Firm Performance, Board Independence and Carbon Emission Disclosure

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Abstract
The purpose of this study is to evaluate the factors that influence the disclosure of carbon emissions by publicly traded companies in Indonesia. The sample for this study consisted of 126 companies listed on the Indonesian Stock Exchange between 2018 and 2019 with 252 observations. The results of multiple regression analysis indicated that profitability and firm size had a substantial positive effect on carbon emissions disclosure, but growth, leverage, and the composition of the commission's board had no effect on carbon emissions disclosure. The consequences of this research are critical in encouraging regulatory bodies and policymakers to make carbon emissions disclosure mandatory for businesses in Indonesia, particularly those that are sensitive to and dependent on the environment.

Keywords: Carbon Emissions, Independent Commissioners, Environment, Carbon Footprint, Climate Change, Sustainable Development

Introduction
In the world economic activities nowadays, companies are one of the biggest contributors to increasing global warming (Ja'far & Kartikasari, 2009). Various society elements around the world are increasingly being made aware of the business processes' importance that is not only oriented to maximizing company value but the products and services they produce must be environmentally friendly. Current business practices should be sustainable value for the survival of the next generation. However, the existence of business activities cannot be separated from the community environment where the company is located, so the company must show good faith from its existence as a social responsibility to its stakeholders. Therefore, companies are required to not only pay attention to business profits but also care and be responsible for the universe and society (Elkington, 1998).

Carbon emissions disclosure is part of the companies' contribution to environmental and climate change, especially to global warming. The reason is that awareness of the carbon emission level will lead to making environmentally friendly policies (Bae Choi et al., 2013) including company initiatives to incorporate climate change in producing their products and services (Darus et al., 2019). Titik Akhiroh (2016) said that the carbon emissions disclosure is one way how companies carry out social responsibility to the community, so the companies gain legitimacy from their environment.

The current trend shows that stakeholders and investors see that environmental information disclosure is an indicator of company resilience. This can be seen in the global stock market which shows that companies with environmental information disclosure are better in maintaining their company performance. Reported from online media (https://analisis.kontan.co.id, 2021), and shows that 51% of respondents believe that a sustainable report will increase public trust in companies and the highest percentage of respondents who believe in a positive impact in Indonesia reaches 81%. Interestingly, in developed countries, the trust level in correspondents is quite low, on average, below 50%. The increase of public trust level on the information disclosure in the companies' Sustainability Reports in Indonesia increased significantly with an average of 51% in 2020, exceeding the 2003 achievement which only reached 30%.

Hasan Fawzi, Development Director of the Indonesia Stock Exchange (IDX) said that issuers who practice environmental, social, and governance (ESG) values show better financial performance than issuers that do not practice ESG. And investors implement environmental, social, and governance (ESG) values as one of the special points as consideration for determining the placement of their funds and stock portfolios. These conditions can be concluded to influence issuers to implement and publish their sustainability reports. This is proved by the growth in the number of issuers submitting sustainability reports from 54 issuers last year to 135 issuers in 2021 (https://investor.id, 2021).

And currently, investors, especially investors from the millennial generation, choose to invest shares in issuers that practice environmental, social, and governance (ESG) values. This is because issuers that apply ESG can implement superior financial performance compared to companies that do not practice ESG principles. The Sri Kehati Index (Sustainable and Responsible Investment-Biodiversity), a stock index that contains the shares of 25 issuers who practice environmental, social, and sustainable governance issues, shows that the stocks in the index generated 173.66% higher returns than the JCI and LQ45 indexes which generated a return of 148.57% and 103.59%, respectively, in 10 years from December 2009 to December 2019 (https://www.beritasatu.com, 2021). Reinforced by the regulations set by the Financial Services Authority (OJK) through POJK No. 51 of 2017 setting a timeline for Financial Services Institutions, Issuers, and Public Companies to make continuous reporting for companies listed on the Exchange in stages. And in the end, the sustainability reporting period set by the Financial Services Authority (OJK) will change the regulations of sustainability disclosure reporting from voluntary to mandatory.

Some research has succeeded in finding a positive effect between the carbon emission information disclosure and company performance or value (Machmuddah, 2020; Velte et al., 2020; Elsayih et al., 2020; Darus et al., 2019; Setiany et al., 2018; Muhammad & Harnovinsah, 2017; Kuzey & Uyar, 2017; Saka & Oshika, 2014; Luo et al., 2013; Clarkson et al., 2011). Based on the research results, it can be said that the market responds positively to management's efforts to disclose carbon emissions. This is because investors consider the company through its management as having the capability to manage the environmental impact of its business operations (Griffin & Sun, 2013). However, previous studies also found a significant negative effect between growth, profitability, corporate leverage, and carbon disclosure, such as research from. (Darus et al., 2019; Saptiwi, 2019; Chithambo & Tauringanar, 2014; Luo et al., 2013). Also, some researchers have found a positive effect between carbon emission information disclosure and corporate governance (Elsayih et al., 2020; Velte et al., 2020; Kılıç & Kuzey, 2019; Yunus et al., 2016) which can be concluded that the composition of the dominant board and number of independent commissioners will more easily respond to projects related to carbon disclosure.

However, research also found that there is no effect between carbon disclosure and corporate governance (Akbaş & Canikli, 2019; Darus et al., 2019) with the reason that the board of directors focuses more on corporate management than on corporate social responsibility (Prado-Lorenzo & Garcia-Sanchez, 2010).

The author is interested in conducting research to examine the extent to which environmental initiatives related to climate change have been incorporated into company operations in producing products and services and the influence of financial strength (profitability, growth, leverage, firm size) and composition of the board of commissioners on information disclosure related to the environment in public companies in Indonesia whose business activities are close and sensitive to environmental issues used in research (Darus et al., 2019) and are listed on the Indonesia Stock Exchange (IDX) for the period 2018-2019.

Based on the above description, this study attempts to answerthe following:
(1) Effect of profitability on carbon emission disclosure.
(2) Effect of growth on carbon emission disclosure.
(3) Effect of leverage on carbon emission disclosure.
(4) Effect of firm size on carbon emission disclosure.
(5) The effect of the composition of the board of commissioners on the carbon emission disclosure.

Theoritical Review

Definition of Stakeholder Theory

Every stakeholder and every company depends on the resources generated by the natural environment. And natural resources include the factors of production that are important for business, such as the supply of all renewable and non-renewable materials. According to (Ghozali & Chariri, 2014) Stakeholder theory states that all operations carried out by companies are not only to seek the interests of the company but must provide benefits to its stakeholders such as the community, consumers, suppliers, creditors, government, shareholders, and the environment. And the purpose of this theory will be achieved if the company manager can improve the good image of the company as a result of its various business activities and can minimize the losses caused to its stakeholders.

Definition of Legitimacy Theory

According to legitimacy theory, disclosure can be done to show that the organization can run in accordance with community expectations, or it can be done to change people's expectations. The organization legitimacy is important because if an organization is considered to have no legitimacy in its operations by some people, the stakeholders will no longer support the organization's activities which will eventually withdraw their support so that the organization will suffer economically (Gibassier & Unerman, 2014) so to reduce the difference in value views or the legitimacy gap between the community and the company, environmental disclosure is one way to reduce it (Selviana, 2019).

Definition of Carbon Disclosure

Reporting from ditjenppi.menlhk.go.id, climate change is a significant change in climate, air temperature, and rainfall ranging from decades to millions of years that occurs due to increasing concentrations of carbon dioxide gas and other gases in the atmosphere that cause greenhouse gas effects. Efforts to reduce carbon emissions are carried out by various countries including Indonesia which are committed to taking part in overcoming the impacts of global climate change by mitigating Greenhouse Gas (GHG) emissions in accordance with Presidential Regulation No. 61 of 2011 and ratifying the 2015 Paris Agreement through Law No. 16 of 2016 concerning Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change. And efforts to reduce carbon emissions are also carried out by business actors and companies, which can be demonstrated through carbon emission disclosure. Carbon information is increasingly needed by various stakeholders to monitor business risks associated with climate change and assist their decision making. Nevertheless, carbon disclosure is mostly done voluntarily in most countries in the world (Balachandran, 2020); also in Indonesia, carbon disclosure is still done voluntarily even though the carbon emission disclosure is part of environmental disclosure which is part of an additional report that regulated in PSAK No. 1 (revised 2009) paragraph 12. The extent of Carbon Emission Disclosure used in this research uses an index developed from the research of (Bae Choi et al., 2013) which is constructed through a request for information sheet developed by the Carbon Disclosure Project (CDP).

Definition of Profitability (Profitability Ratio)

The profitability ratio according to (Kasmir, 2019) is a ratio to assess the company's ability to seek profit within a certain period. This ratio also provides a measure of the management effectiveness level of a company.

Definition of Growth

Suprantiningrum (2011) says that firm growth is a change both an increase or decrease in the total assets owned by the company and the firm's growth is calculated as a percentage change in assets in a given year against the previous year. Company in high growth conditions will be more conservative in utilizing their resources and companies will focus on resource utilization by improving performance and developing the economic sector to optimize their income (Irwhantoko & Basuki, 2016).

Definition of Leverage Ratio

According to Kasmir (2019), the leverage ratio is the ratio used to measure the extent to which the company's assets are financed with debt. This means the amount of debt used by the company to finance its business activities when compared to using its capital. So, Leverage in a broad sense can also be interpreted as a general description of the company's ability to maintain and fulfill its obligations to pay debts on time.

Definition of Firm Size (Size)

Firm size is a value that shows the size of a company (Machmuddah, 2020). According to (Setiany & Wulandari, 2015) firm size is used to distinguish between big companies and small companies whose comparison is seen from the total assets owned.

Definition of Composition of the Board of Commissioners

According to (International Finance Corporation, 2018) an independent commissioner is someone who has no affiliation with the majority shareholder or with any member of the board of directors or board of commissioners. The Financial Services Authority Regulation (OJK, 2017) states that an independent commissioner is a member of the board of commissioners who comes from outside the issuer or public company and fulfills the requirements as an independent commissioner as referred to in the Financial Services Authority Regulation.

Theoretical Framework

The Effect of Profitability on Carbon Emission Disclosure

Profitable companies are easier and more informed to undertake climate change initiatives because companies can finance additional resources for carbon disclosure and can face pressures from outside (external) better (Luo et al., 2013).

The legitimacy theory role in the relationship between profitability and carbon emission disclosures that environmental disclosure is a form of company legitimacy for the social pressures related to the environment from the community, because the higher the company's profit, the greater the responsibility expected by the community for companies to implement policies related to carbon emission disclosures.

H1: Profitability has a significant positive effect on carbon emissions disclosure.

The Effect of Firm Growth on Carbon Emission Disclosure

The legitimacy theory says that to gain legitimacy or trust from existing stakeholders, the company must manage the company well and produce the performance that has a positive impact on the firm growth and its community, and the annual report is a way for the company to declare company's responsibility for the community and serious in managing the environment. If the company manages to get a good response from the community, it will increase the firm's growth so that company profits can increase and ultimately will affect investors in making investment decisions (Dwinanda & Kawedar, 2019).

H2: Growth has a significant positive effect on the carbon emission disclosure.

Effect of Leverage on Carbon Emission Disclosure

Although there is research showing that there is a significant negative relationship between leverage and carbon disclosure (Chithambo & Tauringanar, 2014) because companies with higher leverage are more focused on fulfilling their financial commitments than carbon disclosure, different things were found in this research. (Brammer & Pavelin, 2008) in (Darus et al., 2019) and (Yunus et al., 2016) that companies with high leverage will use voluntary disclosure as a way to attract investors and capture positive perceptions of the company so that it can be used in making the right business decisions.

H3: Leverage has a significant positive effect on the carbon emission disclosure

Effect of Firm Size on Carbon Emission Disclosure

Firm size is the volume of operations or scale that a single firm can produce. The size of the firm is important because it has a significant effect on profitability and efficiency company. Firm with large sizes make it possible to have interactions with a large community and generate significant economic influence. This kind of company tends to be more easily seen by the public, so it is more easily attracted by external interests that is, specifically driven to address environmental issues (Belkaoui and Karpik, 1989; Patten, 2002; Brown and Deegan, 1998) in (Burgwal & D. Vieira, 2014).

H4: Firm Size has a significant positive effect on carbon emission disclosure.

Effect of Board of Commissioner Composition on Carbon Emission Disclosure

Rupley et al. (2012, in Astari et al., 2020) said that independent boards of commissioners have a higher awareness of demanding companies to control carbon emissions because of their desire to provide transparent information on policies and carbon emissions to various stakeholders. with management itself. Boards of directors with a larger proportion of independent commissioners are assumed to be more aligned with stakeholder expectations, and moderate the different conflicts of interest of different stakeholder groups (Jibriel Elsayih, Qingliang Tang, 2018).

H5: The composition of the board of commissioners has a significant positive effect on carbon emission disclosure.

Methods

The design of this research was causal research with a quantitative research approach. Data in this research were obtained from carbon emission reports contained in the annual report on the Indonesia Stock Exchange website, website www.idx.co.id, and the official website of each company. The research sample used in this research was 270 companies listed on the IDX for the period 2018-2019. The sampling technique in this research was the purposive sampling technique with the following criteria:

(1) Companies that were listed on the Indonesia Stock Exchange for the period 2018–2019 and have not been delisted for the year of the research.
(2) Companies that issued annual reports ending on December 31.
(3) Companies that generated profit during the research period.

The data for this research are 270 annual reports from 135 companies during the period 2018-2019, and the final sample after the application of the criteria obtained is 252 observational data from 126 companies.

Table 1: Definition of Operational Variables

Variable	**Name of**	**Indicator Variable**	**Source**
Profitability	ROA	ROA = (Net Profit × 100%) ÷ Total Assets	(Darus et al., 2019)
Growth	GRW	GRW = (Current Year's Income – Previous Year's Income) ÷ Previous Year's Earnings	
Leverage	LEV	LEV = (Total Debt ÷ Total Assets) × 100%	(Darus et al., 2019)
Firm Size	SIZE	SIZE = LN(Assets' Size)	(Darus et al., 2019)
Composition of Board of Commissioners	BINDP	BINDP = (Number of Independent Commissioners ÷ Total Number of Commissioners) × 100%	(Kılıç & Kuzey, 2019)
Carbon Emission Disclosure	CD	$\sum_{i=1}^{mj} dj$	(Darus et al., 2019)

* maximum total score for a company (mj) is 72, consisting of each dimension (a total of 18 dimensions) assigned a score of 0-4

This research used the SPSS 25.0 data analysis method with the following steps:
(1) Descriptive Statistical Analysis
(2) Classical Assumption Test
(3) Coefficient of Determination Test (R2)
(4) F-Test, t-Test, and Multiple Linear Regression Analysis

Multiple Regression Model used in this research:

$$CD = \alpha + \beta 1(ROA) + \beta 2(GRW) + \beta 3(LEV) + \beta 4(SIZE) + \beta 5(BINDP) + e \quad (1)$$

Where, α is a constant; β1, β2, β3, β4, β5 are variable regression coefficients; e is the residual.

Results

Descriptive Statistics

Based on the descriptive statistics in Table 2, information is obtained that four of the six research variables have an average (mean) greater than the standard deviation which can be interpreted in general that the companies studied have an awareness of the importance of carbon emission disclosure in financial reports to the public.

The average profitability for the sample companies was 8.06%, which was smaller than the standard deviation of 10.59% with the company's profitability ranging from 0.05% to 82.29%. This showed that most of the sample companies were in a profitable position because an ROA of more than 5% was considered good (McClure, 2021), the minimum gain for profitability was 0.05%.

The growth variable (GRW) indicated that the growth rate was in the minimum range of -0.92 to 3.69 with an average (mean) growth of 0.12 which was smaller than the std deviation of 0.43, which means that variations in the growth variable (GRW) were relatively large.

The leverage of the sample companies showed that almost all companies utilized some form of debt financing in managing their assets with a maximum value of 117.27%. The higher the leverage value, the greater the company used debt to acquire assets. The mean leverage was 42.01% higher than the standard deviation of 21.3% which indicated that the data was less varied.

The total asset log for measuring firm size (SIZE) varied widely across the sample companies, ranging from a minimum of 23.31 (equivalent to Rp. 13.261.468.104) to the highest of 33.34 (equivalent to Rp. 4.619.570 million) in 2018. The average value (mean) was 29.1749 which was higher than the standard deviation of 1.67, which means the low variation between the maximum and minimum values during the research period, or it can be said that the gap in firm size from the lowest to the highest did not show a large enough gap.

The highest score for the composition of the board of commissioners (BINDP) was 66.67% and the lowest score was 16.67%. The average (mean) composition of the board of commissioners showed a ratio of 40.51% between the number of independent commissioners and the total board of commissioners, and has also complied with the regulations of the Financial Services Authority (OJK) which stated that the percentage of independent commissioners must be at least 30% of the total number of commissioners (OJK, 2017). The std. deviation value was found to be 9.83% lower than the mean of 40.51%, which means the data was less varied.

The carbon disclosure score as the dependent variable has a minimum value of 0.00 and a maximum value of 4.19. The average value (mean) was 2.03, this showed that on average the company discloses two disclosure items out of 72 checklist items of the Carbon Disclosure Project (CDP) index. This disclosure showed that the quality of carbon disclosure was very low because the average company disclosure was below 10% of the total index items of the Carbon Disclosure Project (CDP). The standard deviation of carbon disclosure was 1.27 smaller than the average value (mean), this implied that the diversity of the research sample data was high and the spread (variation) of the data was low.

Table 2: Descriptive Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Profitability	252	0.0527362417	82.29171315	8.062274501	10.58959192
Growth	252	-0.916375741	3.694878731	0.1242603885	0.4310231506
Leverage	252	0.0306572140	117.2717387	42.01411773	21.30015729
Firm Size	252	23.30812853	33.34127958	29.17476519	1.667266270
Composition of the Board Commissioners	252	16.66666667	66.66666667	40.51256614	9.830188232
Carbon Gas Emissions	252	0.0000000000	4.189654742	2.034859334	1.272005012
Valid N (List wise)	252				

Source: SPSS Output v25.0

Descriptive Analysis of Carbon Disclosure by Dimension

From the results of Table 2, it was found that the highest value was in the carbon information disclosure related to the calculation of carbon emissions with a value of 5.09, this was a positive development because it showed that companies disclosed the methods they used to calculate GHG emissions that they produced from the production of goods and services including the methodology used to calculate GHG. The lowest disclosure was the carbon emission accountability dimension of 1.69, mean that it showed that the sample public companies in Indonesia did not yet have a specific committee or executive body that was fully responsible for all actions related to climate change, including a working mechanism to review the companies progress related to climate change.

Table 3: Descriptive Analysis of Carbon Disclosure by Dimension

	N	Minimum	Maximum	Mean	Std. Deviation
Risk and Opportunities for Climate Change	270	0	8	2.95	1.985
Accounting Carbon Emissions	270	0	26	5.09	7.320
Energy Consumption Accounting	270	0	12	2.55	4.074
Carbon Reduction and Costs	270	0	16	3.09	3.978
Accountability Carbon Emissions	270	0	8	1.69	1.777
Valid N (list wise)	270	0			

Source: SPSS output v25.0

Hypothesis Test

The classical assumption test in this study has referred to the Best Linear Unbiased Estimator (BLUE) criteria and there is research bias. The results of this study obtained an Adjusted R-Squared of 0.287% which indicates that the disclosure of carbon emissions is influenced by 28.7% by the variables of profitability, leverage, growth, firm size and the composition of the board of commissioners; while the remaining 71.3% is influenced by other variables not examined in this research. The results of the F test show that the F value is 19,768 with a significance value of 0.000 which is lower than 0.05 and this research model is fit.

Table 4: Regression Result

No.	Variable	Coefficient	p-value	Conclusion
1	**ROA**	0.024	0.000	Accepted
2	**GRW**	-0.202	0.207	Rejected
3	**LEV**	-0.002	0.640	Rejected
4	**SIZE**	0.370	0.000	Accepted
5	**BINDP**	-0.003	0.676	Rejected

In the partial significance test in Table 4, the following were observed:

- ROA has a significance value of 0.000, which was smaller than 0.05, and the regression coefficient was positive, so H1 was accepted; which means the profitability has a significant positive effect on the carbon emission disclosure.
- Growth (GRW) has a significance value of 0.207, which was greater than 0.05, so H2 was rejected; which means the growth does not affect the disclosure of carbon emissions.
- Leverage (LEV) has a significance value of 0.640, higher than 0.05, so H3 was rejected; which means the leverage did not affect the disclosure of carbon emissions.
- Firm Size (SIZE) obtained a significance value of 0.000, which was smaller than 0.05 with a positive regression coefficient, so H4 was accepted; which means the size of the firm has a significant positive effect on the disclosure of carbon emissions.

- Independent Commissioner (BINDP) obtained a significance value of 0.676, higher than 0.05, so H5 was rejected; which means the Independent Commissioner does not affect the carbon emission disclosure.

Discussion

Effect of Profitability on the Disclosure of Carbon Emissions

Profitability has a positive effect on the carbon emission disclosure, which means that companies with favorable financial performance were proven to be easier and more informed in carrying out carbon emission disclosure initiatives because companies could finance additional resources to carry out carbon disclosures and in line with Stakeholder Theory, where companies have a responsibility to its stakeholders to provide and fulfill information needs transparently and convincingly so that the company continued to receive support so there was a sustainable mutualism between profitability and stakeholder support for business operations and environmental sustainability (sustainable). Companies with high profitability were also perceived to tend to have the initiative to monitor their business operations that were in contact with the environment such as the carbon emission disclosure reports, compared to less profitable companies, because the higher the company's profit, the greater the responsibility that society expects the company to implement policies related to environmental disclosure. The results of this research were similar to the research results of Darus et al. (2019), Setiany et al. (2018) and Luo et al. (2013), but different than the research results of Iredele & Moloi (2020) and Saptiwi (2019), which found that profitability does not affect the carbon emission disclosure.

Effect of Growth on the Carbon Emission Disclosure.

The results of this research indicated that the company's revenue growth does not affect the carbon emission disclosure. This was possible because companies tended to return to the company's main goal, which was to concentrate on improving performance and profits so that carbon disclosure activities have not been made a priority by the company (Irwhantoko & Basuki, 2016). The company's orientation tended to pursue profit, retained profits for business expansion, developed research and development (R&D) divisions, expanded marketing, strengthened distribution and supplied chains of raw materials, and then prepared reports on environmental sustainability disclosures. Another reason was that the carbon emissions disclosure was still a voluntary act so the company's management did not make standard rules or operational standards to fulfill environmental sustainability aspects as a company priority. Moreover, the Indonesia Stock Exchange (BEI) or the Financial Services Authority (OJK) have not regulated in detail so that public companies disclose carbon emission reports. Therefore, the results of this research were in line with the research results of Darus et al. (2019) and Dwinanda & Kawedar (2019) which stated that growth has no (negative) effect on the carbon emission disclosure. However, this was different from research results of Saptiwi (2019) which revealed that there was an effect of growth on the carbon emission disclosure.

The Effect of Leverage (LEV) on Carbon Emission Disclosure

The results showed that leverage (LEV) did not affect the corporate carbon emissions disclosure, in contrast to the results found by the research of Brammer & Pavelin (2008, in Darus et al., 2019) and Yunus et al. (2016). From the differences in results from this research, it can be interpreted that the companies studied will prioritize the fulfillment of their financial commitments such as debt and interest payments, then reduce or disclose carbon emissions; this was motivated by efforts to maintain reputation and continuity of long-term investments with creditors, so that they must fulfill the company's commitments on time. Also, the impact of the global economy in 2019, such as the trade war between the United States and China, the decline in the Fed's interest rate at that time, also indirectly affected the company's condition, where the company had to continue to improve its performance, expand its business to survive and win the competition. The higher the leverage of a company, the less likely that the company will take action to disclose carbon emissions because heavier obligations for debt and interest payments will limit the company's ability to disclose environmental reports that require additional economic resources. These results are in accordance with previous research conducted by several researchers such as Darus et al. (2019), Dwinanda & Kawedar (2019 and Selviana (2019).

Effect of Firm Size (SIZE) on Carbon Emission Disclosure

The size of the firm (SIZE) has a significant effect on the carbon emission disclosure, indicated that large companies have significant economic influence and large social interactions with the community, so they tended to be easily seen by the community and allow them to be more easily driven by external interests to deal with the problem and conduct disclosure reports on environmental issues (Burgwal & D. Vieira, 2014). This was in line with the stakeholder theory that the firm's operations were not only for company profits but must provide benefits to its stakeholders such as the community, consumers, creditors, shareholders, and other parties (Ghozali & Chariri, 2014). With the theory of legitimacy, it can be related that large companies were considered capable of producing large carbon emissions (pollutants) so that people have high expectations that companies will report on environmental disclosures due to their operational activities. Another reason was that large companies have high confidence to show that they had good and supportive resources to make wider disclosures related to the environment (Luo, 2019). A significant positive relationship was found between the firm size and environmental reporting with the researches of Al-Qahtani & Elgharbawy (2020) and Selviana (2019), but different results were revealed by Darus et al. (2019) where it was found that the firm size did not affect environmental disclosure.

Effect of Independent Commissioner (BINDP) on Carbon Emission Disclosure

The results of the research showed that the independent commissioner (BINDP) does not affect the disclosure of carbon emissions, in line with research conducted by Ararat & Sayedy (2019) and Astari et al. (2020). This indicated that as long as the carbon emission disclosure was still voluntary, then the decision to disclose environmental reports was still the authority of management because it was motivated by differences in objectives between management, which saw environmental disclosure as only having long-term benefits for the company and an independent commissioner who saw the report. The disclosure was not only beneficial in the long term, but the attitude of information transparency and accountability to other stakeholders (Bansal et al., 2018), this was in line with stakeholder theory. The number of independent commissioners who were few among other ranks of the board of commissioners can also be a reason for management not to make environmental disclosure reports. So, the function of the independent commissioner as a driver for making environmental reports will not be carried out because the environmental initiative decisions will be returned to the owner of the majority vote, in this case, the commissioner who was affiliated with the shareholders. If the board of commissioners was filled with a greater number of independent commissioners; it can be assumed that it will be more in line with stakeholder expectations; it was to mediate or prevent conflicts of interest between different stakeholder groups (Jibriel Elsayih, Qingliang Tang, 2018). Independent Commissioners who do not have an accounting and/or environmental background also influence the company's decision to disclosed carbon emissions. Of the 270 companies, only 22 companies disclosed more than 50% of the items on the 72-item list of the CDP checklist. In addition, of the 22 companies, only 17 companies employed independent commissioners with economic education background or experience in the environmental field. From these findings, it can be concluded that the lack of independent commissioners with accounting and/environmental backgrounds influences the company's decision to disclose carbon emission reports.

Conclusion

This research aims to examine the factors that effect the carbon emission disclosure in public companies listed on the Indonesia Stock Exchange for the period 2018-2019. Based on the data analysis and discussion that has been carried out, it can be concluded that profitability has a positive effect on the disclosure of carbon emissions, this means the companies with favorable financial performance have sufficient resources to be able to account for their business operations to the environment while meeting the demands of other stakeholders and gain legitimacy. It was also found that growth did not significantly affect the carbon emission disclosure, which means the companies in conditions of high growth tend to be consistent in using their resources to improve performance and develop their business lines before making carbon disclosures and reductions. Leverage has no significant effect on the carbon emission disclosure; it can be understood that companies with high leverage tended to consistently meet financial obligations and business expansion and carbon emission disclosure has not become a priority for various reasons, including the need for human resources (HR) with special qualifications and returns direct feedback that has an impact on the company on the decision. The firm size has a significant positive effect on carbon emission disclosure, which means the large companies have the resources and great opportunities to disclose and deal with environmental problems transparently so this can influence stakeholders and the community to provide legitimacy for their business activities. The independent commissioner has no significant effect on the carbon emission disclosure. This indicates that as long as the carbon emission disclosure is voluntary, the decision to disclose environmental reports is still the management authority. Carbon emissions disclosure requires qualified and environmentally sound natural resources so that companies have initiatives in disclosing carbon emissions according to the rules or standards of eligibility for writing sustainable carbon emission reports. Regarding the extent to which climate change initiatives are included in the production of goods and services by public companies in Indonesia, the results are known that there are positive developments, where these public companies are willing to disclose the methods and methodologies used in calculating carbon gas emissions produced even though the committee or executive firm who are fully responsible for strategic decisions related to climate change are still in their early stages of formation.

Suggestion

It is important for business leaders of companies operating in the environmentally sensitive business sector to immediately make strategic decisions by taking initiatives to disclose carbon emissions and consistently manage their products and services with a sustainability-oriented approach to improve the quality of life for the communities in which the company operates. And encourage the government or other policy-making bodies to immediately issue policies that make the carbon emission disclosure or environmental initiatives mandatory to be implemented, especially for entities with sensitive operational activities and have in direct contact with the environment, and gradually in all business sectors of the entity and the need for regular supervision in its implementation.

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