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ECONOMIC PRESSURE MODERATES CORPORATE GROWTH AND CORPORATE GOVERNANCE ON CARBON EMISSION DISCLOSURE

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Abstract
This study aims to analyze the effect of economic pressure moderation on corporate growth and corporate governance on carbon emission disclosure. This study focuses on companies that are members of the KOMPAS100 index on the Indonesia Stock Exchange (IDX) during the 2021-2023 period. This study uses an associative quantitative approach. The sample determination was carried out by purposive sampling technique and data analysis using a panel data regression equation. The results of this study are that company growth and corporate governance have an effect on the disclosure of carbon emissions while economic pressure has no effect on the disclosure of carbon emissions. Economic pressures also cannot moderate corporate growth and corporate governance against carbon emission disclosure.

Keywords: Carbon Emissions Disclosure, Corporate Growth, Corporate Governance, Economic Pressures

1. Introduction

Climate change and global warming have become among the most critical environmental challenges facing nations worldwide. The rise in global temperatures, largely driven by increasing greenhouse gas (GHG) emissions particularly carbon dioxide (CO_2) has triggered severe environmental consequences such as extreme weather events, rising sea levels, and biodiversity loss. According to the United Nations (UN), the year 2019 marked one of the hottest periods in recent history, primarily due to the surge in CO_2 emissions in 2018 (Maulidiavitasari & Yanthi, 2021). The industrial sector is recognized as a significant contributor to these emissions, consuming approximately 70% of fossil energy (Nasiti, 2022), and releasing substantial amounts of carbon into the atmosphere through the combustion of coal, oil, and natural gas (Irwhantoko, 2016).

Recent data from the Global Carbon Project reveal that global CO_2 emissions from fossil fuels are projected to reach a record 37.4 billion tons in 2024 an increase of nearly 1% from the previous year. This trend is exacerbated by post-pandemic economic recovery, continued reliance on coal, especially in emerging economies, and the surge in international air travel. Moreover, deforestation in tropical regions such as the Amazon and Indonesia has significantly intensified carbon emissions by releasing previously stored carbon into the atmosphere.

Indonesia, as a rapidly developing economy, ranks sixth globally in carbon emissions, producing 746.9 million tons of CO_2 in 2024 (Statistical Review of World Energy, 2025). The country's heavy reliance on coal-powered energy, particularly in power plants like PLTU Suralaya, along with land use and forestry activities, significantly contributes to national emissions. In response, the Indonesian government has committed to achieving net-zero emissions by 2060, emphasizing the need for clean energy transitions, improved land governance, and emission control strategies across sectors.

Carbon emission disclosure has emerged as a critical aspect of corporate transparency and accountability, particularly in response to stakeholder demands for environmental responsibility. Although carbon-related disclosures remain largely voluntary in many jurisdictions including Indonesia guidelines such as PSAK No. 1 (Ikatan Akuntan Indonesia, 2017) recommend environmental reporting as a supplementary part of financial statements. In line with legitimacy theory, firms are expected to justify their environmental impact to maintain social approval and investor confidence (Dwinanda, 2019).

Corporate governance is increasingly recognized as a determinant of a firm's commitment to sustainability and transparent reporting. Effective governance practices anchored in principles of accountability, responsibility, independence, and fairness can enhance the credibility of environmental disclosures, including carbon emissions (Herlina & Juliarto, 2019). However, empirical findings on this relationship remain inconclusive. Some studies (e.g., Firmansyah, 2021) report a positive influence of good governance on carbon disclosure, suggesting that firms with robust governance frameworks are more responsive to stakeholder expectations. In contrast, other studies (e.g., Mawarti & Murwaningsari, 2024) find a negative or insignificant association, implying that poor governance may lead to minimal compliance and information asymmetry.

Likewise, firm growth presents ambiguous effects on carbon emission disclosure. While Yasa and Purnamawati (2024) argue that rapidly growing firms may deprioritize environmental reporting in favor of profit maximization and resource exploitation, Suryaningsum et al. (2022) highlight inconsistent patterns, indicating that profit growth does not necessarily drive more or less environmental transparency.

These mixed findings underscore a research gap in understanding the contextual and organizational factors influencing carbon emission disclosure in developing economies. Despite increasing regulatory attention and environmental activism, comprehensive insights into how firm characteristics and governance structures shape disclosure practices remain limited especially within the Indonesian context.

Therefore, this study aims to examine the influence of firm growth and corporate governance on carbon emission disclosure among companies listed on the Indonesia Stock Exchange (IDX). By synthesizing recent empirical findings and addressing inconsistencies in the literature, this research contributes to a deeper understanding of how internal organizational dynamics impact sustainability reporting in emerging markets.

2. Theoretical Background

2.1 Stakeholder Theory

Stakeholder theory was first introduced by the Stanford Research Institute (1963) and later developed by Freeman (1984) in his work Strategic Management: A Stakeholder Approach. Freeman defines stakeholders as individuals or groups that can affect or are affected by the achievement of an organization's objectives. Clarkson (1995) distinguishes between primary stakeholders (such as shareholders, employees, customers, suppliers, and regulators) and secondary stakeholders (such as media and interest groups), emphasizing that firms cannot survive without the support of primary stakeholders.

Donaldson and Preston (1995) argue that stakeholder theory has descriptive, instrumental, and normative dimensions, suggesting that companies have moral and legal responsibilities to consider the interests of all stakeholders, not just shareholders. In this research, stakeholder theory is used to explain how external stakeholder pressure drives

firms particularly in environmentally sensitive sectors to disclose carbon emissions as a response to growing environmental awareness and regulatory expectations.

2.2 Legitimacy Theory

Legitimacy theory was introduced by Dowling and Pfeffer (1975), who state that an organization gains legitimacy when its actions align with the value system of the broader society. Suchman (1995) defines legitimacy as a generalized perception that the actions of an entity are desirable and appropriate within a socially constructed system of norms and beliefs. He further categorizes legitimacy into pragmatic, moral, and cognitive legitimacy.

Deegan (2002) emphasized that companies use sustainability and annual reports as strategic tools to gain or maintain legitimacy, particularly in response to social and environmental issues. In this study, legitimacy theory underpins the argument that firms voluntarily disclose carbon emissions to align with societal expectations, manage reputational risks, and maintain operational legitimacy, especially as company size and governance complexity increase.

2.3 Carbon Emission Disclosure

Carbon emission disclosure refers to the voluntary reporting of greenhouse gas (GHG) emissions and related climate strategies by companies. According to Clarkson et al. (2008), such disclosure reflects a firm's strategic response to stakeholder and institutional pressures. Kalu et al. (2016) and Zhang et al. (2020) argue that firms with better environmental performance and higher public exposure are more likely to disclose detailed carbon data to enhance transparency and accountability.

The Intergovernmental Panel on Climate Change (IPCC) identifies carbon emissions particularly CO_2 as the primary driver of climate change. These emissions result from industrial activities, fossil fuel consumption, and land-use change. Disclosure practices typically include emission inventories, emission reduction targets, use of renewable energy, and climate risk management strategies. Transparent carbon reporting is also considered vital for investors' climate risk assessments.

2.4 Firm Growth

Firm growth is commonly measured by increases in assets, revenue, market share, or employee count (Hansen & Mowen, 2005; Brigham & Houston, 2014). It reflects a company's success in expanding its operations and improving performance over time. As companies grow, they face increased public scrutiny and are expected to demonstrate greater responsibility in social and environmental dimensions (Sartono, 2010; Putri, 2022).

High-growth firms often have stronger incentives to enhance legitimacy by engaging in sustainability practices, including carbon emission disclosure, to meet stakeholder expectations and preserve corporate reputation in the face of expanding operations.

2.5 Corporate Governance

Corporate governance refers to the mechanisms and systems that guide and control an organization (Cadbury Report, 1992). According to the OECD (2004), corporate governance involves relationships among management, the board of directors, shareholders, and stakeholders. Solomon (2007) and Effendi (2016) emphasize that effective governance supports value creation, investor confidence, and long-term sustainability.

Core principles of good governance include transparency, accountability, responsibility, fairness, and independence. These principles ensure that the organization behaves ethically, complies with regulations, and protects stakeholder interests. In this study, corporate governance is viewed as a determinant of the quality and extent of carbon emission disclosure, as firms with strong governance structures are more likely to engage in voluntary sustainability reporting.

2.6 Economic Pressure

Economic pressure refers to external and internal financial challenges that influence corporate decision-making, such as market competition, liquidity constraints, and regulatory changes (Sri et al., 2022). According to institutional theory (DiMaggio & Powell, 1983), organizations adapt their practices in response to coercive pressures from the environment such as government regulations, investor expectations, and public opinion to maintain legitimacy.

Scott (2014) classifies these pressures as institutional coercion, while Brammer and Millington (2008) argue that financially constrained firms may limit their involvement in environmental or social initiatives. In the context of this study, economic pressure particularly in relation to regulatory compliance and investor demands is considered a key driver influencing the level of carbon emission disclosure in firms.

2.7 Hypothesis Development

2.7.1 Firm Growth and Carbon Emission Disclosure

Firm growth reflects the company's development and future performance prospects. Rapidly growing firms often require increased external capital, which may lead to a trade-off between economic expansion and environmental accountability (Pranasyahputra et al., 2020). According to legitimacy theory, companies are encouraged to demonstrate that their operations contribute positively to both business development and societal well-being (Astuti & Cahyani, 2025).

Firms experiencing higher growth are more likely to attract the attention of stakeholders who demand increased transparency and environmental responsibility. Consequently, these firms are more motivated to disclose environmental performance, including carbon emissions, to reinforce legitimacy and stakeholder trust.

H1: Firm growth has a significant effect on carbon emission disclosure.

2.7.2 Corporate Governance and Carbon Emission Disclosure

Corporate governance refers to the systems and processes that direct and control an organization to generate value for stakeholders. Effective governance is marked by clearly defined roles, responsibilities, and transparency across organizational structures (Handoko, 2023). From the perspective of legitimacy theory, strong corporate governance enhances the credibility of environmental reporting practices, including carbon emissions disclosure (Nurjanah & Herawaty, 2022).

Previous research (Firmansyah, 2021) has demonstrated that good corporate governance is associated with improved environmental disclosure. Companies with strong governance frameworks are more capable of addressing environmental challenges and more likely to adopt proactive disclosure strategies to meet stakeholder expectations.

H2: Corporate governance has a significant effect on carbon emission disclosure.

2.7.3 The Moderating Role of Economic Pressure on the Relationship between Firm Growth and Carbon Emission Disclosure

Economic pressure, both internal and external, such as liquidity constraints, market competition, and macroeconomic uncertainty, can influence corporate decisions related to environmental performance disclosure (Sri et al., 2022). Stakeholders including institutional investors and environmentally conscious consumers expect firms to address climate-related risks and disclose relevant information, particularly in times of economic uncertainty (Utami & Achyani, 2023).

Stakeholder theory posits that firms under economic pressure may strategically disclose environmental information to secure legitimacy and maintain stakeholder support. Firms with lower economic pressure may have more capacity to invest in sustainable initiatives, such as renewable energy or carbon-reducing technologies, supporting broader carbon emission disclosures.

H3: Economic pressure moderates the relationship between firm growth and carbon emission disclosure.

2.7.4 The Moderating Role of Economic Pressure on the Relationship between Corporate Governance and Carbon Emission Disclosure

Economic pressure also influences the extent to which firms rely on governance mechanisms to enhance transparency and legitimacy. As regulatory expectations and stakeholder demands for environmental accountability grow, firms with robust governance systems are better positioned to manage disclosure expectations under economic constraints (Wahyuningrum et al., 2024).

Good corporate governance, particularly in high-pressure environments, strengthens internal monitoring and supports accurate and transparent carbon reporting (Sari & Susanto, 2021). Legitimacy theory further suggests that under economic stress, companies will be more driven to adhere to governance standards to preserve their reputational capital.

H4: Economic pressure moderates the relationship between corporate governance and carbon emission disclosure.

3. Methods

3.1 Research Design

This study employs a quantitative associative approach to examine the relationship between firm growth, corporate governance, and carbon emission disclosure, with economic pressure as a moderating variable. The research design utilizes panel data regression analysis, enabling the study to observe variations across entities and time.

The study uses secondary data obtained from the Annual Reports and Sustainability Reports of publicly listed companies included in the KOMPAS100 index on the Indonesia Stock Exchange (IDX) during the period 2021–2023. These documents were accessed via the official IDX website and the respective companies' corporate websites.

The KOMPAS100 index, jointly developed by the Indonesia Stock Exchange and Kompas Gramedia Group, represents the top 100 most liquid and high-market-cap stocks. It serves as a benchmark for market performance, offering insights into investor sentiment and macroeconomic expectations. The index is reviewed semiannually, applying a Capped Free Float Adjusted Market Capitalization Weighted methodology to ensure representativeness and avoid concentration bias.

A purposive sampling technique was employed to ensure the inclusion of firms with complete and relevant data. The sampling process followed several criteria:

Table 1. Purposive Sampling Criteria

Criteria	Number of Companies
Total companies listed in the KOMPAS100 index (2021–2023)	100
Firms without sustainability reports (2021–2023)	-24
Firms without annual reports (2021–2023)	-1
Firms with incomplete data	-11
Outliers removed from the dataset	-14
Final sample used in the analysis	50
Study period (years)	3
Total panel observations (firm-year)	150

Sumber: data yang diolah, 2025

3.2 Variable Measurement

Table 2. List of Variable Measurement

Variable	Indicator / Item	Operational Definition	Source
Carbon Emission Disclosure (CED)	CC1–CC2: Climate change risks and opportunities	Disclosure of climate-related risks and opportunities and company actions to manage them	Adapted from Choi et al. (2013)
	GHG1–GHG7: Greenhouse gas emissions	Disclosure of GHG emissions (total, by scope, source, facility, or year) and verification method	Adapted from CDP/GRI Standards
	EC1–EC3: Energy consumption	Quantification of energy usage (total, renewable, by type/facility)	Sustainability Reports
	RC1–RC4: Emission reduction strategy and costs	Disclosure of emission reduction strategies, targets, cost savings, and future carbon cost planning	Adapted from CDP (2023)
	AEC1–AEC2: Carbon emission accountability	Board-level responsibility and monitoring mechanisms for climate-related actions	GRI 305; Choi et al. (2013)
Profitability (PP)	PP = (Total Assetst − Total Assetst−1) / Total Assetst−1	Proxy for profitability growth based on changes in total assets	Annual Reports
Corporate Governance (CG)	CG = (Fulfilled governance checklist items) / (Total governance criteria)	Ratio of corporate governance compliance score using standard governance checklist	OJK Guidelines, IDX Checklist

Variable	Indicator / Item	Operational Definition	Source
Net Profit Margin (NPM)	NPM = Net Income / Total Revenue	Ratio of net profit to total revenue to measure efficiency in generating profit	Financial Statements

Note:
1) Carbon Emission Disclosure is a composite variable constructed from multiple sub-dimensions (CC, GHG, EC, RC, AEC), where each disclosed item is scored 1 and undisclosed is scored 0. The total CED score is calculated by the sum of disclosed items divided by the maximum possible score.
2) All financial ratios and governance scores are derived from published Annual Reports and Sustainability Reports of KOMPAS100 firms for the years 2021–2023.

3.3 Data Analysis

Table 3. Data Analysis Method

Stage	Description
Descriptive Statistics	Analyze the central tendency and distribution of each variable, including the mean, standard deviation, minimum, and maximum values.
Model Selection Tests	• Chow Test: To compare the Pooled OLS model with the Fixed Effect Model (FEM). • Hausman Test: To determine whether FEM or REM is more appropriate. • Lagrange Multiplier (LM) Test: To compare Pooled OLS with the Random Effect Model (REM).
Hypothesis Testing	The test involves analyzing the coefficient estimates, t-statistics, and p-values. A variable is considered to have a statistically significant effect if its p-value < 0.05, indicating rejection of the null hypothesis (H_0: $\beta = 0$). Interpretation is done in terms of direction, magnitude, and significance of the effect.
Regression Equation	$CED_{it} = \alpha + \beta_1 PP_{it} + \beta_2 CG_{it} + \beta_3 NPM_{it} + \varepsilon_{it}$
Software Used	EViews 12 was employed for all statistical computations and model estimations.

4. Results and Discussion

4.1 Descriptive Statistics

Table 4. Descriptive Statistics of Research Variables (N = 150)

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
Carbon Emission Disclosure (CED)	69.33%	69.44%	94.44%	38.89%	12.77%
Firm Growth (FG)	13.56%	6.79%	203.20%	-17.13%	27.60%
Corporate Governance (CG)	96.00%	100.00%	100.00%	64.00%	7.18%
Economic Pressure (EP)	20.24%	12.50%	659.68%	-5.36%	54.54%

Source: Processed using EViews, 2025

1) The Carbon Emission Disclosure (CED) has an average rate of 69.33%, indicating a moderate level of transparency across firms, with values ranging from 38.89% to 94.44%. Higher disclosure is generally observed in the banking and industrial sectors.

2) The Firm Growth (FG) variable shows high variation (mean = 13.56%), with growth reaching up to 203.20% in some firms due to large asset increases, while negative growth is also observed, reflecting financial constraints.
3) Corporate Governance (CG) scores are relatively high (mean = 96.00%), especially among firms listed in the KOMPAS100 index, which comply with regulatory guidelines. However, outliers exist, with some firms recording much lower governance performance.
4) The Economic Pressure (EP) variable reflects considerable variation across firms (mean = 20.24%), suggesting differences in how firms manage economic challenges such as declining revenues or asset recovery.

These descriptive insights provide an overview of the dataset's distribution and serve as a basis for subsequent regression analysis.

4.2 Model Selection for Panel Data Regression

To determine the most appropriate panel data regression model, a series of diagnostic tests were conducted, including the Chow test, the Hausman test, and the Lagrange Multiplier (LM) test. The results are summarized in Table 1.

Table 5. Summary of Model Selection Tests for Panel Data Regression

Test Type	Test Statistic	p-value	Decision	Selected Model
Chow Test	F = 6.724971	0.0000	Reject H_0: Fixed Effect Model preferred over CEM	Fixed Effect Model (FEM)
Hausman Test	χ^2 = 2.567544 (df = 3)	0.4632	Fail to reject H_0: Random Effect Model preferred	Random Effect Model (REM)
Lagrange Multiplier (LM) Test	BP (Cross-section) = 62.00449	0.0000	Reject H_0: REM preferred over Common Effect Model	Random Effect Model (REM)

Source: Processed using EViews, 2025

Based on the results of the Chow test, the probability value of 0.0000 ($p < 0.05$) indicates that the null hypothesis is rejected. Therefore, the Fixed Effect Model (FEM) is initially considered superior to the Common Effect Model (CEM). Subsequently, the Hausman test was performed to differentiate between the FEM and Random Effect Model (REM). The result shows a p-value of 0.4632 ($p > 0.05$), indicating the null hypothesis is accepted, and hence, the REM is more appropriate than FEM. Finally, the Breusch-Pagan Lagrange Multiplier (LM) test was employed to test the REM against the CEM. The p-value for the cross-section component is 0.0000 ($p < 0.05$), confirming that the REM provides a better fit than the CEM.

Accordingly, based on the three-step model selection procedure, the Random Effect Model (REM) was identified as the most suitable model for this panel data analysis. It is important to note that the application of the REM allows the model to account for individual heterogeneity through the error term structure. As a consequence, classical assumption tests such as normality, multicollinearity, heteroscedasticity, and autocorrelation are generally not mandatory to be tested rigorously under the REM framework. The generalized least squares (GLS) estimation used in REM inherently addresses many of these issues, making it robust to certain violations of classical linear

regression assumptions. Therefore, further classical assumption testing was not pursued in this study.

4.3 Hypothesis Testing

Table 6. Hypothesis Testing Results

Type of Test	Variable / Model	Coefficient	Statistic	p-value	Decision
F-Test (Simultaneous)	Full Model	–	3.554997	0.015971	H_0 rejected: All independent variables jointly affect CED
t-Test (Partial)	PP (Firm Growth)	–5.405298	–1.996042	0.0478	H_0 rejected: Significant effect on CED
	TKP (Corporate Governance)	45.23506	2.281872	0.0239	H_0 rejected: Significant effect on CED
	TE (Economic Pressure)	1.124302	0.782192	0.4354	H_0 accepted: No significant effect on CED
Coefficient of Determination	Adjusted R^2	–	–	–	0.0489: Model explains ~5% of variation in Carbon Emission Disclosure
Moderating Regression Analysis (MRA)	PP × TE (Interaction)	–9.495519	–0.859602	0.3914	H_0 accepted: TE does not moderate effect of PP on CED
	TKP × TE (Interaction)	8.003718	0.988008	0.3248	H_0 accepted: TE does not moderate effect of TKP on CED

Source: Processed using EViews, 2025

Table 6 presents the results of the hypothesis testing, including simultaneous and partial significance tests, as well as the interaction effects analyzed using Moderated Regression Analysis (MRA).

1) The F-test result indicates that the overall regression model is statistically significant, with a p-value of 0.0159 ($p < 0.05$). This suggests that the independent variables firm growth (PP), corporate governance (TKP), and economic pressure (TE) have a joint and significant effect on carbon emission disclosure (CED). Therefore, the null hypothesis is rejected, confirming that the model as a whole explains variance in the dependent variable.
2) Further examination using t-tests reveals that firm growth (PP) and corporate governance (TKP) each have a significant partial effect on carbon emission

disclosure, with p-values of 0.0478 and 0.0239, respectively. This supports the acceptance of the alternative hypotheses (H_a), implying that firms experiencing growth and those with stronger governance mechanisms tend to disclose more information related to carbon emissions. In contrast, economic pressure (TE) does not show a statistically significant effect (p = 0.4354), suggesting that external economic pressure alone does not influence firms' carbon reporting behavior.

3) The adjusted R-squared value of 0.0489 indicates that the model explains approximately 5% of the variability in carbon emission disclosure. While statistically significant, this relatively low value suggests that other factors outside the model also play a substantial role in influencing disclosure practices.
4) The Moderated Regression Analysis (MRA) was conducted to assess whether economic pressure moderates the relationship between the two main independent variables (PP and TKP) and CED. The interaction terms (PP × TE and TKP × TE) both produced p-values above the 0.05 threshold (0.3914 and 0.3248, respectively), indicating that economic pressure does not significantly moderate the effects of firm growth or corporate governance on carbon emission disclosure. Thus, the null hypotheses are retained for the moderating effects.

In summary, the analysis demonstrates that while firm growth and corporate governance directly influence firms' carbon emission disclosure, economic pressure neither has a direct effect nor serves as a significant moderator in the model.

4.4 Discussion of Results

4.4.1 The Effect of Firm Growth on Carbon Emission Disclosure

The empirical results indicate that firm growth (PP) has a negative and statistically significant effect on carbon emission disclosure, as shown by a coefficient of –5.405 (t = –1.996, p = 0.0478). This result contradicts the initial hypothesis, which predicted a positive relationship i.e., that firms experiencing higher growth would be more likely to disclose carbon emissions due to increased visibility and legitimacy concerns.

From the perspective of legitimacy theory, it is expected that growing firms should seek to legitimize their expanding operations through transparent environmental disclosures. However, the negative association found in this study suggests that growth may be accompanied by cost prioritization, where firms may deprioritize voluntary disclosures such as carbon emission reporting, especially when financial resources are allocated toward operational or expansion-related activities.

A possible explanation lies in the limited average growth rate of the sample firms, which was approximately 13%. This relatively low level of growth may not provide sufficient incentives or financial flexibility to support investments in sustainability reporting, particularly when carbon disclosure is still voluntary and associated with significant costs, such as transition to low-emission technologies or renewable energy adoption. Furthermore, firms appear to focus only on general disclosures such as energy consumption and total carbon emissions, while neglecting detailed financial disclosures related to mitigation activities.

This finding is consistent with the study by Yasa and Purnamawati (2024), which also reported a negative relationship between firm growth and carbon emission disclosure in the Indonesian context.

4.4.2 The Effect of Corporate Governance on Carbon Emission Disclosure

The results show that corporate governance (TKP) has a positive and statistically significant effect on carbon emission disclosure, with a coefficient of 45.235 (t = 2.282,

p = 0.0239). This finding is in line with the second hypothesis and reinforces the assumption that firms with stronger governance practices are more transparent and accountable in communicating their environmental impacts.

From the theoretical standpoint, this result supports legitimacy theory, which posits that firms with high-quality governance are more responsive to social expectations and regulatory pressures. Firms with strong governance structures tend to adhere to broader stakeholder expectations, comply with regulatory frameworks, and adopt sustainable business practices including environmental reporting.

This is reflected in the high level of compliance with Indonesia's Financial Services Authority (OJK) recommendations, such as those outlined in SEOJK No. 32/SEOJK.04/2015. The data suggest that firms meeting governance guidelines are also those more likely to voluntarily disclose carbon emission data, signaling their commitment to environmental responsibility.

This finding is consistent with prior empirical evidence from Firmansyah (2021), which highlighted the role of corporate governance in promoting environmental disclosure practices.

4.4.3 The Moderating Role of Economic Pressure in the Relationship Between Firm Growth and Carbon Emission Disclosure

The moderated regression analysis (MRA) reveals that economic pressure (TE) does not moderate the relationship between firm growth and carbon emission disclosure, as indicated by the insignificant interaction term (PP × TE) with a coefficient of –9.495 (t = –0.860, p = 0.3914).

This result indicates that the influence of firm growth on environmental disclosure is not contingent on macroeconomic or firm-level financial stress. In other words, firms' decisions to disclose carbon emissions are primarily influenced by internal strategic considerations rather than being moderated by external economic conditions.

This may suggest that firms, regardless of their level of financial pressure, tend to maintain consistent disclosure behavior when it comes to environmental practices. The voluntary nature of carbon reporting in Indonesia could also explain the absence of a moderating effect, as companies might not perceive immediate pressure to disclose such information under economic constraints.

4.4.4 The Moderating Role of Economic Pressure in the Relationship Between Corporate Governance and Carbon Emission Disclosure

Similarly, the interaction term between corporate governance and economic pressure (TKP × TE) is found to be statistically insignificant (coefficient = 8.004, t = 0.988, p = 0.3248), indicating that economic pressure does not moderate the relationship between governance practices and carbon emission disclosure.

This result suggests that firms with strong governance structures are likely to maintain their disclosure commitments even under challenging economic conditions. These firms may have institutionalized environmental responsibility as part of their corporate values and strategic policies, reducing the influence of short-term financial pressures on sustainability reporting.

Furthermore, the consistently high adherence to SEOJK No. 32/SEOJK.04/2015 among the sample firms (reporting compliance rates between 90–100%) reflects a deep-rooted commitment to transparency and ethical conduct, which appears resilient to economic fluctuations. This reinforces the notion that stakeholder orientation and

regulatory compliance are more influential drivers of disclosure than economic constraints in the Indonesian context.

5. Conclusion

This study aims to investigate the effect of firm growth, corporate governance, and economic pressure on carbon emission disclosure (CED), including the moderating role of economic pressure. Using a panel data regression approach with data from 50 firms listed on the Indonesia Stock Exchange over the 2021–2023 period, the following conclusions can be drawn:

First, the empirical findings reveal that firm growth has a negative and significant effect on carbon emission disclosure. Contrary to the initial hypothesis and legitimacy theory, growing firms tend to disclose less environmental information, possibly due to cost considerations or the voluntary nature of carbon reporting in Indonesia.

Second, corporate governance demonstrates a positive and significant influence on carbon emission disclosure. This result aligns with the legitimacy theory and highlights the importance of governance quality in promoting transparency and environmental accountability among firms.

Third, economic pressure does not have a significant moderating effect on the relationship between firm growth and carbon emission disclosure, nor on the relationship between corporate governance and disclosure. This indicates that firms' decisions regarding carbon reporting are not significantly influenced by short-term economic stress, but rather by internal governance and strategic commitment.

Overall, the study emphasizes the role of corporate governance as a critical driver of carbon disclosure, while also highlighting that firm growth alone may not guarantee environmental transparency, particularly in contexts where sustainability reporting remains voluntary.

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