

The Effect of President Commissioner's Tenure on Carbon Emission Disclosure: Exploring the Banking Industry

Arif Santoso¹, Dody Setiawan^{2*}, Andi Asrihapsari³, and Fadillah Ahmad Fauzi Pratama⁴

¹ Master of Accounting, Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia

² Department of Accounting, Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia

³ School of Vocational, Universitas Sebelas Maret, Surakarta, Indonesia

⁴ Master of Accounting, Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia
Email: dody.setiawan@staff.uns.ac.id

Abstract. This study aims to examine the effect of tenure of president commissioners on carbon emission disclosure. This study takes a sample of banking companies in Indonesia. Although banking companies may not be directly sensitive to climate change issues such as carbon emissions, they play an important role in funding environmental sustainability initiatives in industries that are prone to carbon emissions. This study uses 240 observational data during 2017-2022. The results show that president commissioner's tenure increases carbon emission disclosure. Results also confirm that president commissioners with more than 10 years of tenure are better at encouraging carbon emission disclosure. This indicates that greater supervisory experience and commitment encourage environmental sustainability initiatives, such as carbon emission disclosure. These results have been validated through endogeneity tests using lagged regression and heckman two-stage. This study has important practical and theoretical contributions, especially regarding tenure and carbon emission disclosure within upper echelons theory.

Keywords: carbon emission disclosure, tenure, banking industry

1 Introduction

The issue of carbon emissions has become a major focus in global discussions on climate change and corporate sustainability. The economic impacts are complex, with rising social and environmental costs from natural disasters, resource depletion, and pressure from various stakeholders. This has led to widespread discussions such as from the Carbon Disclosure Project (CDP) and the Kyoto Protocol that demand greater responsibility and commitment by all parties to the issue of climate change [1].

Human-induced climate change has had a significant impact on both physical ecosystems and social transformation [2], especially industrial activities. In this case, the field of finance and accounting also responds to the problem of climate change [3]. The role of the field is not only in financial reporting, but in broader dimensions such as quantifying emissions, valuing natural capital, and identifying environmentally friendly investments [4]. This study is evolving as stakeholders' demand for disclosure of environmental information increases [5, 6].

Guidelines for reporting environmental information have been evolving over the last few decades, such as the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and Task Force on Climate-Related Financial Disclosure (TCFD). Nevertheless, environmental disclosures such as carbon emission disclosure in some countries are still voluntary disclosures, such as in Indonesia [7]. In Indonesia there are several regulations related to the environment. First, Financial Services Authority Regulation (POJK) No. 51/POJK.03/2017 which requires financial services institutions, issuers, and public companies to implement sustainable finance and prepare sustainability reports. Second, Law No. 32/2009 on Environmental Protection and Management that requires companies to manage their environmental impacts including emissions. Third, the commitment to the Greenhouse Gas Emission Reduction Plan in accordance with the Paris Agreement. The commitment is stated in the Nationally Determined Contributions (NDC). Fourth, Law No. 7 of 2021 on Harmonization of Tax Regulations (HPP Law) which introduces the legal basis for a carbon tax in Indonesia. The object of carbon tax in Indonesia is emissions. Although regulations related to the environment are quite numerous, there are no regulations that explicitly require companies to disclose certain items of information related to carbon emission disclosure. Therefore, to date, carbon emission disclosure tends to come from the policies and initiatives of the business entity [8].

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Previous studies have emphasized the importance of carbon emissions disclosure [9, 10], to its impact on the company's value [11], financial performance [12, 13], audit fee [14], and cost of capital [15]. However, the motives of companies to disclose carbon emissions are still debatable. Previous studies have identified determinants of carbon emissions disclosure, such as firm size, profitability, board diversity, corporate governance structure, institutional ownership, foreign ownership, blockholders, leverage, media exposure, industry type, female directors, directors' financial background, directors' industry background, directors' independence, directors' nationality, age diversity, and Chief Executive Officer (CEO) tenure [8, 16–24].

Corporate governance mechanisms, such as control and oversight are important dimensions of carbon emissions disclosure. Agency theory argues that managers as agents have incentives and goals that may differ from those of principals, giving rise to agency problems [25]. The main assumption of this theory in the context of disclosure is that disclosure is a managerial outcome, which can serve to monitor managers' behavior [26]. Another theory by Upper Echelons Theory (UET), explains that personal characteristics can influence the choice of strategy so as to determine the performance of the company [27]. This indicates that the presence of a board of commissioners in a two-tier board structure such as in Indonesia will influence the company's policy for disclosing carbon emissions.

The role of the board of commissioners, particularly the tenure of the president commissioner has not been thoroughly investigated, although it shows significant indications on corporate policies. Longer tenure indicates that the board is more experienced, competent, and has better commitment in achieving superior company performance [28]. Previous research has focused more on investigating the tenure of CEOs and boards of directors [19–22]. To the best of our knowledge, studies on president commissioner tenure are limited and this study may be the first of its kind. This ignores the fact that the position of the president commissioner on a two-tier board is a unique aspect, as they are one level higher than the CEO and the board of directors, so although they are not policy makers, they have greater power to direct company policy including carbon emissions disclosure [29]. The system improves the quality of corporate oversight and transparency [30].

Based on the above discussion, this study aims to examine the effect of president commissioner tenure on carbon emissions disclosure. This study takes a sample from the banking industry in Indonesia during 2017–2022 and has several key contributions: First, to the best of our knowledge, this is the first study to examine the effect of president commissioner tenure on carbon emissions disclosure; Second, it provides empirical evidence that president commissioner tenure can increase carbon emissions disclosure; Third, amidst the demand for more information and accountability on climate change from companies, this study also provides empirical evidence that president commissioner tenure can increase carbon emissions disclosure [1], this study provides important insights to encourage engagement in sustainable practices and disclosure of environmental information in the banking sector; Fourth, the results of this study provide implications for corporate policies regarding the tenure of the president commissioner that can encourage disclosure of carbon emissions; Finally, the results of this study support agency theory and enrich the insights of UET.

2 Theoretical Review and Hypothesis Development

2.1 Theoretical Arguments

Systematic literature review on corporate governance and carbon disclosure conducted by [26] highlights Upper Echelons Theory (UET) and Agency Theory as the most widely used theories to explain the relationship between tenure and carbon emissions disclosure. UET explains that the personal characteristics of top management can influence strategic choices and organizational outcomes [31]. Key attributes such as education, experience, and age shape their perspectives and influence their decision-making [32]. Although this theory does not directly mention the president commissioner as part of top management. They are usually tasked with overseeing management performance and providing overall strategic direction, but they are not directly involved in day-to-day decision-making as the CEO is, due to their more supervisory role. However, the characteristics possessed by the president commissioner can still influence the strategic direction of the company, including decisions related to corporate sustainability such as the disclosure of carbon emissions. This is because in a two-tier board like in Indonesia, they are at a higher level, giving them more power to play a role in the company [33]. The system can prevent conflicts of interest as power is concentrated in one person.

Another aspect is the Agency Theory perspective, which explains the existence of the board of commissioners as a strategy to overcome conflicts of interest between agents and principals [25]. Disclosures made by the company are used as a monitoring mechanism to ensure that the company meets the demands and information needs of its stakeholders [26], especially environmental information related to climate change. Therefore, the characteristics possessed by the board of commissioners, especially the president commissioner as the chairman of the board, will affect the effectiveness of supervision and company policy.

2.2 Hypothesis Development

Previous studies suggest that board tenure can significantly influence their focus on environmental issues [34]. Extended tenure allows the president commissioner to accumulate experience and knowledge of the company's operations, industry trends, regulatory requirements, and stakeholder expectations [28]. This experience fosters a deeper understanding of the strategic importance of carbon transparency, not only to manage environmental risks, but also to enhance the company's reputation and legitimacy. In addition, a longer-serving president commissioner can exert greater authority and influence on management decisions, encouraging policies that are aligned with long-term sustainability goals, by carrying out monitoring responsibilities with greater skill [35].

The above claim is supported by UET and Agency Theory. Furthermore, previous studies show that experienced managers in highly polluting industries tend to improve environmental performance, supporting the argument that longer tenure is associated with better environmental reporting practices [36]. Previous studies have found that CEO tenure and board tenure have no effect on carbon emissions disclosure [20–22]. [37] shows that longer CEO tenure shows less environmental disclosure. Meanwhile, another study found that CEO tenure and board tenure are positive for environmental disclosure [34, 38]. We conclude that the difference in results is due to the role of the board in decision-making. CEOs and boards are often involved in day-to-day and operational decisions [39]. This encourages them to prioritize short-term results, and to under-prioritize long-term initiatives, such as carbon emissions disclosure. Meanwhile, the president commissioner can focus more on the long-term vision of the company, as they serve more of an oversight function and ensure that the company acts in the best interests of its stakeholders. Therefore, the hypothesis of this study is as follows.

H1. Tenure of the president commissioner has a positive effect on carbon emission disclosure.

3 Methodology

This research is a quantitative study by taking a sample of public banking companies in Indonesia. Banking companies were chosen because although they are not directly related to significant carbon emission issues, they have a large role in funding various projects that support sustainability initiatives by various industries. Their sensitivity to this issue can support sustainable development, particularly climate change mitigation. In addition, the banking sector has received more limited discussion than other sectors, ignoring their role in climate change mitigation actions. This study used purposive sampling, taking into account the availability of the required data regarding the variables in the study. There are 45 banks in Indonesia during 2017–2022, so considering the listing date there are 262 potential units of analysis. However, 22 of these units did not provide the required information for the variables in this study. The final sample used in this study is 240 observational data during 2017–2022 from 43 banks listed on the Indonesia Stock Exchange.

The dependent variable in this study is carbon emission disclosure (CARBON). CARBON is measured using the index by [40]. The index consists of 18 disclosure items grouped into the following five categories: climate change risks and opportunities (2 items), GHG emission accounting (7 items), energy consumption (3 items), GHG reduction (4 items), cost and accountability related to carbon emission (2 items). Thus, the company's carbon emission disclosure score will be in the range of 0 to 18. This index has been widely used in previous studies [8, 13, 17, 23].

The independent variable in this study is president commissioner tenure. Tenure is often associated with a better understanding of company operations, long-term risks, and related regulations [41]. They also have greater influence in corporate decision-making, as their role in supervising the company includes the CEO who makes most of the company's strategic decisions. Furthermore, Indonesian companies adopt a two-tier board system that places the president commissioner in a strategic position. This study uses two measures: (1) the tenure of the president commissioner up to a certain year; and (2) a dummy variable which scores "1" if the president commissioners have served more than 10 years in the same position.

This study uses six control variables, namely independent commissioner size, board size, return on equity (ROE), leverage, firm size, and accounting firms. Independent commissioners are commissioners who are not directly affiliated with the company, so they are expected to be more independent and protect the interests of stakeholders [42, 43]. The size of the board of commissioners represents the wealth of perspectives held in their discussions in conducting supervision. Previous literature argues that larger commissioner size tends to make it more difficult to make decisions [44]. Companies with better financial performance are expected to be more concerned with environmentally friendly initiatives [45], such as carbon emission disclosure. Conversely, companies with tight financial policies may reduce green initiatives by focusing more on short-term profits [22]. Large companies tend to have more stakeholders and more scrutiny, which means more complex information needs [16, 46]. Finally, auditors from the BIG4 tend to have a global reputation and higher professional standards,

which are expected to encourage and assist companies in sustainability reporting [47]. In general, the measurement of variables in this study is presented in Table 1.

Table 1. Variable measurements

Variable	Description	Data Source
Dependent Variable		
Carbon Emission Disclosure (CARBON)	Number of items disclosed [40].	Annual Report and Sustainability Report
Independent Variable		
Tenure of the President Commissioner	(1) The number of years the President Commissioner has served in the firm (TENURE). [45] (2) Dummy variable, where “1” indicate the President Commissioner tenure more than 10 years (DTENURE). [48]	Annual Report
Control Variables		
Independent Commissioners (INCOM)	Number of independent commissioners in that year [48].	Annual Report
Commissioners Size (COMSIZE)	Number of commissioners board members in that year [49].	Annual Report
Return on Equity (ROE)	$\frac{Net\ Income}{Total\ Equity}$ [50].	Annual Report
Leverage (LEV)	Debt of equity ratio (DER) [51].	Annual Report
Firm Size (FS)	Natural logarithm of total asstes [50].	Annual Report
Accounting Firms (AUDIT)	Dummy variable, where “1” indicate company audited by BIG4 accounting firms [48].	Annual Report

This study uses multiple regression analysis. In addition, this study conducts robustness tests using lagged regression and Heckman two-stage to address endogeneity issues. The regression model used uses clustering by firm regression. The following is the equation model in this study:

Model 1

$$CARBON_{it} = \alpha + \beta_1TENURE_{it} + \beta_2INCOM_{it} + \beta_3COMSIZE_{it} + \beta_4ROE_{it} + \beta_5LEV_{it} + \beta_6FS_{it} + \beta_7AUDIT_{it} + \varepsilon$$

Model 2

$$CARBON_{it} = \alpha + \beta_1DTENURE_{it} + \beta_2INCOM_{it} + \beta_3COMSIZE_{it} + \beta_4ROE_{it} + \beta_5LEV_{it} + \beta_6FS_{it} + \beta_7AUDIT_{it} + \varepsilon$$

4 Results and Discussion

4.1 Descriptive statistics

The main descriptive statistics in this study are presented in Table 2. In the sample we analyzed, the average banking company in Indonesia disclosed only 27.78% of the disclosure items according to the index provided by [40]. President commissioners have an average tenure of 6 years with the shortest tenure of only 1 year and the longest of 33 years. Furthermore, most of the president commissioners have tenure below 10 years, and only 25.83% have tenure above 10 years. Table 2 also shows information about the control variables in this study which consist of independent commissioner size (INCOM), board size (COMSIZE), return on equity (ROE), leverage (LEV), natural logarithm of firm size (FS), and accounting firm by BIG4 (AUDIT). In the good corporate governance (GCG) mechanism, independent commissioners play an important role. However, in this study sample there are still companies that do not have independent commissioners and the average independent commissioner

is more than 2 people, and the average board size is 4 members. Financial performance as seen from ROE shows a varied value, where some companies experience losses and on average ROE is 0.0437. Then LEV and FS have an average value of 4.8549 and 17.4875 respectively. Finally, although the difference is small, most of the research samples are audited by BIG4 accounting firms.

Table 2. Descriptive statistics

	Observations	Mean	Maximum	Minimum	Std. Dev.
CARBON	240	5.6583	17.0000	0.0000	4.9245
TENURE	240	6.9333	33.0000	1.0000	7.0796
INCOM	240	2.6333	7.0000	0.0000	1.1347
COMSIZE	240	4.7167	10.0000	2.0000	2.0319
ROE	240	0.0437	7.2908	-3.5334	0.5838
LEV	240	4.8549	30.4712	0.0379	3.0210
FS	240	17.4875	22.1240	13.4071	1.8642
Dummy Variables	N	1		0	
		Freq.	Percentage	Freq.	Percentage
DTENURE	240	62	25.83%	178	74.17%
AUDIT	240	126	52.50%	114	47.50%

4.2 Regression Results

This study conducted a model selection test to determine the best model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Tests were conducted through the Hausman test, Chow test, and LM test. Based on these tests, FEM is the best model for both models. Regression results are shown in Table 3. In column "CARBON (1)", tenure is measured based on the number of years the president commissioner has served, while in column "CARBON (2)", tenure is measured based on a dummy variable, where "1" indicates the president commissioner has a tenure of more than 10 years, following the measurement by [48].

Table 3. Regression results

	CARBON (1)	CARBON (2)
TENURE	0.2538** (0.1174)	
DTENURE		2.7040** (1.1871)
INCOM	1.6688*** (0.6122)	1.6470*** (0.6113)
COMSIZE	-1.5001*** (0.4969)	-1.5308*** (0.4957)
ROE	0.5061 (0.4877)	0.4002 (0.4840)
LEV	-0.1332 (0.1186)	-0.1718 (0.1175)
FS	1.7211*** (0.4300)	1.6727*** (0.4286)
AUDIT	0.4982 (1.0017)	0.6109 (1.0056)
_CONS	-23.1551*** (7.1259)	-20.9121*** (6.9607)
N	240	240

	CARBON (1)	CARBON (2)
Prob (F-statistic)	0.0000	0.000
r2_a	0.5150	0.5164

Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01

Based on Table 3, both measures of tenure of president commissioner show a positive influence on carbon emissions disclosure at 5% significance level (coefficient TENURE: 0.2538; and coefficient DTENURE: 2.7040). These results confirm that H1 is accepted. The longer the tenure of president commissioner, the better the company's carbon emission disclosure as indicated by the number of items disclosed based on the index[40]. The results of this study also show that president commissioners with tenure of more than 10 years are better at encouraging disclosure of carbon emissions. This result is in line with previous studies which found that tenure has a positive effect on environmental disclosure [34, 38], and underlined that not only CEO tenure and board tenure need to be considered, but the tenure of president commissioner also needs to be considered in order to encourage the banking industry's involvement in sustainability actions.

Longer tenure is associated with better experience, competence, and commitment in driving company performance [28]. The longer experience of president commissioners makes them better at managing environmental risks, understanding stakeholder expectations, environmental regulations and a sense of belonging to enhance the company's reputation and legitimacy. President commissioners are more aware of strategic impact, which involves positive consideration of environmental issues [34]. Their experience over a number of years helps them to carry out their monitoring responsibilities with greater skill than those with less experience [35]. This is also supported by conditions in banking companies in Indonesia which show that the average tenure of the main commissioner is above 6 years and there are also 25.83% of companies from the total sample that have a main commissioner with a tenure of more than 10 years as explained in Table 2.

The results of this study support the UET that experienced leaders shape corporate strategy based on the knowledge and value of their experience [27]. In addition, it supports agency theory that longer tenure indicates a better ability to monitor management and support policies that are in line with stakeholder interests. The results of this study expand the understanding that not only the characteristics of top executives as proposed by UET, but also the board of commissioners, especially the president commissioner, play an important role in the strategic decisions of the company, including the disclosure of carbon emissions. The findings underscore the importance of experience for commissioner-level leadership in driving sustainable policies.

Table 3 also shows that of the six control variables tested, three control variables play a significant role in carbon emission disclosure. Independent commissioners and company size show a positive influence on carbon emissions disclosure at the 1% significance level, while board size has a negative effect on carbon emissions disclosure at the 1% significance level. This indicates that greater independence and stakeholder complexity, as indicated by larger company size, may encourage disclosure of carbon emissions [16, 18, 52]. However, larger boards allow for more difficult decision-making, which hinders environmental action policies. The results of this study have also been confirmed through the robustness analysis presented in section 4.3 (Table 4).

4.3 Robustness Analysis

To address the endogeneity and reverse causality issues, this study conducts two additional tests. First, we re-estimate the baseline model with independent variables lagged by one year [53]. The results of this test can be seen in Table 4 (LAGGED column). The lagged regression results show that TENURE has a positive effect on carbon emission disclosure, so it can be concluded that the results are consistent with the main regression. Second, we conducted the Heckman two-stage test [54]. In the first stage, create an instrument variable, AVE_TENURE, which is measured by the average value of TENURE by year [55]. The instrument variables are then regressed on TENURE. Based on the results in Table 4 (First-stage column), there is a positive effect at the 10% significance level, which indicates that this study is free from model selection bias. In the second-stage, we regressed the baseline model with an additional variable, MILLS. This variable is obtained from the instrumental test results in the first-stage. Table 4 (Second-stage column) shows that MILLS is not significant, meaning that there is no endogeneity problem. In addition, the results show that TENURE still consistently has a positive effect on carbon emission disclosure (significance level: 5%). Control variables such as INCOM, COMSIZE, and FS also show significant effects at the 1% level and are consistent with the main regression (Table 3). Thus, it can be concluded that the results of this study are robust.

Table 4. Endogeneity Results

	LAGGED	Heckman two-stage	
		First-stage	Second-stage
		TENURE	CARBON
TENURE	0.2677** (0.1291)		0.2475** (0.1177)
AVE_TENURE		0.9231* (0.5054)	
INCOM	1.5442** (0.7263)	-0.1906 (0.3781)	1.6684*** (0.6125)
COMSIZE	-1.3638** (0.5904)	-0.1089 (0.3102)	-1.5050*** (0.4972)
ROE	0.5493 (0.4898)	-0.4861 (0.2969)	-0.1423 (0.8681)
LEV	-0.2980* (0.1745)	-0.0992 (0.0738)	-0.1931 (0.1360)
FS	1.5378*** (0.4870)	-0.3631 (0.2728)	1.7183*** (0.4303)
AUDIT	-0.0433 (1.0713)	-0.6751 (0.6143)	0.4149 (1.0065)
_CONS	-18.6416** (8.0352)	8.7549* (4.9369)	-22.7127*** (7.1462)
MILLS			2910.5516 (3223.0993)
N	195	240	240
r2	0.1197	0.0672	0.1460

Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01

5 Conclusion

This study examines the effect of tenure of president commissioner on carbon emission disclosure. The test results show that tenure of president commissioner has a positive effect on carbon emission disclosure. This study also found that president commissioners with tenure of more than 10 years are better at encouraging carbon emissions disclosure. Tenure represents the experience and skills possessed by the president commissioner. Longer experience helps them understand the operating environment and stakeholder expectations. This helps president commissioners with longer tenure tend to be able to monitor with better capabilities and encourage corporate sustainability actions, especially carbon emissions disclosure. Although banking companies may not directly contribute significantly to carbon emissions, they play an important role in promoting environmentally responsible investment. This study highlights the important role of the president commissioner in driving corporate strategic carbon emission disclosure, and enriches the insights of the Upper Echelons Theory (UET). However, this study is limited to banking firms in a two-tier system where the president commissioner holds a higher supervisory authority and this may not be applicable in a one-tier system where supervisory and management functions are aligned. In addition, this study only focuses on the tenure of the president commissioner and provides an opportunity for future studies to explore all dimensions of board tenure.

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Disclosure of Interests

The authors have no competing interests to declare that are relevant to the content of this article.

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