Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Exploring the Drivers of Green Banking Disclosure in Indonesia and Malaysia: The Role of Financial Performance, Gender Diversity on the Board, Human Resource Slack, Independent Commissioners, and Institutional Ownership

Asmaul Husna[1], Majidah[2]
Accounting Master Study Program, School of Economics and Business, Telkom University, Main Campus (Bandung Campus), Jl. Telekomunikasi No. 1, Bandung 40257, West Java, Indonesia.[1]
Accounting Master Study Program, School of Economics and Business, Telkom University, Main Campus (Bandung Campus), Jl. Telekomunikasi No. 1, Bandung 40257, West Java, Indonesia.[2]
asmaulhusnaa@student.telkomuniversity.ac.id[1], majidah@telkomuniversity.ac.id[2]

ARTICLE INFO

Received: 01 July 2025

Revised: 12 July 2025

Accepted: 02 Aug 2025

ABSTRACT

Introduction: Climate change continues to be a pressing global challenge, notably impacting regions like Indonesia and Malaysia. Despite an upward trend in ecological banking disclosures, misalignment remains between stated sustainability commitments and actual funding allocations toward environmentally detrimental sectors. This discrepancy signals potential weaknesses in the genuine application of eco-conscious financial governance.

Objectives: This inquiry seeks to evaluate the extent of environmental banking transparency exhibited by conventional financial institutions publicly traded on Indonesia's IDX and the Malaysian bourse throughout 2019-2023. Moreover, it endeavors to identify the influence of firm-specific attributes, namely fiscal soundness, executive gender heterogeneity, labor resource slack, independent board composition and institutional ownership toward the scope of green banking reporting.

Methods: A quantitative approach was applied using panel data from 60 conventional banks (40 in Indonesia, 20 in Malaysia) over 2019–2023, resulting in 300 observations. Green Banking Disclosure was measured using an index covering four domains: green products, operations, customers, and policies. Independent variables included ROA, board gender diversity, human resource slack, independent commissioners, and institutional ownership. Purposive sampling was used for banks with consistent annual or sustainability reports. To interpret the data, descriptive statistics were utilized, classical assumption tests, in conjunction with panel data regression analysis via STATA 18 with F-tests, t-tests, and R^2.

Results: This study analyzes the significance of internal governance factors linked to sustainable banking operations disclosure in conventional banks in Indonesia and Malaysia using panel regression with the PCSE approach. Results demonstrate that the board gender diversity, non-affiliated board members, and institutional ownership significantly enhance disclosure, while financial performance and human resource slack have no notable effect. The model explains 75.07% of the disclosure variation, highlighting the critical role of governance in advancing bank disclosures concerning sustainability performance.

Conclusions: The findings reveal that governance elements like board diversity, independent control, and institutional influence significantly drive green disclosure, while profitability and labor surplus do not. This suggests that ethical oversight, rather than performance metrics, is key to advancing environmental transparency.

Keywords: Disclosure of Green Banking, Financial Performance, Directors Gender Diversity, Human Resource Slack, Independent Commissioners, and Institutional Ownership.

INTRODUCTION

The phenomenon of global warming has evolved into a multifaceted crisis with sweeping implications, particularly in nations like Indonesia and Malaysia. Manifestations such as rising average temperatures, altered precipitation

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

patterns, sea level surges, and intensified weather-related disasters underscore the urgency of climate action. Both countries have pledged their commitment to environmental stewardship through international agreements, notably the Kyoto Protocol (1997), mandating reductions in greenhouse gas (GHG) emissions, and the Paris Agreement (2015), which aspires to restrict targeting a temperature rise ceiling of no more than 2°C globally to 1.5°C (Pramudianto, 2016).

However, environmental degradation is not solely driven by emissions; it is also perpetuated by financial institutions that allocate capital to high-emission industries. Investigations have revealed that major global banks have channeled over USD 286 billion through sustainability-linked loans (SLLs) to corporations such as Shell, Enbridge, and Drax entities that continue to operate carbon-intensive projects with far-reaching ecological consequences. In response to this paradox, the banking sector has adopted the framework of green banking as a mitigative strategy (Chavkin, 2025). Although banking firms rely on tangible assets to function, the excellence of their services and offerings to clients is primarily shaped by the strength of their intellectual capital Wardoyo & Utami (2024).

Green banking represents a forward-thinking paradigm that embeds sustainability principles across the full spectrum of banking operations and financing policies both internally and externally with the intent to curtail environmental harm while fostering an eco-conscious economic trajectory (Ibe-enwo et al., 2019). These sustainable practices are operationalized through a Green Banking Disclosure Index (GBDI), which is measured based on disclosures presented in annual and sustainability reports. Each disclosed item within the index is scored as 1, while non-disclosures receive a score of 0. This structured approach enables a quantifiable assessment of a bank's integration of sustainable practices into its operations (Bose et al., 2018). According to Manurung et al., (2022) corporate governance plays a vital function in steering green banking efforts, ensuring that ecological strategies like carbon emission mitigation are executed with accountability and harmonized with long-term sustainable financial goals.

In the context of Indonesia and Malaysia, tensions between reported sustainability commitments and real-world financing practices have come under scrutiny. This study investigates the disclosures with respect to green banking efforts undertaken by Indonesia's publicly listed commercial banks and Bursa Malaysia for the period 2019–2023. In Indonesia, data from the GBDI reveals an upward trend in disclosure levels, rising from 76.07% in 2019 to 89.52% by 2023. However, this increase in transparency has not been without contradiction.

Indonesia's 2019 official report advocacy group Transformation for Justice (TuK) uncovered that several conventional banks were involved in financing 17 palm oil companies linked to severe forest and land fires. These corporations reportedly received a combined total of approximately USD 19.2 billion in loans and guarantees, equivalent to IDR 266 trillion. The largest contributors included BRI with USD 1.722 billion and BNI with USD 1.086 billion (Fitria, 2019). These financing activities starkly contrast the narrative presented in their sustainability reports. For example, BRI claimed that all credit evaluations involved environmental impact assessments (AMDAL) (BRI, 2019), while BNI reported compliance with AMDAL and PROPER (Corporate Performance Rating Program for Environmental Management) standards as part of their corporate lending policy (BNI, 2019).

In Malaysia, a similar contradiction is evident. A report titled Industry Lessons for Green Banking in Malaysia documented that between 2016 and 2021, conventional banks disbursed USD 16.1 billion to 23 companies across Southeast Asia with high deforestation and water pollution risks (Rahma & Wedari, 2024). Maybank and BNP Paribas, for instance, provided USD 3.88 billion (approximately IDR 34 trillion) in financing to firms allegedly involved in activities such as peatland conversion, forest fires, and development in high conservation value areas. The participation of BNP Paribas in funding environmentally destructive operations has significantly tarnished its sustainability credentials (Djamhari et al., 2024).

These contrasting realities between disclosed commitments and actual funding behaviors underscore a critical tension within conventional banking practices in both nations. Although awareness of environmental responsibility and transparency is on the rise, the substantive application of sustainable finance remains suboptimal. Consequently, this scholarly work is designed to evaluate the extent and concerning sustainable banking transparency among non-sharia commercial banks publicly traded on the IDX and Bursa Malaysia during 2019-2023.

This inquiry focuses on five hypothesized determinants: financial performance, gender diversity on boards of directors, human resource slack, board independence, and institutional ownership. The study aspires to yield

valuable insights for the banking industry, encouraging a deeper integration of sustainability into operational frameworks and enhancing the credibility of environmental disclosures in annual reporting thus signaling a genuine institutional commitment to ecological responsibility.

OBJECTIVES

The theoretical foundation of this research lies in stakeholder and legitimacy approaches. Freeman (1984) emphasized that companies must actively manage engagement with parties including employees, customers, investors, suppliers, regulators, and the public as corporate success depends not only on profit but also on responsiveness to stakeholder expectations. As Freihat et al. (2024) noted, green banking disclosure serves as a form of accountability that reflects environmental and social awareness. Transparent reporting in this area helps reduce information asymmetry and reinforces stakeholder trust in the bank's sustainable practices. Aligned with this, legitimacy theory, as explained by Suchman (1995), posits that organizational actions are considered appropriate when they align with prevailing societal values and norms. Campbell et al., (2003) further stated that environmental and social disclosures are tools companies use to legitimize their operations. In the context of banking, green banking disclosure becomes a strategic channel to showcase alignment with societal expectations. According to Firmansyah & Kartiko (2024), the more openly a bank communicates its environmental practices, the greater its chances of maintaining public trust and securing social legitimacy amid rising sustainability demands.

Financial Performance and Green Banking Disclosure

Financial performance reflects a company's ability to generate value effectively and efficiently (Hoque et al., 2022). It serves as a key indicator of financial health, measured through dimensions such as stability, profitability, and operational efficiency (Citraningtyas et al., 2024). Financial performance essentially reflects a company's ability to generate profits, manage operations, and allocate resources efficiently, serving as a fundamental basis for future investment and financing decisions (Ghose et al., 2025).One common metric used is Return on Assets (ROA), which assesses how well a firm utilizes its assets to produce net income (Kashmir, 2016).

A strong ROA suggests competent financial management. However, modern stakeholders evaluate corporate performance beyond profits placing growing emphasis on environmental and social responsibility. As noted by Kurniawan (2021), firms achieving financial success often expand their focus toward sustainability to enhance corporate image. Empirical studies also support a link between financial performance and environmental transparency. Buallay (2019) and Shakil et al. (2019) observed a reciprocal relationship, where higher environmental disclosure aligns with stronger financial outcomes. Similarly, Hoque et al., (2022) found that profitability significantly influences green banking disclosure. These findings suggest that financially sound firms possess greater capacity and incentive to disclose sustainability efforts as part of their strategic positioning.

Hypothesis H1: Financial performance has a positive effect on green banking disclosure.

Gender Diversity of Directors and Green Banking Disclosure

Gender diversity on corporate boards indicates the integration and proportion of women in director roles, bringing varied perspectives that can enhance governance quality and foster socially responsible leadership (Chang et al., 2024). Female directors often exhibit stronger concern for environmental and social issues, reinforcing a firm's sustainability orientation (Bakar et al., 2019). Empirical studies by Gallego-Sosa et al., (2021) and Matuszak et al. (2019) show that female board representation positively impacts green banking disclosure by encouraging strategic decisions that prioritize ecological responsibility. Given this context, the inclusion of women on corporate boards not only promotes corporate social responsibility but also contributes positively to more measured risk-taking and overall improvement in firm performance (Arayssi et al., 2020). Their presence contributes to broader viewpoints in policy formulation, enhancing both transparency and accountability.

Hypothesis H2: Gender diversity of directors positively influences green banking disclosure.

Human Resource Slack and Green Banking Disclosure

Human resource slack refers to the presence of skilled personnel exceeding current operational needs, which can serve as a strategic asset for driving sustainable innovation and ensuring compliance with environmental regulations

(Adomako & Nguyen, 2020). Sustainable competitive advantage is shaped by the development of superior resources, including human capital (Ghozali, 2020). As stated by Hapsari & Pratomo (2021) within the public sector, generating reliable financial statements necessitates personnel who are well-versed and skilled in areas such as public sector accounting, fiscal management, and institutional structures of governance. In banking, skilled and adaptive human resources are essential to implement sustainability strategies. The presence of human resource slack excess capacity in personnel can strengthen governance efforts toward enhanced green banking disclosure, as sufficient staffing supports sustainability reporting (Ahmar et al., 2024). In 2023, Indonesia's banking workforce totaled around 441,145 employees (Pratama, 2023), averaging 4,200 per bank, while Malaysia had approximately 118,851 employees with an average of 2,200 per bank (Bank Negara Malaysia, 2017). Indonesia also records longer working hours, often exceeding formal limits. This workload imbalance may indicate untapped slack potential, which, if managed well, could improve environmental transparency. Kim et al., (2019) found that human resource slack positively affects green banking disclosure, as excess human capital enables banks to embed sustainability deeper into their operations.

Hypothesis H3: Human resource slack positively influences green banking disclosure.

Independent Commissioner and Green Banking Disclosure

Independent commissioners serve as oversight agents, monitoring management performance, including environmental-related disclosures (Palalangan et al., 2024). Non-executive commissioners serving in oversight roles enhances the quality of green banking disclosure, as their oversight helps deter manipulative practices and encourages greater transparency in environmentally related activities (Ikram & Akhtar, 2021). Regulatory standards mandate a minimum of 30% independent commissioners in Indonesia (POJK No. 57/POJK.04/2017) and 33% in Malaysia (Bursa Malaysia & BNM). Empirical studies by Jahid et al., (2020) and Marfuah et al., (2024) confirm that independent commissioners play a pivotal role in ensuring the credibility of environmental disclosures, promoting stronger oversight aligned with regulatory expectations.

Hypothesis H4: Independent commissioners positively influence green banking disclosure.

Institutional Ownership and Green Banking Disclosure

Institutional ownership serves as an external governance mechanism that can drive corporate transparency, particularly in environmental disclosures like green banking (Bose et al., 2018). Capital market participants including fund managers and pension administrators, and investment banks have the authority to demand sustainability information through annual and sustainability reports (Rahmawati, 2016). In Indonesia, OJK regulates ownership reporting above 5% (POJK No. 4/2024), while in Malaysia, BNM approval is required for holdings between 5–12.5%, though no specific threshold for institutional ownership exists. A larger share of institutional ownership signals robust external oversight over management, potentially enhancing the quality of green banking disclosures. In contrast, lower ownership with unclear governance weakens monitoring, limiting transparent environmental reporting (Kartiko & Firmansyah, 2024). Prior studies by Al Maeeni et al., (2022), Afdila and Zulvia (2022), and Yani and Suputra (2020) affirm that institutional stakeholders can positively influence sustainability transparency and accountability.

Hypothesis H5: Institutional ownership positively affects green banking disclosure.

METHODS

A data-driven, quantitative framework underlies this research as outlined by Cooper & Schindler (2014), emphasizing both the description and prediction of phenomena. The objective is to examine the influence of financial performance, board gender diversity, human resource slack, the contribution of impartial board members and institutional stakeholders to green banking information disclosure among regulated commercial banks using conventional practices and listed on IDX and Bursa Malaysia during the 2019–2023 period. This research is categorized as descriptive, aiming to explain the relationship between the dependent and independent variables. The primary effect variable is green banking disclosure, measured using the GBDI, initially developed by Shaumya & Arulrajah, (2016) and later adapted by Bose et al. (2018). The index comprises four domains: sustainable banking solutions, green internal processes, clients engaged in sustainability, and environmentally responsible governance frameworks

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

(Hadajani, 2019). Disclosure is evaluated using a binary scoring system, where each disclosed item is scored 1 and non-disclosure is scored 0, based on content found in annual and sustainability reports.

The first independent variable is financial performance, measured by ROA serves as a measure of the firm's effectiveness in converting asset value into net income from its asset base (Kurniawan, 2021). The second variable, gender diversity on the board of directors, is assessed through female composition within the board of directors, as their presence is associated with more inclusive and sustainability-oriented decision-making (Kusumawati, 2020). The third variable, human resource slack, is calculated by comparing the sales-to-employee ratio from the current year to the previous year, with the result adjusted by subtracting one (Chu et al., 2020; Ahmar et al., 2024). This measure reflects underutilized human capital that can be leveraged for sustainability initiatives. The fourth variable, The degree of independence in the board is determined by the ratio of independent individuals occupying commissioner roles (Farida, 2020; Palalangan et al., 2024), recognizing their role in providing oversight and ensuring adherence to good governance principles. The fifth variable, institutional ownership, is represented by the ratio of total shares controlled by institutional stakeholders relative to total outstanding shares (Petro et al., 2023; Elmagrhi et al., 2019), representing external pressure to enhance transparency and sustainability performance.

The study population includes 43 conventional banks listed on IDX and 27 on Bursa Malaysia. Using purposive sampling, 60 banks (40 from Indonesia and 20 from Malaysia) were selected based on the consistent availability of annual and/or sustainability reports during 2019–2023, resulting in a total of 300 observations. Data analysis involved descriptive statistics (Sugiyono, 2018) and classical assumption a sequence of diagnostic tests covering normality, variance inflation, and residual distribution was carried out before hypothesis testing commenced was conducted using panel data regression with STATA 18 software, employing F-tests, t-tests, and coefficient of determination analysis.

The use of Panel-Corrected Standard Errors (PCSE) regression is appropriate given the presence of heteroscedasticity and autocorrelation. PCSE is preferred over GLS or FGLS when the number of time periods (T) is smaller than the number of cross-sectional units (N), as it provides more reliable standard errors without requiring strict assumptions about error structure. The regression model used in this study is as follows:

$$\mathbf{GBD = \alpha + \beta_1 FIit + \beta_2 DGDit + \beta_3 HRSit + \beta_4 KOMINit + \beta_5 KIit + \varepsilon}$$

Where:

GBD = Green Banking Disclosure

FI = Financial Performance

DGD = Gender Diversity of Directors

HRS = Human Resource Slack

KOMIN = Independent Commissioners

KI = Institutional Ownership

α = Constant

β = Regression Coefficients

i = Observational Unit

t = Time Period

RESULTS

Descriptive Statistic

Table 1 summarizes descriptive statistics for 300 observations from conventional banks listed on the IDX and Bursa Malaysia (2019–2023). It includes one dependent variable (green banking disclosure) and five independent variables: financial performance, board gender diversity, human resource slack, independent commissioners, and institutional ownership, using mean, standard deviation, maximum, and minimum values.

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Table 1. Descriptive Stat

Variable	Obs	Mean	Std. dev.	Min	Max
GB	300	.8052222	.1839534	.1904762	1
FP	300	1.671002	2.686503	.0134105	25.38901
DGD	300	.2052891	.1680001	0	.6666667
HRS	300	4.699125	24.9302	-.99979992	272.6668
INDP	300	.5424929	.137699	.2	1
KP	300	.5484818	.2798445	.0481209	.9923924

As shown in Table 1, the average Green Banking Disclosure Index (GBDI) score among conventional banks in Indonesia and Malaysia is 0.805, indicating that roughly 80.5% of the green banking domains—covering products, operations, customers, and policies—are disclosed. The standard deviation of 0.183 suggests moderate consistency, with some banks fully transparent (max: 1.000) and others disclosing far less (min: 0.190). Return on Assets (ROA) averages 1.671%, exceeding the industry benchmark (1.5%), though not yet optimal. The variation (SD: 2.686) shows wide gaps, with some banks nearly breaking even (min: 0.013%) and others demonstrating exceptional profitability (max: 25.389%).

Female board representation averages 20.5%, showing gradual inclusion efforts. However, disparity persists (SD: 0.168), with some banks reporting no female directors (min: 0.000) and others achieving significant inclusion (max: 66.7%). Human resource slack holds a mean of 4.699, implying a modest excess in workforce capacity, potentially supporting sustainability roles. Yet, variability is high (SD: 24.930), ranging from overutilization (min: −0.999) to large surpluses (max: 272.667).

Independent commissioners comprise an average of 54.3% of the board, exceeding regulatory thresholds in both countries. SD: 0.138 reflects some variation (min: 20%, max: 100%), but overall suggests strong compliance with governance norms. Institutional ownership averages 54.9%, indicating substantial external oversight. However, SD: 0.280 highlights differing ownership structures across banks, from minimal (min: 4.8%) to near-total (max: 99.2%) institutional control.

Model Selection Tests

Panel data regression is employed in this study as it incorporates a combination of temporal and cross-sectional datasets. As stated by Panjawa & Sugiharti (2021), selecting the appropriate utilizing panel regression involves carrying out several tests namely the Chow test, Hausman test, and Lagrange Multiplier test. These tests help determine the most suitable model among the FEM, CEM, or REM. As seen in Table 2, the result of these model selection tests are as follows :

Table 2. Regression Model Selection Summary

Test	Objective	Result
Chow	Determining the right model between the CEM and the FEM	Prob > F = 0.0000 < 0.05 (The p-value is well below the 0.05 threshold, indicating that the Fixed Effect Model (FEM) offers a more suitable fit for the data.)
Langrange Multiplier	To determine the appropriate model between the CEM and the REM	Prob > Chibar2 = 0.0000 < 0.05

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

		(Since the probability associated with Chibar2 is less than 0.05, the analysis points to the Random Effect Model (REM) as the preferred specification.)
Hausman	Selecting the optimal model type, whether Fixed Effect or Random Effect	Prob > Chi2 = 0.0344 < 0.05 (The p-value from the Hausman test is under 0.05, leading to the conclusion that the Fixed Effect Model (FEM) is the more appropriate estimation approach.)

Based on the results presented in Table 2, the Fixed Effect Model (FEM) is selected as the most suitable based on the model tests. However, interpretation will proceed only after classical assumption tests. If all assumptions are met, the FEM is interpreted directly; otherwise, data transformation will be applied beforehand.

Normality Test

According to Ghozali (2018), the normality test assesses whether the independent and dependent variables are normally distributed. In this study, normality was tested using the Shapiro-Wilk W test. The outcomes are presented in Table 3.

Table 3. Normality Test

Variable	Obs	W	V	Z	Prob>z
Resid	299	0.91500	18.055	6.791	0.00000

Table 3 reports a Prob > z value of 0.00000, indicating a non-normal distribution. Nonetheless, given the sample size exceeds 30 observations, the residuals are assumed to approximate normality in accordance with the Central Limit Theorem.

Heterocedastisity Test

Heteroscedasticity testing aims to detect variance inconsistencies in the residuals across observations within the regression model (Ghozali, 2018). This study applies the Modified Wald test to assess heteroscedasticity. The results are summarized in Table 4.

Table 4. Heterocedastisity Test

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (60)  =    6.7e+05
Prob>chi2 =     0.0000
```

Table 4 indicates a Prob > chi² value of 0.0000, falling below the 0.05 threshold, which reveals the presence of heteroskedasticity in the Fixed Effect Model (FEM). Since the homoskedasticity assumption is violated, the model is not directly interpreted but instead adjusted using the PCSE (Panel-Corrected Standard Errors) method to enhance estimation accuracy.

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Multicollinearity Test

Table 5. Multicollinearity Test

Variable	VIF	1/VIF
FP	1,36	0,737006
HRS	1,35	0,741795
DGD	1,04	0,963450
INDP	1,09	0,920521
KP	1,11	0,899385
Mean VIF	1,19	

Table 5 above displays the multicollinearity test results using the Variance Inflation Factor (VIF). All independent variables show VIF scores below 10 and Tolerance values exceeding 0.1, indicating that the regression model is free from multicollinearity symptoms.

Autocorrelation Test

Table 6. Autocorrelation Test

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      58) =     86.456
           Prob > F =      0.0000
```

Table 6 reveals a Prob > F value of 0.0000, which is below the 0.05 threshold, indicating the presence of autocorrelation in the panel data. Due to this, the selected FEM model cannot be interpreted directly. Instead, it is adjusted using the PCSE (Panel-Corrected Standard Errors) method, which effectively addresses both autocorrelation and heteroskedasticity, ensuring the validity of the model's estimates.

Panel Regression Analysis

This study employs Panel-Corrected Standard Errors (PCSE) regression to address issues of heteroscedasticity and autocorrelation identified in the panel dataset. Prior to regression, A series of classical diagnostic checks were applied, including assessments of data normality, inter-variable collinearity, and error variance consistency, and autocorrelation assessments. The tests revealed violations in heteroscedasticity and autocorrelation. Consequently, PCSE was selected as a corrective method to enhance the robustness and reliability of the panel regression estimates. The regression outcomes are presented in Table 7.

Table 7. Panel Regression Analysis *Regression Using Panel-Corrected Standard Error (PCSE)*

Y	Coeff	Std. err.	Z	P>|z|	[95% conf. interval]	
X1_FP	.0020143	.0012081	1.67	0.095	-.0003536	.0043821
X2_DGD	.1104389	.0128193	8.62	0.000	.0853136	.1355642
X3_HRS	.000195	.0002347	0.83	0.406	-.000265	.000655
X4_INDP	.2582631	.0174315	14.82	0.000	.2240979	.2924282
X5_KP	.3110123	.0092321	33.69	0.000	.2929176	.3291069
_cons	.4671372	.0131196	35.61	0.000	.4414232	.4928512

Journal of Information Systems Engineering and Management
2025, 10(4)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Table 7 presents the PCSE regression results, where the Adjusted R-Square reaches 0.7507. This indicates that approximately 75.07% of the variance in green banking disclosure is explained by the five independent variables, with the remaining 25% influenced by other factors beyond the model. The joint significance test (F-test) yields a Prob > Chi2 of 0.0000, confirming that financial performance, board gender diversity, human resource slack, independent commissioners, and institutional ownership collectively impact green banking disclosure among listed conventional banks in Indonesia and Malaysia. Partial testing (T-test) reveals that only board gender diversity (β = 0.1104, p = 0.000), independent commissioners (β = 0.2583, p = 0.000), and institutional ownership (β = 0.3006, p = 0.000) have a significant and positive effect. These findings suggest that gender-inclusive boards, stronger oversight, and institutional shareholders enhance sustainability transparency. Conversely, financial performance and HR slack show no positive association with disclosure outcomes.

DISCUSSION

This study examines how financial performance, board gender diversity, human resource slack, independent commissioners, and institutional ownership affect green banking disclosure among conventional banks listed on the Indonesia Stock Exchange and Bursa Malaysia during 2019–2023. Green banking disclosure is measured using the GBDI, which reflects the extent of environmentally responsible reporting. A higher GBDI score indicates stronger transparency and commitment to green banking principles.

The analysis reveals that financial performance yields a coefficient value of 0.0201 with a P-value of 0.095, exceeding the 0.05 significance threshold. This indicates that financial performance does not significantly influence green banking disclosure. Contrary to the initial hypothesis, this suggests that favorable financial outcomes do not necessarily translate into enhanced environmental transparency. From the legitimacy theory perspective, this result may imply that banks prioritize regulatory compliance and reputational maintenance over voluntary environmental disclosure driven by profit. In other words, the motivation for disclosure is less about financial strength and more about meeting societal expectations and legitimizing operations within the eyes of stakeholders. These findings align with Rahmiati and Agustin (2022) but differ from Buallay (2019), Shakil et al. (2019), and Bose et al. (2018).

In contrast, board gender diversity shows a coefficient of 0.1104 with a P-value of 0.000, indicating a strong and statistically significant positive association with green banking disclosure. This supports the second hypothesis and is consistent with Gallego-Sosa et al. (2021) and Matuszak et al. (2019). Under stakeholder theory, the presence of women on boards reflects responsiveness to a broader range of stakeholder interests, particularly environmental and social concerns. Gender-diverse boards contribute to more inclusive decision-making, which enhances the legitimacy of disclosures and aligns with stakeholder expectations for equitable and responsible governance. In Indonesia and Malaysia, female leadership has been associated with higher sustainability disclosure quality, reinforcing the notion that board diversity serves both ethical and strategic functions.

Meanwhile, human resource slack presents a coefficient of 0.000195 with a P-value of 0.406, indicating no significant relationship with green banking disclosure. This finding contradicts the third hypothesis, which posited a positive influence of surplus human capital on environmental reporting. Viewed through the stakeholder lens, this may suggest that merely having excess labor capacity is insufficient to drive sustainability efforts unless such resources are directed toward stakeholder-oriented goals. In Indonesia, despite larger workforce sizes and longer working hours, banks tend to emphasize efficiency and profitability over embedding sustainability within HR practices. This aligns with Khamilia & Nor (2022) and differs from Kim et al. (2019).

Independent commissioners demonstrate a significant positive effect on green banking disclosure, with a coefficient of 0.2582 and a P-value of 0.000, supporting H4. Their independent oversight role enhances the credibility and transparency of sustainability disclosures. Consistent with legitimacy theory, these external board members help institutions meet societal and regulatory expectations by improving disclosure practices. Regulations in Indonesia (POJK No. 57/2017) and Malaysia (Bursa Malaysia & BNM) that require a 30–33% independent board composition underscore their critical role in reinforcing institutional legitimacy through environmental accountability.

Finally, institutional ownership exhibits a strong positive effect on green banking disclosure, with a coefficient of 0.3110 and a P-value of 0.000, supporting the fifth hypothesis. This finding aligns with stakeholder theory, as institutional investors often exert pressure for improved transparency, sustainability, and long-term performance.

Their influence promotes better disclosure practices to address stakeholder demands and manage reputational risks. This is consistent with the findings of Al Maeeni et al. (2022), Afdila and Zulvia (2022), and Yani and Suputra (2020).

CONCLUSION

This research contributes to the discourse on sustainable finance by examining the extent and determinants of green banking disclosure across conventional banks in Indonesia and Malaysia. Using panel data analysis with the Panel-Corrected Standard Error (PCSE) model, the study confirms that certain internal governance features play a decisive role in enhancing the quality of environmental transparency. The empirical findings demonstrate that board gender diversity, the proportion of independent commissioners, and institutional ownership have a significant and positive relationship with green banking disclosure levels. These results suggest that inclusive leadership structures, independent oversight, and external ownership pressure can serve as effective mechanisms in aligning financial institutions with sustainability commitments. The presence of women on boards, for instance, may encourage more conscientious decision-making, especially in domains involving social and environmental accountability. Likewise, institutional shareholders tend to demand higher levels of transparency and governance compliance, influencing the bank's reporting behavior.

In contrast, financial performance measured by Return on Assets (ROA) and the existence of human resource slack do not exhibit a significant impact. This implies that economic profitability and labor surplus alone are insufficient to drive sustainability disclosure, reinforcing the idea that regulatory expectations and governance quality are more pivotal than operational efficiency in shaping green transparency. In conclusion, this study emphasizes the critical importance of robust governance dynamics in advancing green disclosure practices. For banks operating in emerging economies, strengthening board diversity and institutional engagement may provide a strategic pathway toward fulfilling global sustainability mandates and building long-term reputational value.

These findings offer valuable practical implications for policymakers and banking regulators in ASEAN. As the region accelerates its sustainable finance agenda, authorities such as Bank Indonesia, OJK, and Bank Negara Malaysia should integrate stronger governance requirements such as board gender diversity and independent board representation into green finance regulations. Additionally, encouraging institutional investors through stewardship codes can further strengthen disclosure practices. Leveraging governance mechanisms will help align financial institutions with regional sustainability goals and enhance transparency across the sector.

REFRENCES

[1] Adomako, S., & Nguyen, N. P. (2020). *Human resource slack, sustainable innovation, and environmental performance of SMEs in sub-Saharan Africa. Business Strategy and the Environment*, 29(8), 3256–3268. https://doi.org/10.1002/bse.2571
[2] Ahmar, N., Al Rahmah, L., & Darminto, D. P. (2024). Green banking disclosure from the perspective of corporate governance, financial slack, and human resource slack in Indonesia. Banks and Bank Systems, 19(2), 101-114.
[3] Arayssi, M., Jizi, M. and Tabaja, H.H. (2020), *The impact of board composition on the level of ESG disclosures in GCC countries, Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 1, pp. 137-161.
[4] Al Maeeni, F., Ellili, N. O. D., & Nobanee, H. (2022). *Impact of corporate governance on corporate social responsibility disclosure of the UAE listed banks. Journal of Financial Reporting and Accounting, 20*(1), 1985–2517. https://doi.org/10.1108/JFRA-09-2020-0255
[5] Afdila, A., & Zulvia, Y. (2022). Effect of ownership structure on corporate social responsibility disclosure on SRI-KEHATI index companies listed on Indonesia Stock Exchange. *Financial Management Studies, 2*(40), 16–29.
[6] Bank Negara Malaysia. (2020). Financial Stability and Payment Systems Report. [online]. Tersedia : https://www.bnm.gov.my/ [18 Maret 2025]
[7] 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

[8] Bakar, A. B. S. A., Ghazali, N. A. B. Mohd., & Ahmad, M. B. (2019). Sustainability Reporting and Board Diversity in Malaysia. International Journal of Academic Research in Business and Social Sciences, 9(3), 1044–1067.
[9] BNI. (2019). Laporan tahunan 2019 PT Bank Negara Indonesia Tbk. idx.co.id
[10] BRI. (2019). Laporan keberlanjutan 2019 PT Bank Negara Indonesia Tbk. idx.co.id
[11] Buallay, A. (2019). *Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector*. *Management of Environmental Quality: An International Journal*, 30(1), 98–115. https://doi.org/10.1108/MEQ-12-2017-0149
[12] Chu, S.-H., Li, J., & Zheng, R. (2020). Human Capital, Human Resource Slack and Bank Performance: The Role of Bank Age.
[13] Campbell, D., Craven, B., & Shrives, P. (2003). *Voluntary social reporting in three FTSE sectors: A comment on perception and legitimacy*. Accounting, Auditing & Accountability Journal, 16(4), 558–581.
[14] Cooper, D., & Schindler, P. (2013). Business Research Methods: 12th Edition. Mcgraw hill Us Higher .
[15] Citraningtyas, T., Widagdo, A. K., & Ika, S. R. (2024). Green Banking Disclosure in Indonesia: Do Financial Performance and Board Characteristics Matter? Journal of Economics and Business, 7(2). https://doi.org/10.31014/aior.1992.07.02.585
[16] Chang, Y., Wu, K.-T., Lin, S.-H., & Lin, C.-J. (2024). Board gender diversity and corporate social responsibility. International Journal of Corporate Social Responsibility, 9(1), 7. https://doi.org/10.1186/s40991-024-00095-x
[17] Chavkin, S. (2025). How mega-polluters take advantage of billions in green loans. Associated Press. [online]. Tersedia: https://apnews.com/article/shell-drax-greenwashing-pollution-sustainabilitylinks-loans-slls-a28e03c7421222c58025b31ab8185272 [5 Juni 2025]
[18] Dini Wahjoe Hapsari, Dudi Pratomo. (2020). The Factors Affecting Local Government Financial Statement Quality At SKPD Bandung. PalArch's Journal of Archaeology of Egypt / Egyptology, 18(1), 896 - 905. Retrieved from https://archives.palarch.nl/index.php/jae/article/view/2448
[19] Djamhari, E. A., Nurmansyah, R., Ningrum, D. R., Wardhani, E. A. K., Ramdlaningrum, H., Fanggidae, V., Maftuchan, A., Harja, I. T., & Prasetiyo, A. (2024). Melacak jejak pembiayaan: Dampak lingkungan dan sosial industri nikel di Indonesia. Perkumpulan PRAKARSA.
[20] Elmagrhi, M. H., Ntim, C. G., Elamer, A. A., & Zhang, Q. (2019). *A study of environmental policies and regulations, governance structures and environmental performance: The role of female directors*. Business Strategy and the Environment, 28(1), 206–220.
[21] Farida, D. N. (2020). The Influence Of Gender Diversity, Nationality, And Education Of The Board Of Directors On CSR In Indonesia Sharia Banking. Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah, 4(2).
[22] Fitria, N. (2019). Bank-bank BUMN, Swasta Asing dan Nasional Terungkap Mendanai Perusahaan yang Menjadi Tersangka Pelaku Kebakaran Hutan dan Lahan. Jikalahari (Jaringan Kerja Penyelamat Hutan Riau). [online]. Tersedia: https://jikalahari.or.id/kabar/rilis/bank-bank-bumn-swasta-asing-dan-nasional-terungkap-mendanai-perusahaan-yang-menjadi-tersangka-pelaku-kebakaran-hutan-dan-lahan/. [12 Maeret 2025].
[23] Freeman, R. E., 1984. Strategic Management: A Stakeholder Approach. Boston: Pitman Publishing.
[24] Freihat, A., Ghozali, I., & Manurung, D. T. H. (2024). *Stakeholder Theory Perspective in Strategic Decision-Making*. *Journal of Business Strategy and Execution*, 12(1), 45–58.
[25] Firmansyah, A., & Kartiko, N. D. (2024). *Exploring the association of green banking disclosure and corporate sustainable growth: The moderating role of firm size and firm age*. Cogent Business & Management, 11(1), 2312967. https://doi.org/10.1080/23311975.2023.2312967
[26] Ghozali, I. (2018). Aplikasi Analisis Multivariate Dengan Program IBM SPSS 23 (8th ed.). Badan Penerbit Universitas Diponegoro
[27] Ghose, S., Kaur, J., Thiyaneswaran, C., Swain, D., Ghani, U., & Rajni. (2025). *Assessing the Impact of Social and Environmental Sustainability on Financial Performance: An Empirical Study on Private Sector Banks in India*. *Journal of Information Systems Engineering and Management*, *10*(5s), e257.
[28] Gallego Sosa, C., Gutiérrez Fernández, M., Fernández Torres, Y., & Nevado-Gil, M. T. (2021). Corporate Social Responsibility in the European Banking Sector: Commitment to the 2030 Agenda and its Relationship with Gender Diversity. Sustainability (Switzerland), 13(4), 1–23. https://doi.org/10.3390/su13041731

[29] Handajani, L. (2019). Corporate Governance dan Green Banking Disclosure: Studi pada Bank di Indonesia. Jurnal Dinamika Akuntansi Dan Bisnis, 6(2), 121–136. https://doi.org/10.24815/jdab.v6i2.12243
[30] Hoque, Md. K., Masum, M. H., & Babu, M. A. (2022). Impact of Financial Performance on Green Banking Disclosure: Evidence from the Listed Banking Companies in Bangladesh. Universal Journal of Accounting and Finance, 10(2), 450–456. https://doi.org/10.13189/ujaf.2022.100209
[31] Ibe enwo, G., Igbudu, N., Garanti, Z., & Popoola, T. (2019). Assessing the Relevance of Green Banking Practice on Bank Loyalty: The Mediating Effect of Green Image and Bank Trust. Sustainability, 11(17), Article 4651. https://doi.org/10.3390/su11174651
[32] Ikram, U., & Akhtar, S. (2021). *Green banking, corporate governance and performance of selected SAARC countries. Review of Economics and Development Studies, 7*(4), 543–559.
[33] Jahid, M. A., Rashid, M. H. U., Hossain, S. Z., Haryono, S., & Jatmiko, B. (2020). *Impact of corporate governance mechanisms on corporate social responsibility disclosure of publicly-listed banks in Bangladesh. Journal of Asian Finance, Economics and Business*,7(6),61–71.
[34] Kurniawan, L. L. (2021). Pengaruh Kinerja Keuangan Terhadap Green Banking Disclosure dengan Mekanisme Kontrol sebagai Variabel Moderasi. Jurnal Wahana Akuntansi, 16(1), 1–16. https://doi.org/10.21009/wahana.16.011
[35] Kusumawati, S. M. (2020). Peran Slack Resources Dan Diversitas Gender Terhadap Kualitas Pengungkapan Tanggung Jawab Sosial. Jembatan Jurnal Ilmiah Manajemen
[36] Kasmir. 2016, Analisis Laporan Keuangan, ce- takan 9, Jakarta. PT Rajagarfindo.
[37] Kartiko, N. D., & Firmansyah, A. (2024). *The Impact of Bank Ownership Structure on Green Banking Practices in Indonesia: The Moderating Role of Corporate Governance*. The International Journal of Financial Systems, 2(1), 113–146.
[38] Khamilia, N., & Nor, W. (2022). Faktor-Faktor Dalam Meningkatkan Pengungkapan Green Banking. Jurnal Riset Akuntansi.
[39] Kim, S. I., Shin, H., Shin, H., & Park, S. (2019). Organizational slack, corporate social responsibility, sustainability, and integrated reporting: Evidence from Korea. Sustainability (Switzerland), 11(16).
[40] Lymperopoulos, C., Chaniotakis, I. E., & Soureli, M. (2012). A model of green bank marketing. Journal of Financial Services Marketing, 17(2), 177–186.
[41] Marfuah, M., Sakti, B. A., Kusuma, H., & Wan Abdullah, W. R. (2024). *Green banking practices in Indonesia: What is the role of corporate governance? Review of Integrative Business and Economics Research,* 14(1), 408–422.
[42] Manurung, D. T. H., Hidayah, N., Setiany, E., Saputra, K. A. K., & Hapsari, D. W. (2022). Does Carbon Performance and Green Investment Affect Carbon Emissions Disclosure? Journal of Environmental Accounting and Management, 10(4), 335–344. https://doi.org/10.5890/JEAM.2022.12.001
[43] Matuszak, Ł., Różańska, E., & Macuda, M. (2019). The impact of corporate governance characteristics on banks' corporate social responsibility disclosure: Evidence from Poland. Journal of Accounting in Emerging Economies, 9(1), 75–102.
[44] Palalangan, C. A., Mannan, A., Rura, Y., & Pontoh, G. T. (2024). Determinants of tax aggressiveness with corporate governance as a moderation variable in public companies in Indonesia. Financial and Credit Activity: Problems of Theory and Practice, 5(58), 97–110. https://doi.org/10.55643/fcaptp.5.58.2024.4516
[45] Peraturan Otoritas Jasa Keuangan Nomor 57/POJK.04/2017 Tentang Penerapan Tata Kelola Perusahaan Efek yang Melakukan Kegiatan Usaha sebagai Penjamin Emisi Efek dan Perantara Pedagang Efek (2017). https://ojk.go.id/id/kanal/pasar-modal/regulasi/peraturan-ojk/Pages/POJK-Nomor-57-POJK.04-2017.aspx
[46] Petro, S., Octavia, R., & Ichasan Diarsyad, M. (2023). Pengaruh Corporate Governance Terhadap Green Banking Disclosure (Studi Pada Perusahaan Perbankan Di Indonesia Yang Terdaftar Di BEI Periode 2018 – 2020). Jurnal Ilmiah Ekonomi Global Masa Kini, 14 No. 01 Juli 2023.
[47] Pramudianto, A. (2016). Dari Kyoto Protocol 1997 Ke Paris Agreement 2015 : Dinamika Diplomasi Perubahan Iklim Global Dan Asean Menuju 2020. Global: Jurnal Politik Internasional, 18(1), 76. https://doi.org/10.7454/global.v18i1.119
[48] Pratama, G. (2023). *Ini dia bank-bank terbaik tahun 2023, 62 bank raih Infobank Award 2023!* Infobanknews. [online]. Tersedia: https://infobanknews.com/ini-dia-bank-bank-terbaik-tahun-2023-62-bank-raih-infobank-award-2023/ [Diakses: 23 Juni 2025].

[49] Panjawa, J. L., & Sugiharti, R. R. (2021). Pengantar Ekonometrika Dasar Teori dan Aplikasi Praktis untuk Sosial-Ekonomi (1st ed.).Pustaka Rumah Cinta [online]. Tersedia: https://books.google.co.id/books?id=iRdbEAAAQBAJ [12 Maret 2025].

[50] Rachman, A., & Saudi, M. (2021). Green Banking And Profitability (Banks Registered On The Sri-Kehati Index In Indonesia Stock Exchange 2015 - 2019). Turkish Journal of Computer and Mathematics Education, 18.

[51] Rahma, P. N. M., & Wedari, L. K. (2024). *Green Banking and Bank Performance in ASEAN: The Moderating Role of Bank Size*. *Journal of Logistics, Informatics and Service Science*. https://doi.org/10.33168/jliss.2024.0911

[52] Rahmawati, S. (2016). Konflik keagenan dan Tata Kelola Perusahaan di Indonesia. Syiah Kuala University Press.

[53] 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), 165–179. https://doi.org/10.24036/wra.v10i2.1234

[54] Shakil, M. H., Mahmood, N., Tasnia, M., & Munim, Z. H. (2019). *Do environmental, social and governance performance affect the financial performance of banks? A cross-country study of emerging market banks*. *Management of Environmental Quality: An International Journal*, 30(6), 1331–1344. https://doi.org/10.1108/MEQ-08-2018-0155

[55] Suchman, M. C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. The Academy of Management Review, 20(3), 571. https://doi.org/10.2307/258788

[56] Shaumya, K., & Arulrajah, A. A. (2016). Measuring green banking practices: Evidence from Sri Lanka. *Proceedings of the 3rd International Conference on Contemporary Management*, *University of Jaffna, Sri Lanka*, 1–15. https://doi.org/10.2139/ssrn.2909735

[57] Voss, G. B., Sirdeshmukh, D., & Voss, Z. G. (2008). The effects of slack resources and environmental threat on product exploration and exploitation. Academy of Management Journal, 51(1), 147–164.

[58] Wardoyo, D. U., & Utami, A. (2024). Effects of Intellectual Capital Disclosure, Return on Assets, on Firm Value, and Independent Board of Commissioner in Banking Sector: Agency Theory Perspective. Journal of Law and Sustainable Development, 12(1), e2531. https://doi.org/10.55908/sdgs.v12i1.2531

[59] Yani, N. P. T. P., & Suputra, I. D. G. D. (2020). Pengaruh Kepemilikan Asing, Kepemilikan Institusional dan Leverage terhadap Pengungkapan Corporate Social Responsibility. E-Jurnal Akuntansi, 30(5). https://doi.org/10.24843/eja.2020.v30.i05.p10