Jurnal Manajemen Bisnis dan Kewirausahaan
http://ejournal.umm.ac.id/index.php/jamanika
DOI: 10.22219/jamanika.v5i1.39823
Jamanika March 2025 Vol.05 No.01

Determinants of Green Banking Disclosure State Banks

Novi Nugrahani[1], Atika Syuliswati[2], Atik Andhayani[3], Indra Lukmana Putra[4], Suryan Widiati[5]
[1,2,3,4,5]Jurusan Akuntansi, Politeknik Negeri Malang, Indonesia
Corresponding E-mail: novi.nugrahani@polinema.ac.id

Abstract

This study examines the determinants of green banking disclosure (GBD) in Indonesian commercial banks, focusing on board characteristics such as board size, gender diversity, independent commissioners, and foreign ownership. The research employs a quantitative methodology, analyzing secondary data obtained from state-owned banks in Indonesia. The data were analyzed using regression analysis to identify the relationship between board characteristics and the extent of green banking disclosure. The findings reveal that board size has a significant positive effect on GBD, while gender diversity and independent commissioners do not significantly influence GBD. Foreign ownership is identified as a key determinant, with banks having higher foreign ownership more likely to disclose green banking practices. The implications of this research are twofold. First, the study highlights that larger boards and higher foreign ownership contribute to increased green banking disclosure, suggesting that governance structures with greater resources and international investment play a vital role in promoting sustainability practices in the banking sector. Second, the results imply that factors such as gender diversity and independent commissioners may not be as influential in shaping green banking disclosure, which could inform policy discussions on corporate governance reforms in Indonesia. Future research could explore other potential determinants, including regulatory frameworks and market competition, to enhance understanding of green banking disclosure in a global context.

Keywords*: Green Banking, Disclosure, Sustainability*

Abstrak

Penelitian pengujian determinan pengungkapan perbankan hijau (GBD) bank umum Indonesia, berfokus karakteristik dewan seperti ukuran dewan, keragaman gender, komisaris independen, dan kepemilikan.. Fokus pada metodologi kuantitatif, menganalisis data sekunder yang diperoleh dari bank-bank milik negara di Indonesia. Data dianalisis menggunakan analisis regresi untuk mengidentifikasi hubungan antara karakteristik dewan direksi dan tingkat pengungkapan green banking. Temuan penelitian menunjukkan bahwa ukuran dewan direksi berpengaruh positif signifikan terhadap GBD, sedangkan keberagaman gender dan komisaris independen tidak berpengaruh signifikan terhadap GBD. Kepemilikan asing diidentifikasi sebagai faktor penentu utama, dimana bank yang memiliki kepemilikan asing lebih tinggi cenderung mengungkapkan praktik perbankan ramah lingkungan. Implikasi dari penelitian ini ada dua. Pertama, studi ini menyoroti bahwa dewan yang lebih besar dan kepemilikan asing yang lebih tinggi berkontribusi terhadap peningkatan pengungkapan perbankan

Article info
Received (07/02/2025)
Revised (13/ 02/2025)
Accepted (27/02/2025)
Corresponding_ author: novi.nugrahani@polinema.ac.id

ramah lingkungan, yang menunjukkan bahwa struktur tata kelola dengan sumber daya yang lebih besar dan investasi internasional memainkan peran penting dalam mendorong praktik keberlanjutan di sektor perbankan. Kedua, hasil penelitian ini menyiratkan bahwa faktor-faktor seperti keberagaman gender dan komisaris independen mungkin tidak terlalu berpengaruh dalam membentuk pengungkapan perbankan ramah lingkungan, yang dapat menjadi masukan bagi diskusi kebijakan mengenai reformasi tata kelola perusahaan di Indonesia. Penelitian di masa depan dapat mengeksplorasi faktor-faktor penentu potensial lainnya, termasuk kerangka peraturan dan persaingan pasar, untuk meningkatkan pemahaman tentang pengungkapan perbankan ramah lingkungan dalam konteks global.

Kata kunci : Bank Hijau, Pengungkapan, Keberlanjutan

INTRODUCTION

Anthropogenic climate change, a natural phenomenon, has a gradual impact on all areas of human life, including economic activities and social welfare. Increasing good corporate governance practices as the financial industry develops is also increasingly complex. Including financial institutions and banks that focus on sustainability and social responsibility, called "green banks". Green banks play an important role in supporting sustainable investment, directing funding to environmentally friendly projects, and facilitating the transition to a greener economy. Along with the increasing demand for sustainability Bose et al., (2018); Chowdhury et al., (2020); Steuer & Tröger, (2021).

Sustainability requires transparent and effective governance, which can be explained through agency theory, where management (agent) is responsible for acting in the interests of shareholders (principal). Sustainability disclosures on green banks reflect efforts to support environmentally friendly projects. In this context, governance variables such as board size, gender diversity, independent commissioners, and share ownership are very important. Gender diversity can enrich perspectives in decision-making, while independent commissioners ensure decisions taken support long-term sustainability (Islam et al., 2020; Cosma et al., 2022).

The Ministry of Environment and Forestry of the Republic of Indonesia (2022) emphasizes the potential economic losses in four key sectors—coastal and marine, water, agriculture, and health—due to climate change anomalies. These long-term effects are expected to result in a decrease in the national economy. Although these sectors are particularly vulnerable to environmental factors, banks, as financial intermediaries, play a crucial role in mitigating global temperature rise. Through their financing decisions, banks have the power to either promote or hinder sustainability efforts, influencing environmental outcomes. In Indonesia, financial institutions are not legally required to disclose sustainability information, except for Commercial Business Groups of Banks (BUKU 3, BUKU 4, and Foreign Banks), which must report on sustainability practices starting from January 1, 2019 (Otoritas Jasa Keuangan Indonesia, 2017).

European banks, for example, have demonstrated relatively high levels of compliance with sustainability reporting standards, largely due to the availability of information and the commitment to forward-thinking strategies. The Corporate Social Responsibility (CSR) Committee plays a critical role in emphasizing sustainability concerns, and the level of transparency across banks differs significantly based on their focus on this issue (Cosma et al., 2022). Banks in Sub-Saharan Africa have also documented their governance mechanisms, particularly through Corporate Governance (CG) indices, which are closely linked to environmentally sustainable banking practices (Adu, 2022). Similarly, banks in Bangladesh have revealed that the size of the board of directors influences their environmental

disclosures (Bose et al., 2018). Banking institutions have started addressing environmental issues, but effectively communicating sustainability practices remains a challenge (Rahayu & Djuminah, 2022).

A crucial factor in environmental disclosure is the diversity of the board of directors. In recent years, the issue of board diversity, particularly gender diversity, has been closely examined. Diversity within the leadership team has been found to positively impact decision-making processes, with a greater focus on sustainable practices and a heightened commitment to long-term value creation. As financial institutions are being pressured to adopt more sustainable practices, the characteristics of their boards, including diversity, independence, and size, are being scrutinized for their influence on sustainability reporting (Alkhawaja et al., 2023).

The extent to which banks disclose information on climate change impacts can be understood through the lens of legitimacy theory. This theory posits that organizations have an ethical and moral obligation to align their practices with societal expectations, thus gaining legitimacy and trust from stakeholders. In the context of banking, this involves a commitment to addressing global climate change and demonstrating transparent actions. By disclosing their environmental impacts, banks show their awareness and willingness to contribute to the global effort to mitigate climate change. This aligns with the idea of organizations using alternative resources and sustainable practices to improve resilience and maintain a competitive edge (Pfeffer & Salancik, 2015). A sustainable competitive advantage, rooted in responsible resource management, is key to long-term organizational success.

The primary objective of this paper is to explore the relationship between the board characteristics of banks and their environmental disclosures, particularly concerning climate change. By examining various governance mechanisms, financial performance indicators, and the role of diversity within the board, this paper aims to provide insights into how banks can better disclose their sustainability practices and contribute to global efforts against climate change. Understanding these factors will not only improve transparency within the banking sector but also guide the development of policies and regulations that promote sustainability across financial institutions.

LITERATURE REVIEW

Green banking practices are often adopted by financial institutions in response to increased pressure from stakeholders to operate more ethically (Bose et al., 2018; OkeyereKwakye & Md Nor, 2021; Cosma et al., 2022). However, as Zahra et al., (2022) point out, that there is a lack of established technical guidelines or regulations for environmental banking disclosure. Consequently, the practice of green banking and its associated reporting varies widely between institutions. The absence of standardized reporting frameworks results in inconsistent green banking disclosures, with each institution applying its methods based on its operational priorities and the expectations of stakeholders. Veerasamy et al. (2023) emphasize that despite the lack of a formalized framework, financial institutions often respond to stakeholder pressures by engaging in more ethical practices. Green banking initiatives are frequently included in the annual reports of companies, though without a uniform reporting format, making the information less comparable and transparent.

Green banking disclosure suggests that various factors influence the extent to which financial institutions engage in environmentally friendly practices and disclose their environmental impacts. Corporate governance, including board characteristics such as gender diversity, independence, and size, plays a critical role in shaping the sustainability practices of banks. Additionally, ownership structure and agency theory provide further insights into how financial institutions balance the interests of stakeholders and the environment. As banks continue to face pressure from stakeholders to adopt more

ethical practices, the need for consistent, transparent, and standardized green banking disclosures becomes increasingly important (Cosma et al., 2022).

Green banking, a concept that refers to the environmentally friendly practices adopted by financial institutions, has garnered significant attention in recent years. Banks engage in green banking as part of their efforts to respond to the growing pressure from stakeholders, including regulators, the public, and environmental advocacy groups, to be more ethical in their operations. As Handajani et al. (2019) found, that corporate governance plays a crucial role in influencing green banking practices. However, the relationship between governance mechanisms and green banking disclosure is not universally accepted, as Rahmiati and Agustin (2022) argue that corporate governance does not have a direct impact on the disclosure of green banking practices. This highlights the complexity of the issue, with varying perspectives in the literature on how governance impacts sustainability reporting.

The characteristics of a bank's board of directors, including its size, independence, and gender diversity, have been shown to impact sustainability reporting practices, including green banking disclosures. Gender diversity, in particular, has gained significant attention in the context of environmental, social, and governance (ESG) disclosures. Alkhawaja et al., (2023) argue that boards with greater gender diversity are more likely to disclose ESG-related initiatives, including green banking practices. This finding is consistent with the argument that diverse boards bring varied perspectives and concerns, which often include a stronger focus on environmental issues (Sa'diyah, 2023).

Buallay and Alhalwachi (2022) highlight that the presence of female directors positively and significantly impacts environmental disclosure. Female directors are generally more inclined to focus on social and environmental issues, aligning with the ethical objectives of green banking. Gender diversity can also improve corporate accountability in environmental matters (Birindelli et al., 2024). This suggests that increasing gender diversity on boards could result in greater attention to environmental issues and improved green banking disclosures. As such, gender-diverse boards may play a crucial role in promoting stronger sustainability practices within financial institutions.

In addition to gender diversity, other aspects of board characteristics, such as board size and independence, have been examined for their effect on green banking disclosures. The board of commissioners, which includes both independent and non-independent directors, plays a central role in corporate governance. Independent commissioners are those who are not affiliated with the management or major shareholders of the company. As Bose et al., (2018) suggest, that independent commissioners are free from conflicts of interest and are better able to focus on issues that affect the long-term sustainability of the institution, including environmental concerns. The independence of board members ensures that decision-making processes are not unduly influenced by internal or external pressures, which can sometimes detract from a company's commitment to green banking practices.

The size of the board has also been found to influence the level of green banking disclosure. Larger boards tend to have a greater capacity for overseeing the implementation of sustainability practices, including green banking. A larger board may have more diverse expertise and resources to address the challenges posed by environmental issues, leading to more comprehensive disclosures (Bose et al., 2018). On the other hand, smaller boards may struggle to allocate sufficient attention to sustainability issues due to limited resources or competing priorities.

Ownership structure is another important factor that influences a bank's green banking practices and disclosures. Rabie et al., (2022) highlight that the concentration of ownership—where a large portion of shares is owned by a few stakeholders—can have significant implications for corporate strategy, including environmental initiatives. When a company's ownership is concentrated, major

shareholders may exert more influence over management, pushing for stronger environmental and sustainability practices. This may result in more substantial green banking disclosures, as these stakeholders may demand greater transparency regarding the bank's environmental impact.

In contrast, widely dispersed ownership can lead to less accountability, as shareholders may not have the same level of influence over corporate practices. However, Susanto and Joshua (2018) argue that regardless of ownership concentration, shareholders expect managers to perform in a way that maximizes shareholder wealth, which could include incorporating sustainability practices. This suggests that regardless of the ownership structure, banks with a strong shareholder interest in long-term value creation may still be motivated to improve their environmental performance.

Agency theory, which deals with the relationship between principals (shareholders) and agents (management), provides a useful framework for understanding the dynamics of green banking practices. According to Jensen and Meckling (1976), the principal-agent relationship can create conflicts of interest between shareholders and management, particularly when it comes to long-term sustainability goals. In the context of green banking, managers (agents) may be focused on short-term profitability, while shareholders (principals) may be more concerned with the long-term environmental and social impact of the institution's activities. This potential conflict of interest can affect the extent to which banks adopt and disclose green banking practices.

Agency theory suggests that effective corporate governance mechanisms, including a diverse and independent board, can help align the interests of management and shareholders, encouraging the adoption of green banking practices that are both financially and socially responsible. When shareholders and managers are aligned on sustainability goals, the bank is more likely to engage in green banking practices and disclose its environmental impact, as this enhances the bank's legitimacy and reputation.

RESEARCH METHOD

This study examines banks listed on the Indonesia Stock Exchange (BEI) as of December 31, 2023, focusing on 47 commercial banks that publish sustainability reports. The sample includes four state-owned commercial banks in Indonesia, selected for their comprehensive sustainability disclosures and prominence in the sector. The analysis covers annual and sustainability reports from 2016 to 2023 to observe trends in green banking disclosures (GBD). The decision to focus on state-owned banks allows for an in-depth examination of how these institutions, which are often subject to both governmental oversight and public scrutiny, approach green banking and sustainability reporting. While there are other commercial banks in Indonesia, we chose to narrow the scope to state-owned banks to maintain consistency in the sample and control for potential variations in practices that might arise from differences in ownership or institutional priorities.

The dependent variable in this study is Green Banking Disclosure (GBD), which measures how banks report their environmentally sustainable practices in sustainability reports. The study uses the Green Banking Disclosure Index by Bose et al., (2018), consisting of 21 items related to green banking, covering areas like environmental management, green financing, and sustainability integration into bank operations. To assess GBD, this research employs a non-weighted disclosure index. If a bank's sustainability report contains information on a particular green banking initiative, it receives a score of 1 for that disclosure item. If the report does not include such information, it receives a score of 0. The total GBD score for each bank is then calculated by summing the individual disclosure scores across all 21 items and dividing the total score by the maximum possible score (i.e., the total number of disclosure items) to obtain a percentage score. This percentage represents the extent of green banking disclosure,

with higher scores indicating a greater level of transparency and commitment to green banking practices.

The rationale for using a non-weighted index is to provide a straightforward measurement of GBD. Since the study aims to evaluate the general trend of green banking disclosures, a non-weighted index helps avoid potential biases that might arise from overemphasizing certain disclosure items over others. The final GBD score offers an overall percentage that reflects the bank's level of commitment to environmental sustainability, with higher scores indicating a stronger focus on green banking initiatives. This research examines several independent variables that may influence green banking disclosures, based on previous literature on corporate governance and sustainability reporting. The following variables are considered:

One key independent variable is the gender diversity of the bank's board of directors. Gender diversity refers to the proportion of female directors on the board. Previous studies, such as those by Alkhawaja et al., (2023), have found that gender-diverse boards tend to prioritize sustainability and ESG (Environmental, Social, and Governance) issues, including green banking practices. This variable will be measured by the percentage of female directors on the board of each bank. The size of the board of directors is another independent variable in this study. Board size can influence the effectiveness of governance, with larger boards often having more resources and expertise to address environmental and sustainability issues (Bose et al., 2018). In this study, board size will be measured by the total number of directors on the bank's board. A larger board may be more likely to have committees or dedicated members responsible for overseeing sustainability initiatives, including green banking disclosures.

The proportion of independent commissioners on the board is also considered as an independent variable. Independent commissioners are members of the board who are not affiliated with the bank's management or major shareholders. According to Bose et al., (2018), independent commissioners are less likely to be influenced by internal pressures and are more likely to advocate for transparency and responsible corporate behavior, including the disclosure of green banking practices. This variable will be measured by the percentage of independent commissioners on the board (Putra, 2022). The level of foreign ownership in the bank is another independent variable that may influence green banking disclosures. Banks with higher levels of foreign ownership may be more likely to adopt international best practices in sustainability reporting due to the expectations of foreign investors and the influence of global trends (Rabie et al., 2022). This variable will be measured by the percentage of shares held by foreign investors in each bank.

Data for this study will be collected from publicly available annual and sustainability reports of the selected state-owned banks, covering the period from 2016 to 2023. These reports will be reviewed to extract information on green banking disclosures and board characteristics. The collected data will be used to calculate the dependent variable (GBD) and independent variables, including gender diversity, board size, independent commissioners, and foreign ownership.

This study will use both descriptive and inferential statistics for analysis. Descriptive statistics will summarize the sample banks' characteristics, including their GBD scores, board attributes, and ownership structures. Inferential statistics, specifically multiple regression analysis, will test the hypotheses regarding the relationships between board characteristics (gender diversity, board size, independent commissioners, and foreign ownership) and green banking disclosures. The analysis will control for confounding factors like bank size and financial performance to assess the impact of these variables on GBD.

Based on the literature review and literature reviews, the following hypotheses are proposed:

H1: Gender diversity on the board of directors has a positive relationship with green banking

disclosures.

H2: Larger board size is positively related to the level of green banking disclosures.

H3: A higher proportion of independent commissioners is positively associated with green banking disclosures.

H4: Higher foreign ownership is positively related to the level of green banking disclosures.

The research contributes to understanding how corporate governance characteristics influence the level of green banking disclosure in state-owned banks in Indonesia. By focusing on the relationship between board characteristics and environmentally friendly banking practices, the research aims to provide insights that can inform regulatory frameworks and bank strategies designed to promote environmental sustainability in the financial sector.

RESULT AND DISCUSSION

This section presents the findings from the descriptive analysis of data collected from four state-owned banks in Indonesia, observed between 2016 and 2023. Table 1 displays the descriptive statistics for the dependent variable, Green Banking Disclosure (GBD), which had an average value of 0.9717. This suggests that, on average, the banks in the sample exhibited a high level of green banking disclosure, nearing 100%. The lowest GBD score was 0.857, reflecting a minimum disclosure level of 85%, while the highest score reached 1.000, indicating that one bank disclosed all of its green banking initiatives. The median value of 1.000 reinforces this finding, showing that half of the banks achieved perfect disclosure.

Table 1. Descriptive Statistics

	Y	X1	X2	X3	X4
Mean	0.971688	0.156563	8.781250	0.560250	27.24844
Median	1.000000	0.143000	9.000000	0.556000	29.52000
Maximum	1.000000	0.300000	11.00000	0.700000	36.47000
Minimum	0.857000	0.000000	6.000000	0.429000	9.750000
Std. Dev.	0.053949	0.084666	1.288519	0.075856	7.858127
Skewness	-1.525706	-0.145465	-0.503855	0.372648	-0.965245
Kurtosis	3.539804	2.747008	2.432550	2.358366	2.816125
Jarque-Bera	12.80333	0.198194	1.783307	1.289547	5.014130
Probability	0.001659	0.905655	0.409977	0.524782	0.081507
Sum	31.09400	5.010000	281.0000	17.92800	871.9500
Sum Sq. Dev.	0.090227	0.222216	51.46875	0.178380	1914.255
Observations	32	32	32	32	32

Source: Data Processed (2025)

variability in board size may reflect differences in the organizational structure and governance practices of the banks.

Gender Diversity (X1), The mean value for gender diversity on the board was 0.1566, indicating relatively low gender diversity in the sampled banks. This is still in compliance with Indonesia's central bank regulation, which mandates a minimum of 8% female representation on boards. Although gender diversity has been shown to influence the practice of providing loans to environmentally friendly companies, leading to greater green finance initiatives, the results of this study show no significant impact of female directors on sustainability commitment. Studies have suggested that higher female representation on boards tends to lead to more financing for companies with lower and medium levels of pollution (Reghezza et al., 2022). However, despite the banks' commitment to environmental

protection, the presence of female directors does not appear to significantly influence their green banking practices (Masriani & Wibowo, 2022). This inconsistency in research results highlights the need for further investigation into the impact of gender diversity on environmental performance (Gallego-Sosa et al., 2020).

Board Size (X2), The average board size in the sampled banks was 8.7813, suggesting that the typical bank has around nine directors. This variability in board size reflects differences in the organizational structure and governance practices of the banks. Larger boards may potentially lead to better performance due to improved task distribution and greater external networking opportunities (Haryani & Susilawati, 2023). Additionally, larger boards may help enhance the implementation of green policies, as they provide a wider range of perspectives on sustainability and green banking practices (Kyere & Ausloos, 2021).

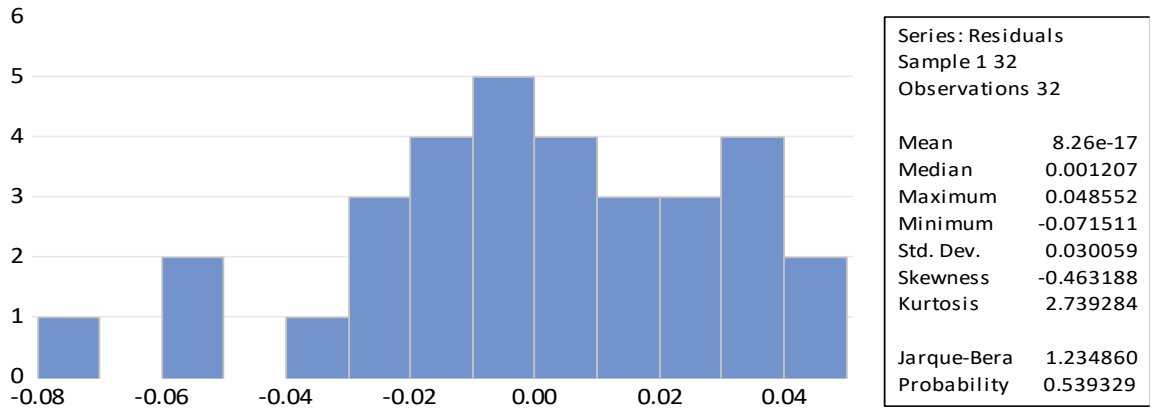
Independent Commissioners (X3), The average proportion of independent commissioners on the boards was 0.5603, indicating that approximately 56% of board members were independent. This suggests that most banks maintain a relatively balanced representation of independent commissioners. The proportion of independent commissioners is important in ensuring that management does not violate sustainability and green banking principles, thus supporting good corporate performance (Rahmiati & Agustin, 2022). However, the variability in the proportion of independent commissioners was low across the banks, and their influence on green banking disclosure was not statistically significant in this study.

Foreign Ownership (X4), The mean foreign ownership was 27.2484%, with the majority of banks having foreign ownership ranging from 9% to 36%. This indicates a significant foreign ownership influence on sustainability practices, including green banking disclosure. Foreign investors often prioritize environmental and sustainability considerations, which may encourage the adoption of more transparent green banking practices in the banks they invest in. Institutional ownership plays an essential role in minimizing agency costs and supporting the agency theory, which addresses the conflict of interest between principals and agents (Jensen & Meckling, in Purnomo et al., 2021). An effective corporate governance mechanism is crucial in ensuring that managers act in the best interests of the stakeholders, promoting green banking and sustainability initiatives (Kyere & Ausloos, 2021).

The study reveals that board size and foreign ownership significantly influence green banking disclosure, while gender diversity and the presence of independent commissioners have minimal or no significant impact. These findings suggest that larger boards, with their broader expertise and external networks, are more likely to promote green banking practices. Moreover, foreign ownership plays a vital role in enhancing green banking disclosure due to the influence of foreign investors, who tend to prioritize sustainability. On the other hand, gender diversity and the role of independent commissioners may need further exploration, as their impact on sustainability practices in the banking sector is less clear in this study. Future research should delve deeper into the complex relationships between gender diversity, governance structures, and green banking practices to better understand their collective influence on sustainability outcomes.

The classical assumption test is conducted to ensure the robustness and validity of the regression analysis, including normality and heteroscedasticity tests. These tests are crucial to verify that the data comply with the underlying assumptions required for linear regression analysis.

Figure 1. Normality Test



Source: Data Processed (2025)

The normality test of residuals in the regression model aims to ensure that the residuals follow a normal distribution, which is a fundamental assumption in applying various statistical tests, including linear regression. Based on the Jarque-Bera normality test, the p-value for GBD data is 0.0017, indicating that the GBD data significantly deviates from a normal distribution. On the other hand, the p-values for gender diversity, board size, and independent commissioners are all greater than 0.05, suggesting that these variables do not significantly deviate from a normal distribution. The p-value for foreign ownership is 0.0815, indicating a slight deviation from normality, but this is not significant at the 5% level. Therefore, the data for most variables can be considered reasonably close to a normal distribution, which suggests that the normality assumption in the regression model is met. The results of the normality test show that most variables in this regression model follow a normal distribution, with some minor deviations in the GBD and foreign ownership data. Therefore, the regression model is valid for further analysis.

Gender diversity in the board of directors shows a low average value, but it still meets the minimum requirements set by Indonesia's central bank. Although gender diversity in these banks is relatively low, the presence of female directors could potentially influence strategic decisions, including green lending practices. The average board size is moderate, with nine members per bank, reflecting diverse governance practices that could influence sustainability policies and green banking disclosure. A balanced proportion of independent commissioners suggests that many banks adopt a strong oversight structure to ensure compliance with sustainability policies. Significant variation in foreign ownership shows that the influence of foreign investors on sustainability practices and green banking disclosure may differ depending on the ownership level. With the normality test results supporting the validity of the regression model, the next step is to explore the relationships between these variables and their impact on the level of green banking disclosure. The heteroscedasticity test will be performed to ensure that the residual variance is constant, which is another key assumption in linear regression analysis.

Heteroskedasticity refers to the condition where the variance of the residuals (errors) in a regression model is not constant across all levels of the independent variables. If heteroskedasticity is present, it can lead to inefficient estimates and biased standard errors, which can affect the statistical inference made from the model. To detect heteroskedasticity in this study, we used the Glejser test, which is a common test for heteroskedasticity.

Table 2. Heteroskedasticity Test

F-statistic	1.813871	Prob. F(4,27)	0.1553
Obs*R-squared	6.777761	Prob. Chi-Square(4)	0.1481
Scaled explained SS	5.526311	Prob. Chi-Square(4)	0.2374

Source: Data Processed (2025)

The F-statistic value of 1.8139 and the p-value of 0.1553 (greater than 0.05) indicate that we fail to reject the null hypothesis of homoskedasticity. This means that there is no evidence of heteroskedasticity in the data, and the assumption of constant variance of the residuals is not violated. Moreover, the Obs*R-squared and scaled explained SS tests also provide p-values of 0.1481 and 0.2374, respectively, both of which are greater than the 0.05 significance level, further supporting the conclusion that there is no significant heteroskedasticity present in the data.

The absence of heteroskedasticity in this study is a positive outcome as it confirms that the residuals' variance remains constant across different levels of the independent variables. This ensures that the ordinary least squares (OLS) estimates are efficient and that standard errors are not biased, making the statistical tests more reliable. In this case, we can confidently proceed with the regression analysis knowing that heteroskedasticity is not a concern in our data. While the focus of this section was on normality and heteroskedasticity, it is also important to acknowledge other classical assumptions in regression analysis, such as linearity, independence of errors, and multicollinearity.

Table 3. Multicollinearity test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.002584	79.71058	NA
X1	0.007817	7.585471	1.674570
X2	5.00E-05	121.4386	2.481260
X3	0.008735	86.07886	1.502048
X4	7.96E-07	19.68813	1.467975

Source: Data Processed (2025)

Based on the relationship between the dependent and independent variables, we can assume that the linearity assumption is valid, as initial scatterplots and correlation tests indicated linear relationships. The Durbin-Watson test or visual inspection of residuals can be used to detect autocorrelation. While this is not addressed in this section, it is crucial for confirming the absence of correlated errors. This issue arises when independent variables are highly correlated with each other. To assess multicollinearity, the Variance Inflation Factor (VIF) for each independent variable is typically calculated. However, since this test is outside the scope of the current analysis and the correlation matrix results suggest that multicollinearity is unlikely, we assume that this assumption holds.

The classical assumption tests presented in this section provide a solid foundation for the subsequent regression analysis. The results show that the data largely satisfies the assumptions required for reliable regression analysis. While there are slight deviations from normality in some variables, the

sample size and the nature of the residuals suggest that these deviations will not significantly affect the model's performance. Furthermore, the absence of heteroskedasticity ensures that the estimates are efficient and unbiased. Given these results, we can confidently proceed with the next steps of the analysis, including hypothesis testing and model estimation.

The t-statistics show that Board Size (X2), Foreign Ownership (X4), and Gender Diversity (X1) variables all provide some statistically significant results. Specifically, Board Size and Foreign Ownership have p-values of 0.0101 and 0.0306, respectively, suggesting that these variables have a statistically significant effect on green banking disclosure. On the other hand, Gender Diversity (X1) and Independent Commissioners (X3) do not show significant results, with p-values of 0.2159 and 0.2588, respectively, implying that their impact on green banking disclosure is not statistically significant at conventional levels (5%).

Table 4. Linier Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.661365	0.058411	11.32256	0.0000
X1	-0.128741	0.101596	-1.267181	0.2159
X2	0.022473	0.008126	2.765589	0.0101
X3	0.123890	0.107395	1.153592	0.2588
X4	0.002339	0.001025	2.281916	0.0306

R-squared	0.590121	Mean dependent var	0.971688
Adjusted R-squared	0.529399	S.D. dependent var	0.053949
S.E. of regression	0.037010	Akaike info criterion	-3.612681
Sum squared resid	0.036982	Schwarz criterion	-3.383660
Log likelihood	62.80289	Hannan-Quinn criter.	-3.536767
F-statistic	9.718287	Durbin-Watson stat	0.853112
Prob(F-statistic)	0.000053		

Source: Data Processed (2025)

To evaluate the overall fit of the regression model, we examine key statistics such as R-squared, Adjusted R-squared, and the F-statistic: The model explains about 59.01% of the variation in green banking disclosure (GBD), indicating a moderately strong fit where nearly 60% of the variance in green banking disclosure is accounted for by the explanatory variables. With a value of 0.5294, the Adjusted R-squared adjusts for the number of predictors in the model and accounts for potential overfitting. This suggests that, after considering the number of predictors, the model explains more than 52% of the variation in green banking disclosure. The F-statistic is 9.7183, with a p-value of 0.000053, which is highly significant (well below the 0.05 threshold). This indicates that the overall regression model is statistically significant, and at least one independent variable has a significant impact on green banking disclosure. Together, these statistics suggest that the model fits the data well and that the independent variables included in the model collectively contribute meaningfully to explaining green banking disclosure.

The Durbin-Watson statistic is 0.8531, which is significantly lower than 2. A value near 2 would suggest no autocorrelation of residuals, while a value much lower than 2 suggests the presence of positive autocorrelation. This value suggests a moderate presence of autocorrelation, which may warrant further investigation to ensure the robustness of the regression results. Although the Durbin-

Watson statistic is not ideal, the overall statistical significance of the model suggests that the results are still valuable.

The analysis of the relationship between various independent variables and green banking disclosure (GBD) yields the following results: Gender Diversity (X1) indicates relatively low gender diversity, although it complies with Indonesia's central bank regulation requiring at least 8% female representation on the board. The coefficient for gender diversity is -0.1287, with a p-value of 0.2159, suggesting no statistically significant impact on green banking disclosure. While there is a slight inverse relationship, the effect of gender diversity on green banking practices appears minimal, consistent with some literature that has shown inconsistent results regarding the overall impact of gender diversity on environmental performance (Gallego-Sosa et al., 2020). Despite female directors being more inclined to prioritize environmental and social issues, their presence does not appear to significantly influence sustainability practices in the sample banks (Masriani & Wibowo, 2022).

Board Size (X2) indicates that the average sample bank has 9 directors. Larger boards are associated with more green banking disclosures, with a positive and statistically significant coefficient of 0.0225 (p-value 0.0101). This relationship suggests that larger boards may be more effective at incorporating diverse perspectives and expertise, leading to greater transparency in sustainability practices. The variability in board size reflects differences in governance practices, which can influence the level of green banking disclosure.

Independent Commissioners (X3) was 0.1239 with a p-value of 0.2588, indicating no statistically significant impact on green banking disclosure. While a positive relationship was observed, the effect of independent commissioners on green banking practices was not found to be substantial, suggesting that the presence of independent commissioners does not directly influence the level of green banking disclosure in the banks sampled.

Foreign Ownership (X4) was 0.0023 with a p-value of 0.0306, indicating a statistically significant positive relationship with green banking disclosure. This suggests that banks with higher foreign ownership are more likely to disclose green banking practices, likely due to foreign investors' greater emphasis on sustainability and environmental concerns. Foreign ownership plays a crucial role in encouraging transparency and fostering green banking initiatives. Institutional ownership plays an essential role in minimizing agency costs and supporting the agency theory, which addresses the conflict of interest between principals and agents (Jensen & Meckling, in Purnomo et al., 2021).

The findings highlight the importance of board characteristics and ownership structure in influencing green banking disclosure. Larger boards and higher foreign ownership were found to significantly promote greater transparency and sustainability practices within banks. However, gender diversity and the presence of independent commissioners did not show a significant impact on green banking disclosure in the banks examined. This indicates that while gender diversity is linked to more eco-friendly lending practices (Reghezza et al., 2022), its direct effect on green banking disclosure may be less pronounced. The role of foreign ownership further underscores the influence of external investors in driving sustainability initiatives (Widagdo & Sa'diyah, 2023). Future research could delve deeper into the complex relationships between gender diversity, governance structures, and sustainability practices to better understand their combined impact on green banking performance.

CONCLUSION

Green banking disclosure (GBD) among state-owned banks in Indonesia, focusing on board characteristics such as gender diversity, board size, independent commissioners, and foreign ownership. The results highlight several key findings regarding the determinants of GBD. First, board size positively influences the level of green banking disclosure. Larger boards, with more diverse skills and perspectives, contribute to more comprehensive sustainability reporting. In contrast, gender diversity had no significant effect on GBD, suggesting that while it may influence corporate governance generally, its impact on environmental disclosure is limited. Similarly, independent commissioners did not show a significant relationship with green banking disclosure, indicating that their role may not directly influence the adoption of environmental practices.

Green banking disclosure, suggests that while board characteristics and ownership structure play a significant role, other unexamined factors may also contribute to the variation. Despite some autocorrelation in the residuals, the overall findings underscore the importance of board composition and external ownership in shaping sustainability practices in banks. foreign ownership emerged as a significant factor, with banks having higher foreign ownership more likely to disclose their green banking practices. Foreign investors' focus on sustainability pressures banks to adopt and report environmentally friendly practices, aligning with global standards.

REFERENCES

Alkhawaja, A., Hu, F., Johl, S., & Nadarajah, S. (2023). Board gender diversity, quotas, and ESG disclosure: Global evidence. International Review of Financial Analysis. https://doi.org/10.1016/j.irfa.2023.102823

Birindelli, G., Iannuzzi, A. P., & Savioli, M. (2019). The impact of women leaders on environmental performance: Evidence on gender diversity in banks. Corporate Social Responsibility and Environmental Management, 26(6), 1485–1499. https://doi.org/10.1002/CSR.1762

Bose, S., Khan, H. Z., Rashid, A., & Islam, S. (2018). What drives green banking disclosure? An institutional and corporate governance perspective. Asia Pacific Journal of Management, 35(2), 501–527. https://doi.org/10.1007/s10490-017-9528-x

Buallay, A., & Alhalwachi, L. (2022). Board gender diversity and environmental disclosure: Evidence from the banking sector. Journal of Chinese Economic and Foreign Trade Studies, 15(3), 350–371. https://doi.org/10.1108/JCEFTS-08-2021-0046

Chowdhury, M.A.A., Dey, M. and Abedin, M.T. (2020), “Firms’ attributes and environmental disclosure: evidence from listed firms in Bangladesh”, Asian Journal of Accounting Perspectives,Vol. 13 No. 2, pp. 57-77, doi: 10.22452/ajap.vol13no2.4

Cosma, S., Principale, S., & Venturelli, A. (2022). Sustainable governance and climate-change disclosure in European banking: the role of the corporate social responsibility committee.

Corporate Governance (Bingley), 22(6), 1345–1369. https://doi.org/10.1108/CG-09-2021-0331

Handajani, L., Rifai, A., & Husnan, L. H. (2019). Study of The Initiation of Green Banking Practices at State-owned Bank. Jurnal Economia, 15(1), 1-16. http:// dx.doi.org/10.21831/economia.v15i1.21954

Haryani, N. I., & Susilawati, C. (2023). Pengaruh Ukuran Dewan Komisaris, Ukuran Dewan Direksi, Ukuran Perusahaan, Kepemilikan Institusional, Dan Komisaris Independen Terhadap Kinerja Keuangan. Costing, 6(2), 2425–2435. https://doi.org/10.31539/costing.v6i2.5992

Islam, M.T., Kokubu, K. and Nishitani, K. (2020), "Corporate social reporting in the banking industry of Bangladesh: a test of legitimacy theory", Social Responsibility Journal, doi: 10.1108/SRJ-05-2019-0185.

Indonesian Financial Services Authority. (2017). Salinan Peraturan Otoritas Jasa Keuangan Nomor 51/ POJK.03/2017 Tentang Penerapan Keuangan Berkelanjutan bagi Lembaga Jasa Keuangan, Emiten, dan Perusahaan Publik (Copy of Financial Services Authority Regulation Number 51/POJK.03/2017)

Kyere, M., & Ausloos, M. (2021). Corporate governance and firms financial performance in the United Kingdom. International Journal of Finance and Economics, 26(2), 1871–1885.https://doi.org/10.1002/ijfe.1883.

Masriani, I., Setiawan, R., & Wibowo, W. (2022). Effect Of The Number Of Commissioners And Proportion Of Independent Commissioners On Public Company Performance. Eksis: Jurnal Riset Ekonomi Dan Bisnis, 17(1), 105 - 124. https://doi.org/10.26533/eksis.v17i1.988

Okyere-Kwakye, E., & Md Nor, K. (2021). The intention of banks to adopt green banking in an emerging market: the employees' perspective. Economic and Political Studies, 9(4), 497-504. https:// doi.org/10.1080/20954816.2021.1899621

Pfeffer, J., & Salancik, G. (2015). External control of organizations—Resource dependence perspective. In Organizational behavior 2 (pp. 355–370). Routledge.

Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2018). An International Approach of The Relationship between Board Attributes and The Disclosure of Corporate Social Responsibility Issues. Corporate Social Responsibility and Environmental Management, 26(3), 612–627

Putra, I. L. (2022). Pengaruh Financial Pressure, Stability dan Target terhadap Financial Statement Fraud. RISTANSI: Riset Akuntansi, 3(2), 190-202.

Putra, I. L. (2022). Manajemen Pemasaran Dilengkapi Studi Kasus Dan Video Pembelajaran. CV. ALPHA ROCKET NUSANTARA.

Rabie, W. K. Y., Al-Omush, A., & Momany, M. T. (2022). The Mediating Role of the Corporate Sustainability Reports (CSR) on the Relationship between the Efficiency Strategy (ES) and Financial Performance (FP) in the Jordanian Financial Sector. Przestrzeń Społeczna (Social Space), 22(3), 300-337. Retrieved from https://socialspacejournal.eu/ menu-script/index.php/ssj/article/view/138/61

Rahayu, R., & Djuminah, D. (2022). Does the Board of Commissioners' Characteristics Relevant to the Sustainable Finance Disclosure in Indonesian Banks? Journal of Accounting and Investment, 23(2), 209–228. https://doi.org/10.18196/jai.v23i2.14163

Rahmiati, A., & Agustin, H. (2022). Pengaruh Dewan Komisaris Independen, Komite Audit, dan Kepemilikan Asing Terhadap Green Banking Disclosure (Studi Pada Perbankan Di Indonesia Tahun 2017-2021). *Wahana Riset Akuntansi*, *10*(2), 165. https://doi.org/10.24036/wra.v10i2.119805

Reghezza, A., Gambacorta, L., Pancotto, L., & Spaggiari, M. (2022). Gender diversity in bank boardrooms and green lending: Evidence from euro area credit register data. *Social Science Research Network*. https://doi.org/10.2139/ssrn.4069428

Sa'diyah, C. (2023). Green finance bibliometrics analysis for current research, future, and sustainability. *Environmental Issues and Social Inclusion in a Sustainable Era*, *Lee 2020*, 99–104. https://doi.org/10.1201/9781003360483-12

Steuer, S., & Tröger, T. (2021). The role of disclosure in green finance. *Research Papers in Economics*. https://doi.org/10.2139/SSRN.3908617

Susanto, Y. K., & Joshua, D. (2018). Pengaruh Tata Kelola Perusahaan dan Karakteristik Perusahaan terhadap Pengungkapan Tanggung Jawab Sosial Perusahaan. Ekuitas: JurnalEkonomi Dan Keuangan, 2(4), 572–590

Widagdo, B., & Sa'diyah, C. (2023). Business sustainability: Functions of financial behavior, technology, and knowledge. *Problems and Perspectives in Management*, *21*(1), 120–130. https://doi.org/10.21511/ppm.21(1).2023.11

Zahra, A., Ayub, H., & Abdullah. (2022). Impact of Green Intellectual Capital on Sustainable Green Banking: Moderating Role of Competitive Pressure. Journal of Accounting and Finance in Emerging Economies, 8(2), 251- 262. https://doi.org/10.26710/jafee.v8i2.2294