



Determinants of Green Credit and Their Influence on Banking Profitability in Indonesia

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ABSTRACT

Green finance involves efforts to internalize environmental externalities and adjust risk perceptions to encourage environmentally friendly investments and reduce those that are harmful to the environment. One form of green financial support is the provision of green credit by banks. This research aims to test the effect of green credit on bank profitability, and test the effect of capital adequacy, operational efficiency, credit risk and bank size on bank profitability. This research also examines the influence of capital adequacy, operational efficiency, credit risk and bank size on green credit. The population in this study are banks operating in Indonesia with a sample of all banks that have a commitment to green credit. To test the hypothesis, use panel data regression analysis. After conducting a model test, the best model was obtained, namely the fixed effect model. The results of research using the fixed effect model show that green credit in Indonesia is not influenced by bank capital adequacy, bank operational efficiency, bank liquidity, bank credit risk, and bank size. However, green credit has a significant positive effect on bank profitability in Indonesia. Another result is capital adequacy, which has a positive effect on profitability, while operational efficiency and bank size have a significant and negative effect on profitability, while credit risk has no effect on profitability.

INTRODUCTION

Since the industrial era, ecological inequality has caused an increase in carbon dioxide (CO₂) and other Green House Gas (GHG) effects which ultimately gave rise to global environmental issues. The impact of disasters experienced by various countries, such as floods, droughts, storms, excessive global warming, deforestation and other environmental damage, motivates us to think seriously about various ways to overcome these problems. The government, business and industry actors and society in general, all have a role to play in combating environmental destruction and building a sustainable environment (Rashid & Uddin, 2019; Hanif et.al, 2020; Mengyao, 2020; Akhter et.al., 2021) . Investors are also starting to consider their share ownership in companies that have a bad image due to the environmental problems they create. Likewise, banking can also indirectly influence the consequences caused by environmental polluting companies.

Forests & Finance released data in April 2022 showing investment funds and credit distributed to 23 mining companies operating in the three largest tropical forest areas in the world. These findings show that banks and investors disbursed credit amounting to 37.7 billion USD during 2016-2021, 43% of which (16 billion USD) to companies in Southeast Asia. Then 61 billion USD in the form of shares and bonds in mining companies, 55% of which (39 billion USD) is earmarked for companies in Latin America. Interestingly, these credits were received by several mining companies located in Indonesia, and even became the largest credit recipients from 2016 to 2021, namely PT. Inalum is also owned by BUMN (Forest & Finance, 2022). Like companies in general, the banking industry is also not free from its connection with environmental problems (Trehan, 2015; Kapoor et.al., 2016). Banks can choose to lend money to clean or dirty industries. Due to their key role in providing capital to all economic sectors, banks and other financial institutions have great leverage in the transition to a greener economy (Cui et.al., 2018).

Green credit in Indonesia can be said to be a new issue in the banking industry. This is because not all banks in Indonesia have implemented and

reported the development of their green credit. Several banks have reported the amount of green credit they have through Sustainable Business Credit (KUBL) which is reported in each bank's annual sustainability report. The amount of green credit for each bank tends to increase and decrease differently. Researchers assume there are several factors that can influence the amount of green credit, such as bank size, bank capital adequacy, bank operational efficiency, bank liquidity, and the number of bad loans owned by the bank.

Implementing a green credit business in a bank will require high capital. According to Zhang (2020), this capital is spent to cover costs that must be prepared by banks to implement green credit. Banks with large capital are also assumed to have a lot of human resources and adequate technological infrastructure, so they are able to run a green credit business well. The green credit business is currently a positive trend that has received support from many parties, including the government. This will cause green credit to have quite high demand. The government can also support green credit businesses through various incentives such as tax incentives for green businesses. However, in some developing countries, the government cannot always provide support through these incentives, so banks will prepare these incentives through large bank capital (He et.al., 2019b). This capital will also be prepared by the bank to maintain the CAR ratio while the bank provides high green credit loans. Bank capital also usually shows the size of the bank's coverage. Large banks usually have large capital.

Green credit will require quite a lot of costs. These costs include the bank's expenditure on human resource training, from the managerial level to the bank's frontline employees, related to green credit (Wanting, 2020). This is because the green credit business is a new initiative, so the mechanism for implementing green credit has not been widely implemented by developing countries, including Indonesia. Apart from that, these costs are also needed to prepare adequate technological infrastructure (Yin & Matthews, 2018). Another cost required is the cost of promoting a green credit business. Many people still don't want to switch from traditional credit and other non-green businesses, so promoting green credit will help

improve the bank's reputation in the community. Ho et al. (2019) explain that high green credit can cause low financial efficiency of a bank. This is due to the high costs that a bank needs to incur for the green credit business. However, these large costs incurred did not affect the decline in bank operating profits, thereby reducing the bank's operating efficiency ratio.

Banks that implement green credit are assumed to also have to maintain their liquidity ratios to remain stable. Credit provided by banks is funds deposited by other customers (DPK) which are short term and can be withdrawn at any time by the owner. Therefore, banks need to provide sufficient funds that can be released at any time. According to Yasmin & Akhter (2021), high credit but not balanced with good liquidity will allow payment defaults to occur, thereby reducing bank profits. If this happens, it will reduce a bank's reputation which will have an impact on reducing bank returns and profitability. In contrast, Zhou et al. (2021) explains that if banks do not issue credit, banks can also lose the opportunity to gain profits from providing credit to bank customers.

However, like credit in general, green credit also has the risk of bad credit. when a loan is considered non-performing, the possibility of being repaid will be very low (Cui et.al., 2018). Credit risk in green credit businesses can occur because green businesses require a longer process than businesses in general. Banks that implement green credit are required to reduce their bad credit ratio, so that they are not burdened with the credit risk that will result from green loans. However, Al-Qudah et al. (2021) explain that green credit will reduce a bank's credit risk. Zhou (2020) added that the credit risk of a bank's green credit will depend on the size and ownership of a bank. On the other hand, banks are also required to establish a good risk management system. Banks need to carry out stricter screening regarding green loans. Good risk management will lead to effective policy implementation (Islam et.al., 2014). Ho et al. (2019) also explains that banks with good risk control have a high amount of green credit.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Green Banking

Green Banking or Sustainable Banking is a concept where banks make efforts to strengthen risk management in order to restore the natural environment, make industry green and socially responsible (Mumtaz & Smith, 2019). The definition of green banking continues to change (He et.al., 2019b), but simply put, green banking emphasizes sustainability rather than profitability. The concept of green banking first emerged in 1990 by a Dutch bank called 'Triodos Bank' when the bank established a green fund to support environmentally friendly projects (Xia et.al., 2022). Then in 2009 the first green bank was established on Mt. Dora, Florida, USA (Mumtaz & Smith, 2019). It can be said that banks that adopt the green banking concept become financial institutions that prioritize sustainability in their business practices (Hanif et.al., 2020).

Green credit is one part of the Green Banking concept (Yasmin & Akhter, 2021). Green credit policies require banks to offer green credit for environmental protection, energy conservation projects, and emission reduction, in addition to limiting loans to industries with high pollution, high emissions, and excess capacity (Choudury et.al., 2013; Zhang, 2018; Handayani et.al., 2020; Luo et.al., 2021; Al-Qudah et.al., 2022; Hu et.al., 2022; Huy & Loan, 2022). Green Credit has principles that refer to the process of environmental, social and governance (ESG) considerations when making investment decisions in the financial sector, which leads to increased long-term investment into sustainable economic activities and projects (Yuliawati et.al., 2017; He et.al., 2019b; Mumtaz & Smith, 2019; Rashid & Uddin, 2019; Nichols, 2021; Yasmin & Akhter, 2021).

Green Credit in Indonesia is known as Sustainable Business Credit, or Sustainable Business Activity Credit (Nugrahaeni & Muharam, 2023), as a real form of Indonesia's sustainable financial policy, which in this case is issued by

the OJK (Otoritas Financial Services, 2017). OJK has established criteria for sustainable business activities that can assist banks in classifying a list of customer projects or activities that are in line with sustainable financial principles. There are 12 criteria that have been set by the OJK, namely renewable energy, energy efficiency, pollution prevention & control, sustainable natural resource management, biodiversity conservation, environmentally friendly transportation, water & waste management, climate change adaptation, eco-efficient products, other sustainable activities, as well as MSME financing.

In practice, banks need several things so that green credit products can be developed well. To distribute green credit, larger capital is required (Laguir et.al., 2018; Zhang, 2018; Handajani et.al., 2019) than traditional credit distribution. Large green credit costs such as research, development, technology, maintenance, (He at.al., 2019b) taxes, credit risk costs and others must be prepared by banks (Wanting, 2020; Qi et.al., 2021). With this large capital requirement, large banks will find it easier to run a green credit business and achieve better profits (Hossain et.al., 2020; Yin et.al., 2020; Qi et.al., 2021). Meanwhile, small and medium commercial banks are limited by resources and cannot fully implement risk control mechanisms. The implementation of green credit policies depends on the structure and size of ownership of a particular bank in the context of the banking system and its institutional arrangements (Zhou, et.al, 2020). Large banks which are usually owned by the state will also find it easier to avoid credit risks (Cui et.al., 2018).

Capital adequacy and green credit

One of the challenges for banks in running green credit programs is that they require high capital costs. This will be useful for promotion costs, training and managerial costs. This research uses CAR as one of the factors influencing green banking credit in Indonesia. Capital adequacy is the main variable for banks to develop their green credit business. Green credit requires large costs such as training costs, promotional costs, and managerial costs. The higher the capital a bank has, it can be assumed that the bank can manage green credit well. There are several studies that state the relationship between green credit and CAR, including Cui et al. (2018), they find that the relationship between a bank's green loans as a proportion of its overall

loan portfolio, is highly dependent on the size and ownership structure of the country. Then Huy & Loan (2022), which explains that capital adequacy has a positive effect on green credit in banking in Vietnam. Other research that supports this includes Tu & Dung (2017), Laguir et al. (2018), Handajani et al. (2019), (He at.al., 2019b), Mengyao (2020), Wanting, (2020), Akhter et al. (2021), and Qi et al. (2021). Therefore, this research takes the hypothesis: H1: The capital adequacy ratio has a positive effect on green credit.

Operational efficiency and green credit

Green credit does require various costs such as promotions, human resource training, managerial costs. However, these costs do not necessarily reduce operational efficiency. Zhang's (2018) research states that the efficiency of a bank's operations affects its green credit, as the amount of green credit increases (Zhang, 2018). Then Song et al. (2019) explained that banks that implement green credit look like they are inefficient, but this is still at a reasonable stage (Song, et.al., 2019). Chen et al. (2022b) found that bank employees, daily operations, and green banking practices have a significant positive influence on green financing (Chen et.al., 2022b). This research is supported by research by Hu et al. (2022). There are other studies that explain the influence of bank operational efficiency on bank credit volume, such as Rezadi et al. (2023) which explains that BOPO affects the volume of sharia bank mudharabah financing in Indonesia (Rezadi et.al., 2023). Based on these studies, this research formulates the following hypothesis: H2: Bank operational efficiency has a positive effect on green credit.

Liquidity and green credit

Bank liquidity is very important in the continuity of bank operations. Banks with a high level of liquidity will have large leeway funds, so this can reduce the bank's opportunity to obtain long-term funds from third party funds. However, if it is too small, bank liquidity can also affect the bank's short-term liabilities. Therefore, banks are expected to have stable liquidity so as not to disrupt green credit distribution. In research by Yin et al. (2020) in banking in China, the loan to deposit ratio (LD) variable has a significant positive relationship with the dependent variable (CGR) at the 10% level. A high loan to deposit ratio means that banks have

a higher propensity to lend, which tends to lead to higher GCR (Yin et.al., 2020). Mengyao (2020) adds that banks that provide small-scale green credit, with low liquidity, are unlikely to achieve large-scale profits in the short term. This means that the higher the green credit and the better the bank's liquidity, the bank will gain profits (Mengyao, 2020). This research takes the following hypothesis:

H3: Bank liquidity has a positive effect on green credit.

Credit risk and green credit

Furthermore, this research tries to explore the influence of bank non-performing loans (NPL) on the bank's green credit ratio. Bad credit can arise when creditors are unable to complete their obligations to the bank. Banks must consider this credit risk when distributing funds. The greater the number of bank bad loans, the greater the decline in a bank's operating income. Green credit services usually face higher risks, low rates of return, long-term operations and other negative factors. It is assumed that banks will consider bad credit when providing green loans. There are several studies that explain the influence of credit risk on NPLs, such as Zhou et al. (2020) stated that green credit can increase the credit risk of a small bank, but this is unlikely to happen to large banks. Cui et al. (2018) added that green credit negatively affects bank bad loans. This research is also supported by Ho et al. (2019), Umar et al. (2021) which states that green credit can reduce bank credit risk (Ho et.al., 2019; Umar et.al., 2021). Therefore, banks must prepare for minimal credit risk to face greater credit risk. This research takes the following hypothesis:

H4: Credit risk has a negative effect on green credit. Capital adequacy and profitability

Furthermore, regarding capital adequacy on profitability, Zhang (2018) from his research on Chinese Banks from 2005 to 2017 explained that CAR has a positive influence on bank profitability. The better the bank's capital position, the higher the bank's financial performance (Zhang, 2018). Furthermore, Hananto & Amijaya (2021) from their research on Islamic banks in Indonesia also supports this research by explaining that the Capital Adequacy Ratio (CAR) has a positive influence on bank profitability. The CAR ratio is a proxy for the amount of funds owned by shareholders which are

managed by management and the bank. In this case, the bank is responsible for increasing shareholder value by providing good financial performance. The greater the CAR managed, the higher the bank's ROA (Hananto & Amijaya, 2021). This research formulates the following hypothesis:

H5: Bank capital adequacy has a positive effect on bank profitability.

Efficiency and profitability

Furthermore, healthy banks have good operating efficiency. Efficiency can be seen from the cost side and income side of a bank. Costs that are greater than income indicate that the bank is less efficient in its operations, and it is assumed that the bank has not achieved maximum profits. The positive correlation results from the research of Song et al. (2019) on Chinese banks shows that the management efficiency of Chinese commercial banks is at a reasonable level. Suitably increasing the management expense ratio will help improve operational efficiency and increase their ROA (Song et.al., 2019). Laguir et al. (2018) found that high financial efficiency is associated with high environmental efficiency. The results also show that financial success and environmental performance will reinforce each other, thus showing a dynamic two-way relationship (Laguir et.al., 2018). Meanwhile Anggraini et al. (2019) and Mengyao (2020) explain that bank operational efficiency has a negative effect on bank profitability. Based on the results of this research, the researcher formulated a hypothesis:

H6: Bank operational efficiency has a negative effect on bank profitability.

Liquidity and profitability

Bank liquidity can also affect bank profitability, assuming the bank channels its credit effectively. LDR is a ratio that compares the amount of funds distributed to the community (total loan) with the amount of third party funds. The high LDR at a bank indicates that the bank has quite high risk in investment, because the amount of funds it lends to the public is high. However, on the one hand, LDR can affect bank profitability. Research by Prasanto et al. (2020) from using the VECM method explains that LDR influences ROA significantly in the long term, and has no influence in the short term (Prasanto et.al., 2020). Mengyao (2020) added that the higher the green credit and the better the bank's

liquidity, the bank will gain profits (Mengyao, 2020). This research formulates the following hypothesis: H7: Bank liquidity has a positive effect on bank profitability.

Credit risk and profitability

Banks that have a high volume of green credit, but have problems, can cause the bank to lose profits and profitability. Problematic credit can be in the form of third party financing that is substandard, questionable or even experiencing problems. Problem loans can arise when banks are less than perfect in analyzing credit, there is stakeholder intervention, or other macro factors that cannot be controlled by the bank (Fatimah & Sholihah, 2023). Song et al. (2019) also explains that the NPL ratio negatively affects bank profitability (Song et.al, 2019). This research is also supported by Cui et al. (2018), Zhang (2018), and Hartiwi (2023) who also state that there is a negative correlation between NPL and bank profitability (Cui et.al., 2018; Zhang, 2018; Hartiwi, 2023). This research formulates the following hypothesis:

H8: Bank problem loans have a negative effect on bank profitability.

Green credit and profitability

The green credit business currently has a positive trend in the eyes of the Indonesian people. This is because the movement of greening in the financial sector is still not yet massive. Green credit is available and easily accessible to the public to support greening in the financial sector. It is assumed that the positive trend in recent years will influence the volume of green credit by banks, so that green credit will also affect bank profitability. Akhter et al. (2021) explained that from the results of the correlation and regression analysis of their research, there was a positive relationship from green banking financing practices to banking

financial performance in Bangladesh in 2016-2018 (Akhter et.al., 2021). Cui et al. (2018) also stated that green credit in China has a positive impact on both the environment and bank financial performance (Cui et.al., 2018). Banks with higher environmental performance tend to have higher net interest margins (profitability) (Ho et.al., 2019). Yin et al. (2020) added, banks with higher levels of profitability tend to provide more green credit to companies. These studies are supported by several other studies, including Kapoor et al. (2016), Weber (2017), Song et al. (2019), Hossain et al. (2020), Mengyao (2020), and Zhou et al. (2021). This research formulates the following hypothesis: H9: Green Credit has a positive effect on bank profitability.

RESEARCH METHODS

Population and sample

The population in this research is 46 banks registered on the Indonesian Stock Exchange (IDX). Sampling was carried out using a purposive sampling technique which aims to obtain a representative sample using data in the form of Annual Financial Reports, KUBL Reports and Commercial Bank Annual Sustainability Reports that have been audited and published throughout 2019-2022.

Research variable

In this study there are 3 types of variables, namely one dependent variable return on assets (ROA), one intervening variable namely green credit (GC), four independent variables consisting of capital adequacy ratio (CAR), operating cost to operating income ratio (EIR), loan to deposit ratio (DR), and non-performing loans (NPL), as well as one control variable, namely bank size (BSZ). Following are the measurements of each variable:

Table 1: Variables and Measurement

Variable	Symbol	Measurement
Return on Assets	ROA	Earning Before Interest and Tax/Total Asset
Green Credit	GC	Total green credit/Total credit
Capital Adequacy Ratio	CAR	Total Equity/Risk-Weighted asset
Operating Expense to Income Ratio	EIR	Operating expense/operating income
Loan to Deposit Ratio	LDR	Total Loan/Total Third Party Fund
Non-Performing Loan	NPL	Non perform loan/Total Loan
Bank Size	BSZ	Ln Total Assets

Data analysis

This research will use data analysis techniques with the Panel Data Regression Model. This is because this research has a type of panel data, namely a combination of time series data and cross-section data. There are three panel data regression equation models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To choose the best model, a chow-test will be carried out to choose between CEM and FEM, a Hausman-test to choose the best model between FEM and REM, and a Lagrang Multiplier-test. The regression equation is as follows:

$$\text{Model 1: } GCR_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 EIR_{it} + \beta_3 LDR_{it} + \beta_4 NPL_{it} + \beta_5 BSZ_{it} + \varepsilon$$

$$\text{Model 2: } ROA_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 EIR_{it} + \beta_3 LDR_{it} + \beta_4 NPL_{it} + \beta_5 BSZ_{it} + \beta_6 GCR_{it} + \varepsilon$$

RESULTS AND DISCUSSIONS

Descriptive Statistics

Based on a sample of 35 green banks with a period of 4 years, a description of the data for each variable is obtained as follows:

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	140	-14.75	4.75	1.0915	2.43152
GCR	140	0.29	65.72	20.1427	14.59081
CAR	140	9.01	106.41	27.8712	13.32095
LDR	140	29.67	220.31	84.4022	24.24513
NPL	140	0.67	22.27	3.4465	2.45619
EIR	140	46.54	287.86	89.3452	27.43219
TA	140	28.87	35.23	31.6889	1.69703
Valid N (listwise)	140				

Source: Data processed

Profitability as measured by ROA has a maximum value of 4.75% and a minimum of -14.75% with a mean of 1.09%, meaning that in general the sample banks produce sufficient profitability, although there are banks that experience quite large losses. Green credit provided by banks averages 20.14%, with a maximum of 65.72% and a minimum of 0.29%. Capital (CAR) with an average of 27.87%, bank liquidity (LDR) with an average of 84.40%, credit risk (NPL) with an average of 3.45% and operating efficiency (EIR) with an average of 89.35%.

Matrix correlation

The correlation matrix shows the correlation between variables, where the closer it is to 1, the

closer it is to the value of 1, indicating there is a correlation between the variables, and if it is close to 0, it indicates there is no correlation between the research variables. Table 3 shows that the Pearson correlation is less than 0.70, meaning there is no correlation between the research variables.

There are three models used to perform panel data regression. The three models are the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To select the best model between CEM and FEM using the Chow-test, to select the best model between FEM and REM using the Hausman-test, and to select the best model between CEM and REM using the Lagrange Multiplier (LM)-test. The model test results are in Table 4:

Table 3: Matrix Correlation

		GCR	CAR	LDR	NPL	EIR	TA
GCR	Pearson Correlation	1					
	Sig. (2-tailed)						
CAR	Pearson Correlation	.199*	1				
	Sig. (2-tailed)	.019					

		GCR	CAR	LDR	NPL	EIR	TA
LDR	Pearson Correlation	.067	.048	1			
	Sig. (2-tailed)	.434	.573				
NPL	Pearson Correlation	-.083	.081	.061	1		
	Sig. (2-tailed)	.327	.341	.473			
EIR	Pearson Correlation	-.066	.141	.033	.473**	1	
	Sig. (2-tailed)	.436	.098	.697	.000		
TA	Pearson Correlation	.017	-.476**	-.068	-.280**	-.388**	1
	Sig. (2-tailed)	.846	.000	.427	.001	.000	

*Correlation is significant at the 0.05 level (2-tailed).

Test the model

Table 4: The result of Chow-test and Hausman-test

Type of test	Summary			Best Model
Chow-test	Statistic	d.f	Prob	
	6.923524	(34,99)	0.0000	FEM
Hausman-test	Chis-Sq-statistic	Chi-Sq d.f	Prob	
	47.574524	6	0.0007	FEM

Source: Data processed

Testing the model with the Chow-test produces a probability value of $0.00 < 0.05$, thus the best model between CEM and FEM is FEM, while testing the model with the Hausman-test produces a probability value of $0.0007 < 0.05$, thus the best model is FEM. The LM-test was not carried out because the two tests above had already found the

best model, namely FEM, so if tested the results would not affect the best model.

Hypothesis test result

The results of hypothesis testing using the fixed effect model (FEM) with the dependent variables profitability and green credit are as follows:

Table 5: Hypotheses Result with Fixed Effect Model

Variable	ROA		GCR	
	t-Statistic	Prob.	t-Statistic	Prob.
GCR	2.136987	0.0351		
CAR	3.03374	0.0031	2.727199	0.0072
LDR	10.25171	0.0000	0.796431	0.4272
NPL	-0.014591	0.9884	0.796431	0.4272
EIR	-41.68475	0.0000	-0.31442	0.7537
BSZ	-3.22618	0.0017	1.117589	0.2657

Source: Data processed

Green Credit and bank profitability.

Based on the results of statistical tests, the significance value of Prob. The t test for the GCR variable is $0.0350 > 0.05$. This shows that the GCR variable has a positive and significant effect on ROA, so that the final hypothesis in this study can be accepted. These results support several previous research results such as Cui et al. (2018), Zhang (2018), Song et al. (2019), Yin et al. (2020),

and Yasmin & Akhter (2021) who explain that bank green credit has a positive effect on bank profitability. The green credit business currently has a positive trend in the eyes of the Indonesian people. This is because the movement of greening in the financial sector is still not yet massive. Green credit is available and easily accessible to the public to support greening in the financial sector. It is assumed that the positive trend in recent years will

influence the volume of green credit by banks, so that green credit will also affect bank profitability.

This research presents several findings, firstly, the amount of green credit distribution in Indonesia is still relatively small when compared to the total portfolio of bank credit distribution, where the average bank green credit distribution in Indonesia is only 20.14%. Second, the Indonesian government has classified MSME credit in the category of sustainable business credit or green credit in Indonesia. This classification of MSME credit becomes biased when the amount of green credit in banks in Indonesia is compared. The green credit ratio of banks that focus on providing MSME credit will appear very high when compared with green credit provided by other commercial banks. Third, of the 35 banks in Indonesia that issue green credit, there is no green credit originating from sharia commercial banks. This is a note for stakeholders, considering that several green credit categories have the same concept as maqashid sharia which is run by sharia commercial banks.

Capital adequacy, profitability and green credit.

The results of the capital adequacy hypothesis test (CAR) on green credit show a significance value of $0.0072 < 0.05$. Likewise, the influence of CAR on profitability shows a p-value of $0.0250 < 0.05$. This shows that the CAR variable has a positive and significant effect on both GCR and ROA, so the hypothesis in this study is accepted. These results are in accordance with several studies from Cui et al. (2018), Mengyao (2020), Wanting (2020), and Huy & Loan (2022) who explain that capital adequacy has a positive effect on green credit in banking in Vietnam. The results of this research show that to increase green credit, banks use their capital to support it. Even though green credit has greater risks, to support government programs banks still provide green credit, moreover green credit also has a positive effect on profitability.

Another result is that CAR has an effect on profitability, meaning that the amount of CAR is used by banks to support the credit provided so that it can increase bank profitability. This supports the research results of Zhang (2018), and Hananto & Amijaya (2021), who found that bank capital adequacy has a positive effect on bank profitability. CAR shows the amount of funds owned by shareholders which are managed by management

and the bank. In this case, the bank is responsible for increasing shareholder value by providing good financial performance. The greater the managed CAR, the higher the bank's ROA.

Bank liquidity, profitability and green credit.

The results of the hypothesis test on the effect of bank liquidity (LDR) on green credit show a p-value of $0.4272 > 0.05$. This shows that the LDR variable has no effect on GCR, so the hypothesis in this study is rejected. These results indicate that the large LDR is not able to increase GCR. This is possible because GCR is a relatively new product to support the government's green program, so the portion for GCR is still small. The results of this research support the research results of Yasmin & Akhter (2021) which found that LDR had no effect on green credit in banking. High bank liquidity does not guarantee a high amount of bank green credit. Even though large liquidity will result in banks having large leeway funds, and reducing the bank's opportunity to gain profits from disbursing third party funds, this has no effect on the amount of green credit issued by the bank.

Meanwhile, the effect of LDR on profitability produces a p-value of $0.0000 < 0.05$, which means that LDR has a positive and significant effect on profitability. The size of the LDR shows the amount of credit provided. The bank's main income is from credit, so the greater the LDR, the greater the profitability. These results support the research results of Mengyao (2020), which explains that bank liquidity has a positive effect on bank profitability.

Operational efficiency, profitability and green credit

The results of the hypothesis test on the effect of operational efficiency on green credit have a p-value of $0.7537 > 0.05$, which shows that EIR has no effect on GCR. This result is not in accordance with the hypothesis and contradicts the results of previous research such as Zhang (2018) and Song (2019), which found that bank operational efficiency had a positive effect on bank green credit. However, the results of this research are supported by research results from Zumarnis (2023) which explains that EIR does not have a significant effect on credit distribution in banks in Indonesia. This indicates that bank operational efficiency does not have a significant effect on the amount of green

credit disbursed by banks. Meanwhile, the effect of efficiency on profitability has a significant negative effect as indicated by a p-value of $0.000 < 0.05$. These results support the research results of Song et al. (2019), which explains that bank operational efficiency has a positive effect on bank profitability. Efficiency can be seen from the cost side and income side of a bank. Costs that are greater than income indicate that the bank is less efficient in its operations, and it is assumed that the bank has not achieved maximum profits. An appropriate increase in the management expense ratio will help improve operational efficiency and increase the bank's ROA.

Credit risk, profitability and green credit

The influence of credit risk on green credit produces a p-value of $0.4272 > 0.05$, meaning that credit risk has no effect on green credit. These results are not in accordance with the hypothesis and are not in line with the research results of Cui et al. (2018), and Zhang (2018), who found that credit risk (NPL) had a negative effect on bank green credit. However, the results of this study are supported by the results of research from Yin et al. (2020) who found that NPLs had no effect on green credit in banking. This means that the bank's credit risk does not become an obstacle in distributing green credit. Bad credit can arise when creditors are unable to complete their obligations to the bank. Green credit services usually face higher risks, low rates of return, long-term operations and other negative factors. However, from the results of this research, bad credit in banks in Indonesia does not affect the amount of green credit issued by banks.

On the other hand, the effect of credit risk on profitability has a p-value of $0.9884 > 0.05$. This shows that the NPL variable has no effect on ROA, so the eighth hypothesis in this research can be accepted. These results do not support several previous research results such as Cui et al. (2018), Zhang (2018), and Song et al. (2019) which explains that bank bad loans have a negative effect on bank profitability. However, these results support the research results of Anggraeni et al. (2019) which explains that the NPL variable does not have a negative effect on bank ROA in Indonesia. Banks that have a high volume of green credit, but have problems, can cause the bank to lose profits and profitability. Problematic credit can be in the form of third party financing that is substandard,

questionable or even experiencing problems. Problem loans can arise when banks are less than perfect in analyzing credit, there is stakeholder intervention, or other macro factors that cannot be controlled by the bank. However, from the results of this research, bank bad loans have no influence on banks in obtaining bank profitability.

CONCLUSIONS AND RECOMMENDATIONS

Green credit in Indonesia has received support from the government through the preparation of the Indonesian Sustainable Finance Roadmap as well as several regulations related to green finance and sustainable finance. It can be seen that the green credit that has been implemented by banks in Indonesia can affect bank profitability. Although this research has not shown what variables influence green credit issued by banks in Indonesia. This is because none of the variables bank capital adequacy, bank operational efficiency, bank liquidity, bank bad credit, and bank size have a significant influence on green credit in Indonesia. In contrast to the variables that influence bank profitability in Indonesia, the variables bank capital adequacy, bank operational efficiency, bank liquidity, bank size, and bank green credit have a significant influence on bank profitability. However, the bank bad credit variable does not have a significant effect on bank profitability in Indonesia.

It is hoped that the research can become a reference to support research related to sustainable finance in Indonesia. Research related to sustainable finance in Indonesia is still not widely carried out by researchers. It is hoped that this research will also support positive government policies in supporting the sustainable financial ecosystem in Indonesia and its development. Bank stakeholders can synergize with various parties such as the government & practitioners in the context of sustainable financial management strategies. Banks can also conduct various training for green credit management, expand green credit promotion, and strengthen risk management of green credit.

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