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The Effect Of Green Banking Practices On Sustainability Performance With Green Finance As A Mediation Variable

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Abstract

This study aims to examine the influence of Green Banking Practices on Sustainability Performance with Green Finance as a mediating variable. The research focuses on four key objectives: analyzing the effect of Green Banking Practices on Green Finance, assessing the impact of Green Finance on Sustainability Performance, examining the direct influence of Green Banking Practices on Sustainability Performance, and evaluating the mediating role of Green Finance in this relationship. A quantitative approach with an exploratory research design was applied to obtain empirical insights into the implementation of green banking and its implications for sustainability outcomes. The population consists of 61 banks in Central Java, and the sample was selected using purposive sampling, resulting in 120 respondents from banks that have adopted green banking practices and implemented green finance programs. Data were collected through questionnaires and literature studies, then analyzed using Structural Equation Modeling with Partial Least Square (SEM-PLS) through SmartPLS 4.0. The findings reveal that Green Banking Practices positively influence Green Finance, Green Finance significantly enhances Sustainability Performance, and Green Banking Practices directly improve Sustainability Performance. Furthermore, Green Finance mediates the effect of Green Banking Practices on Sustainability Performance. These results emphasize the strategic importance of green banking policies and green financing mechanisms in strengthening the sustainability performance of banking institutions.

Keywords: *Green Banking Practices; Green Finance; Sustainability Performance; SEM-PLS; Green Banking.*

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INTRODUCTION

In Indonesia, although green finance regulations have been drafted, their implementation remains hampered. National banks continue to channel financing to sectors with negative environmental impacts, such as palm oil, pulp and paper, and industries linked to deforestation. From 2016 to mid-2024, nearly IDR 1,300 trillion flowed into high-risk sectors, highlighting the gap between policy and practice. Structural weaknesses in the taxonomy further exacerbate the situation; the 2024 revision even reclassified risky activities, such as captive coal-fired power plants (PLTU) in nickel processing, as "yellow" or "green," opening up opportunities for greenwashing.

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Sustainability performance in the banking sector refers to how well banks integrate environmental, social, and governance considerations into their operations, lending, reporting, and governance mechanisms (Oanh et al., 2025). This topic is relevant and compelling in banking research because financial institutions are uniquely positioned to promote or hinder sustainable development through green finance, climate risk transparency, and stakeholder trust (Ponce and Wibowo, 2023). Investigating sustainability performance helps assess whether banks appropriately identify environmental, social, and governance risks, allocate capital to low-carbon or socially impactful projects, and balance profit motives with systemic responsibility. Regulators, investors, customers, and civil society are increasingly demanding accountability, making the integration of environmental, social, and governance not only ethically significant but also financially significant in terms of stability, reputation, and resilience (Defung et al., 2024).

Green banking practices have emerged as an innovative approach that integrates sustainability principles into banking operations and services. These practices encompass a range of initiatives, such as financing environmentally friendly projects, reducing operational carbon footprints, and developing sustainable financial products. Green finance has become a key instrument in supporting these practices, providing a financing mechanism that supports projects that contribute to environmental conservation and climate change mitigation (Thapliyal et al., 2025).
According to Kumar et al. (2024), green banking practices, including employee training and the implementation of internal policies that support sustainability, have been shown to significantly improve a bank's sustainability performance. This training increases staff awareness and ability to apply environmentally friendly principles in daily operations. Furthermore, internal policies designed to reduce environmental impact and encourage responsible business practices demonstrate a financial institution's strong commitment to social and environmental responsibility. These initiatives are crucial for ensuring the bank's long-term sustainability and positive reputation.

The use of green banking practices as an independent variable is theoretically grounded and empirically supported. Green banking encompasses operational policies and practices aimed at mitigating environmental risks, such as green lending, internal resource efficiency, and environmental training, which can directly improve a bank's sustainability performance by reducing its ecological footprint and enhancing its reputation (Ainunnisa et al., 2024). For example, an empirical study by Zhang et al. (2025) revealed that green financing mediated the relationship between green banking activities and environmental performance, suggesting that green banking alone is necessary but not sufficient; the financing products it produces are a key mechanism. Candera et al. (2021) found that in Islamic banking, corporate governance has a positive impact on sustainability. More importantly, this influence operates partly through the implementation of green banking practices, suggesting that green banking mediates how governance translates into sustainability outcomes.

In Indonesia, the growth of green credit has not kept pace with the increasing need for funding for environmentally friendly projects, such as renewable energy, waste management, and low-emission transportation. Many banks still

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allocate a large portion of funding to carbon-intensive sectors because they are perceived as more profitable and lower risk. Furthermore, customer awareness of green banking services is relatively low, both in terms of the use of products such as green deposits, green loans, and digital banking to reduce carbon footprints. A lack of education from banks prevents the public from understanding the direct benefits of sustainable banking practices. Furthermore, banks face internal barriers, such as limited human resource capacity in conducting environmental risk assessments.
A study by Gazi et al. (2024) found that the Bank of Great Britain's (GB) daily operations, employees, and green CSR practices significantly impacted the bank's sustainable performance, while customer-related practices and policies were insignificant. This study is the first in its field to examine how GB practices influence the development of GBIs and how GBIs influence the sustainability performance of PCBs and SOCBs in Bangladesh.

A study by Yafie et al. (2024) showed that green finance, represented by the implementation of the GFP (Green Finance) Program (GDO), can increase profitability, while the GDO (Green Finance) program has no significant effect on banking profitability in Indonesia. Furthermore, the capital adequacy ratio (CAR) is an internal banking ratio that is insignificant for profitability, while increasing non-performing loans and the operational efficiency ratio significantly negatively impact bank performance by reducing profitability.

METHOD

This study uses a quantitative approach. A quantitative approach is an approach used to examine a population or sample through statistical data processing (Sekaran and Bougie, 2020). This study uses exploratory research because this study aims to collect data that describes the effect of Green Banking Practices on Sustainability Performance with Green Finance. The population used in this study is all banks in Central Java, namely 61 banks consisting of 51 Commercial Banks and 10 Sharia Banks. In this study, the sampling technique used is non-probability sampling with purposive sampling. The unit of analysis used is the organization, namely commercial banks in Central Java that have implemented green banking practices and have green finance programs. Because Green Banking Practices, Green Finance, and Sustainability Performance are organizational policies and activities.

The data collection method is a mandatory part of the research design to obtain data related to the phenomenon or variable being studied (Sekaran & Bougie, 2020). The data collection method used to support this research is a questionnaire containing questions regarding the identity and assessment of respondents towards Green Banking Practices, Sustainability Performance and Green Finance, literature study, secondary data collection by studying books and journals. The data analysis used by this research is using the structural equation model (SEM) Partial Least Square (PLS) using Smart PLS 4.0. This method is a variant-based Structural Equation Modeling (SEM) analysis or often known as SEM-PLS (Hair et al., 2019).

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RESULT AND DISCUSSION

The majority of respondents in this study were female, amounting to 68 people or 56.7%. Meanwhile, male respondents numbered 52 people or 43.3% of the total 120 respondents. Based on age, it shows that the majority of respondents came from the productive age group. Most respondents were in the 31–40 year age range (46.7%), followed by the 41–50 year age group (26.7%). The proportion of respondents aged over 50 years reached 14.2%, while respondents aged under 30 years were the group with the smallest percentage, namely 12.5%. The majority of respondents had a Bachelor's degree (S1) educational background with a percentage of 80%. This shows that more than half of the respondents have a fairly good academic understanding, so they are expected to be able to provide a more comprehensive assessment of green banking practices and green finance programs in conventional banks in Central Java. Respondents with a Diploma education were in second place with 11.7%, which indicates that this group also has significant representation in the study. Meanwhile, respondents with a Master's degree were 8.3. The majority of respondents held the Manager level, 65 people (54.2%), while 55 respondents held the Assistant Vice President level, 45.8%. This composition indicates that the majority of respondents hold strategic positions in decision-making, particularly regarding the implementation of Green Banking Practices and Green Finance policies.

The inferential statistical analysis in this study aims to test two types of models, namely the measurement model (outer model) and the structural model (inner model).

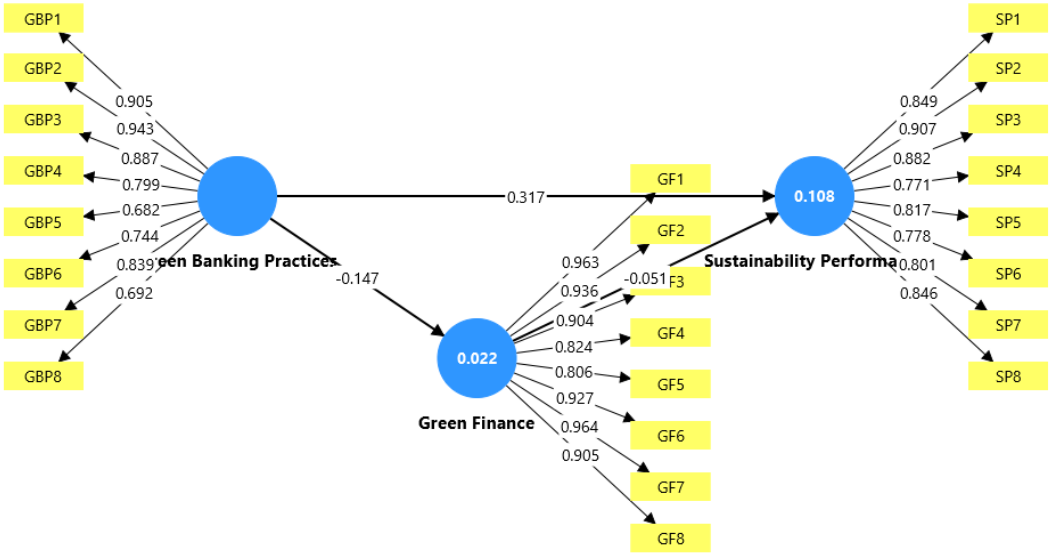

Figure 1. Actual Test Model

Convergen Validity

Convergent validity testing can be performed by analyzing the outer loading values for each construct indicator and the Average Variance Extracted

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(AVE). An indicator is considered valid if its loading factor for the latent variable is greater than 0.6–0.7

Table 1. Loading Factor Test Results

	Green Banking Practices	*Green Finance*	*Sustainability Performance*
GBP1	0,905		
GBP2	0,943		
GBP3	0,887		
GBP4	0,799		
GBP5	0,782		
GBP6	0,744		
GBP7	0,839		
GBP8	0,792		
GF1		0,963	
GF2		0,936	
GF3		0,904	
GF4		0,824	
GF5		0,806	
GF6		0,927	
GF7		0,964	
GF8		0,905	
SP1			0,849
SP2			0,907
SP3			0,882
SP4			0,771
SP5			0,817
SP6			0,778
SP7			0,801
SP8			0,846

Source: SmartPLS Data Processing Results (2025)

Outer loading testing found that all indicators in this study had an outer loading value > 0.7, meaning that all indicator items in this study could be declared valid.

Table 2. AVE

Variables	***AVE***	**Results**
Green Banking Practices	0,667	Valid
Green Finance	0,819	Valid
Sustainability Performance	0,693	Valid

Source: SmartPLS Data Processing Results (2025)

The variables in this study have an AVE value > 0.5, meaning that each variable can be said to be convergently valid.

DOI: 10.37531/amar.v5i2.3378

Discriminant Validity

Table 3. Discriminant Validity of HTMT

Variabel	*Green Banking Practices*	*Green Finance*	*Sustainability Performance*
Green Banking Practices			
Green Finance	0,146		
Sustainability Performance	0,317	0,113	

Source: SmartPLS Data Processing Results (2025)

All variables in this study have HTMT values < 0.9. Therefore, discriminant validity can be established.

Reliability

Table 4. Reliability Results

Variabel	***Cronbach's Alpha***	***Composite Reliability***	**Results**
Green Banking Practices	0,927	0,940	Reliabel
Green Finance	0,969	0,973	Reliabel
Sustainability Performance	0,938	0,941	Reliabel

Source: SmartPLS Data Processing Results (2025)

The Chronbach's Alpha and Composite Reliability values for all variables were >0.7. Therefore, all variables in this study were declared reliable because they met the reliability test requirements.

Inner Model

Table 5. VIF Inner Table

Variabel	*Green Banking Practices*	*Green Finance*	*Sustainability Performance*
Green Banking Practices		1,000	1,022
Green Finance			1,022
Sustainability Performance			

Source: SmartPLS Data Processing Results (2025)

The VIF values of all indicators are below 5, the threshold indicating no multicollinearity. Thus, it can be concluded that the data in this study are free from multicollinearity.

Table 6. R-Square (R2) Value

Variabel	R^2
Green Finance	0,022
Sustainability Performance	0,018

Sumber: Hasil Pengolahan Data SmartPLS (2025)

The Green Finance variable has an R2 value of 0.022, meaning that the Green Finance variable can be predicted by the Green Banking Practices variable by 2.2%, with the remainder influenced by other variables not tested in this study.
The Sustainability Performance variable has an R2 value of 0.108, meaning that the Sustainability Performance variable can be predicted by the Green Finance variable by 10.8%, with the remainder influenced by other variables not tested in this study.

DOI: 10.37531/amar.v5i2.3378

Hipotesis

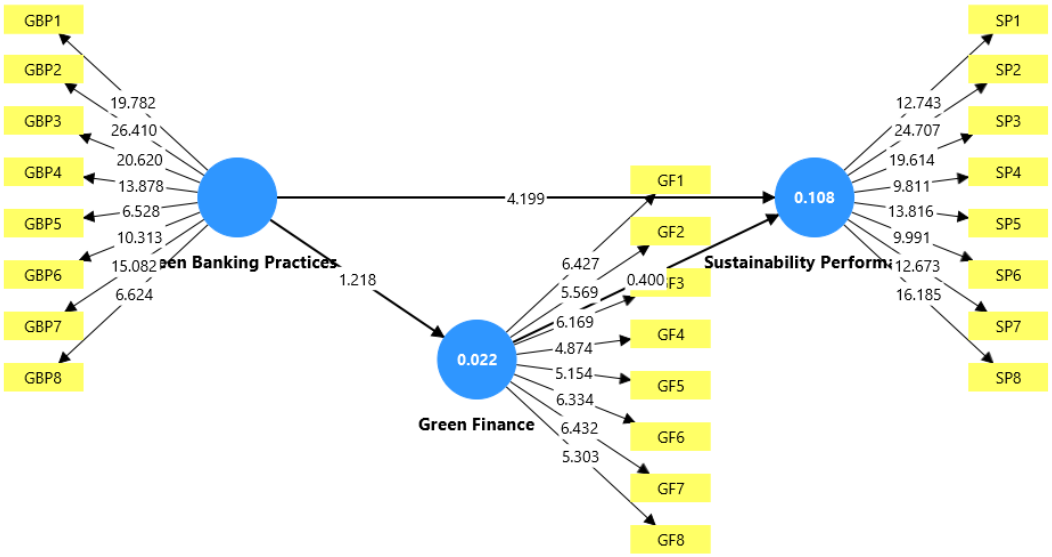

Figure 2. Path model (Bootstraping)

Source: SmartPLS Data Processing Results (2025)

Hypothesis testing is conducted using t-statistic values and probability values. Hypothesis testing for statistical values for alpha is 5% or (p-values < 0.05), and the value for t-statistics is used is 1.645. The hypothesis criteria will be declared rejected or accepted if the t-statistic is >1.645.

Table 7. Structural Model Results (Path Coefficient)

H	Hubungan variabel	Path Coefficient	t-statistics	P-Value	Conclusion
H_1	*Green Banking Practices influence Green Finance*	0,147	2,218	0,003	Didukung
H_2	*Green Finance influences Sustainability Performance*	0,051	2,400	0,009	Didukung
H_3	*Green Banking Practices influence Sustainability Performance*	0,317	4,199	0,000	Didukung
H_4	*Green Finance can mediate the influence of Green Banking Practices on Sustainability Performance*	0,008	2,339	0,004	Didukung

Source: SmartPLS Data Processing Results (2025)

Hypothesis 1 states that Green Banking Practices influence Green Finance, with a path coefficient of 0.147, a t-statistic of 2.218 > 1.645, and a p-value of 0.003 < 0.05. Therefore, it can be concluded that H1 is supported. "

DOI: 10.37531/amar.v5i2.3378

Hypothesis 2 states that Green Finance influences Sustainability Performance, with a path coefficient of 0.051, a t-statistic of 2.400 > 1.645, and a p-value of 0.009 < 0.05. Therefore, it can be concluded that H2 is supported.

Hypothesis 3 states that Green Banking Practices influence Sustainability Performance, with a path coefficient of 0.317, a t-statistic of 4.199 > 1.645, and a p-value of 0.000 < 0.05. Therefore, it can be concluded that H3 is supported.

Hypothesis 4 states that Green Finance can mediate the influence of Green Banking Practices on Sustainability Performance with a path coefficient value of 0.008, a t-statistic value of 2.339 > 1.645, and a p-value of 0.004 < 0.05. Therefore, it can be concluded that H4 is supported.

Discussion

The Influence of Green Banking Practices on Green Finance

Hypothesis 1 states that Green Banking Practices influence Green Finance with a path coefficient of 0.147, a t-statistic of 2.218 > 1.645, and a p-value of 0.003 < 0.05. Therefore, it can be concluded that H1 is supported. The results of this study support the results of research conducted by Kumar et al. (2024) and Chen et al. (2022) who found that green banking practices related to employees, daily operations, and policies have a positive and significant impact on green financing. Dewasiri et al. (2024) also showed that green banking practices covering customer, employee, operational, and policy aspects collectively contribute to environmental performance. The stronger a bank's commitment to green practices, the greater their need to develop and expand green finance instruments. Therefore, green banking practices logically become a key driver of the birth of green products, policies, and funding distribution.

The Influence of Green Finance on Sustainability Performance.

Hypothesis 2 states that green finance has an effect on sustainability performance, with a path coefficient of 0.051, a t-statistic of 2.400 > 1.645, and a p-value of 0.009 < 0.05. Therefore, it can be concluded that H2 is supported. The results of this study support the research conducted by Zhang et al. (2025), which showed that government support and regulations strengthen the positive impact of green finance through policy incentives. Fitriyani & Raharja (2025) also emphasize the importance of transparency in sustainability reporting for green finance to truly impact. In the Indonesian transportation sector, financing through green bonds has been shown to drive CO_2 emission reductions through targeted investment in environmentally friendly infrastructure. In general, the greater the volume of green finance, the higher the efficiency of resource utilization through the adoption of green technologies. Therefore, green finance can be understood as an external resource that provides strategic funding support for companies in developing sustainability programs. This financing support enables organizations to optimize their internal capabilities, such as green innovation and the implementation of environmentally friendly technologies, thereby driving improved sustainability performance. Therefore, the greater the intensity of green finance disbursement, the greater the opportunity for measurable sustainability impacts, thereby improving the institution's sustainability performance.

DOI: 10.37531/amar.v5i2.3378

The Influence of Green Banking Practices on Sustainability Performance

Hypothesis 3 states that Green Banking Practices have an effect on Sustainability Performance with a path coefficient of 0.317, a t-statistic of 4.199 > 1.645, and a p-value of 0.000 < 0.05. Therefore, it can be concluded that H3 is supported. According to the Resource-Based View (RBV) perspective, sustainable competitive advantage can be achieved if an organization possesses valuable, rare, difficult to imitate, and organized (VRIO) resources and capabilities. In this context, green banking practices function as unique internal capabilities that strengthen banks' ability to identify, finance, and manage environmentally friendly projects (Zhang et al., 2025). The results of this study support the results of research conducted by Chen et al. (2022) and Kumar et al. (2024) who found that green banking practices that include internal policies, environmentally friendly operations, and employee involvement consistently have a positive impact on green financing. These findings reinforce the understanding that green banking practices are a key catalyst for improving green finance. Therefore, the more intensively and consistently green banking practices are implemented, the greater their contribution to a bank's sustainability performance.

The influence of Green Finance in mediating the influence of Green Banking Practices on Sustainability Performance

Hypothesis 4 states that Green Finance can mediate the effect of Green Banking Practices on Sustainability Performance, with a path coefficient of 0.008, a t-statistic of 2.339 > 1.645, and a p-value of 0.004 < 0.05. Therefore, it can be concluded that H4 is supported. The results of this study support the results of research conducted by Tommaso et al., (2025), which showed that green finance can overcome obstacles such as high risk and limited access to green capital. The findings of Kumar et al. (2024) and Chen et al. (2022) also show that the availability of green financial instruments is positively related to the achievement of environmental targets. The relationship between Green Banking Practices and Sustainability Performance becomes stronger when Green Finance functions as an intermediary. Green practices create the foundation of policies, while green finance converts these policies into actions that produce real impacts. Therefore, Green Finance logically acts as a mediating variable that explains how and why green banking practices can improve sustainability performance more effectively.

CONCLUSION

The results of the study indicate that Green Banking Practices have an impact on Green Finance, meaning that the better green banking practices are implemented, the more optimal the bank is in distributing green financing. Furthermore, Green Finance has been proven to have an impact on Sustainability Performance, indicating that environmentally oriented financing allocation can improve bank sustainability performance. In addition, Green Banking Practices also have a direct impact on Sustainability Performance, so that the implementation of green banking policies and operations has a positive impact on company sustainability. Furthermore, Green Finance acts as a mediator that strengthens the relationship

DOI: 10.37531/amar.v5i2.3378

between Green Banking Practices and Sustainability Performance, indicating that green financing is an important mechanism in increasing the effectiveness of green banking practices on sustainability performance.

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