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Green Credit, Bank Health, and Efficiency on Firm Value of LQ45 Banks

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A B S T R A C T
This study analyzes the effect of green financing, capital adequacy, credit risk, and efficiency on firm value, with profitability as a mediating variable. The sample consists of six conventional banks listed in the LQ45 index for the 2019–2023 period, selected using purposive sampling. Panel data from financial statements were used as secondary data. The results show that green financing and capital adequacy have no significant effect on profitability or firm value. In contrast, credit risk and efficiency negatively affect both profitability and firm value, while profitability has a positive effect on firm value. The mediation test indicates that profitability only mediates the effect of efficiency on firm value. These findings highlight that internal efficiency plays a stronger role in creating firm value compared to green financing or capital adequacy during the observation period.

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INTRODUCTION

The banking sector plays a crucial role in supporting national economic growth through its financial intermediation function, credit distribution, and contribution to Gross Domestic Product (GDP) as well as job creation. In 2022, Indonesia's banking assets accounted for 59.5% of GDP, with a credit-to-GDP ratio of 35.4%. These figures indicate that there is still considerable room to expand the role of the banking sector in broadening access to financing, particularly for the real sector and micro, small, and medium enterprises (MSMEs). However, global dynamics such as the COVID-19 pandemic, rising interest rates, and liquidity pressures have affected banking performance and posed challenges to the sustainable growth of firm value.

Firm value reflects the market's perception of long-term performance prospects and serves as a key indicator in investment evaluation. The Price to Book Value (PBV) ratio is widely used to measure firm value, where a high PBV indicates investor optimism about future prospects, while a low PBV may signal undervaluation or weak market confidence. In the banking industry, PBV is influenced by internal factors such as profitability proxied by Return on Assets (ROA), operational efficiency (BOPO), credit risk (NPL), capital adequacy (CAR), and sustainability strategies such as green financing.

Profitability is a critical focus because it reflects the bank's ability to generate income from its assets. A high ROA not only indicates healthy financial performance but also serves as a positive signal to investors in line with signaling theory. However, prior studies show mixed results. Suyitno (2017) found that profitability significantly affects firm value, while Saputri and Supramono (2021) reported a weaker effect under conditions of high external risk or suboptimal capital structure. This inconsistency highlights the need for further investigation in the context of Indonesian banking.

At the same time, green financing has gained attention as a sustainable financial instrument that promotes funding for environmentally friendly projects, in line with OJK Regulation No. 51/POJK.03/2017 on Sustainable Finance. Several studies, such as Kurniati and Sulhan (2022), concluded that green financing improves profitability, while Hasanah and Hariyono (2022) found no significant effect. This suggests that the implementation of green financing in Indonesian banking still requires further evaluation to determine its impact on profitability and firm value.

Other internal factors that also play a decisive role include the Capital Adequacy Ratio (CAR), which reflects the bank's capacity to absorb losses, and the Non-Performing Loan (NPL) ratio, which indicates credit risk levels. Previous studies have also produced inconsistent findings regarding the influence of CAR and NPL on profitability and firm value. Similarly, BOPO, as a measure of operational efficiency, has been found in some studies to significantly affect financial performance, while in others the effect has been inconsistent. This condition illustrates the existence of a research gap that warrants further examination.

The novelty of this study lies in the simultaneous testing of the effects of green financing, CAR, NPL, and BOPO on firm value with ROA as a mediating variable, using a sample of conventional commercial banks listed in the LQ45 index during the 2019–2023 period. This approach provides a comprehensive understanding of the role of internal factors and sustainable financing policies in creating firm value, while also addressing inconsistencies in previous research within the Indonesian banking sector.

LITERATURE REVIEW

Sustainability considerations and the transition toward a low-carbon economy have become increasingly integrated into banking strategies, particularly through green financing. Green financing—providing credit or funding to environmentally friendly projects—has the potential to reduce both transition and physical risks, strengthen reputation, and broaden the customer base sensitive to Environmental, Social, and Governance (ESG) issues. From the perspective of firm value, a credible green financing portfolio may signal stronger business resilience and more advanced risk management practices, thereby enhancing investor confidence and market valuation. Economically, green financing may improve profitability as measured by Return on Assets (ROA) through higher asset quality (lower default risk for well-managed environmental projects), diversification of income sources (e.g., fee-based services related to green certifications), and easier access to capital from ESG-oriented investors. Hence, green financing is expected to exert a positive influence on firm value, both directly through market perception and indirectly through improved ROA.

Within the banking industry, capital adequacy remains a central signal of resilience. Adequate capitalization (commonly measured by capital adequacy ratios) reflects a bank's capacity to absorb unexpected losses, comply with prudential regulations, and sustain credit expansion. The market typically interprets a well-capitalized bank as a lower-risk entity, which may lead to a lower cost of capital and higher valuation multiples. At the same time, sufficient capital buffers enable banks to perform intermediation activities without the pressure of sudden deleveraging, thereby maintaining stable ROA (through more consistent margins and controlled provisioning costs). Consequently, capital adequacy is expected to be positively associated with firm value, both directly and via the mediating role of profitability proxied by ROA.

In contrast, high credit risk—reflected in rising non-performing loans and provisioning expenses—tends to depress ROA by increasing loss provisions and eroding net interest income. Markets interpret deteriorating asset quality as heightened uncertainty in future cash flows, thereby reducing investor confidence and depressing firm value. The mediating role of ROA is evident: worsening credit risk directly reduces profitability, which in turn lowers the market's assessment of firm value. Thus, the relationship between credit risk and firm value is expected to be negative, both directly through risk perception and indirectly through ROA.

Operational efficiency is another critical determinant of competitiveness, particularly amidst accelerated digital transformation in banking. Higher

efficiency—often proxied by the cost-to-income ratio—indicates lean processes, effective technological scale, and disciplined cost management. Efficiency improves ROA through enhanced margins and reduced operating expenses, while also signaling to the market that the bank possesses strong execution capabilities. Accordingly, efficiency is expected to positively influence firm value, both directly (through perceptions of operational resilience) and indirectly through profitability as measured by ROA.

Taken together, ROA serves as the key transmission mechanism linking banks' fundamental characteristics to their firm value. Credible green financing, strong capital adequacy, well-managed credit risk, and high operational efficiency converge to strengthen sustainable earnings performance. In efficient markets, reliable and recurring profitability reduces cash-flow uncertainty, lowers the cost of equity, and ultimately increases valuation multiples. Therefore, ROA is expected to be positively associated with firm value and to mediate the effects of green financing, capital adequacy, credit risk (negative direction), and efficiency on firm value.

From this reasoning, the study proposes the following hypotheses:
H1: Green Financing has a positive effect on firm value
H2: Green Financing has a positive effect on profitability
H3: Capital Adequacy has a positive effect on firm value
H4: Capital Adequacy has a positive effect on profitability
H5: Credit Risk has a negative effect on firm value
H6: Credit Risk has a negative effect on profitability
H7: Operational Efficiency (BOPO) has a negative effect on firm value
H8: Operational Efficiency (BOPO) has a negative effect on profitability
H9: Profitability has a positive effect on firm value
H10: Profitability mediates the effect of Green Financing on firm value
H11: Profitability mediates the effect of Capital Adequacy on firm value
H12: Profitability mediates the effect of Credit Risk on firm value
H13: Profitability mediates the effect of Operational Efficiency on firm value

METHODOLOGY

This study employs a quantitative causal approach with a path analysis model. The type of data used is secondary data obtained from the financial statements of conventional commercial banks listed in the LQ45 index during the 2019–2023 period. Thus, the population of this research includes all conventional commercial banks included in the LQ45 index, while the sample was determined using a purposive sampling technique based on predetermined criteria.

Population and Sample

The population in this study consists of companies in the conventional banking subsector listed on the Indonesia Stock Exchange (IDX) and included in the LQ45 index during the period 2019–2023. The sample was selected through purposive sampling, resulting in a total of six (6) conventional commercial banks that met the research criteria.

Research Model

This study tests two regression equations using path analysis to examine direct and indirect effects among the variables. Equation 1: Examines and analyzes the effects of Green Financing (X1), Capital Adequacy (X2), Credit Risk (X3), Efficiency (X4), and Profitability (Z) on Firm Value (Y), formulated as follows:

$$\mathbf{PBV = \alpha + \beta_1 GF + \beta_2 CAR + \beta_3 NPL + \beta_4 BOPO + \beta_5 ROA + \varepsilon_1}$$

Equation 2: Examines and analyzes the effects of Green Financing (X1), Capital Adequacy (X2), Credit Risk (X3), and Efficiency (X4) on the mediating variable Profitability (Z), formulated as follows:

$$\mathbf{ROA = \alpha + \beta_1 GF + \beta_2 CAR + \beta_3 NPL + \beta_4 BOPO + \varepsilon_1}$$

Where:

PBV = Price to Book Value (Y)
ROA = Return On Asset (Z)
β = Beta Coefficient/regresion
GF = Green Financing (X1)
CAR = Capital Adequacy Ratio (X2)
NPL = Non Performing Loan (X3)
BOPO = Operating Expenses to Operating Income Ratio (X4)
ε = Error Term.

Data Analysis

This study employs multiple linear regression analysis to examine the relationships among variables, utilizing the EViews 12 software. The hypotheses are tested both partially using the t-test and simultaneously using the F-test. A hypothesis is accepted if the probability value (ρ) is less than 0.05, indicating statistical significance (Ghozali, 2016).

RESEARCH RESULT

Model Specification Test Analysis

Table 1. First Regression Model Selection Test

Testing	Criteria	Statistic	Test Results	Results
Uji Chow	*Cross-section chi-square*	13.83	0.0168	*Fixed Effect Model*
Uji Hausman	*Cross-section Random*	11.12	0.049	*Fixed Effect Model*
Uji Lagrange Multiplier	*Breusch-Pagan*	-	-	

Source: Processed Data (2025)

The regression model for the first equation which aims to analyze the influence of GF, CAR, NPL, BOPO and ROA on PBV is by using the Fixed Effect Model (FEM).

Table 2. Second Equation Model Selection Test

Testing	Criteria	Statistic	Test Results	Results
Uji Chow	*Cross-section chi-square*	18.62	0.0023	*Fixed Effect Model*

Uji Hausman	*Cross-section Random*	17.18	0.0018	*Fixed Effect Model*
Uji Lagrange Multiplier	*Breusch-Pagan*	-	-	

Source: Processed Data (2025)

The best regression model for the second equation which aims to analyze the influence of GF, CAR, NPL and BOPO on ROA is to use the Fixed Effect Model (FEM).

DISCUSSION

Direct Effect Test

Table 3. Results of the Direct Influence Test of the First Equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.38501	10.11551	2.015223	0.0583
GF	2.117877	2.635161	0.803699	0.4315
CAR	9.147592	5.903405	1.549545	0.1377
NPL	-537.4237	177.3091	-3.030999	0.0069
BOPO	-22.00284	9.005707	-2.443211	0.0245
ROA	4.521633	1.787945	2.528955	0.0205
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.670579	Mean dependent var		4.117433
Adjusted R-squared	0.497199	S.D. dependent var		7.011983
S.E. of regression	4.972089	Akaike info criterion		6.322132
Sum squared resid	469.7117	Schwarz criterion		6.835904
Log likelihood	-83.83198	Hannan-Quinn criter.		6.486492
F-statistic	3.867691	Durbin-Watson stat		2.209463
Prob(F-statistic)	0.005461			

Source: Processed Data (2025)

The results of panel data regression can be seen in the following equation:
PBV = 2.1179 GF + 9.1476 CAR – 537.4237 NPL – 22.0028 BOPO + 4.5216 ROA
From this test the following results were obtained:

The regression coefficient of GF is 2.1179 with a probability value of 0.4315, which is greater than the significance level of 0.05. This indicates that GF has no significant effect on PBV. Although the coefficient suggests that a 1% increase in GF would raise PBV by 211.79%, the relationship is statistically insignificant when holding other variables constant.

The regression coefficient of CAR is 9.1476 with a probability value of 0.1377, which is also greater than 0.05. This implies that CAR has no significant effect on PBV. Theoretically, a 1% increase in CAR would increase PBV by 914.76%, assuming other variables remain constant. However, the lack of significance indicates that investors may not directly consider capital adequacy as a determinant of firm value during the observed period.

The regression coefficient of NPL is –537.4237 with a probability value of 0.0069, which is below the 0.05 threshold. This result indicates that NPL has a negative and significant effect on PBV. Specifically, a 1% increase in NPL decreases PBV by 53,742.37%, ceteris paribus. This finding reflects that higher credit risk substantially reduces firm value in the banking sector.

The regression coefficient of BOPO is –22.0028 with a probability value of 0.0245, which is below 0.05. This indicates that BOPO has a negative and significant effect on PBV. In other words, a 1% increase in BOPO reduces PBV by 2,200.28%, assuming all other variables are constant. This confirms that inefficiency in operations diminishes firm value.

The regression coefficient of ROA is 4.5216 with a probability value of 0.0205, which is lower than 0.05. This demonstrates that ROA has a positive and significant effect on PBV. Specifically, a 1% increase in ROA increases PBV by 452.16%, holding other variables constant. This result supports the signaling theory, indicating that higher profitability enhances market confidence and firm value.

Table 4. Results of the Direct Influence Test of the Second Equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.634376	1.257104	-0.504633	0.6193
GF	0.389242	0.317862	1.224564	0.2350
CAR	0.256472	0.736070	0.348434	0.7312
NPL	-48.14365	19.38649	-2.483361	0.0220
BOPO	-4.069340	0.663734	-6.130977	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.808752	Mean dependent var		-4.124450
Adjusted R-squared	0.722690	S.D. dependent var		1.180829
S.E. of regression	0.621827	Akaike info criterion		2.148893
Sum squared resid	7.733381	Schwarz criterion		2.615958
Log likelihood	-22.23339	Hannan-Quinn criter.		2.298311
F-statistic	9.397343	Durbin-Watson stat		1.569958
Prob(F-statistic)	0.000018			

Source: Processed Data (2025)

Based on table 4, the results of the panel data regression can be seen in the following equation:

ROA = 0.3892 GF + 0.2565 CAR – 48.1437 NPL – 4.0693 BOPO

From this test the following results were obtained:

The regression coefficient for Green Financing (GF) is 0.3892 with a probability value of 0.2350, which exceeds the 0.05 significance threshold. This indicates that GF does not have a significant positive effect on Return on Assets (ROA). Assuming other variables remain constant, a 1% increase in GF is estimated to increase ROA by 38.92%.

The regression coefficient for Capital Adequacy Ratio (CAR) is 0.2565 with a probability value of 0.7312, which is also higher than the 0.05 significance level. This suggests that CAR does not have a significant positive effect on ROA. With other variables held constant, a 1% increase in CAR is estimated to raise ROA by 25.65%.

The regression coefficient for Non-Performing Loan (NPL) is –48.1437 with a probability value of 0.0220, which is below the 0.05 significance level. This result indicates that NPL has a significant negative effect on ROA. Specifically, a 1% increase in NPL is projected to decrease ROA by 4,814.37%, assuming other variables remain unchanged.

The regression coefficient for BOPO is –4.0693 with a probability value of 0.0000 (less than 0.05), demonstrating that BOPO has a significant negative effect

on ROA. This means that every 1-unit increase in BOPO will reduce ROA by 4.0693 points, holding other variables constant.

Indirect Effect Test

Table 5. Results of the Indirect Effect Test (Sobel Test)

Variable	t-Statistic	P-Value	Results
GF-ROA-PBV	1.102.152	0.270396	Unable to mediate
CAR-ROA-PBV	0.345173	0.729964	Unable to mediate
NPL-ROA-PBV	-1.771.901	0.076411	Unable to mediate
BOPO-ROA-PBV	-2.337.874	0.019393	Can mediate

Source: Processed Data (2025)

The test of the indirect effect of Green Financing on firm value mediated by profitability produced a probability value of 0.2704 > 0.05 and a Sobel t-statistic of 1.1022. Thus, it can be stated that profitability does not mediate the effect of Green Financing on firm value.

The test of the indirect effect of Capital Adequacy on firm value mediated by profitability yielded a probability value of 0.7300 > 0.05 and a Sobel t-statistic of 0.3452. Therefore, it can be concluded that profitability does not mediate the effect of Capital Adequacy on firm value.

The test of the indirect effect of Credit Risk on firm value through the mediating variable profitability showed a probability value of 0.0764 > 0.05 and a Sobel t-statistic of –1.7719. Based on these results, it can be concluded that profitability does not act as a mediator in the relationship between Credit Risk and firm value.

The test of the indirect effect of Efficiency on firm value mediated by profitability obtained a probability value of 0.0194 < 0.05 and a Sobel t-statistic of –2.3379. Thus, it can be stated that profitability does mediate the effect of Efficiency on firm value.

CONCLUSIONS AND RECOMMENDATIONS

Firm value and banking profitability are primarily driven by operational fundamentals, particularly credit risk management and cost efficiency, which have demonstrated a stronger influence than green financing initiatives or capital adequacy ratios. In the Indonesian banking context, the implementation of green credit remains at an early developmental stage, where its impact on profitability and firm value is not yet directly observable. Consequently, capital adequacy and green financing policies tend to function more as regulatory compliance instruments rather than as immediate value-creating mechanisms. As a result, market participants and investors continue to rely more heavily on realized financial performance reflected in financial statements when assessing firm value.

Furthermore, high credit risk and operational inefficiency convey negative signals to investors, as they directly erode profitability and weaken competitive positioning. In Indonesia, where investors have not consistently interpreted capital adequacy ratios as a strong signaling mechanism for value creation,

excessive credit risk and inefficiency are perceived as more critical determinants of future performance. Effective credit risk management and sustained operational efficiency, therefore, play a pivotal role in strengthening profitability and enhancing firm value. This finding confirms that profitability serves as the primary transmission channel through which operational efficiency translates into shareholder value, while the influence of capital strength and green credit largely depends on their strategic integration into long-term, sustainable business models.

From a managerial perspective, the findings provide strategic guidance for Indonesian commercial banks in optimizing firm value. Management should prioritize credit risk control, operational efficiency, and profitability as core value drivers, while recalibrating expectations regarding the short-term impact of green financing and capital adequacy. A dual-pathway strategy is recommended: first, leveraging profitability as a strategic conduit to transform operational efficiency into firm value; and second, developing direct value creation pathways for green financing and capital management as these instruments mature and gain stronger recognition from investors within the Indonesian market.

ADVANCED RESEARCH

The limitation of this study lies in its relatively short coverage period, which only spans from 2019 to 2023; thus, the findings may not fully capture long-term conditions in a comprehensive manner. In addition, this research relies solely on quantitative data without incorporating qualitative data, making the interpretation primarily numerical and statistical in nature, without deeper insights into perspectives, experiences, or contextual factors that are typically captured through a qualitative approach.

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REFERENCES

Ghozali, I., & Ratmono, D. (2018). Analisis Data Panel dengan EViews 10 (2nd ed.). Badan Penerbit Universitas Diponegoro. Semarang.

Hasanah, N., & Hariyono, A. (2022). Green Financing and profitability in Indonesian banks. Jurnal Ekonomi dan Keuangan Islam, 8(1), 23–35.

Kurniati, L., & Sulhan, M. (2022). Pengaruh *Green Financing* terhadap profitabilitas perbankan di Indonesia. Jurnal Manajemen Keuangan, 10(1), 45–57.

Otoritas Jasa Keuangan. (2017). Peraturan OJK No. 51/POJK.03/2017 tentang penerapan keuangan berkelanjutan bagi lembaga jasa keuangan, emiten, dan perusahaan publik. Jakarta: OJK.

Saputri, D., & Supramono, S. (2021). Profitability and firm value under external risk conditions. Jurnal Akuntansi dan Keuangan, 23(2), 88–99.

Suyitno, A. (2017). Pengaruh profitabilitas terhadap nilai perusahaan. Jurnal Ekonomi dan Bisnis, 20(1), 45–57.