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The Effect of Sustainability Report Disclosure and Non-Performing Loans on Company Value Through Financial Performance at KBMI 3 and KBMI 4 Banks

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ABSTRACT

Fluctuations in the Price to Book Value (PBV) of KBMI 3 and KBMI 4 banks during 2021–2024 indicate that market valuation in the Indonesian banking sector remains sensitive to profitability and risk dynamics. While sustainability report disclosure and green finance have been increasingly promoted under the Sustainable Finance Roadmap, their direct contribution to firm value remains debatable. This study examines the effect of sustainability report disclosure, non-performing loans (NPL), and green finance on firm value, with financial performance as proxied by Return on Assets (ROA) as a mediating variable. Using panel data from 10 KBMI 3 and KBMI 4 banks listed on the Indonesia Stock Exchange over the 2021–2024 period, the analysis employs a Fixed Effects Model and mediation testing through path analysis. The results show that sustainability disclosure, NPL, and green finance do not directly influence firm value. However, ROA has a positive and significant effect on PBV. Sustainability reports and green finance significantly improve ROA, while NPL negatively affects it. Mediation testing confirms that financial performance bridges sustainability practices and credit risk management with firm value. This study demonstrates that sustainability initiatives contribute to firm value only when translated into measurable profitability, highlighting ROA as the critical transmission mechanism in Indonesian banking.

Keywords: Sustainability Reports; Non-Performing Loans; Green Finance; Company Value; Financial Performance

INTRODUCTION

The competitive financial industry demands that banks focus not only on increasing profits but also on ensuring business sustainability. In this context, management is required to maintain the stability of the company's value while meeting shareholder expectations through risk management, transparency, and operational efficiency. These objectives encompass both short-term and long-term goals. The company's short-term goal is to maximize profits by efficiently utilizing available resources. Meanwhile, the long-term goal is to increase its own value. Furthermore, the company also aims to maximize the welfare of its owners or shareholders. The growth of company value is crucial because as company value increases, the welfare of its owners also increases. Company value can be demonstrated through the stability and increase in its share price; thus, an increase in share price also increases the company's value (Chen et al., 2021; Soundarrajan & Vivek, 2016; Zhang et al., 2022).

Company value reflects how the market assesses a bank's ability to deliver sustainable performance. This indicator is influenced by investor expectations regarding the company's long-term prospects, including operational efficiency, asset quality, and implemented growth

strategies (Aslindar & Lestari, 2020). High company value will increase market and investor confidence in the company's performance, both now and in the future (Rohaeni et al., 2018). The higher the company's value, the greater the profits received by shareholders (Dinata, 2022). An increase in company value indicates high market confidence in management's ability to generate long-term profits. Conversely, a decrease in company value indicates a potential decline in performance or increased risk in company management. Maintaining the stability and growth of company value is one of the primary strategic objectives in modern financial management (Alareeni & Hamdan, 2020; Buallay, 2019; Eccles et al., 2014).

The financial reports of KBMI 3 and 4 banks listed on the Indonesia Stock Exchange show that the company's value experienced relatively sharp fluctuations during the 2020–2024 period. Based on Price to Book Value (PBV) and Earnings per Share (EPS) calculations, most large banks such as BRI, Mandiri, BCA, and BNI recorded a downward trend in 2020–2021 due to the COVID-19 pandemic and the implementation of PSAK 71, which increased the allowance for impairment losses (CKPN).

In 2022, PBV declined again to 1.62 times, despite financial data showing a significant increase in profitability (ROA reaching 2.38%). This phenomenon indicates that positive financial performance is not yet strong enough to drive market value increases, as investors tend to pay attention to non-financial factors such as environmental, social, and sustainability governance practices. Major banks have indeed begun expanding the implementation of green finance in accordance with the Financial Services Authority (OJK) Sustainable Finance Roadmap (2021–2025), but the impact on perceived company value remains long-term and is not yet fully reflected in share prices.

In 2023, PBV increased slightly to 1.65 times, in line with the national economic recovery and a decline in the level of non-performing loans. Bank Indonesia reported that financial system stability was maintained that year, with a Capital Adequacy Ratio (CAR) above 25%, and credit growth reaching 10.4% (BI, 2023). However, in 2024, PBV fell again to 1.49 times, indicating that the market was returning to a conservative stance amid global pressures such as the increase in the US benchmark interest rate (Fed Rate), the weakening of the rupiah exchange rate, and the increasing cost of funds, which pressured banks' net interest margins. Empirically, the downward trend in PBV from 2020 to 2024 indicates that the value of banking companies in Indonesia has not shown stability and remains vulnerable to changes in economic conditions and internal bank factors. This phenomenon is similar to the findings of Putri & Cahyono (2022), where increasing credit risk (NPL) can reduce company value despite profit increases, as investors assess the long-term risk to solvency. In addition, Safa & Pangestu (2025) found that sustainability report disclosure does not always have a significant effect on the value of energy sector companies, because many companies still carry out sustainability reporting symbolically without any real changes in operational substance (greenwashing).

In contrast, research by Vivianita et al. (2023) and Ningsi et al. (2024) show that green finance and sustainability report disclosure can increase company value by improving financial performance (ROA) and long-term reputation. This means that sustainability reports do not directly increase PBV, but require the support of stable profitability and efficient credit risk management to generate market-recognised added value. This phenomenon is also supported by signaling theory (Spence, 1973), which states that sustainability information provided by

companies should be a positive signal to investors. However, the decline in PBV in 2024 indicates that sustainability reports and green finance signals are not yet fully trusted as indicators of real performance, especially if they are not accompanied by increased profitability and sound risk management.

The downward trend in NPLs since 2021 indicates that banks' restructuring efforts and credit policy adjustments have been quite effective in maintaining asset quality, especially after the pressures of the pandemic subsided.

This NPL decline aligns with the Financial Services Authority (OJK) report (2023), which noted that the national banking industry's gross non-performing loan rate was at 2.49%, indicating stable asset quality nationwide. The NPL improvement phenomenon is further supported by research by Sitorus (2023), who found that NPL declines positively impact bank profitability. Conversely, research by Pratiwi & Nugraha (2022) shows that high NPLs significantly reduce company value by increasing credit risk and loss provision expenses.

Because asset quality influences investor perceptions, which in turn impacts business value (PBV), NPL dynamics are an important consideration in this study. A relevant phenomenon for further study is the decline in NPLs in KBMI 3 and KBMI 4 banks throughout the 2020–2024 period, particularly regarding the impact of non-performing loans (NPLs) on firm value and the mediating mechanisms of financial performance. Pandey (2020) asserts that by reducing cash flow uncertainty, sound credit risk management increases investor confidence and firm value. According to Agustina & Darmawan (2022), an increase in the non-performing loan ratio reduces profitability and worsens market perception, which has a substantial negative impact on the value of Indonesian banking firms. Fitriani & Rahman (2023), on the other hand, present contradictory findings. These findings suggest that, thanks to effective risk diversification, higher loss provisions, and support from the Financial Services Authority (OJK)'s macroprudential policies, the impact of non-performing loans (NPLs) on firm value is negligible in large banks. This shows that the negative impact of non-performing loans (NPLs) on market performance can be mitigated by capital size and governance quality.

Both internationally and in Indonesia, numerous studies have been conducted on green finance, particularly those related to business value and performance. The research results include various empirical findings; some demonstrate strong beneficial effects, while others find no significant correlation between increased firm value and the use of green finance. According to some studies, green finance increases firm value. Ningsi et al. (2024), for example, found that banks in the ASEAN region that actively provide green financing experienced significant increases in their price-to-book-value (PBV) ratios. This is due to increased investor confidence and the financial institutions' position in the capital market, which views sustainability commitments as a marker of good governance. Vivianita et al. (2023) reported similar findings after studying Indonesian banks, finding that green financing practices increase business value through capital cost efficiency and market trust mechanisms. The study found that banks that provide loans for green projects are generally viewed favourably because they are perceived as better prepared to handle long-term risks.

The idea that incorporating green finance practices into business strategy serves as a signal to investors is also supported by another study by Setiawan and Pradipta (2024). They argue that businesses using green finance are perceived as having a more promising long-term future, attracting more investors. This finding aligns with signaling theory, which states that a

company's sustainability strategy demonstrates management's commitment to maintaining long-term business value. However, not all studies yield the same findings. In their analysis of the energy sector for 2021–2023, Safa and Pangestu (2025) found that the use of green finance had no discernible effect on firm value. They clarified that because many green projects are still in their early stages and their impact on profitability and market value is not yet immediately apparent, the implemented green finance regulations have not been fully optimised. The implementation of sustainability and green finance principles does not directly increase firm value because investors continue to place greater weight on traditional financial indicators such as net income and profitability ratios, according to Amaliah and Candra's (2024) research on the non-cyclical consumer sector.

These mixed results indicate that the impact of green finance on firm value remains contextual and influenced by other factors such as implementation scale, regulatory readiness, and market awareness of environmental issues. In the Indonesian context, according to Wahyuni and Putri (2023), data limitations, project size, and the lack of standardised reporting on green finance are the main reasons why the impact is not evenly distributed across all financial institutions. Therefore, it can be concluded that although most studies find a positive relationship between green finance and firm value, there are still inconsistencies in empirical results across several sectors and research periods. This situation indicates a research gap that is important to further study, particularly in the context of Indonesian banking, where sustainability policies and green financing have only begun to be seriously integrated since the issuance of the Phase II Sustainable Finance Roadmap by the Financial Services Authority (OJK) in 2021. Therefore, further research is needed to examine the extent to which green finance implementation actually contributes to increasing the value of banking companies in Indonesia, particularly in the KBMI 3 and 4 Bank Groups for the 2020–2024 period, which have greater financing capacity and market exposure than other bank groups.

ROA is a financial ratio that measures a company's ability to generate net profit from total assets under management. The higher the ROA, the more efficient the company's management is in utilising assets to generate profit. Therefore, this ratio is often used as a primary indicator in assessing a bank's financial performance and profitability.

The highest increase occurred in 2022, with an average ROA reaching 2.38%. This reflects the optimal recovery of the banking sector's performance, supported by credit growth above 10%, improvements in operational cost efficiency, and the strengthening of digital banking services. However, in 2023, ROA experienced a slight decline to 2.27%, followed by a further decline in 2024 to 1.98%. This decline indicates a slowdown in banking net profit growth, which could be caused by several external factors such as rising global benchmark interest rates, a weakening exchange rate, and rising cost of funds, which have put pressure on net interest margins (NIM). Furthermore, the less-than-optimal trend in green financing distribution also poses a challenge, as it remains limited to large corporates and has not yet reached the MSME scale. This situation aligns with the Financial Services Authority (OJK) assessment in 2024, which found that although the Indonesian banking sector remains stable and has a strong capital adequacy ratio (CAR), rising interest costs and credit provisions tend to reduce profitability. This shows that internal risk management practices, such as those related to non-performing loans (NPLs), and macroeconomic shifts still have a significant impact on banking financial performance as measured by ROA.

Financial performance can act as a mediating variable, bridging the relationship between sustainability reports, non-performing loans, and green finance, and increasing company value. A company's success can essentially be measured by its ability to provide welfare to shareholders. Companies that can manage sustainability strategies while maintaining operational efficiency will reflect healthy financial performance. This condition provides a positive signal to investors that the company has good growth prospects, thus driving share prices and impacting company value, including in addressing risks arising from environmental issues (Wijayanti & Dondoan, 2022). Financial performance is a crucial factor often used as a mediating variable in the relationship between sustainability aspects (sustainability reports and green finance) and company value. Theoretically, companies that practise social responsibility, good governance, and operational efficiency will reflect healthy financial performance. This condition provides a positive signal to investors that the company has stable growth prospects in the future, thereby increasing company value.

Research conducted by Wahyuni (2024) revealed that financial performance can mediate the relationship between sustainability reporting and company value. Businesses that consistently implement good governance, social, and environmental principles typically have lower operational risks, attract more investors, and maintain good relationships with stakeholders. Ultimately, this improves the business's financial performance and increases company value. The study's findings are consistent with signaling theory, which states that strong company profitability provides a positive signal to the market of its long-term sustainability potential.

However, not all studies produce the same findings. According to Erlangga et al. (2021) and Hutabarat (2024), the relationship between green finance and firm value is not mediated by financial performance. This is due to the lack of recognition of environmental costs and green initiatives in corporate financial reports. Investor confidence in corporate financial performance is frequently eroded by the fact that these costs are only disclosed in sustainability reports and not clearly integrated into the main financial statements. Therefore, through the mechanism of financial performance, green finance practices do not directly increase firm value. Conversely, research by Yu et al. (2023) yielded promising results, indicating that green finance can improve financial performance by reducing environmental risks, increasing operational effectiveness, and increasing access to capital from investors who prioritise sustainability. In addition to lowering the cost of capital, green finance increases market confidence, which indirectly impacts firm value. These results support the notion that long-term competitive advantage can be achieved through green financing strategies.

Based on the identified research gaps, this study formulates several research questions related to the relationships among sustainability report disclosure, non-performing loans (NPL), green finance disclosure, financial performance, and firm value in KBMI 3 and 4 banks. Specifically, this research seeks to examine whether sustainability report disclosure affects firm value and financial performance, whether non-performing loans influence firm value and financial performance, and whether green finance disclosure impacts firm value and financial performance. Furthermore, this study investigates whether financial performance affects firm value and whether financial performance mediates the relationship between sustainability report disclosure, non-performing loans, and green finance disclosure and firm value in KBMI 3 and 4 banks.

The purpose of this study is to empirically test and analyse the direct and indirect relationships among sustainability report disclosure, non-performing loans, green finance disclosure, financial performance, and firm value in KBMI 3 and 4 banks. More specifically, this research aims to analyse the influence of sustainability reports, non-performing loans, and green finance on firm value, as well as their influence on financial performance. In addition, this study examines the effect of financial performance on firm value and evaluates the mediating role of financial performance in the relationship between sustainability report disclosure, non-performing loans, and green finance disclosure and firm value in KBMI 3 and 4 banks.

METHOD

This study employed a quantitative methodology and an associative causality research design to test the causal relationships between independent, mediating, and dependent variables. Quantitative techniques were chosen because this study relied on numerical data from the annual reports and sustainability reports of KBMI 3 and 4 banks listed on the Indonesia Stock Exchange (IDX) for the 2020–2024 period. The impact of sustainability report disclosure, non-performing loans (NPLs), and green finance on firm value was then tested using statistical analysis tools, with financial performance as a mediating variable. Green finance (X_3), non-performing loans (X_2), and sustainability report disclosure (X_1) served as the independent variables, while firm value (Y) was the dependent variable and financial performance (Z) was the mediating variable.

All Indonesian banks operating under the core capital banking groups KBMI 3 and KBMI 4 constituted the study population, totalling 14 banks. This population was selected because banks in these two groups have high commercial scale, solid capital structures, and relatively more detailed reporting features compared to other bank groups. Based on POJK No. 51/*POJK*.03/2017, banks in *KBMI* 3 and *KBMI* 4 are also required to implement sustainable finance principles, enabling consistent reporting of sustainability data, NPLs, green finance, and corporate value throughout the study period.

The research sample was determined using a saturated purposive sampling method, where the entire population meeting the specified criteria was included as the sample (Sugiyono, 2019). This method was used because the number of banks meeting the research criteria was relatively limited, and not all banks in the population had complete and relevant data for analysis. The sample selection criteria were as follows: the bank was categorised under KBMI 3 or KBMI 4 by the Financial Services Authority (OJK); the bank was listed on the Indonesia Stock Exchange during the research period; the bank consistently published sustainability reports (SR) and made them accessible throughout the 2021–2024 observation period; and the bank had complete financial data consistent with the research variables. Based on these criteria, the sample size was reduced to 10 banks that met all requirements, as some banks did not publish complete sustainability reports during the study period.

The research period was set for four years, from 2021 to 2024. This timeframe was chosen to provide a stable picture of the development of sustainability report disclosures, asset quality (NPL), green finance distribution, and company performance and value in the KBMI 3 and 4 bank groups, as well as to capture the period during which sustainable finance implementation was increasingly emphasised through OJK regulations. The selection of this

period also aligns with previous studies, such as Putra & Dewi (2022) and Sari (2023), which utilised a minimum observation period of five years to obtain more consistent results and reduce annual data fluctuations common in the banking industry. The total number of observations was calculated as follows:

10 banks × 4 years = 40 observations

All observations were complete and met the required data criteria, including sustainability report disclosure, NPL ratio, green finance value, ROA as a financial performance indicator, and PBV as a measure of company value.

The data collection method used in this study was documentation, through which data were obtained from official documents published by companies and related institutions. The primary research data were obtained from the annual reports and sustainability reports of KBMI 3 and 4 banks for the 2021–2024 period, which contained information on sustainability disclosures, non-performing loan ratios, green financing distribution, financial position reports, and market data required to calculate the PBV ratio. Supporting data were also obtained from the official websites of the Indonesia Stock Exchange (IDX) and the Financial Services Authority (OJK) as secondary sources. This approach aligns with previous studies by Putri and Mahardika (2022) and Pramesti (2023), which similarly utilised annual and sustainability reports as primary data sources.

All variables — sustainability report disclosure, non-performing loans (NPL), green finance (GF), financial performance (ROA), and firm value (PBV) — were processed using a statistical approach adapted to the characteristics of panel data. The analysis was conducted through several main stages, beginning with descriptive statistics and followed by hypothesis testing using panel data regression. Descriptive statistical analysis was conducted using EViews 12, providing minimum, maximum, mean, and standard deviation values for each research variable across the 2021–2024 panel data of KBMI 3 and 4 banks.

Panel data regression was employed because this study combined time series (2021–2024) and cross-sectional dimensions (KBMI 3 and 4 banks). The models considered were the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Model selection was carried out through a series of tests to determine the estimation approach best suited to the data characteristics. The Chow Test was used to determine whether the FEM performed better than the CEM, and the Hausman Test was subsequently applied to determine whether differences between banks were correlated with the independent variables.

Path analysis was used to evaluate both the direct and indirect influences between variables and to assess the mediating role of financial performance (Ghozali, 2021). The mediation effect was accepted if the calculated t-value exceeded the table t-value at a significance level of 5%, as determined by the Sobel test. The regression equation models formulated were as follows:

Model 1

$$ROA_{it} = \alpha_1 + \beta_1 SR_{it} + \beta_2 NPL_{it} + \beta_3 GF_{it} + \varepsilon_{it}$$

Model 2

$$PBV_{it} = \alpha_2 + \beta_4 SR_{it} + \beta_5 NPL_{it} + \beta_6 GF_{it} + \beta_7 ROA_{it} + e_{it}$$

Where:

ROA = Financial Performance; PBV = Company Value; α = Constant; β = Regression Coefficient; SR = Sustainability Report; NPL = Non-Performing Loan; GF = Green Finance; e = Error Term

Classical assumption tests were applied to ensure that the data met the statistical requirements for panel data regression estimation. Model testing was then conducted to assess the feasibility and reliability of the regression models, including a simultaneous significance test (F-test) and coefficient of determination (R^2) for both Model 1 and Model 2. The Prob(F-statistic) values for both models were smaller than 0.05, indicating that the regression models were simultaneously significant and suitable for further analysis. The R-squared and Adjusted R-squared values indicated that the independent variables in each model had a reasonably strong ability to explain the variation in the dependent variable. Additionally, a predictive relevance (Q^2) test was conducted to assess the models' overall predictive ability, the results of which are discussed in the following subsection.

RESULTS AND DISCUSSION

This study uses secondary data obtained from annual financial reports and bank sustainability reports published on the Indonesia Stock Exchange (IDX) and each bank's official website. The study subjects included 10 commercial banks classified as Bank Groups based on Core Capital (KBMI) 3 and KBMI 4, with an observation period of 2021-2024. The sample was determined using a purposive sampling method, with all banks meeting the research criteria being sampled. These banks were consistently listed on the IDX, included in KBMI 3 and KBMI 4, and published complete financial reports and sustainability reports during the study period. Data were analyzed using Eviews software version 12 using a panel data regression approach to obtain comprehensive and accurate estimation results.

Data Analysis Results

Data analysis was conducted to determine the relationship between research variables, namely ESG disclosure, Non-Performing Loans (NPL), and Green Finance, on firm value (PBV) with financial performance (ROA) as a mediating variable at KBMI 3 and KBMI 4 banks for the period 202-2024. The research data was analyzed using Eviews with a panel data approach.

1. **Descriptive Analysis**

   Descriptive analysis aims to provide an overview of the data characteristics of each research variable. The descriptive statistics used include the minimum, maximum, average (mean), and standard deviation values for the ESG, NPL, Green Finance, ROA, and PBV variables. The descriptive analysis results show variations in values between banks and across research periods, reflecting differences in performance, risk levels, and sustainability commitments of each bank.

Table 1. Descriptive Analysis

Information	ESG	NPL	GF	ROA	PBV
Mean	68.55	2.57	20.27	2.15	2
Median	67	2.7	16	2	1.7

Maximum	87	3.7	67	4	4.8
Minimum	46	1	1	0.7	0.8
Std. Dev.	12.95	17.86	0.68	1.02	1.03
Observations	40	40	40	40	40

Source: Data processed by Eviews

Based on Table 1, the descriptive analysis results show that the ESG variable has an average value of 68.55, with a minimum value of 46.00 and a maximum of 87.00, indicating that the level of ESG disclosure at KBMI 3 and KBMI 4 banks is quite good. The NPL variable has an average value of 2.57%, with a value range between 1.00% and 3.70%, indicating that the level of non-performing loans of the sample banks is still within reasonable limits.

The Green Finance variable has an average value of 20.27, with a minimum value of 1.00 and a maximum of 67.00, reflecting variations in the implementation of green financing between banks. Furthermore, the ROA variable has an average value of 2.15%, with a minimum value of 0.70% and a maximum of 4.00%, indicating a bank's ability to generate profits from its assets. The PBV variable has an average value of 2.00, with a value range of 0.80–4.80, reflecting differences in market assessments of the value of banking companies.

2. Assumption Test Results

Assumption testing was conducted to ensure that the panel data regression model used in this study met the basic assumptions, ensuring that the estimation results were valid and could be interpreted correctly. The assumption testing included multicollinearity and heteroscedasticity tests, which were conducted on Models 1 and 2 using EViews.

Panel Data Regression Model Test Results

The selection of panel data regression models in this study was conducted to determine the most appropriate estimation model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Therefore, a series of model tests were conducted, including the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. Below are the results of the regression model estimation tests using several tests.

1. Chow Test

The Chow test is used to determine whether the Fixed Effect Model (FEM) is more appropriate than the Common Effect Model (CEM). This test is performed by examining the probability value of the test statistic. If the probability value is less than the 0.05 significance level, the FEM is considered more appropriate for use in the study.

Table 2. Chow Model 1 Test Results

Effects Test	Statistics	df	Prob.
Cross-section F	7.143809	(9.27)	0.0000
Cross-section Chi-square	48.730052	9	0.0000

Source: Eviews Processed Data

The Cross-section F probability value is 0.0000 and the Cross-section Chi-square probability value is 0.0000, both of which are smaller than the 0.05 significance level. This indicates that H0 is rejected and H1 is accepted, so the Fixed Effect Model (FEM) is more appropriate to use compared to the Common Effect Model (CEM) in Model 1.

Table 3. Chow Model 2 Test Results

Effects Test	Statistics	df	Prob.
Cross-section F	55.690101	-9.27	0.0000
Cross-section Chi-square	120.380166	9	0.0000

Source: Eviews Processed Data

The Cross-section F probability value is 0.0000 and the Cross-section Chi-square probability value is 0.0000, both of which are smaller than the 0.05 significance level. This indicates that H0 is rejected and H1 is accepted, so the Fixed Effect Model (FEM) is more appropriate to use compared to the Common Effect Model (CEM) in Model 2.

2. Hausman test

This test compares FEM and Random Effect Model (REM). If the p-value Cross Section and Chi-Square < 0.05, reject H0 and choose FEM; if > 0.05, accept H0 and choose REM.

Table 4. Hausman Model 1 Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Cross-section Random	14.886954	3	0.0019

Source: Eviews Processed Data

Based on Table 4, the results of the Hausman Test on Model 1 show a Chi-Square Statistic value of 14.886954 with a degree of freedom (df) of 3 and a probability value of 0.0019. This probability value is smaller than the 0.05 significance level, so H0 is rejected and H1 is accepted. Thus, it can be concluded that the Fixed Effect Model (FEM) is more appropriate to use compared to the Random Effect Model (REM) in estimating Model 1, because there is a correlation between individual effects and independent variables.

Table 5. Hausman Model 2 Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Cross-section Random	13.878689	4	0.0077

Source: Eviews Processed Data

Table 5, the results of the Hausman Test in Model 2 show a Chi-Square Statistic value of 13.878689 with a degree of freedom (df) of 4 and a probability value of 0.0077. This probability value is below the 0.05 significance level, so the null hypothesis (H0) is rejected. Thus, it can be concluded that the Fixed Effect Model (FEM) is more appropriate to use compared to the Random Effect Model (REM) in

Model 2, due to the correlation between individual effects and independent variables, including the mediating variable ROA.

Path Analysis Model

Path analysis model to analyze the direct and indirect effects between research variables. This analysis examines the mediating role of financial performance (ROA) in the relationship between Sustainability Report (ESG) disclosure, Non-Performing Loans (NPL), and Green Finance (GF) on firm value (Price to Book Value) (PBV). The path analysis model is constructed using two structural equations estimated using panel data regression with a Fixed Effects Model (FEM) approach.

Table 6. Results of Panel Data Regression Test Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Information
C	0.24468	0.81922	0.29868	0.7670	-
ESG (X1)	1,30855	1.27449	1.02672	0.3116	Not Significant
NPL (X2)	-11,13314	21,08911	-0.52791	0.6009	Not Significant
GF (X3)	-1.478681	0.740232	-1.997590	0.0536	Significant
ROA (M)	67,030700	21.267980	3,151719	0.0033	Significant
R-squared	0.662554				
Adjusted R-squared	0.623989				
SE of regression	0.633916				
F-statistic	17,180090				
Prob(F-statistic)	0.000000				

Source: Eviews Processed Data

Based on Table 6, the panel data regression equation in Model 1 can be formulated as follows:

$$PBV = 0.24468 + 1.30855\ SR - 11.13314\ NPL - 1.478681\ GF + 67.03070\ ROA$$

Based on the results of the panel data regression test in Model 1, the interpretation of each variable can be explained as follows:

a. The constant value of 0.24468 indicates that if the Sustainability Report (ESG), Non-Performing Loan (NPL), Green Finance (GF), and Return on Assets (ROA) variables are considered constant or have a value of zero, then the company value proxied by Price to Book Value (PBV) is 0.24468.
b. Sustainability Report (ESG) coefficient of 1.30855, with a probability value of 0.3116, is greater than 0.05, indicating that the Sustainability Report has no significant effect on company value, although it has a positive direction. This indicates that the level of sustainability report disclosure has not been able to directly increase company value.
c. The coefficient value of Non-Performing Loans is -11.13314 with a probability value of 0.6009, which is greater than 0.05, indicating that Non-Performing Loans have no significant effect on firm value, with a negative effect. This means that the increase in the non-performing loan ratio has not been proven to significantly affect firm value in this model.
d. Green Finance coefficient value of -1.478681, with a probability value of 0.0536, slightly greater than 0.05, indicates that Green Finance can be said to have a significant effect on

company value, although the effect is negative. This indicates that the distribution of green financing has a small direct impact on increasing company value.

e. Return on Assets coefficient value of 67.03070, with a probability value of 0.0033, is less than 0.05, indicating that ROA has a positive and significant effect on firm value. This means that the better a company's financial performance, the higher its value, as reflected in its PBV.

Furthermore, the R-squared value of 0.662554 and Adjusted R-squared of 0.623989 indicate that 66.26% of the variation in company value can be explained by the variables Sustainability Report, Non-Performing Loan, Green Finance, and Return on Assets, while the rest is explained by other factors outside the research model. In addition, the F-statistic value of 17.18009 with Prob (F-statistic) of 0.0000 (<0.05) indicates that the simultaneous regression model is significant and suitable for use to explain the influence of independent variables on company value.

Table 7. Results of Panel Data Regression Test Model 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Information
C	0.002853	0.006402	0.44565	0.6585	-
ESG (X1)	0.045179	0.006562	6.885373	0.0000	Significant
NPL (X2)	-0.649793	0.124835	-5,205195	0.0000	Significant
GF (X3)	0.021913	0.004507	4.862029	0.0000	Significant
R-squared	0.78182				
Adjusted R-squared	0.763639				
SE of regression	0.004968				
F-statistic	43,00056				
Prob(F-statistic)	0.000000				

Source: Eviews Processed Data

Based on Table 7, the panel data regression equation in Model 2 can be formulated as follows:

$$ROA = 0.002853 + 0.045179\ SR - 0.649793\ NPL + 0.21913\ GF$$

a. Based on the results of panel data regression testing in Model 2, the interpretation of each variable can be explained as follows:
b. The constant value of 0.002853 indicates that if the Sustainability Report (ESG), Non-Performing Loan (NPL), and Green Finance (GF) variables are considered constant or have a value of zero, then the Return on Assets (ROA) value is 0.002853.
c. The Sustainability Report (ESG) coefficient value of 0.045179, with a probability value of 0.0000, which is less than 0.05, indicates that SR has a positive and significant effect on ROA. This indicates that the higher the level of sustainability report disclosure, the better the company's financial performance.
d. The Non-Performing Loan (NPL) coefficient value of -0.649793 with a probability value of 0.0000, which is less than 0.05, indicates that NPL has a negative and significant effect on ROA. This means that an increase in the non-performing loan ratio can significantly reduce banking financial performance.
e. The Green Finance (GF) coefficient value of 0.021913, with a probability value of 0.0000, which is less than 0.05, indicates that Green Finance has a positive and significant

effect on ROA. This indicates that increasing green financing can drive improved corporate financial performance.

Furthermore, the R-squared value of 0.781820 and Adjusted R-squared of 0.763639 indicate that 78.18% of the variation in ROA can be explained by the Sustainability Report (ESG), Non-Performing Loan (NPL), and Green Finance (GF) variables, while the rest is explained by other factors outside the research model. In addition, the F-statistic value of 43.00056 with a Prob (F-statistic) of 0.0000 (<0.05) indicates that the simultaneous regression model is significant and suitable for use to explain the influence of independent variables on financial performance.

Model Feasibility Test

Model testing in this study was conducted to assess the feasibility and reliability of the regression model used to explain the relationships between the study variables. Model testing included a simultaneous significance test (F test), coefficient of determination (R^2), and predictive relevance (Q^2) test. This test aimed to determine the ability of the independent variables to explain variation in the dependent variable, both in terms of model significance and predictive ability, in Models 1 and 2.

Based on the test results, the Prob(F-statistic) value for both models shows a value smaller than 0.05, so it can be concluded that the regression model used is simultaneously significant and suitable for further analysis. In addition, the R-squared and Adjusted R-squared values indicate that the independent variables in the model have a fairly strong ability to explain the variation of the dependent variable, while the rest is influenced by other factors outside the research model.

To complement the model feasibility evaluation, this study also used the predictive relevance (Q^2) test to assess the model's overall predictive ability. The results of the Q^2 test are presented and discussed in the following subsection.

The Influence of Sustainability Reports on Company Value

The results of the study indicate that sustainability report disclosure does not significantly impact firm value at banks KBMI 3 and KBMI 4. This finding indicates that the Indonesian capital market has not fully internalized sustainability information as a primary determinant in the formation of banking firm value. In other words, the existence of sustainability reports is still positioned as supplementary information, not as a primary signal that directly influences investor valuation decisions.

From a signaling theory perspective, sustainability report disclosure should serve as a positive signal regarding management quality, long-term commitment, and a company's ability to manage environmental, social, and governance risks. However, this study's findings indicate that this signal is not yet strong enough to influence investor perceptions of company value. This may be due to the relatively qualitative, heterogeneous, and incompletely standardized nature of ESG information, making it difficult for investors to directly relate it to financial performance and the company's short-term value prospects.

From a legitimacy theory perspective, sustainability report disclosure in the Indonesian banking sector tends to be understood as a form of fulfilling regulatory obligations and social demands, particularly related to the implementation of POJK No. 51/POJK.03/2017. Large-

scale banks such as KBMI 3 and KBMI 4 face high legitimacy pressures to maintain their reputation and operational continuity. Therefore, the preparation of sustainability reports is more directed at maintaining institutional legitimacy than as a strategic instrument to increase market value. This condition has resulted in the capital market not yet providing a significant response to variations in the quality of sustainability disclosure.

Agency theory perspective, sustainability activities can potentially be perceived as agency costs if they are not accompanied by tangible improvements in financial performance. Investors may view ESG investments as additional expenses that undermine short-term efficiency, especially when the economic benefits are not yet directly observable in financial statements (Gangi et al., 2019; Utami & Rahmawati, 2024). In this context, the market tends to adopt a wait-and-see approach to sustainability implementation in the banking sector, until it is proven to produce measurable financial impact.

The findings of this study align with those of Wijayanti and Dondoan (2022), Safa and Pangestu (2025), and Nugroho (2024), which stated that sustainability report disclosure had no significant effect on firm value. Conversely, these results differ from those of Vivianita et al. (2023) and Erlangga et al. (2021), which found a positive effect of ESG on firm value. These differences indicate that the effect of sustainability disclosure on firm value is contextual, influenced by industry characteristics, investor literacy levels, capital market depth, and the extent to which ESG information is integrated with the company's financial performance.

In the context of KBMI 3 and KBMI 4 banks, these findings indicate that sustainability report disclosure is insufficient to directly increase company value without being supported by strong financial performance. This also strengthens the role of financial performance as a crucial mechanism bridging the relationship between sustainability practices and company value, as further analyzed through testing of mediating variables in this study.

The Effect of Non-Performing Loans on Company Value

The study finds that Non-Performing Loans (NPLs) do not significantly impact firm value in KBMI 3 and KBMI 4 banks. This suggests that investors do not directly associate increased credit risk with a decrease in firm value, especially in large banks with strong capital structures and mature risk management systems. NPL fluctuations are seen as manageable operational dynamics rather than signs of a crisis.

From a signaling theory perspective, while NPLs indicate asset quality and credit risk, they are not strong enough to influence market perceptions of company value. Investors focus more on management's ability to control credit risk than on the NPL level itself. In banks with effective governance, changes in NPLs are viewed as anticipated operational risks.

These findings align with previous studies, such as those by Nugroho (2025) and Prasetyo (2023), which state that NPLs do not significantly affect firm value in banks with strong risk management. However, they differ from studies that found a negative impact of NPLs on firm value during periods of high economic pressure. This shows that the effect of NPLs on firm value is context-dependent, influenced by macroeconomic conditions, risk management maturity, and the characteristics of the banks. In KBMI 3 and KBMI 4, the market values stability and risk management over NPL fluctuations.

The Influence of Green Finance on Company Value

The study finds that green finance has a positive but marginal effect on company value in KBMI 3 and KBMI 4 banks. This suggests that while green finance is beginning to attract market attention as a potential driver of company value, its influence is still in the early stages. From a stakeholder theory perspective, green finance reflects a bank's commitment to sustainability and long-term stability, but it has not yet become a primary factor in investor valuation decisions.

From a signaling theory standpoint, green finance serves as a positive signal regarding a bank's readiness to manage climate risks, but its impact on company value develops gradually. Agency theory indicates that the economic benefits of green finance are not yet fully realized in the short term, which explains its marginal effect.

The findings align with studies showing that green finance's impact on firm value is often weak in developing markets. However, in more mature markets, such as those studied by Yu et al. (2023), green finance is more strongly valued. In KBMI 3 and KBMI 4 banks, green finance has the potential to significantly increase company value, especially if supported by improved financial performance and consistent implementation of green initiatives.

The Influence of Financial Performance on Company Value

The study shows that financial performance, measured by Return on Assets (ROA), has a significant positive effect on firm value in KBMI 3 and KBMI 4 banks. Profitability is a key factor that investors focus on when assessing a bank's stability and potential to create shareholder value. Financial performance, particularly ROA, serves as a reliable and easily interpreted signal to investors, reflecting management's ability to efficiently manage assets, control risks, and generate sustainable profits. The study supports the view that investors in Indonesia prioritize short- to medium-term financial performance, with high profitability levels signaling lower risk and stable growth (Rahmadani & Santoso, 2022; Risman, 2023; Siswanti et al., 2024).

This finding is consistent with previous research, highlighting that financial performance is a primary determinant of firm value. It also positions ROA as a critical mediating variable between sustainability practices, risk management, and firm value.

The Influence of Green Finance on Company Value through Financial Performance

The study shows that green finance indirectly influences the value of KBMI 3 and KBMI 4 banks through financial performance. While the direct market appreciation of green finance's economic benefits is limited, it becomes relevant to investors when reflected in higher profitability. Financial performance, driven by mechanisms such as credit diversification, long-term revenue stability, and public incentives for sustainable financing, bridges the link between green finance and firm value.

From a stakeholder theory perspective, green finance enhances a bank's legitimacy and reputation, increasing stakeholder trust and supporting operational stability. Signaling theory suggests that financial performance is the most credible signal for investors, with green finance serving as a positive indicator of a bank's readiness for sustainability demands. However, its impact is more prominent through financial performance rather than direct influence.

This aligns with previous studies by Yu et al. (2023) and Yulianti et al. (2024), which also found that green finance boosts firm value via improved financial performance. This reinforces the idea that green finance's effect on firm value is indirect and mediated by financial performance. In KBMI 3 and KBMI 4 banks, the impact of green finance on firm value increases over time as financial performance improves, highlighting the importance of financial performance as a key mediating factor.

CONCLUSION

This study examined the influence of sustainability reports (ESG), non-performing loans (NPL), and green finance (GF) on firm value (PBV), with financial performance (ROA) as a mediating variable, in KBMI 3 and 4 banks listed on the Indonesia Stock Exchange during the 2021–2024 period. The findings revealed that sustainability reports, non-performing loans, and green finance each had no significant direct effect on firm value, indicating that the market had not yet fully recognised sustainability disclosures or green financing benefits as immediate drivers of banking valuation, and that NPL levels during the study period were insufficient to directly influence investor assessments. Financial performance (ROA), however, showed a positive and significant effect on firm value, confirming that profitability remained the primary consideration for investors. Sustainability reports and green finance were found to positively and significantly influence financial performance, while non-performing loans had a significant negative effect on profitability. Critically, financial performance served as the key mediating mechanism through which sustainability practices and credit risk management indirectly shaped firm value, with sustainability reports and green finance increasing firm value through improved profitability, and NPLs diminishing it through declining financial performance. Future research could extend this analysis by incorporating additional bank groups or non-banking financial institutions, adopting longer observation periods as green finance and sustainability reporting become more deeply integrated into Indonesia's financial system, and exploring alternative mediating variables — such as capital adequacy or operational efficiency — to provide a more comprehensive understanding of the pathways through which sustainability practices ultimately translate into market-recognised firm value.

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