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The impact of green banking on perceived banking performance through green finance in Indonesian banking

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Abstract

The banking industry plays a strategic role in supporting sustainable development through the implementation of green banking and green finance principles. However, the extent to which these aspects contribute to banking performance in Indonesia still requires in-depth empirical investigation. This study aims to analyze the effect of green banking on perceived banking performance with green finance as a mediating variable in the Indonesian banking sector. This research employs a quantitative approach with an explanatory research design. The sample consists of 104 banking employees working in banks that have implemented green banking principles in East Java, namely Bank Mandiri, Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), Bank Central Asia (BCA), Bank Syariah Indonesia (BSI), and Bank Muamalat, selected through a purposive sampling technique. Data were collected through questionnaires using a 5-point Likert scale and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. The results indicate that: (1) green banking has a significant effect on perceived banking performance; (2) green banking has a significant effect on green finance; (3) green finance has a significant effect on perceived banking performance; and (4) green finance significantly mediates the effect of green banking on perceived banking performance, categorized as partial mediation. These findings confirm that green finance serves as a crucial transmission mechanism linking green banking commitment to superior perceived banking performance. The implications of this study provide strategic insights for bank management in optimizing sustainable financial products and for regulators in strengthening green finance policies in Indonesia.

INTRODUCTION

Perceived banking performance reflects the ability of a banking institution to achieve optimal financial and operational goals. Indicators such as Return on Assets (ROA), Return on Equity (ROE), and operational efficiency are the main benchmarks in assessing this performance (Chowdhury, 2023). However, climate change and the increasing need for sustainable development are pushing the banking sector to adopt greener and more sustainable approaches to support the Sustainable Development Goals (SDGs), especially in economic and environmental aspects (Zheng et al., 2021).

The sustainable finance Table 1 in Indonesia has shown significant achievements, with total financing reaching Rp913.15 trillion, which includes various instruments. Of this amount, green loans are the largest component with a value of IDR 809.75 trillion, reflecting banking support for environmentally friendly projects such as renewable energy and waste management. In addition, several major banks such as Bank Mandiri and BRI have also issued green bonds worth more than USD 1.9 billion to support the transition to green energy.

Table 1. Sustainable Financing and Investment Data

Category	Amount
Green loans	IDR 809.75 trillion
Global sustainability bond	IDR 7.9 trillion
Green and gender bond	IDR 59.9 trillion
Blended finance	IDR 35.6 trillion
Total amount	**IDR 913.15 trillion**

Source. Otoritas Jasa Keuangan (2021).

Green banking emerged as a strategic approach to integrate sustainability principles in banking operations, including environmental risk management, green project funding, and energy efficiency promotion (Chen

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et al., 2022). As a strategy that is in line with the Sustainable Development Goals (SDGs), green banking aims to encourage sustainability through environmentally friendly financing, operational, and investment policies (Chen et al., 2022). In addition, green banking encourages banks to reduce their carbon footprint in their own operations, for example by adopting energy-saving technologies and reducing paper use (Gupta, 2015).

As part of efforts to support sustainable development, green banking contributes to several Sustainable Development Goals (SDGs). For instance, Sarkar and Latta (2022) show that green banking in India supports rapid economic growth without sacrificing the climate, by promoting environmentally friendly practices and reducing carbon footprints, in line with SDG 7 (Clean and Affordable Energy) and SDG 13 (Addressing Climate Change). This shows that the implementation of green banking not only benefits the banking sector but also supports broader global sustainability goals.

Green finance is a key instrument in the implementation of green banking, which includes a wide range of financial products and services designed to support environmentally friendly and sustainable projects (Sarma & Roy, 2021). Through green finance, banks can provide financing for sustainability-focused initiatives, such as renewable energy projects, energy efficiency, green infrastructure development, and sustainable natural resource management (Zheng et al., 2021). Popular green finance instruments include green bonds, which are used to raise funds specifically for sustainable projects, as well as green loans and other financing facilities that support companies that implement sustainable practices (Kumar et al., 2024).

The implementation of green banking through green finance is believed to have a significant impact on perceived banking performance, both financially and non-financially. Financially, banks that implement green banking and distribute green finance can increase customer confidence and attract market segments that care about sustainability, thereby driving profitability. In addition, by reducing environmental risks in the financing portfolio, banks can minimize the potential losses from investments in sectors that are vulnerable to policy changes or negative environmental impacts.

From a non-financial perspective, the implementation of green banking and green finance can strengthen the bank's reputation as a socially and environmentally responsible institution, which in turn improves the bank's image and credibility in the eyes of the public. This good reputation helps banks attract and retain customers, while building long-term relationships with stakeholders who value sustainable business practices. Thus, green banking and green finance not only support the achievement of the Sustainable Development Goals (SDGs) but also encourage sustainable perceived banking performance, both from economic and social environmental aspects.

Previous research on the impact of green banking on bank performance has yielded mixed results (Hutauruk & Wahyuni, 2026; Tampikalih & Syafri, 2025). Some studies suggest that green banking directly improves financial performance and bank reputation (Sohail et al., 2023), but other studies show an insignificant impact due to high implementation costs and low customer awareness of green products (Wanting, 2020). On the one hand, investment in green infrastructure is considered to burden bank profitability in the short term (Umam et al., 2025). However, when viewed from a Resource-Based View (RBV) perspective, green banking practices are unique internal resources that create competitive advantage (Puspitasari et al., 2024) and improve bank performance in the long term (Panjaitan et al., 2025). Therefore, this study uses green finance as a mediator, in line with the conceptual framework of Widowati & Chariri (2025), who found that green finance strengthens the operational impact on bank performance. However, to date, the role of green finance as a mediator in this relationship has not been explored holistically. Therefore, this study aims to fill this research gap by analyzing the relationship between green banking, green finance, and perceived banking performance to explain how green financing activities strengthen environmentally friendly bank operations. This research contribution is expected to provide strategic input for management and regulators in evaluating the effectiveness of sustainable finance policies in Indonesia.

This study will explore how implementing green banking through green finance affects perceived banking performance on both financial and non-financial fronts. In addition, the research will highlight the role of green finance in improving banks' competitiveness by enhancing their reputations and mitigating environmental risks. The results of this study are expected to make a significant contribution to the relevant literature and provide relevant insights for industry players and policymakers on the importance of sustainability practices in the banking sector.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Green Banking and Perceived Banking Performance

Green banking represents the strategic integration of environmental sustainability principles into all aspects of banking's core operations and activities. This practice includes optimizing internal resource efficiency, reducing operational carbon footprint, adopting clean technology, and digitizing services to minimize the use of paper (paperless banking). In the per-

spective of the Resource-Based View (RBV) developed by Barney (1991), this environmental commitment is no longer seen as just a form of regulatory compliance, but as a unique internal capability and intangible asset that meets the criteria of VRIO (Valuable, Rare, Imperfectly Imitable, and Organization). This capability is valuable because it is able to mitigate reputational risks and reduce long-term operational costs; and rare and imperfectly inimitable because building an environment-based organizational culture requires structural commitment and time that is not instantaneous.

The influence of green banking on perceived banking performance can be explained through mechanisms to increase operational efficiency and strengthen institutional image. When banks implement environmentally friendly operating systems, this directly lowers energy expenditure and increases internal productivity. Empirically, meta-analysis by Albertini's (2013) meta-analysis confirms the existence of a strong relationship between environmental performance and corporate financial performance. Hossain and Kalince (2014) emphasized that the adoption of green banking has a significant effect on improving banking macro performance. In the contemporary context, Aslam and Jawaid (2023) stated that the internalization of green banking practices simultaneously boosts the environmental, operational, and financial performance dimensions from the perspective of internal stakeholders. Based on these theoretical arguments and empirical evidence, the following hypotheses are proposed:

H1: Green banking has a significant effect on perceived banking performance.

Green Banking and Green Finance

Green finance is defined as capital allocation activities, financial products, and services specifically designed to fund projects that make a positive contribution to the environment, such as renewable energy development, sustainable waste management, pollution prevention, and climate change mitigation. Conceptually, the relationship between green banking and green finance moves from internal operational commitments to external market actions. Banks that have matured in implementing an internal green banking system will logically have the infrastructure, environmental risk policies, and organizational culture that supports the distribution of green financing. In other words, environmentally friendly internal governance acts as a key operational driver that facilitates the creation and management of green finance portfolios.

Structured green banking activities provide a clear policy direction for management to launch innovations in external financial products, such as green bonds, sustainable investments, and special credit schemes (green loans) with specific incentives for debtors who implement environmentally friendly practices. Empirical findings from Zhang et al. (2022) prove that the intensity of green banking activities has a significant effect on expanding the availability and capacity of green financing sources. In line with this, a study from Chen et al. (2022) also indicates that the operational commitment of environmentally friendly banks is the main foundation that accelerates the growth of the sustainable finance ecosystem in the financial sector. Based on this line of thought, the following hypotheses are proposed:

H2: Green banking has a significant effect on green finance.

Green Finance and Perceived Banking Performance

As a concrete embodiment of the commitment of the banking environment in the market, green finance plays a strategic role in positioning banks during the green economic transition trend. Through expanding fund allocation in sustainable sectors, banks can diversify their asset portfolios effectively. From a long-term risk management perspective, projects funded through green finance schemes have a higher level of resilience to dynamic environmental regulatory shocks, social pressures, and physical risks due to climate change. This directly minimizes the potential for non-performing loans in high-carbon industrial sectors and increases institutional stability.

In addition to mitigating risks, being active in green financing builds the bank's credibility and competitive advantage in the eyes of the public. Trust from ESG (Environmental, Social, and Governance) based investors and ecologically conscious customers will increase, which in turn expands market share and profitability. Empirically, Chen et al. (2022) found that green project financing makes a strong contribution to the stability and excellence of banking performance. Kumar et al. (2024) also found that green financial activities have been proven to be substantially able to improve the overall sustainability performance of banking institutions. Based on this rationalization, the following hypothesis is proposed:

H3: Green finance has a significant effect on perceived banking performance.

Mediating Role of Green Finance

In accordance with the premise of the Resource-Based View (RBV), the existence of environmentally friendly internal capabilities (green banking) will not automatically produce superior performance if it is not transformed into market action of strategic value. In this context, green finance functions as a crucial transmission mechanism or transmission channel that bridges the bank's internal environmental vision with the achievement of organizational performance. Without the distribution of green finance to productive sec-

tors, green banking practices (such as saving paper and electricity in the office) will only be seen as a cost center whose impact is limited to small internal efficiency.

When green banking commitments are realized through green finance, this synergy creates new competitive economic value. Environmentally friendly internal operational policies provide the basic competencies for banks to efficiently identify, assess, and fund green projects, which ultimately boosts the bank's financial performance and reputation holistically. Empirically, Zhang et al. (2022) confirm that green finance has a significant mediation capacity in connecting banking operational activities with environmental and institutional performance outputs. This is reinforced by Kumar et al. (2024) which states that the success of the banking sustainability agenda is highly dependent on the mediating role of green financial products in channeling the impact of internal policies towards corporate macro performance. Based on this integrative framework (see Figure 1), the following hypotheses are proposed:

H4: Green finance significantly mediates the effect of green banking on perceived banking performance.

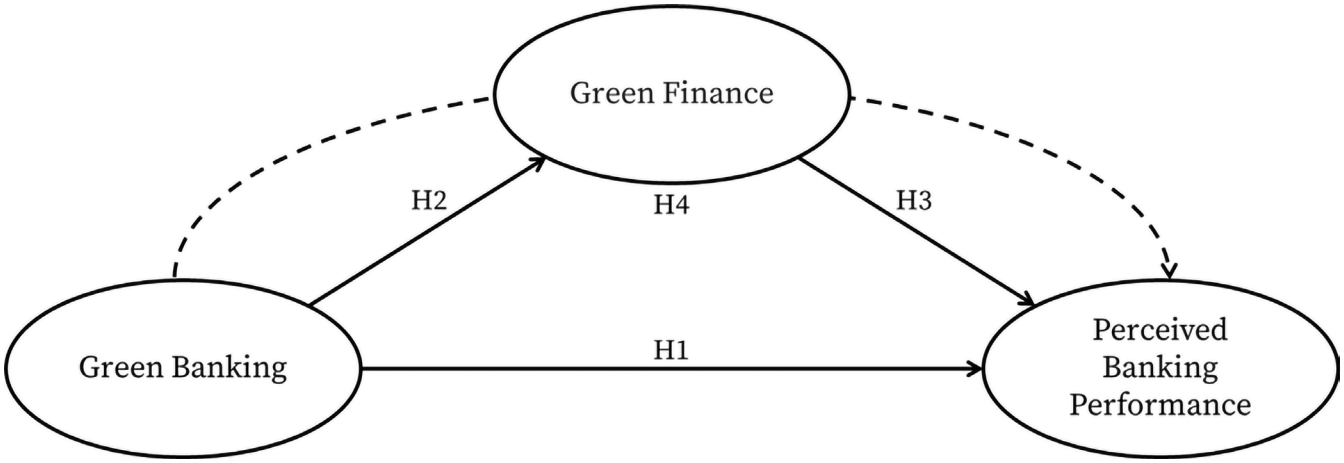

Figure 1. Research Framework
Source. Author(s)' own work.

METHODS

This study employs an explanatory research design with a quantitative approach, which aims to identify causal relationships between the variables under investigation (Creswell, 2014). The objects of this research are commercial banks in Indonesia that have implemented green banking principles and possess data related to green finance and perceived banking performance reports, as identified through official information from the Financial Services Authority of The Republic of Indonesia (Otoritas Jasa Keuangan), including those that publish sustainability reports, apply green finance frameworks, and integrate ESG principles into their policies and operations. The research was conducted from December 2024 to March 2025, covering the data collection process through analysis.

The population in this study consists of all commercial bank employees working in banks that have implemented green banking principles, with the exact number unknown. The sample comprises banking employees from Bank Mandiri, BRI, BNI, BCA, BSI, and Bank Muamalat located in East Java, Indonesia. The sampling technique used is purposive sampling, a sample selection technique based on specific considerations aligned with research needs (Creswell, 2014), with the following criteria: (1) employees working at banks that implement green banking principles; (2) those with direct involvement in the implementation of green finance-related policies or programs; and (3) those with sufficient insight into perceived banking performance within the sustainability context. Since the population size is unknown, the Lemeshow formula was used to determine the sample size, with a maximum estimation of 50% and a margin of error of 10%, resulting in 104 respondents participating in this study.

The data source in this study is primary data, collected directly from respondents through a structured questionnaire. The data collection technique uses a questionnaire designed based on the indicators of each variable, with closed-ended questions measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) (Sekaran & Bougie, 2016). The research instrument was developed based on three main variables: green banking (X) with five indicators including employee-related, customer-related, top-management-related, operational-related, and policy-related green practices (Kumar et al., 2024); green finance (Z) with five indicators including investment in sustainable industry growth, recyclable resources, waste management, green industry development, and alternative energy resources (Kumar et al., 2024); and perceived banking performance (Y) with three indicators encompassing en-

vironmental, operational, and financial performance (Aslam & Jawaid, 2023).

The data analysis method employs Path Analysis with the Partial Least Square Structural Equation Modeling (PLS-SEM) approach, operated through SmartPLS 4 software (Hair et al., 2022). The analysis consists of three main stages: (1) Measurement Model (Outer Model) evaluation through convergent validity (loading factor > 0.70 and AVE > 0.50), discriminant validity (cross loading), and reliability tests (Cronbach's Alpha and Composite Reliability > 0.70); (2) Structural Model (Inner Model) evaluation through R-Square (R^2) to determine the proportion of variance explained and Goodness of Fit using SRMR (< 0.10); and (3) Hypothesis Testing through direct effects (path coefficients) and indirect effects (specific indirect effects), where p-values < 0.05 indicate significant influence and significant mediation effect, respectively (Sarstedt et al., 2021). Additionally, a scale range analysis was conducted to categorize and interpret respondents' perceptions of each variable into five categories ranging from "very poor" to "very good".

RESULTS

Respondent Demographic Characteristics

This study involved 104 banking employees whose institutions implement green banking principles in Indonesia. Based on primary data processed in 2026 at Table 2, the demographic profile represents a diverse group of participants. Most of the total respondents are female, accounting for 53.8 percent, while the male group stands at 46.2 percent. In terms of age, the productive segment between 25 to 35 years old dominates at 38.5 percent. This segment is followed equally by those under 25 years old and the 36 to 45 age range at 26.9 percent each.

Table 2. Respondent Demographics

Category	Subcategories	Frequency	Percentage (%)
Gender	Male	48	46.2%
	Female	56	53.8%
Age	< 25 years old	28	26.9%
	25–35 years old	40	38.5%
	36–45 years old	28	26.9%
	> 45 years old	8	7.7%
Education	High School	11	10.6%
	Diploma	7	6.7%
	Bachelor	74	71.2%
	Postgraduate	12	11.5%
Bank name	BCA	4	3.8%
	BRI	7	6.7%
	BNI	41	39.4%
	Mandiri	33	31.7%
	BSI	5	4.8%
	Bank Muamalat	14	13.5%
Tenure	< 1 year	21	20.2%
	1–3 years	15	14.4%
	4–6 years	13	12.5%
	> 6 years	55	52.9%

Source. Author(s)' own work.

The educational background of the respondents is heavily dominated by Bachelor degree holders, reaching 71.2 percent. This composition indicates that employees spanning from operational to managerial levels possess adequate capacity and understanding to evaluate green banking practices inside their organizations. The remaining educational distribution comprises Postgraduate degree holders at 11.5 percent, High School graduates or equivalent at 10.6 percent, and Diploma holders at 6.7 percent. Regarding their respective workplaces, Bank BNI emerged as the largest contributor with 39.4. The employment tenure of the respondents further reinforces data validity, as the majority have served for more than 6 years, representing 52.9 percent. This extensive tenure provides a highly credible perspective regarding the actual implementation of sustainable policies within their organizations. Other tenure distributions include those under 1 year at 20.2 percent, the 1 to 3-year range at 14.4 percent, and the 4 to 6-year range at 12.5 percent.

Variable Scale Range Analysis

The evaluation of respondent feedback provides a comprehensive view of the actual state of the variables in the field. All examined variables, including green banking, green finance, and perceived banking performance, fall into the very good category (see Table 3). Perceived banking performance achieved the highest mean score at 449.4, with the most outstanding results observed in the optimization of operational energy use and the reduction of hazardous substances. This condition confirms that operations anchored in environmental preservation yield tangible improvements in internal perceived banking performance.

For the green finance variable, the recorded mean score is 444.5, with the highest indicator found in increased investment toward recyclable resources. This score reflects a robust commitment within the national banking sector to back sustainable funding and sustainable waste management. Meanwhile, the green banking variable achieved a mean score of 439.2. Within this variable, utilizing eco-friendly operational procedures in daily activities secured the highest score. Conversely, providing green lending products tied with specific incentives recorded the lowest score. This score disparity indicates that the adaptation of internal bank operations is currently far more mature than the innovation of green financial products offered directly to external clients.

Table 3. Scale Range Results Recapitulation

Variable	Number of Valid Item	Total Score	Average Score	Criteria
Green banking	11	4,831	439.2	Excellent
Green finance	4	1,778	444.5	Excellent
Perceived banking performance	8	3,595	449.4	Excellent

Source. Author(s)' own work.

Measurement Model Evaluation (Outer Model)

Based on Figure 2 and Table 4, the assessment of the measurement model was executed in stages to ensure the total reliability of the research instruments. In the convergent validity test, the elimination process was carried out through three iterative stages to remove indicators with loading factor values below 0.70. There were 7 initial indicators that failed to meet the standard threshold and were subsequently excluded, namely indicators X.2, X.4, X.5, X.11, X.15, Y.4, and Y.5. Following the removal of these items, all remaining indicators demonstrated loading factors above 0.70 and an AVE value exceeding the minimum requirement of 0.50.

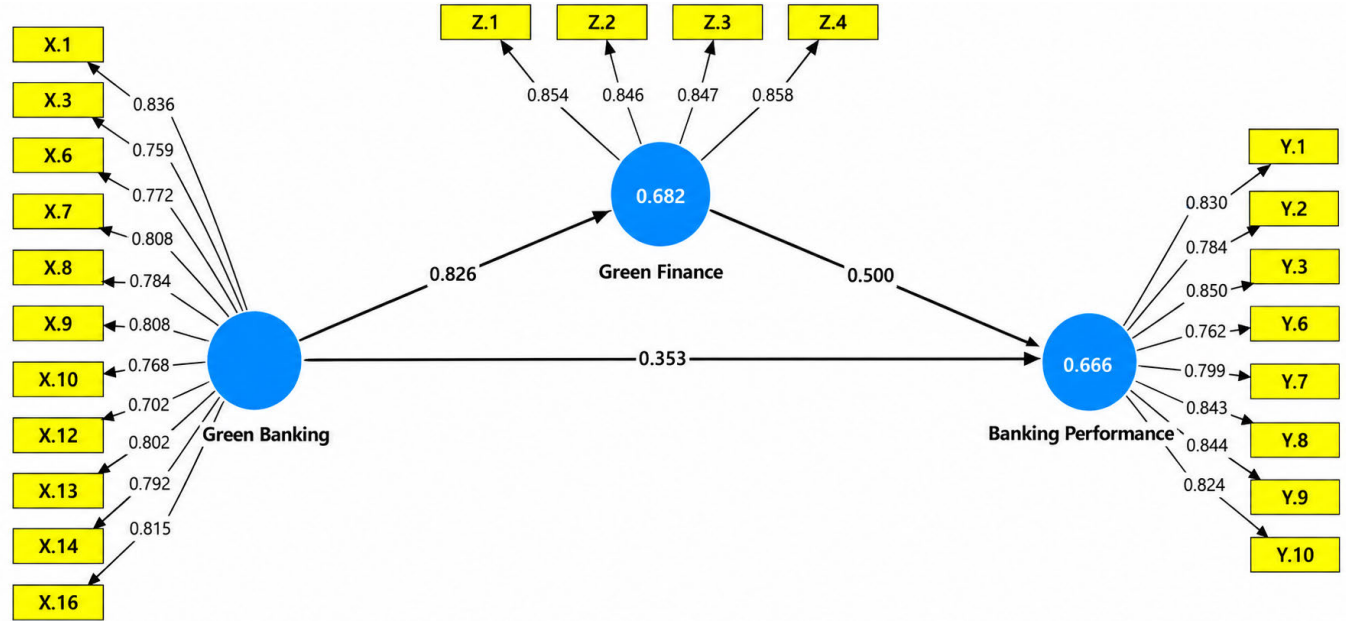

Figure 2. Final Outer Loading
Source. Author(s)' own work.

Green banking retained 11 valid items with a range from 0.702 to 0.836, perceived banking performance retained 8 valid items ranging from 0.762 to 0.850, and green finance preserved 4 complete items ranging from 0.846 to 0.858. Internal consistency was also proven to be highly reliable, as evidenced by the Cronbach Alpha and Composite Reliability values of all variables sitting well above the 0.70 benchmark. The discriminant validity of this model was also fully satisfied through cross loading analysis. Each indicator proved to have a substantially higher correlation value toward its own primary construct compared to its relationship with alternative constructs. For instance, indicator X.1 recorded a cross loading value of 0.836 on the green banking variable, which is noticeably greater than its correlation with perceived banking performance at 0.618 or Green Finance at 0.631. This consistent pattern validates the structural differentiation between the constructs in the research model.

Table 4. Convergent Validity and Reliability Results

Variable	Items	Loading Factor	AVE	Cronbach's Alpha	Composite Reliability	Decision
Green Banking	X.1	0.836	0.619	0.938	0.947	Valid & Reliable
	X.3	0.759				
	X.6	0.772				
	X.7	0.808				
	X.8	0.784				
	X.9	0.808				
	X.10	0.768				
	X.12	0.702				
	X.13	0.802				
	X.14	0.792				
	X.16	0.815				
Perceived banking Performance	Y.1	0.830	0.668	0.929	0.942	Valid & Reliable
	Y.2	0.784				
	Y.3	0.850				
	Y.6	0.762				
	Y.7	0.799				
	Y.8	0.843				
	Y.9	0.844				
	Y.10	0.824				
Green finance	Z.1	0.854	0.725	0.873	0.913	Valid & Reliable
	Z.2	0.846				
	Z.3	0.847				
	Z.4	0.858				

Source. Author(s)' own work.

Structural Model Evaluation (Inner Model)

Based on and Table 5, the structural model assessment was conducted to evaluate predictive power and overall model suitability. Based on the data analysis, the R2 value for perceived banking performance is 0.666. This indicates that 66.6 percent of perceived banking performance variability can be jointly explained by green banking and green finance, while the remaining 33.4 percent is driven by alternative factors outside the model. The R^2 value for Green Finance is 0.682, showing that 68.2 percent of the variability in green finance originates directly from the green banking practices deployed by the corporations. Both values classify the structural model as possessing a moderate level of strength. Furthermore, goodness of fit uses the Standardized Root Mean Square Residual (SRMR) approach to evaluate overall fit (Hair et al., 2022). Based on the table of goodness of fit values in the table above, it shows a value of 0.072, which shows the results of the fit model (< 0.10). The tested models show a good level of compatibility.

Hypothesis Testing

The results of hypothesis testing can be seen from direct effects and indirect effects (Figure 3 and Table 6). In PLS-SEM analysis. All hypotheses proposed in this study are empirically accepted due to having t-statistics above 1.96 and p-values below 0.05. Green banking practices exert a positive and significant influence on perceived banking performance, with a coefficient of B = 0.353 and a p-value of 0.011. This relationship implies that the more effectively eco-friendly principles are internalized within banking operations, the more corporate business performance will experience a parallel es-

calation. Additionally, green banking exhibits an exceptionally potent direct effect on green finance, yielding the highest coefficient in this model at B = 0.826 and p = 0.000. This reality reinforces that green banking policies play a vital role as the foundational cornerstone to accelerate green finance growth within institutions.

Table 5. Structural Model Evaluation Results

Evaluation Indicator	Value	Criteria	Description
R^2 of perceived banking performance	0.666	$0.50 < R^2 < 0.70$	Medium Model
R^2 of green finance	0.682	$0.50 < R^2 < 0.70$	Medium Model
SRMR	0.072	< 0.10	Model Fit

Source. Author(s)' own work.

The direct effect of green finance on perceived banking performance is also confirmed to be positive and significant, with a value of B = 0.500 and p = 0.000. This finding indicates that broadening fund allocation to various environmentally conscious projects directly stimulates higher perceived banking performance. Through indirect effect analysis, green finance positively and significantly mediates the relationship between green banking and perceived banking performance, with a value of B = 0.413 and p = 0.001. This indirect effect value is noticeably larger than its direct effect counterparts of 0.353. Such a condition establishes a very robust partial mediation type, confirming that green finance functions as a highly effective transmission channel to convert green banking initiatives into superior performance milestones.

Table 6. Direct and Indirect Effect Test Results

Path(s)	Original Sample	T statistics (> 1.96)	P values (< 0.05)
Direct effect(s)			
Green banking → perceived banking performance	0.353	2.295	0.011
Green banking → green finance	0.826	17.286	0.000
Green finance → perceived banking performance	0.500	3.382	0.000
Indirect effect			
Green banking → green finance → perceived banking performance	0.413	3.270	0.001

Source. Author(s)' own work.

This study shows the following results: The effect of green banking on perceived banking performance (H1). The results of the study show that green banking on perceived banking performance has a positive and significant influence. The results can be concluded that the first hypothesis is accepted. This is in accordance with research that shows the results that green banking has a positive and significant influence on perceived banking performance. This shows that the implementation of green banking can improve perceived banking performance through operational efficiency, better risk management, and improved reputation of financial institutions in the eyes of the public (Albertini, 2013; Hossain & Kalince, 2014).

The results of the study show that green banking has a positive and significant influence on green finance. The result can be concluded that the second hypothesis is accepted. This is in accordance with research that shows that green banking has a positive and significant influence on green finance. These findings indicate that the higher the application of green banking principles, the greater its contribution to the development of green finance (Zhang et al., 2022).

The results of the study show that green finance on perceived banking performance has a positive and significant influence. The result can be concluded that the third hypothesis is accepted. This is in accordance with research that shows that green finance has a positive and significant influence on perceived banking performance (Chen et al., 2022; Kumar et al., 2024). These findings imply that increasing green finance activities, such as distributing financing for environmentally friendly projects, can contribute to improving the performance of banks.

The results of the study show that green finance mediates the influence of green banking on perceived banking performance in a positive and significant way. The result can be concluded that the fourth hypothesis is accepted. This is in accordance with research that shows that green banking has a positive and significant influence on perceived banking performance (Albertini, 2013; Hossain & Kalince, 2014). Then the study showed that green finance mediated the influence between green banking and perceived banking perfor-

mance positively and significantly (Kumar et al., 2024; Zhang et al., 2022). These findings show that green finance plays an important role in channeling the positive impact of the implementation of green banking on improving perceived banking performance.

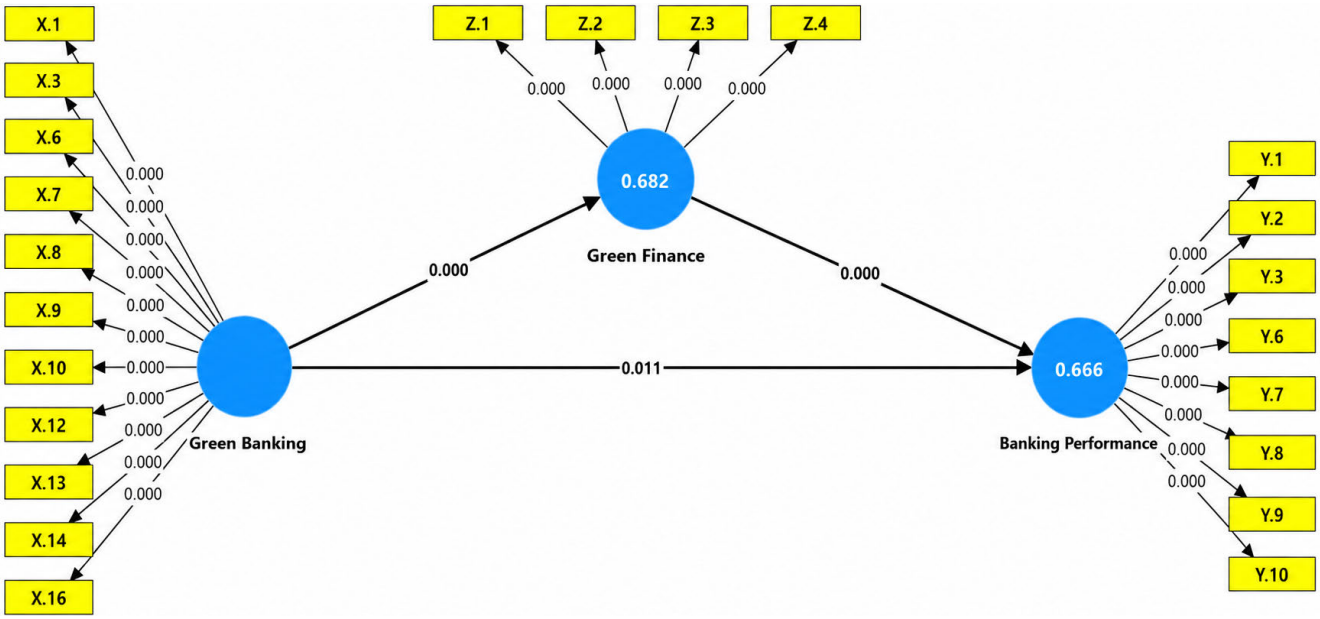

Figure 3. Results of Hypotheses Testing
Source. Author(s)' own work.

DISCUSSION

The results of the Structural Equation Modelling (SEM) analysis illustrate that all hypotheses proposed in this study are supported by existing empirical data. These findings prove that the ecological framework has an interconnected unity in Indonesia's banking sector. Standing alone, internal environment operations and external financial products are proven to be a single mechanism, where internal commitment is the main driver of external market action which ultimately drives organizational performance.

In this study, green banking was proven to have a significant direct impact on perceived banking performance. These findings reinforce previous studies conducted by Albertini (2013) as well as Hossain and Kalince (2014) which states that environmentally friendly banking practices have a positive impact on performance achievement. Internally, the implementation of green banking drives operational efficiency through reduced energy consumption and the adoption of clean technologies, which automatically cut operational costs. Externally, the positive reputation built from this sustainability commitment strengthens the trust of customers and investors, thereby expanding market share and profitability.

Furthermore, the model analysis shows a very strong direct influence of green banking on green finance, which is the highest path coefficient in this model. in line with the findings (Zhang et al., 2022), These results confirm that pro-environmental internal policies are the main foundation in expanding the sustainable finance ecosystem. When banks have matured internal green procedures, they mechanically build a qualified structural capacity and risk assessment framework to channel capital into green assets such as green project financing, sustainable investments, and providing incentives for clients who implement clean operations. This operational readiness also increases environmental awareness in the financial sector, placing banks as a key catalyst in accelerating the transition to responsible governance.

Meanwhile, green finance has a positive and significant impact on perceived banking performance, in line with contemporary studies by Chen et al. (2022) and Kumar et al. (2024). The expansion of green financial allocation makes a real contribution to institutional stability. Lending to the green sector (e.g. through green bonds, green loans, and renewable energy programs) not only diversifies the bank's asset portfolio but also mitigates the risk of long-term default. This is because environmentally conscious businesses tend to be more resilient to sudden regulatory changes, carbon taxes, and social pressures. In addition, active involvement in green finance strengthens the bank's credibility as a socially responsible entity, thus attracting ESG-based investors and sustainability-conscious customers to drive asset growth.

Through mediation analysis, it was found that green finance positively and significantly mediated the

influence of green banking on perceived banking performance. These findings support the important mediating role of green finance previously documented by Kumar et al. (2024) and Zhang et al. (2022). Interestingly, the value of this indirect influence (B = 0.413) was greater than the direct influence (B = 0.353), which indicated the occurrence of strong partial mediation. This phenomenon shows that green finance serves as a key transmission channel that transforms internal green banking initiatives into tangible performance gains. Green banking practices (such as paperless work systems or energy savings) will only achieve optimal organizational efficiency if balanced with the provision of a variety of green financial products in the market. This relationship bridges the vision of the corporate environment with tangible results in the financial and non-financial dimensions, while confirming that the success of the green banking agenda is highly dependent on the bank's ability to convert the concept of sustainability into an active market product.

Theoretical Contributions

Theoretically, this research makes an important contribution to the development of corporate sustainability literature, particularly in banking institutions in developing countries. First, these findings deepen the application of the Resource-Based View theory of Barney (1991) in the banking industry. By positioning internal green banking practices as intangible internal resources, this study proves how environmentally friendly operational capabilities can meet the Valuable, Rare, Imperfectly Imitable, and Organized (VRIO) framework. This capability is valuable because it can mitigate transition risks and reduce overhead costs. In addition, this aspect is also imperfectly inimitable because building a pro-environmental company culture and a credible green reputation requires a time-consuming process and deep structural alignment.

Furthermore, this study expands the conceptual limitations of Resource-Based View theory by showing that the ownership of internal resources alone does not necessarily guarantee the achievement of superior performance. By including the green finance variable as a mediator, this model succeeds in unraveling the transmission mechanism that has been implicit: internal capabilities must be actively converted into market-oriented financial products to open new business opportunities, expand customer base, and create a sustainable competitive advantage. This holistic pathway provides a more detailed framework to fill in gaps in the current literature (Puspitasari et al., 2024; Widowati & Chariri, 2025), which previously did not combine the focus of transmission from the operational realm to the market realm.

Managerial Implications

These insights offer several critical practical implications for both bank management and financial regulators in Indonesia. Bank executives should prioritize fortifying internal green banking practices, particularly by upgrading green lending products with special incentives, an area currently perceived as weak by employees. Additionally, internal socialization must be amplified to cultivate a unified environmental consciousness across all business units. Given the dominant mediating role of green finance, banks should optimize the development of sustainable financial instruments such as green bonds, green loans, renewable energy financing, and eco-friendly credits, while enhancing transparency regarding fund allocation to alternative energy sectors, which employees currently perceive as low. Management must also openly communicate the tangible impacts of these eco-strategies on market share and profitability through comprehensive sustainability reports. For regulatory bodies like the Financial Services Authority and Bank Indonesia, these findings serve as a strategic baseline to reinforce sustainable finance policies. This could include offering fiscal incentives, tax deductions, or regulatory relief (such as lowered reserve requirements) for banks actively participating in green financing, thereby accelerating the transition toward a sustainable banking ecosystem in Indonesia.

Limitations and Future Research Directions

Although it makes an important contribution, this study has some limitations that need to be noted for future research. The generalization of the results of this study is still limited by the sample size which only includes 104 bank employees from several specific institutions such as Bank Mandiri, BRI, BNI, BCA, BSI, and Bank Muamalat. Therefore, the widespread application of these results must be done carefully. The researcher is further advised to expand the scope of the sample and institutional variation by involving Regional Development Banks (BPD) and People's Economic Banks (BPR). The model in this study focuses on only three main variables, which are able to explain 66.6% variance (R2) in perceived banking performance. The remaining variance of 33.4% indicates the contribution of other factors outside the model. Therefore, researchers are further advised to include additional relevant variables, such as green innovation, corporate social responsibility, environmental risk management, or digital banking adoption. Finally, because this study relies on a cross-sectional quantitative approach through a questionnaire of perceptions of employees who are vulnerable to subjectivity, future research will be much stronger if it uses mixed methods. Integrating primary survey data with objective secondary data from financial statements and sustainability reports, combined with longitudinal re-

search designs, will capture the long-term dynamic relationships between variables more accurately.

CONCLUSION

Based on empirical analysis and discussion, this study draws several primary conclusions. Green banking exerts a significant effect on perceived banking performance, demonstrating that adopting eco-friendly banking principles enhances operational efficiency, risk management, and institutional reputation. In addition, green banking has a highly potent and significant impact on green finance, underscoring the vital role of green banking as the foundational bedrock for developing a sustainable financial ecosystem in Indonesia. Furthermore, green finance significantly influences perceived banking performance, indicating that financing sustainable projects directly drives superior bank performance. Crucially, the main point of this study demonstrates that green finance significantly and partially mediates the relationship between green banking and perceived banking performance. This validates green finance as a vital transmission mechanism that successfully translates internal green banking commitments into superior organizational outcomes.

AUTHOR DECLARATIONS

Ethical Approval or Exemption/Waiver: Formal ethical approval was not required for this study because it involved minimal risk to participants, did not involve any intervention, treatment, manipulation, or physical or psychological procedure, and did not include vulnerable populations. Nevertheless, this study was conducted in accordance with ethical principles for studies involving human participants, including voluntary participation, confidentiality, and participant anonymity. Participants were informed about the purpose of the study and their right to decline participation. No personally identifiable information was collected. The author(s) take full responsibility for the ethical conduct, implementation, and outcomes of this study.

Informed Consent: Informed consent was obtained from all individual participants included in the study before filling out the questionnaire. Participants were informed that their data would remain confidential and used solely for academic purposes

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