owned by the company of course affect environmental performance activities. This implies that an increase in corporate profits can increase the availability of funds for carbon emissions disclosure, which affects the quality of reported carbon emissions disclosure. Activities involving the disbursement of funds from the company will be supervised by an internal supervisor, in this case an independent commissioner. Independent commissioners who do not work effectively, credibly, and transparently can result in weak oversight, which can lead to low quality reporting of carbon emissions disclosures. It is hoped that the oversight carried out by the independent commissioner will also ensure that the reports issued by the company are transparent and in line with applicable regulations, which will improve the quality of carbon emission disclosure reports.

Study limitations and Further research

This study has several limitations that future researchers can address. First, because carbon emissions disclosure are related to aspects of state regulations that x`companies must pay attention to, considering corporate carbon emissions disclosure as a green strategy will require primary data support from managers within the company in assessing their influence on the factors that influence carbon emissions disclosure. In addition, this research only focuses on manufacturing companies in Indonesia, so comparing the findings with research conducted in other countries, such as Malaysia, is recommended.

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Conflict Of Interest

The authors declare that they have no conflict of interest.

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