Corporate Governance Determinants of Bank Financial Performance through Green Banking in Indonesia

Ibram Pinondang Dalimunthe[1]*, Hari Gursida[2], Yohanes Indrayono[3]
[1]ibram@unpam.ac.id, [2]hg.gursida@unpak.ac.id, [3]indrayonoyohanes@yahoo.com
Postgraduate Program of Universitas Pakuan

*Corresponding Author: Ibram Pinondang Dalimunthe
Email: ibram@unpam.ac.id

ABSTRACT

The return on equity (ROE) is used as an indicator of profitability that is of concern to the bank's internal and external parties; the pressure on the increasingly difficult environmental situation urges banks to be involved in their role in reducing the impact of damage without setting aside profitability. This research analyzes the effect of institutional ownership, managerial ownership, audit committee, independent commissioner, and ASEAN corporate governance scorecard on return on equity through disclosure of green banking practices in Indonesia. This research method uses a quantitative approach with secondary data. The sample of this study was 13 banks that were members of the Indonesian Sustainable Finance Initiative (IKBI) in 2018-2023, and they were analyzed by path analysis using SmartPLS version 4. The results indicate that institutional ownership negatively affects the green banking disclosure index, while managerial ownership, the audit committee, and independent commissioners show no effect. The ASEAN Corporate Governance Scorecard positively affects the index. In turn, the index positively influences return on equity (ROE). Institutional ownership does not affect ROE directly, but its negative impact is fully mediated by the disclosure index. Managerial ownership has a negative effect on ROE, while independent commissioners have a positive one; the audit committee and the governance scorecard show no direct effect on ROE. The disclosure index does not mediate the effects of managerial ownership, the audit committee, or independent commissioners on ROE, yet it fully mediates the positive effect of the governance scorecard.

Keywords: *ASEAN Corporate Governance Scorecard, Audit Committee, Green Banking Disclosure Index, Independent Commissioners, Institutional Ownership, Managerial Ownership, Return on Equity*

INTRODUCTION

The world had been facing an increasingly alarming environmental crisis, marked by rising levels of pollution, climate change, and the depletion of natural resources. Much of the environmental pressure was attributed to excessive and unsustainable human activities (Rosa, 2025). Development that focused solely on economic growth without considering its environmental consequences had come under serious criticism. Issues such as environmental degradation, social inequality, and the impacts of climate change had emerged as urgent global challenges that needed to be addressed (Naiem & Lalon, 2023). Consequently, there had been a growing demand for a more comprehensive and sustainable development approach one that balanced economic, social, and environmental dimensions (Amidjaya & Widagdo, 2019).

The aggressive pursuit of economic growth and prosperity had often come at the expense of the quality and availability of natural resources. Human civilization had caused environmental damage that was not always reversible (Bell & Morse, 2018). The unwise use of natural resources had led to biodiversity loss and ecosystem degradation. This issue became even more problematic as many of these resources such as fossil fuels and minerals were non-renewable, and their depletion posed serious consequences for the environment's capacity to sustain life in the future (Ekins & Zenghelis, 2021).

The growing collective awareness of the long-term impacts of environmental exploitation had triggered various efforts to adopt more environmentally friendly and sustainable solutions (Elegbede et al., 2023). These efforts included reducing dependence on non-renewable resources, restoring damaged ecosystems, and adopting more sustainable practices in both industrial activities and daily life (Williams et al., 2017). As environmental destruction continued without adequate solutions, society faced real risks such as climate change, natural disasters, resource shortages, and even clean water crises (Kaplan & Levy, 2021; Khairunnessa et al., 2021). These risks not only threatened the quality of life in the present but also endangered the survival of future generations.

In response to these challenges, Khatun et al. (2021) emphasized the importance of addressing climate change, biodiversity loss, and land degradation in an integrated manner to support sustainable development. In this context, companies including financial institutions such as banks were encouraged to take moral responsibility for the environmental impacts they caused (Handajani, 2019). The banking industry was thus expected not only to generate profits but also to contribute to environmental preservation.

In Indonesia, the banking sector played a central role in driving national economic growth. As financial intermediaries, banks had a primary function of channeling funds from surplus parties to those in need, thereby supporting productive activities and development (Abbas et al., 2019). This intermediation

function was particularly crucial in stimulating economic activity and infrastructure development (Nguyen, 2022; Tabash, 2019). Moreover, the banking sector's support for small and medium enterprises (SMEs) contributed significantly to job creation and poverty alleviation (Dedu et al., 2021; Naiem & Lalon, 2023).

However, in order to fulfill these functions optimally, the stability and financial performance of banks needed to be maintained. Financial performance reflected a bank's ability to manage risks, distribute credit, and meet its obligations efficiently (Levine et al., 2009; Mabkhot & Al-Wesabi, 2022). Accordingly, strengthening governance and oversight became a key concern for regulators and policymakers (Krupasindhu et al., 2022).

In Indonesia, the role of the Financial Services Authority (Otoritas Jasa Keuangan/OJK) was critical in ensuring good governance practices in the banking sector. Through regulations such as POJK No. 17 of 2013, the OJK established a governance framework aimed at promoting transparency, accountability, and ethical conduct in banking operations (Erdianti et al., 2023). The strengthening of governance not only improved internal bank performance but also enhanced the overall resilience of the national financial system (Bell & Morse, 2018; Gennaioli et al., 2015).

Nevertheless, challenges in implementing corporate governance principles remained significant. These included limited understanding of governance principles among management, conflicts of interest, and a lack of commitment from top leadership (Guluma, 2021; Hopt, 2021; Wali et al., 2023). In addition, weak supervision, limited regulatory capacity, and organizational cultures that failed to uphold transparency further exacerbated the situation (Kiesnere & Baumgartner, 2020; Masud et al., 2018; Sanchez et al., 2022; Shaumya & Arulrajah, 2017).

Amid such complexity, ethics and integrity served as essential foundations for reinforcing banking governance. Business ethics enabled banks to make decisions not solely based on economic considerations but also on their social and environmental impacts (Thakor, 2021). Alongside this ethical imperative, increasing awareness of sustainability encouraged banks to adopt the concept of green banking a banking approach focused on sustainability and the environmental impact of operational and financing activities (Gupta & Shivnani, 2023; Mir et al., 2025; Muchiri et al., 2025).

Through green banking, banks not only financed environmentally friendly projects but also integrated energy efficiency, waste management, and other green practices into their daily operations (David & Shameem, 2017; Park & Kim, 2020; Shershneva & Kondyukova, 2020; Yadav, 2013). Thus, green banking symbolized the transition of banks toward a more ethical, sustainable, and future-oriented business model.

The objective of this study was to analyze the influence of various corporate governance factors on return on equity (ROE) and the Green Banking Disclosure Index (GBDI), as well as to evaluate the mediating role of GBDI in these

relationships. Specifically, the study aimed to assess the effects of institutional ownership, managerial ownership, audit committee, independent commissioners, and the ASEAN Corporate Governance Scorecard on ROE and GBDI. Additionally, the study explored the extent to which GBDI directly influenced ROE and whether it served as a mediating variable in the relationship between the five governance factors and ROE.

RESEARCH METHODOLOGY

This study employed an explanatory research design, which aimed to examine the causal relationships among variables using secondary data and a quantitative approach. The study investigated the relationship among three key variables: bank financial performance as the dependent variable, measured by Return on Equity (ROE); corporate governance as the independent variable, consisting of five indicators (institutional ownership, managerial ownership, audit committee, independent commissioners, and the ASEAN Corporate Governance Scorecard); and green banking as the mediating variable, measured using the Green Banking Disclosure Index (GBDI).

ROE served as an indicator of a bank's effectiveness in generating profits from shareholders' equity, as defined in Circular Letter of the Financial Services Authority *(SEOJK) No. 14/SEOJK.03/2017.* Corporate governance was conceptualized as a control mechanism to reduce agency conflicts, with indicators reflecting ownership structure and supervisory mechanisms. The ASEAN Corporate Governance Scorecard (ACGS), one of the governance indicators, was based on an evaluation framework developed by the ASEAN Capital Market Forum and aligned with international corporate governance principles. GBDI acted as a connecting mechanism between sound governance practices and financial performance outcomes, by assessing the extent to which banks disclosed information related to green banking practices as part of their sustainability efforts.

The study applied path analysis using SmartPLS version 4 and Microsoft Excel 2019 to evaluate both direct and indirect effects of corporate governance practices on financial performance through green banking disclosure. The data analysis procedure comprised six stages: (1) descriptive statistical analysis to observe the characteristics of the data; (2) measurement model evaluation (outer model) to assess construct validity and reliability although some tests were not relevant for formative models; (3) structural model evaluation (inner model) to determine relationships among constructs and the predictive strength of the model; (4) direct hypothesis testing to assess direct effects between variables; (5) indirect hypothesis testing to examine mediating effects; and (6) total effect calculation.

The model was further tested using the bootstrapping technique, which generated a mathematical model illustrating both the direct and indirect

relationships among the variables, including the mediating role of green banking disclosure.

RESULT AND DISCUSSION

Research Result

This section provides a preliminary overview of the research data, which were analyzed using SmartPLS version 4. The dataset comprised 78 observations from 13 banks over a six-year period. Descriptive statistics were employed to examine the characteristics of each variable, including their mean, minimum, maximum, and standard deviation values.

Return on Equity (ROE)

Return on equity, denoted as Y in the model, had an average value of 11.551, with a minimum of -6.000 (recorded by Bank Artha Graha in 2021) and a maximum of 30.000 (recorded by Bank BRI in 2019). The standard deviation was 6.931, indicating a relatively homogeneous distribution, as the mean exceeded the standard deviation.
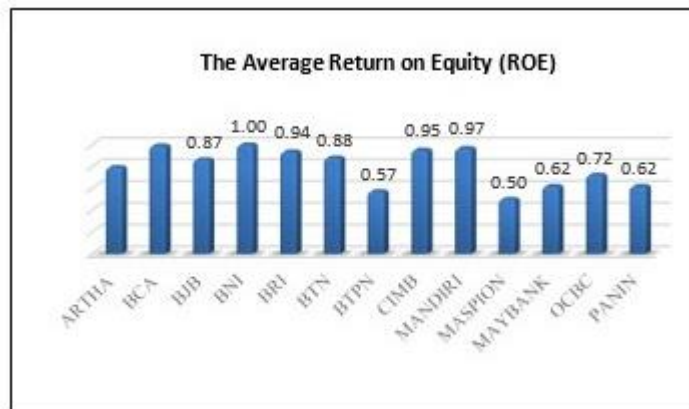

Figure 1. Return of Equity (ROE)
Source: Processed Data by Researchers (2025)

Institutional Ownership (*Kepemilikan Institusional*) (KI / X_1)

Institutional ownership (KI), denoted as X_1, had an average of 67.038%, with a minimum of 24.000% (recorded by Bank BTN in 2022) and a maximum of 100.000% (recorded by Bank Maspion in 2022–2023). The standard deviation of 25.461 indicated a relatively homogeneous distribution.
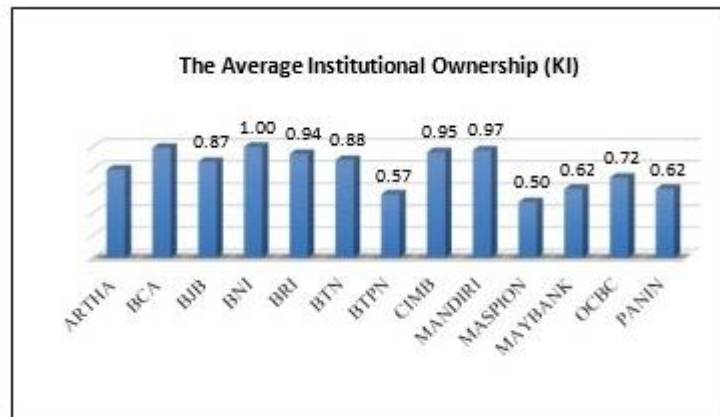
Figure 2. Institutional Ownership
Source: Processed Data by Researchers (2025)

Managerial Ownership (*Kepemilikan Manajerial*) (KM / X_2):

Managerial ownership (KM), denoted as X_2, had an average of 0.218%, with a minimum of 0.000% (observed across multiple banks and years) and a maximum of 3.000% (recorded by Bank Artha Graha during 2018–2020). The standard deviation was 0.691, which exceeded the mean, indicating high variability in the data.

Figure 3. Managerial Ownership
Source: Processed Data by Researchers (2025)

Audit Committee (*Komite Audit*) (KA / X_3):

The audit committee (KA), denoted as X_3, had an average of 4.462 members, with a minimum of 3.000 and a maximum of 8.000. The standard deviation was 1.420, indicating a relatively stable committee size across banks. The data were considered homogeneous.
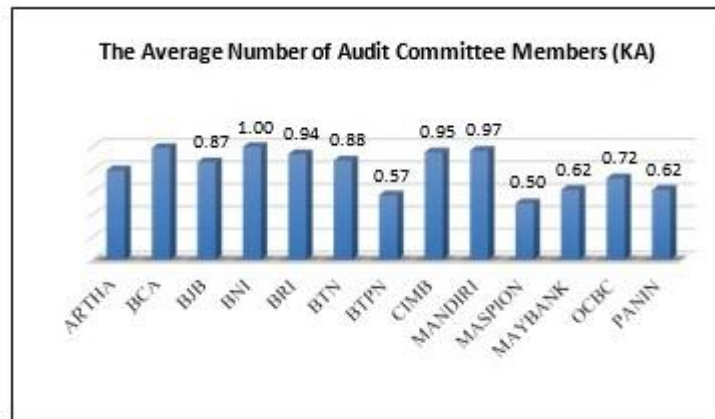
Figure 4. Average Number of Audit Committee Members
Source: Processed Data by Researchers (2025)

Independent Commissioners (*Komisaris Independen*) (KomInd / X_4):

Independent commissioners (KomInd), denoted as X_4, had an average proportion of 55.883%, with a minimum of 40.000% and a maximum of 70.000%. The standard deviation was 6.800, indicating a relatively uniform distribution among the banks.

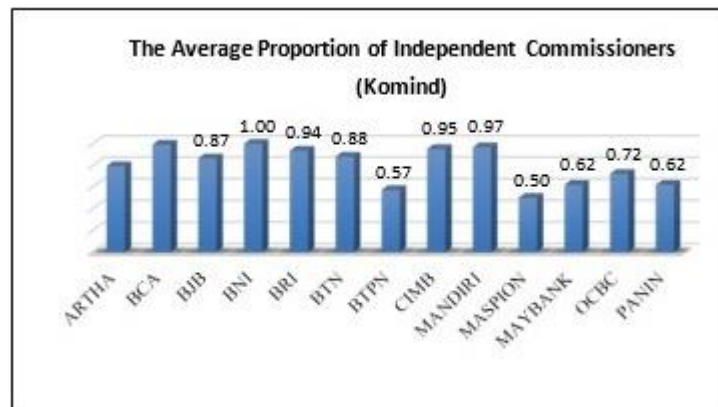**Figure 5.** Average Proportion of Independent Commissioners
Source: Processed Data by Researchers (2025)

ASEAN Corporate Governance Scorecard (ACGS / X_5):

The ASEAN Corporate Governance Scorecard (ACGS), denoted as X_5, had an average score of 99.333, with a minimum of 77.000 and a maximum of 123.000. The standard deviation was 11.792, indicating moderate variability within an acceptable range.

Figure 6. Average ASEAN Corporate Governance Scorecard (ACGS)
Source: Processed Data by Researchers (2025)

Green Banking Disclosure Index (GBDI/Z):

The Green Banking Disclosure Index (GBDI), denoted as Z, had an average value of 80.115, with a minimum of 33.000 and a maximum of 100.000. The standard deviation was 18.680, suggesting some variability, though still considered homogeneous since the mean was higher than the standard deviation.
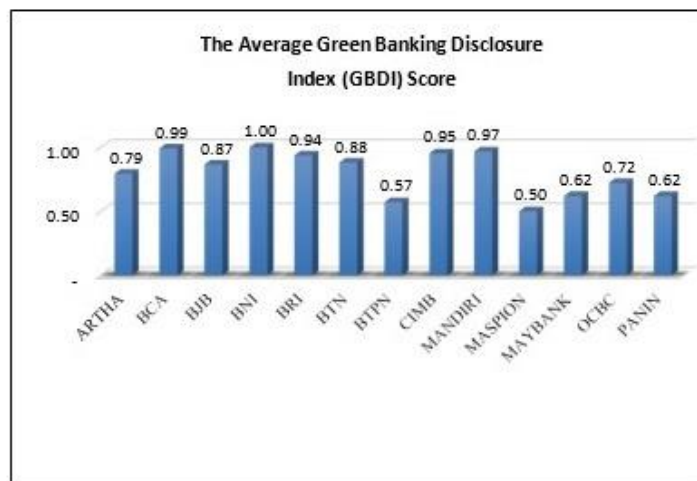

Figure 7. Average Green Banking Disclosure Index (GBDI) Score
Source: Processed Data by Researchers (2025)
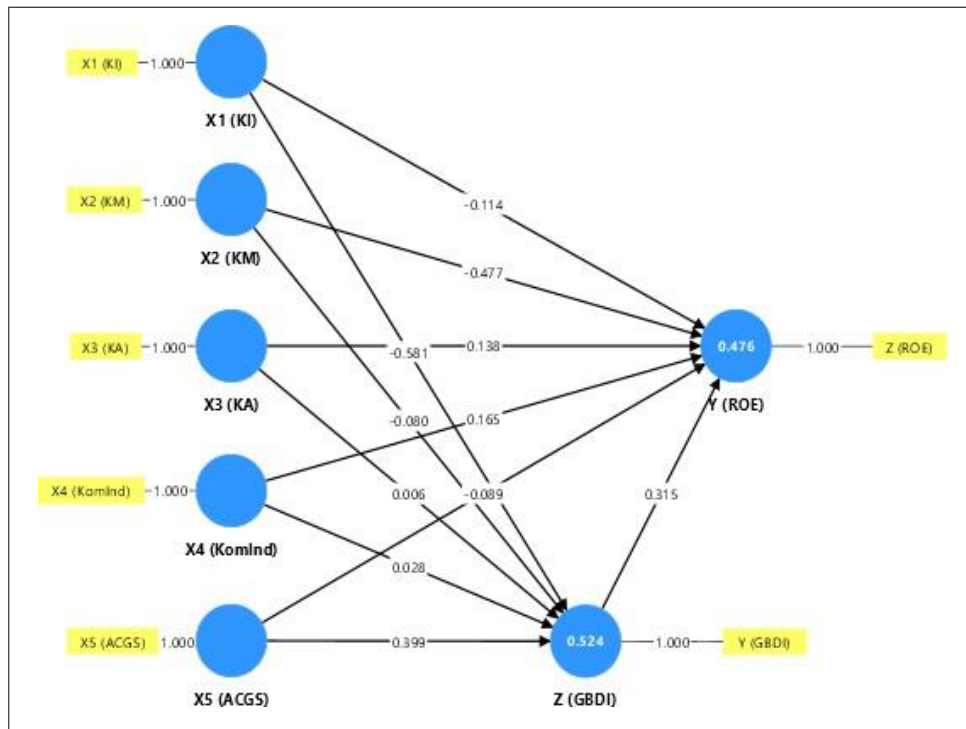
Evaluation of The Measurement Model

Figure 8. Evaluation of The Measurement Model
Source: Processed Data by Researchers (2025)

1. Multicollinearity Test

Table 1. Variance Inflation Factor (VIF) Values

Variable	Z (GBDI)	X_1 (KI)	X_2 (KM)	X_3 (KA)	X_4 (KomInd)	X_5 (ACGS)	Y (ROE)
Z (GBDI)	1,000						
X_1 (KI)		1,000					
X_2 (KM)			1,000				
X_3 (KA)				1,000			
X_4 (KomInd)					1,000		
X_5 (ACGS)						1,000	
Y (ROE)							1,000

Source: Processed Data by Researchers (2025)

As shown in the table above, the convergent validity test could not be conducted because each construct in the model was measured using only a single indicator. Consequently, both the outer loadings and the Average Variance Extracted (AVE) were automatically set at 1.000. This

is a common condition in single-item measurement models, in which convergent validity is assumed rather than empirically tested.

2. **Construct Reliability**

   Reliability assessments using Composite Reliability (CR), Cronbach's Alpha, or Rho-A were not applicable due to the use of single indicators for each construct. In such cases, reliability was assumed to be satisfied if the indicator was valid both theoretically and empirically.

3. **Discriminant Validity**

   Discriminant validity could not be tested, as the model did not meet the necessary condition of having multiple indicators per construct. Without such comparisons, standard tests for discriminant validity (e.g., Fornell-Larcker criterion or cross-loadings) were not applicable.

Structural Model Evaluation (Inner Model)

1. **Multicollinearity Test**

Table 2. Variance Inflation Factor (VIF) Values

Variable	Z (GBDI)	Y (ROE)
X_1 (KI)	1.604	2.313
X_2 (KM)	1.372	1.386
X_3 (KA)	1.461	1.461
X_4 (KomInd)	1.114	1.116
X_5 (ACGS)	1.241	1.576
Z (GBDI)	2.099	

Source: SmartPLS 4 Output (2025)

All VIF values were below the threshold of 3.33, indicating the absence of multicollinearity among the independent variables. Therefore, the model was considered free from high intercorrelation disturbances.

2. **Coefficient of Determination (R^2)**

Table 3. R^2 and Adjusted R^2 Values

Variable	R-square	Adjusted R-square
Z (GBDI)	0.524	0.491
Y (ROE)	0.476	0.432

Source: SmartPLS 4 Output (2025)

As shown in the table, the R^2 value for the mediating variable Z (GBDI) was 0.524, indicating that 52.4% of the variance in GBDI was explained by the five predictor variables: X_1 (KI), X_2 (KM), X_3 (KA), X_4 (KomInd), and X_5 (ACGS). The remaining 47.6% was attributed to other

variables outside the model. This R^2 value fell into the moderate explanatory power category ($0.50 \leq R^2 < 0.75$).

Meanwhile, the dependent variable Y (ROE) had an R^2 value of 0.476, suggesting that 47.6% of the variance in ROE was explained by the five predictor variables and the mediating variable GBDI. The remaining 52.4% was accounted for by factors not included in the model. This value was classified as having weak explanatory power ($0.25 \leq R^2 < 0.50$).

3. **Effect Size (f^2)**

Table 4. Effect Size (f^2) Values

Path	F^2 Value
X_1 (KI) → Y (ROE)	0.422
X_2 (KM) → Y (ROE)	0.055
X_3 (KA) → Y (ROE)	0.306
X_4 (KOMIND) → Y (ROE)	0.218
X_5 (ACGS) → Y (ROE)	0.406
X_1 (KI) → Z (GBDI)	0.011
X_2 (KM) → Z (GBDI)	0.338
X_3 (KA) → Z (GBDI)	0.498
X_4 (KOMIND) → Z (GBDI)	0.477
X_5 (ACGS) → Z (GBDI)	0.081
Z (GBDI) → Y (ROE)	0.148

Source: SmartPLS 4 Output (2025)

According to Table 4.4, the f^2 values indicated varying levels of contribution by the independent variables to both the dependent variable (Y/ROE) and the mediating variable (Z/GBDI). Based on Cohen's (1988) criteria, effect sizes were categorized as follows:

a. Small effect: $f^2 < 0.02$
b. Medium effect: $0.15 \leq f^2 < 0.35$
c. Large effect: $f^2 \geq 0.35$

The analysis of effect sizes (f^2) reveals the extent to which the independent variables contribute to the dependent variable (Return on Equity/ROE) and the mediating variable (Green Banking Disclosure Index/GBDI). Among the independent variables, Institutional Ownership (X_1) and the ASEAN Corporate Governance Scorecard (X_5) showed large effects on ROE, with f^2 values of 0.422 and 0.406, respectively. Meanwhile, Audit Committee (X_3) and Independent Commissioners (X_4) demonstrated medium effects on ROE, with f^2 values of 0.306 and 0.218. Managerial Ownership (X_2) had only a small effect on ROE, indicated by an f^2 of 0.055.

In terms of their contributions to the mediating variable GBDI, the Audit Committee (X_3) and Independent Commissioners (X_4) again stood out with large effects, reflected in their f² values of 0.498 and 0.477. Managerial Ownership (X_2) had a medium effect on GBDI (f² = 0.338), while Institutional Ownership (X_1) and ACGS (X_5) showed small effects, with f² values of 0.011 and 0.081 respectively.

The mediating variable GBDI itself contributed a small effect to the dependent variable ROE, with an f² value of 0.148. In summary, the variables with the most substantial influence on ROE were Institutional Ownership and ACGS. For GBDI, the strongest contributors were the Audit Committee and Independent Commissioners. Small effects were mostly observed from Managerial Ownership and the direct influence of GBDI on ROE.

4. **Predictive Relevance (Q²)**

The Q² value obtained was 0.751, which exceeded zero. This result indicated that the model had strong predictive relevance for the observed data. A Q² value greater than zero confirms that the model not only explained the relationships among variables but also possessed a good ability to predict the dependent variable. Therefore, the model demonstrated both explanatory and predictive strength.

Direct Hypothesis Testing (Path Coefficients)

Table 5. Direct Effects of Path Coefficients

Path	Coefficient	t-statistics	p-values
X_1 (KI) → Y (ROE)	-0.114	0.685	0.274
X_2 (KM) → Y (ROE)	-0.477	3.725	0.000
X_3 (KA) → Y (ROE)	0.138	1.137	0.128
X_4 (KomInd) → Y (ROE)	0.165	1.754	0.040
X_5 (ACGS) → Y (ROE)	-0.089	0.761	0.224
X_1 (KI) → Z (GBDI)	-0.581	6.657	0.000
X_2 (KM) → Z (GBDI)	-0.080	1.039	0.150
X_3 (KA) → Z (GBDI)	0.006	0.074	0.470
X_4 (KomInd) → Z (GBDI)	0.028	0.312	0.378
X_5 (ACGS) → Z (GBDI)	0.399	3.788	0.000
Z (GBDI) → Y (ROE)	0.315	2.433	0.008

Source: SmartPLS 4 Output (2025)

Based on Table 5, direct hypothesis testing was conducted to evaluate the impact of each independent variable X_1 (Institutional Ownership), X_2 (Managerial Ownership), X_3 (Audit Committee), X_4 (Independent Commissioners), and X_5

(ASEAN Corporate Governance Scorecard) as well as the mediating variable Z (Green Banking Disclosure Index/GBDI) on the dependent variable Y (Return on Equity/ROE). The interpretations of the path coefficients were as follows:

1. **X_1 (KI) → Y (ROE):**
   The path coefficient was -0.114, with a t-statistic of $0.685 < 1.96$ and a p-value of $0.274 > 0.05$. Thus, H_1 was rejected, indicating that institutional ownership had no significant effect on ROE.

2. **X_2 (KM) → Y (ROE):**
   The coefficient was -0.477, with a t-statistic of $3.725 > 1.96$ and a p-value of $0.000 < 0.05$. Therefore, H_2 was accepted, suggesting that managerial ownership had a significant negative effect on ROE.

3. **X_3 (KA) → Y (ROE):**
   The coefficient was 0.138, with a t-statistic of $1.137 < 1.96$ and a p-value of $0.128 > 0.05$. Hence, H_3 was rejected, indicating no significant effect of the audit committee on ROE.

4. **X_4 (KomInd) → Y (ROE):**
   The coefficient was 0.165, with a t-statistic of $1.754 < 1.96$ but a p-value of $0.040 < 0.05$. Although the t-statistic was below the critical value, the p-value indicated significance. Thus, H_4 was accepted, implying that independent commissioners had a significant positive effect on ROE.

5. **X_5 (ACGS) → Y (ROE):**
   The coefficient was -0.089, with a t-statistic of $0.761 < 1.96$ and a p-value of $0.224 > 0.05$. Therefore, H_5 was rejected, showing no significant influence of the ACGS on ROE.

6. **X_1 (KI) → Z (GBDI):**
   The coefficient was -0.581, with a t-statistic of $6.657 > 1.96$ and a p-value of $0.000 < 0.05$. Hence, H_6 was accepted, indicating that institutional ownership had a significant negative effect on GBDI.

7. **X_2 (KM) → Z (GBDI):**
   The coefficient was -0.080, with a t-statistic of $1.039 < 1.96$ and a p-value of $0.150 > 0.05$. As a result, H_7 was rejected, implying no significant effect of managerial ownership on GBDI.

8. **X_3 (KA) → Z (GBDI):**
   The coefficient was 0.006, with a t-statistic of $0.074 < 1.96$ and a p-value of $0.470 > 0.05$. Therefore, H_8 was rejected, indicating that the audit committee did not significantly influence GBDI.

9. **X_4 (KomInd) → Z (GBDI):**
   The coefficient was 0.028, with a t-statistic of $0.312 < 1.96$ and a p-value of $0.378 > 0.05$. Thus, H_9 was rejected, showing no significant effect of independent commissioners on GBDI.

10. **X_5 (ACGS) → Z (GBDI):**

The coefficient was 0.399, with a t-statistic of 3.788 > 1.96 and a p-value of 0.000 < 0.05. Hence, H_{10} was accepted, indicating that the ACGS had a significant positive effect on GBDI.

11. **Z (GBDI) → Y (ROE):**
    The coefficient was 0.315, with a t-statistic of 2.433 > 1.96 and a p-value of 0.008 < 0.05. Therefore, H_{11} was accepted, confirming that GBDI had a significant positive effect on ROE.

Indirect Hypothesis Testing

Table 6 presented the results of indirect effect testing, examining how the independent variables X_1 (Institutional Ownership), X_2 (Managerial Ownership), X_3 (Audit Committee), X_4 (Independent Commissioners), and X_5 (ASEAN Corporate Governance Scorecard) influenced the dependent variable Y (Return on Equity/ROE) through the mediating variable Z (Green Banking Disclosure Index/GBDI).

Table 6. Specific Indirect Effects

Path	Coefficient	t-statistics	p-values
X_1 (KI) → Z (GBDI) → Y (ROE)	-0.183	2.115	0.017
X_2 (KM) → Z (GBDI) → Y (ROE)	-0.025	0.911	0.181
X_3 (KA) → Z (GBDI) → Y (ROE)	0.002	0.071	0.427
X_4 (KomInd) → Z (GBDI) → Y (ROE)	0.009	0.290	0.386
X_5 (ACGS) → Z (GBDI) → Y (ROE)	0.126	2.013	0.022

Source: SmartPLS 4 Output (2025)

Total Effects

In Partial Least Squares Structural Equation Modeling (PLS-SEM), total effects represented the combined impact of direct and indirect influences of independent variables on the dependent variable. Total effects helped determine the type of mediation whether full or partial by comparing the significance levels of both direct and indirect paths.

Table 7. Summary of Total Effects

Variable	Direct Effect (Y/ROE)	Indirect Effect (Z/GBDI)	Total Effect	p-value	Mediation Type
X_1 (KI)	Not significant (-0.114)	Significant (-0.183)	-0.297	0.017	Full mediation
X_2 (KM)	Significant (-0.477)	Not significant (-0.025)	-0.502	0.181	No mediation
X_3 (KA)	Not significant (0.138)	Not significant (0.002)	0.140	0.472	No mediation
X_4 (KomInd)	Significant (0.165)	Not significant (0.009)	0.174	0.386	No mediation

X_5 (ACGS)	Not significant (-0.089)	Significant (0.126)	0.037	0.022	Full mediation

Source: SmartPLS 4 Output (2025)

Research Discussion

The Effect of Institutional Ownership on Return on Equity

Institutional ownership (X_1) demonstrated a path coefficient of -0.114, with a t-statistic of $0.685 < 1.96$ and a p-value of $0.274 > 0.05$. Thus, it was concluded that institutional ownership had no significant effect on return on equity (ROE), and Hypothesis 1 was rejected. This finding aligned with Berger et al. (2016), who stated that institutional ownership in banks did not significantly influence profitability when compared to liquidity and risk factors. However, Hong and Linh (2023) found contrasting results, suggesting that institutional investors independently monitored companies and investments more effectively, influencing management decisions and enhancing shareholder value.

The Effect of Managerial Ownership on Return on Equity

Managerial ownership (X_2) showed a path coefficient of -0.477, with a t-statistic of $3.725 > 1.96$ and a p-value of $0.000 < 0.05$. Therefore, it was concluded that managerial ownership had a significant negative effect on ROE, and Hypothesis 2 was accepted. This result was consistent with Bouwens and Verriest (2014), who found that bank managers with larger equity ownership tended to take fewer risks than external shareholders, and that large external shareholders influenced risk-taking through board representation. Conversely, Chun and Lee (2017) reported that ownership by related parties increased risk-taking when growth opportunities were present, diverging from this study's findings.

The Effect of Audit Committee on Return on Equity

The audit committee variable (X_3) yielded a path coefficient of 0.138, with a t-statistic of $1.137 < 1.96$ and a p-value of $0.128 > 0.05$. It was therefore concluded that the audit committee had no significant effect on ROE, and Hypothesis 3 was rejected. This finding was in line with Allegrini and Greco (2013), who argued that audit committees had no significant impact on firm performance in Italy due to cultural dominance, often rendering the committee symbolic (Oussii et al., 2019). However, Elbahar et al. (2021) highlighted that the size of the audit committee could significantly affect bank performance.

The Effect of Independent Commissioners on Return on Equity

Independent commissioners (X_4) had a path coefficient of 0.165, with a t-statistic of $1.754 < 1.96$, but a p-value of $0.040 < 0.05$. Although the t-statistic fell short of the critical value, the significance level supported acceptance of Hypothesis 4, suggesting that independent commissioners had a significant positive effect on

ROE. This result was consistent with Luo and Liu (2023), who found that reputable independent directors were associated with lower agency costs, higher cash dividends, and lower likelihoods of receiving modified audit opinions or engaging in disclosure irregularities. These directors contributed positively to both operational performance and corporate governance quality. However, Voveris et al. (2024) found no relationship between board independence and financial returns, attributing this to state-level decisions having a greater impact than board structures.

The Effect of ASEAN Corporate Governance Scorecard on Return on Equity

The ASEAN Corporate Governance Scorecard (X_5) had a path coefficient of -0.089, with a t-statistic of $0.761 < 1.96$ and a p-value of $0.224 > 0.05$. Thus, it was concluded that ACGS had no significant effect on ROE, and Hypothesis 5 was rejected. This result was consistent with Alanazi (2019), who found no relationship between corporate governance scores and firm performance. Conversely, Simamora (2020) reported that higher ACGS scores positively impacted firm value.

The Effect of Institutional Ownership on Green Banking Disclosure Index

Institutional ownership (X_1) had a path coefficient of -0.581, with a t-statistic of $6.657 > 1.96$ and a p-value of $0.000 < 0.05$. Hence, it was concluded that institutional ownership had a significant negative effect on the Green Banking Disclosure Index (GBDI), and Hypothesis 6 was accepted. This result supported the findings of Hu et al. (2020), who observed that institutional investors in Southeast Asia were more focused on financial performance rather than environmental practices. However, this finding contradicted T. Chen et al. (2020), who argued that higher institutional ownership enhanced corporate social responsibility (CSR) performance.

The Effect of Managerial Ownership on the Green Banking Disclosure Index

Managerial ownership (X_2) exhibited a path coefficient of -0.080, with a t-statistic of $1.039 < 1.96$ and a p-value of $0.150 > 0.05$. Therefore, it was concluded that managerial ownership had no significant effect on the Green Banking Disclosure Index (GBDI), and Hypothesis 7 was rejected. This finding was consistent with the study by Walls et al. (2012), which indicated that managerial ownership was not a primary predictor of corporate sustainability decisions, with institutional factors and external stakeholder pressure playing more dominant roles. However, the result differed from the findings of Wei et al. (2024), who reported a positive relationship between managerial ownership and environmental disclosure.

The Effect of Audit Committee on the Green Banking Disclosure Index

The audit committee variable (X_3) showed a path coefficient of 0.006, with a t-statistic of $0.074 < 1.96$ and a p-value of $0.470 > 0.05$. Based on this, it was

concluded that the audit committee had no significant effect on GBDI, and Hypothesis 8 was rejected. This result supported the findings of Biswas et al. (2018), who suggested that audit committees tended to focus resources on conventional audits rather than CSR-related activities. Liao et al. (2015) similarly found that audit committees did not significantly influence environmental disclosure due to their financial reporting priorities. Conversely, the result contradicted Anyigbah et al. (2023) and Helfaya and Moussa (2017), who argued that audit committees with environmental expertise could enhance sustainability disclosure.

The Effect of Independent Commissioners on the Green Banking Disclosure Index

Independent commissioners (X_4) had a path coefficient of 0.028, with a t-statistic of $0.312 < 1.96$ and a p-value of $0.378 > 0.05$. Thus, it was concluded that independent commissioners did not significantly influence GBDI, and Hypothesis 9 was rejected. This result aligned with the findings of Handajani (2019), who reported that independent commissioners did not affect corporate social responsibility (CSR) disclosure, including green banking. However, it diverged from the study by Chintrakarn et al. (2020), which found that when the proportion of independent commissioners exceeded 50%, green banking disclosure significantly increased.

The Effect of ASEAN Corporate Governance Scorecard on the Green Banking Disclosure Index

The ASEAN Corporate Governance Scorecard (X_5) demonstrated a path coefficient of 0.399, with a t-statistic of $3.788 > 1.96$ and a p-value of $0.000 < 0.05$. It was therefore concluded that ACGS had a significant positive effect on GBDI, and Hypothesis 10 was accepted. This result was in line with Bintara (2020), who found that ACGS positively influenced financial performance and CSR disclosure, including green banking practices. In contrast, H. Park and Kim (2020) noted that high governance scores did not always correlate with strong sustainability practices.

The Effect of Green Banking Disclosure Index on Return on Equity

The Green Banking Disclosure Index (Z) recorded a path coefficient of 0.315, with a t-statistic of $2.433 > 1.96$ and a p-value of $0.008 < 0.05$. Therefore, it was concluded that GBDI had a significant positive effect on Return on Equity (ROE), and Hypothesis 11 was accepted. This finding was consistent with Scholtens and van't Klooster (2019), who argued that banks with strong sustainability practices exhibited more stable long-term profitability. However, the result contradicted Curcio et al. (2024), who found no significant correlation between ESG disclosures and bank profitability in Europe.

The Mediating Role of GBDI in the Relationship Between Institutional Ownership and Return on Equity

The indirect effect of institutional ownership (X_1) on ROE (Y) through GBDI (Z) showed a path coefficient of -0.183, with a t-statistic of 2.115 > 1.96 and a p-value of 0.017 < 0.05. Therefore, GBDI fully mediated the negative effect of institutional ownership on ROE, and Hypothesis 12 was accepted. This finding aligned with Perdana et al. (2023), who emphasized that institutional ownership influenced the relationship between sustainable finance and firm value, as banks attempted to align with international expectations and improve corporate valuation. Adil et al. (2024) also found a statistically significant relationship between green banking practices and financial performance. However, Zhao et al. (2023) argued that institutional investors often discouraged green innovation when such activities were perceived as financially or socially less rewarding in the short term.

The Mediating Role of GBDI in the Relationship Between Managerial Ownership and Return on Equity

The path coefficient of managerial ownership (X_2) on ROE (Y) through GBDI (Z) was -0.025, with a t-statistic of 0.911 < 1.96 and a p-value of 0.181 > 0.05. As a result, GBDI did not significantly mediate the relationship between managerial ownership and ROE, and Hypothesis 13 was rejected. This result supported the findings of Micco et al. (2007), who reported no strong correlation between ownership structure and the performance of banks located in industrialized nations. However, it diverged from Liu et al. (2024), who found that green innovation significantly improved firms' financial performance.

The Mediating Role of GBDI in the Relationship Between Audit Committee and Return on Equity

The audit committee (X_3) had an indirect effect on ROE (Y) through GBDI (Z) with a path coefficient of 0.002, a t-statistic of 0.071 < 1.96, and a p-value of 0.472 > 0.05. Accordingly, GBDI was not a significant mediator in this relationship, and Hypothesis 14 was rejected. This was consistent with Shakil et al. (2019), who stated that governance performance did not significantly influence financial performance. However, Fayad et al. (2024) argued otherwise, stating that audit committees with accounting expertise positively contributed to ESG disclosure and strengthened sustainable governance practices.

The Mediating Role of GBDI in the Relationship Between Independent Commissioners and Return on Equity

The path coefficient of independent commissioners (X_4) on ROE (Y) through GBDI (Z) was 0.009, with a t-statistic of 0.290 < 1.96 and a p-value of 0.386 > 0.05. It was therefore concluded that GBDI did not mediate the relationship between independent commissioners and ROE, and Hypothesis 15 was rejected. This finding

aligned with S. J. Kim et al. (2023), who observed that firms with higher greenhouse gas emissions tended to perform better financially, although board independence weakened this association. Independent boards were more inclined to balance financial performance with environmental responsibility.

The Mediating Role of GBDI in the Relationship Between ACGS and Return on Equity

The ASEAN Corporate Governance Scorecard (X_5) exhibited an indirect effect on ROE (Y) through GBDI (Z) with a path coefficient of 0.126, a t-statistic of 2.013 > 1.96, and a p-value of 0.022 < 0.05. It was concluded that GBDI fully mediated the positive influence of ACGS on ROE, and Hypothesis 16 was accepted. This finding echoed the study by Markonah and Prasetyo (2022), who found that Good Corporate Governance (GCG) had both direct and indirect effects on banks' financial performance. Stronger GCG enhanced public trust, total assets, and overall financial performance in the banking sector.

CONCLUSION

This study demonstrated that institutional ownership and audit committee size had no significant effect on Return on Equity (ROE), while managerial ownership had a significant negative effect and independent commissioners had a significant positive effect on ROE. The lack of influence from institutional ownership and audit committees could be attributed to their strong affiliation with management and a greater focus on routine oversight rather than profitability strategies. In contrast, independent commissioners contributed positively to ROE by providing objective oversight and playing a strategic role during periods of crisis. Meanwhile, higher levels of managerial ownership tended to encourage more conservative decision-making, particularly in the face of economic uncertainty.

Regarding the Green Banking Disclosure Index (GBDI), institutional ownership exerted a negative influence due to its emphasis on short-term financial stability. Managerial ownership, audit committees, and independent commissioners did not show significant effects on GBDI, likely due to limited ownership stakes and a lack of environmental expertise among board members. On the other hand, the ASEAN Corporate Governance Scorecard (ACGS) had a significant positive impact on green banking disclosure, as it promoted improved risk management systems and enhanced transparency particularly critical for managing long-term risks during the pandemic.

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