The Effects of Green Financing, Firm Size, and Operating Income on Bank Firm Value

Vinatya Ayu Natasya[1], Omi Pramiana[2*]
ITEBIS PGRI Dewantara Jombang, Prof. Muh Yamin Street No. 77, Jombang, 61471, Indonesia
e-mail: 2262089@itebisdewantara.ac.id, omi.pramiana@itebisdewantara.ac.id
Corresponding author: omi.pramiana@itebisdewantara.ac.id

Abstract: *This study examines the effect of green financing, firm size, and operating income on firm value in banking companies listed on the Indonesia Stock Exchange (IDX) for the period 2022–2024. Using a quantitative approach, secondary data were collected from annual reports, sustainability reports, and financial reports. Multiple linear regression analysis was performed using SPSS. The results show that green financing, firm size, and operating income each have a positive and significant effect on firm value. The regression model produced an R-square value of 0.944, indicating that the three independent variables together can explain 94.4% of the variation in firm value. All hypotheses were supported, confirming the importance of sustainable financing and strong operational performance in increasing firm value. These findings contribute theoretically to the literature on sustainable finance and provide practical insights for banking management and investors.*

***Key Words**:* Green Financing, Firm Size, Operating Income, Firm Value, Banking Sector

Introduction

The global transition towards sustainable development is encouraging the financial sector, particularly banks, to implement sustainable financing. Environmental degradation and climate risks are prompting governments and financial authorities to promote sustainable financing practices. In Indonesia, the Financial Services Authority (OJK) requires banks to integrate Environmental, Social, and Governance (ESG) principles through the Sustainable Finance Roadmap (2021-2025), which positions green financing as an important instrument in supporting low-carbon economic growth (OJK 2014; OJK 2021). In this context, firm value plays an important role in reflecting investor confidence in company performance, sustainability commitments, and long-term growth prospects. Although the banking sector generally shows stable performance, fluctuations in firm value among banks in Indonesia indicate that factors such as green financing, firm size, and operating income can affect market valuation beyond traditional financial indicators (BEI 2024).

Green financing is financing allocated to activities or projects that are oriented towards environmental preservation and sustainability. Ifadhoh and Yuliana (2024) state that green financing can strengthen companies' commitment to sustainable practices, reduce potential environmental risks, and enhance their favorable perception in the public's eyes. Previous studies have also shown similar findings, namely that green financing contributes to a rise in the firm value. This occurs because a substantial proportion of environmentally oriented financing is considered an indication reflecting management's seriousness in carrying out its ecological responsibilities, which ultimately encourages increased investor confidence (Puspitasari & Firmansyah 2025).

Firm size describes the size of a business, which is generally determined the firm's asset base. Companies with larger assets tend to have stronger operational stability, easier access to funding, and higher expansion opportunities. Findings by Reza and Hanifah (2025) show firm size is positively associated with firm value, as large entities are considered more capable of maintaining business continuity and providing a sense of security for investors in placing their investments.

Operating income describes how well a business manages the firm's core operations that contribute to financial returns. from its main activities. Ulima et al., (2022) state that high operating income is an indicator that investors consider because it shows the efficiency of business processes and the stability of company performance. A number of previous studies have also found that operating income contributes positively to firm value, because a company's ability to generate operating income sends a positive signal about its potential for growth and sustainability of performance in the future.

The three variables in this study are related to the theoretical framework used. Referring to the stakeholder theory proposed by Freeman (1994), businesses are required to focus on the interests represented across involved groups, not only shareholders. This idea is reiterated by Ghozali (2020), who states that a business's capacity to fulfill the needs of its stakeholders includes environmental aspects, business stability, and operational performance, which will contribute to increased legitimacy and public trust. In the context of this study, green financing represents a company's commitment to sustainable practices, firm size describes a company's capacity to maintain operational resilience, while operating income reflects the effectiveness of a company's main performance. These three aspects play a role in strengthening stakeholder perceptions of a company's reputation and sustainability (Sufi et al. 2024; Ifadhoh & Yuliana 2024).

In line with the signaling theory introduced by Spence (1973) and re-explained by Ghozali (2020), companies can influence market perceptions by conveying information that reflects actual conditions, managerial quality, and future performance prospects. In this context, green financing serves as a signal that the company is concerned about sustainability and good environmental risk management. Firm size signals stability and financial strength, while operating income indicates the capacity of the business to make profit from its core operations on a sustainable basis. These three types of information are generally accepted as positive signals by investors, thereby increasing market confidence, encouraging investor interest, and ultimately contributing to an increase in firm value (Puspitasari & Firmansyah 2025; Halawa 2025).

These inconsistent empirical findings indicate a research gap, particularly due to the limited number of studies that partially integrate green financing, firm size, and operating income in the early stages of the Sustainable Finance Roadmap's implementation. The role of the banking industry as an intermediary for national financial resources makes this context important and relevant. What distinguishes this study from prior research is its analysis of the combination of these three variables in the 2022–2024 period, which is an important stage in the implementation of sustainable finance in Indonesia.

According to Ammy and Ramadhan (2021), firm value is a measure of shareholder welfare and represents the price that investors are ready to pay. This is reinforced by the results of Mardiyani et al. (2024), which show that an increase in firm value reflects the success of management in maintaining investor confidence. In addition, Sari (2023) emphasizes that optimal resource management and governance can increase investor confidence and contribute positively to the firm's value.

Considering the description above, this study will explain the following issues:

1. Does green financing have an impact on the worth of businesses listed between 2022-2024 on the Indonesia Stock Exchange (IDX)?
2. Does firm size have an impact on the worth of businesses listed between 2022-2024 on the Indonesia Stock Exchange (IDX)?

3. Does operating income have an effect on the worth of businesses listed between 2022-2024 on the Indonesia Stock Exchange (IDX)?

The following are the study's hypotheses:

1. H_1: Green Financing is positively associated with firm value.
2. H_2: Firm size is positively associated with firm value.
3. H_3: Operating income is positively associated with firm value.

The purpose of this study is to analyze the effect of green financing, firm size, and operating income on the value of banking businesses that were listed at that time on the Indonesia Stock Exchange period 2022–2024.

Method

This study used a quantitative research methodology. According to Sugiyono (2013), the quantitative approach is used to analyze a specific population or sample using random sampling techniques. In this study, the researcher wants to ascertain the partial impact of green financing, firm size, and operating income on firm value in banking businesses listed between 2022-2024 on the IDX. This study utilizes secondary data in the form of annual reports and financial reports on banks with a research population of 47 banking companies listed between 2022-2024 on the Indonesia Stock Exchange. The sources of data utilized are publications in the shape of annual reports and financial reports issued by using the Indonesia Stock Exchange (IDX) as the population and sample in this investigation. Purposive sampling was employed in the sample procedure with the following requirements:

1. Banking firms that were regularly listed on the IDX during the study period.
2. Banking firms that released consecutive yearly financial reports during the study period.
3. Banks that offer data on green finance and produce sustainability reports.

Based on the sample criteria described above, 39 companies were selected as samples with a total of 117 observations (39 × 3 years). The research instrument served to ensure that the measurement process for each variable was carried out consistently and without bias. The indicators used were obtained from financial reports and sustainability reports, then calculated using specific formulas to produce data on a ratio scale. Details of the measurement of each variable are presented in Table 1.

Table 1. Operational Definitions and Measurement of Variables

Variable	Definition	Formula	Source
Green Financing (X1)	The proportion of green financing to total bank financing.	Proportion Ratio= $\frac{\text{Green Financing}}{\text{Total Funding}} \text{ x } 100\%$	Puspitasari and Firmansyah (2025)
Firm Size (X2)	Firm size is represented by total assets.	Firm Size = Ln (total assets)	Ghozali (2020)
Operating Income (X3)	Operating income, which indicates the efficiency of the firm value core activities.	Operating margin ratio = $\frac{\text{Operating Income}}{\text{Total operating income}} \text{ x } 100\%$	Ulima et al. (2022)
Firm Value (Y)	The firm value market valuation level.	PBV = $\frac{\text{Market price per share}}{\text{Book value per share}}$	Ningrum (2022

In addition to being presented in tabular form, the research instruments are also described narratively so that they remain integrated with the flow of the explanation. The green financing variable is calculated based on the percentage of green financing to total bank financing. Firm size is represented by the entire assets natural logarithm. Operating income is measured using operating margin, which is the ratio of operating income to operating revenue. Price to Book Value (PBV) is a proxy for firm value, which illustrates how market values the firm.

Documentation was the method of data gathering employed in this investigation, where data is collected by analyzing and assessing secondary data, specifically the banking businesses financial reports that are posted on the Indonesia Stock Exchange for period 2022-2024, sourced from http://www.idx.co.id/. The data will be processed using SPSS 22 statistical software. In this study, traditional assumption tests and hypothesis testing were used as data analysis methods. All data processing is done using SPSS version 22. The regression equation model in this study is formulated as follows:

$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \varepsilon$

Description:

Y = Firm Value	X2 = Firm size
a = Konstanta	X3 = Operating income
β = Koefisien Regresi	E = Error
X1 = Green financing	X2 = Firm size

RESULTS AND DISCUSSION

Normality Test

Table 2. Normality Test Results

		Unstandardized Residual
N		117
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	7.60373105
Most Extreme Differences	Absolute	.054
	Positive	.054
	Negative	-.038
Test Statistic		.054
Asymp. Sig. (2-tailed)		.200[c,d]

The Kolmogorov–Smirnov test results show that the Asymp. Sig. (2-tailed) value is 0.200, which is above the significance threshold of 0.05. This finding indicates that the residuals in the model are normally distributed, thus fulfilling the assumption of normality in regression.

Multicollinearity Test

Table 3. Multicollinearity Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-26.320	13.686		-1.923	.057		
	Green Financing	2.264	.087	.602	25.996	.000	.924	1.082
	Firm Size	.073	.005	.318	13.755	.000	.926	1.080
	Operating Income	.082	.003	.695	31.066	.000	.990	1.010

The results of multicollinearity testing show that all independent variables have tolerance values above 0.10 and VIF values below 10. These findings indicate that there is no strong correlation between the independent variables in the model. Therefore, it can be concluded that the regression model does not experience multicollinearity problems and can be used appropriately for further regression analysis.

Autocorrelation Test

Table 4. Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.972[a]	.944	.942	7.70400	1.913

The Durbin–Watson value of 1.913, which falls within the range of 1.5 to 2.5, indicates that the residuals do not contain autocorrelation. Thus, the regression model can be said to satisfy the assumption of autocorrelation freedom.

Heteroscedasticity Test

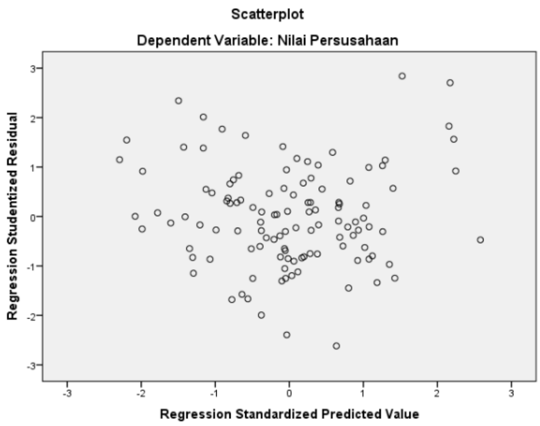

Figure 1. Heteroscedasticity Test Results

The scatterplot shows that the residual points are randomly distributed around the horizontal line without forming any particular pattern, such as a narrowing or widening cluster. This condition indicates that the residual variance remains constant, so that the regression model can be declared free from heteroscedasticity issues.

Multiple Linear Regression Test

Table 5. Multiple Linear Regression Test Results

		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-26.320	13.686		-1.923	.057		
	Green Financing	2.264	.087	.602	25.996	.000	.924	1.082
	Firm Size	.073	.005	.318	13.755	.000	.926	1.080
	Operating Income	.082	.003	.695	31.066	.000	.990	1.010

The regression results show that green financing has a B coefficient of 2.264, indicating that a one-unit increase in this variable will drive a 2.264 increase in firm value. The firm size variable produces a coefficient of 0.073, meaning that each one-unit increase in the logarithm of total assets (firm size) increases firm value by 0.073. Operating income has a coefficient of 0.082, which means that each unit increase in operating income measured by the operating margin ratio contributes to an increase in firm value of 0.082. Overall, these three variables show a positive effect on firm value.

Partial Test (*t*)

The multiple linear regression results show that green financing obtained a B coefficient of 2.264 with a t-value of 25.996 and a significance of 0.000. This finding confirms that green financing has a positive and significant effect on firm value, so H1 is accepted. The firm size variable produced a B coefficient of 0.073 with a t-value of 13.755 and a significance level of 0.000, indicating that firm size has a significant positive effect on firm value, thus H2 is also accepted. Meanwhile, operating income shows a B coefficient of 0.082 with a t-value of 31.066 and a significance level of 0.000, so it can be concluded that operating income also has a significant positive effect on firm value, and H3 is accepted.

Determination coefficient test (Adjusted R^2)

Table 6. Results of the Coefficient of Determination Test (Adjusted R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.972[a]	.944	.942	7.70400	1.913

An adjusted R^2 of 0.942 indicates that 94.2% of the variation in firm value can be explained by the variables of green financing, firm size, and operating income. Meanwhile, the remaining 5.8% of the variation is influenced by factors outside the model used in this study.

The results of this study show that green financing has a positive and significant effect on firm value, meaning that the higher the green financing, the higher the firm value. These findings are in line with stakeholder theory, which asserts that a company's commitment to environmental aspects can increase trust and support from stakeholders. This empirical evidence is also consistent with the studies by (Ifadhoh & Yuliana 2024; Puspitasari & Firmansyah 2025), which show that green financing contributes to an increase in firm value through the strengthening of reputation and environmental risk management. Thus, it can be concluded that the greater the proportion of green financing carried out by banks, the more positive the market's assessment of the company's value will be.

In addition, firm size was found to have a positive and significant effect on firm value, meaning that the larger the firm size, the higher the firm value. These results support the theoretical view that companies with large assets generally have greater capacity for expansion, operational stability, and access to funding, and are therefore viewed more favorably by investors. These findings are in line with the research by Reza and Hanifah (2025), which identifies company size as an important factor in increasing firm value. Large companies are perceived to have greater resilience and more solid long-term performance.

The operating income variable, proxied by operating margin, also shows a positive and significant effect on firm value, meaning that the higher the operating income, the higher the firm value. This finding supports signaling theory, whereby the ability to generate high operating income is a credible signal of a company's health and prospects. These results are consistent with the study by Ulima et al. (2022), which confirms that operational efficiency and core profitability are the main drivers of increased firm value. Thus, the stronger a bank's operational performance, the higher the market's appreciation of its growth prospects. Overall, the results of this study support all of the hypotheses proposed. The findings confirm that green financing, firm size, and operating income are key variables in shaping the value of Indonesian banks during the 2022–2024 period.

CONCLUSION

Based on the results of multiple linear regression analysis using 117 observations in the 2022–2024 period, this study found that green financing, firm size, and operating income have a positive and significant effect on firm value. These findings indicate that increases in these three variables can strengthen market perceptions of the performance and prospects of banking companies. The adjusted R^2 value of 0.942 indicates that the model has a very high explanatory power, where 94.2% of the variation in firm value can be explained by the independent variables used, while the remaining 5.8% is influenced by other factors outside the research model. Overall, the results of this analysis confirm that green financing, company scale, and operational effectiveness are important elements in shaping the value of banking companies in Indonesia.

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