The impact of green credit distribution on bank performance and influencing factors: a case study of Indonesian banks

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ABSTRACT

This research aims to analyze the impact of green credit distribution by banks on bank performance and identify factors that can influence green credit. The study utilizes data from 46 banks in Indonesia during the 2018-2022 period, by using the panel data regression method. The findings indicate (i) that green credit does not have a significant influence on credit risk, as measured by the NPL (Non-performing Loan). The distribution of more green credit allocations does not result in a decrease in bank credit risk. Additionally, sustainable business borrowers do not exhibit better debt repayment performance compared to the non-sustainable business category; (ii) In terms of bank profitability, green credit does not impact ROE (Return on Equity) and NIM (Net Interest Margin), but it does have a negative effect on ROA (Return on Assets). Banks that allocate a significant portion of their credit distribution to green initiatives tend to experience a decline in their profits. (iii) Bank size has a positive impact on the allocation of green credit, with larger banks dedicating a greater portion to the distribution of green credit. Larger banks possess more capital and extensive networks, making them better equipped to address potential risks compared to smaller banks. (iv) Meanwhile, government ownership and good corporate governance in banks do not influence the proportion of green credit distribution. The author recommends that the government make corrections to existing green financing programs, to cultivate a green credit ecosystem in Indonesia. One concrete step that can be taken is to support government-owned banks in becoming pioneers in the distribution of green credit in Indonesia.

Introduction

The consequences of climate change, such as rising global temperatures, extreme weather events, and changing climate patterns, have spurred global efforts to address environmental challenges. The Paris Agreement, established on December 12, 2015, represents an international commitment to mitigate climate issues by controlling global warming, aiming to keep the increase in the world average temperature below 2°C from pre-industrial levels. Law of the Republic of Indonesia Number 16 of 2016 Regarding the Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change, demonstrates its dedication to supporting the Paris Agreement and fostering environmentally friendly and sustainable businesses.

Banks play a crucial role as a source of finance for sustainable industrial growth. The significant increase in green financing allocations in recent years has been notable, with large countries like the United States, China, and France leading the way, based on the report published by Michetti et al. (2023). The Indonesian Financial Services Authority, also known as Otoritas Jasa Keuangan (OJK), is progressively developing programs and regulations to promote sustainable finance. These initiatives include the Sustainable Financial Roadmap 2015-2019 in Indonesia, Sustainable Financial Roadmap Phase II (2021-2025) in Indonesia, Financial Services Authority Regulation of Indonesia Number 51/POJK.03/2017 on the Implementation of Sustainable Finance for Financial Institutions, Issuers, and Public Companies, and Indonesian Green Taxonomy Edition 1.0 - 2022. The objective of these efforts is to ensure that banks in Indonesia contribute to sustainable economic development through the distribution of green credit.

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The growing demand for green credit raises questions about its impact on bank performance and the factors influencing banks in providing green credit. Previous research, particularly in China, has delved into the relationship between bank financial performance and green credit. One study by (Zhang, 2018) found that providing green credit positively contributes to bank profitability. Another study (Cui et al., 2018) also revealed that a higher allocation to green credit can mitigate credit risk. Additional studies (Gao & Guo, 2022; Lian et al., 2022; Yin et al., 2021) have supported similar findings, highlighting the positive influence of green credit on bank performance in China. The role of government support and policy is crucial for green financing activities. However, a study in Indonesia (Andaiyani et al., 2023) has yielded different results, indicating that green credit does not have a significant impact on bank performance, particularly in terms of profitability. Therefore, further research focusing on the impact of green credit on bank financial performance in Indonesia is essential to achieve a more comprehensive and contextual understanding.

Research on the relationship between green credit and bank performance, as well as factors influencing green credit, remains limited in various countries, including Indonesia. Consequently, additional research is necessary to enrich and provide new insights or ideas regarding the influence of green credit on bank performance, especially in terms of credit risk and profitability, and to explore factors affecting the distribution of green credit by banks across different countries.

This research aims to explore the impact of green credit on bank performance and the factors influencing green credit policies in Indonesian banks. In alignment with prior research, bank performance is assessed through credit risk and profitability, distinguishing this study from those focusing solely on one aspect of bank performance. Additionally, this research aims to identify factors influencing the distribution of green credit by banks, with a particular focus on bank size, state ownership, and corporate governance. Unlike earlier studies, this research also investigates the influence of corporate governance factors on green credit distribution. In contrast to the work of Andaiyani et al. (2023), which also examined banks in Indonesia, this study employs a larger sample of banks, providing a more representative overview of the banking landscape in Indonesia. The main objective of this research is to make a substantial contribution to understanding the impact of green credit on bank performance and explaining the factors that may influence the allocation of green credit distribution by banks in Indonesia.

This paper is organized as follows: following the introduction part, a second part is a literature review with theoretical and empirical studies that shed a light on linkage between theory and practice. The third part introduces the background information on research and methodology. After analysis and findings of the study, authors provide discussions and implications. Finally, this paper concludes with key points, recommendations, future research directions and limitations.

**Literature Review**

**Theoretical and Conceptual Background**

**Bank and Bank Performance**

Banks play a crucial role in the banking industry as significant business entities. According to Law of the Republic of Indonesia Number 10 of 1998 Regarding Amendments to Law Number 7 of 1992 Regarding Banking, a bank is defined as a business entity that gathers public funds through savings and channels them back to the public in the form of credit or other financial instruments to improve people's living standards. The variety of services offered by banks depends on the unique characteristics and functions of each bank. The pivotal role of banks extends to economic activities, funding, and various other aspects.

The performance of a bank can be measured through various aspects and factors. According to Financial Services Authority Regulation of Indonesia Number 4/PJOJK.03/2016 on the Assessment of the Health Level of Commercial Banks, bank health is evaluated based on four key aspects: risk profile, good corporate governance (GCG), profitability, and capital. Furthermore, bank performance is often evaluated using asset growth as a key indicator.

The risk profile can be assessed through credit risk and liquidity risk. Credit risk in banks refers to the situation where a bank is likely to face financial losses due to the borrowing party failing to meet loan repayment obligations as agreed upon. Credit risk is commonly measured using the non-performing loan ratio calculation. Research conducted by (Cui et al., 2018; Gao & Guo, 2022; Lian et al., 2022; Yin et al., 2021; Zhou et al., 2021) utilized the non-performing loan (NPL) to evaluate the financial performance of banks based on their credit risk.

Liquidity refers to a bank's capability to fulfill its financial obligations to third parties or customers. Liquidity calculations can be based on liquidity ratios and/or loan-to-deposit ratios. Zhou et al. (2021) utilized the liquidity ratio to assess the liquidity performance of banks in China and understand its relationship with the corporate social responsibility of banks. Meanwhile, Gao & Guo (2022) employed the loan-to-deposit ratio in their research to measure bank liquidity and explore the impact of green credit on bank performance.

Good Corporate Governance (GCG) plays a crucial role in every decision and activity of a company. In Indonesia, Bank GCG assessment has been regulated in Financial Services Authority Regulation of Indonesia Number 17 of 2023 on the Implementation of Governance for Commercial Banks, which outlines five principles: transparency, accountability, responsibility, independence, and fairness, further elaborated into sixteen implementation points. These principles and indicators are analyzed and consolidated into a composite value.
Profitability is a bank's ability to generate profits. Research conducted by (Gao & Guo, 2022; Xiang & Jiang, 2023; Zhang, 2018; Zhou et al., 2021) utilized the return on assets (ROA) to measure the profitability of bank performance in their respective studies. Other research by (Yin et al., 2021; Zhou et al., 2021) employed the return on equity (ROE) as a measure of profitability to assess bank performance. Meanwhile, research conducted by (Gao & Guo, 2022; Saif-Alyousfi et al., 2021) used the net interest margin (NIM) to measure bank performance in terms of profitability.

The adequacy of capital can be calculated based on the capital adequacy ratio. Hanafi et al. (2022) employed the capital adequacy ratio to assess the resilience and performance of banks facing the crisis caused by the Covid-19 pandemic. The capital adequacy ratio measures the extent to which a bank's capital is sufficient to cover potential risks.

Zhou et al. (2021) conducted research using asset growth to measure the performance of banks in China. Asset growth is calculated by comparing the current value of assets with the value of assets in the previous year. A higher value of asset growth from the previous year can indicate that a bank has performed well in that year.

Factors that Influence Bank Performance

Research by Gafoor et al. (2018) found that board size positively influences the performance of banks in India. Baselga-Pascual & Vähämaa (2021) discovered that banks led by women in Latin America tend to have higher risks but better profitability. Research by Pradhan et al. (2023) found a positive relationship between age, the size of the board of commissioners, independent commissioners, foreign ownership, and company size with bank performance, while the number of board meetings and government ownership shows a negative relationship.

Studies by (Cui et al., 2018; Gao & Guo, 2022; Xiang & Jiang, 2023; Zhou et al., 2021), and many others have incorporated the factor of bank size in their research on bank performance. Banks can be categorized based on ownership, distinguishing between government-owned and private-owned banks. The classification of bank size in Indonesia is regulated by Financial Services Authority Regulation Number 12/PJOK.03/2021 Regarding Commercial Banks, which classifies banks based on their core capital, often referred to as KBMI (Kelompok Berdasarkan Modal Inti), an abbreviation for groups based on core capital.

A study by Lian et al. (2022) indicates that green credit enhances the performance of banks in China, particularly in terms of return on assets. Profitable large banks in China tend to provide more green credit without a significant impact on bank risks. Hanafi et al. (2022) found that Islamic banking in Indonesia remained stable during the economic crisis caused by the COVID-19 pandemic. Saif-Alyousfi et al. (2021) found that the increase in oil and gas prices directly affects the performance of banks, with a more pronounced negative impact when prices fall. Conventional banks tend to experience higher profits than Islamic banks when oil and gas prices rise. A study by Faruq et al. (2023) found that intellectual capital has a positive effect on bank performance in Bangladesh.

Phan et al. (2020) found that financial technology did not have a significant impact on banking performance in Indonesia, while research by Xiang & Jiang (2023) showed a positive impact of digitalization on the performance of banks in China, especially for banks with large interest rates revenue and a focus on customers. Dong et al. (2020) found that the adoption of Internet finance in Chinese banks contributed positively to banking profitability, security, and growth.

Research by Zhou et al. (2021) found that corporate social responsibility (CSR) activities of banks in China do not have a short-term impact on bank performance but have a positive influence in the long run. Fijalkowska et al. (2018) found that CSR activities do not affect profits in banks in Central and Eastern Europe.

Green Credit

Green credit is a form of loan provided to projects, businesses, or activities that are environmentally friendly or support sustainable economic development. Green credit plays a crucial role in promoting green economic growth. A well-established green credit ecosystem can contribute to increased green economic growth as players in the sustainable business sector find it easier to secure funding for their activities.

The Indonesian government, through its policies and programs, is actively promoting this green economic growth. Financial Services Authority Regulation of Indonesia Number 51/PJOK.03/2017 on the Implementation of Sustainable Finance for Financial Institutions, Issuers, and Public Companies mandates these entities to adopt sustainable financial practices, including channeling green credit to the sustainable business sector, thereby encouraging sustainable economic development. Financial Services Authority of Indonesia has also formulated a sustainable financial roadmap, Sustainable Financial Roadmap 2015-2019 and Sustainable Financial Roadmap Phase II (2021-2025), to serve as a guide for developing a sustainable financial system in support of a sustainable economy.

Financial Services Authority of Indonesia has established a category for sustainable business activities to assist and facilitate financial institutions, banks, and similar entities in the distribution of green credit. The categories of sustainable businesses eligible for green credit disbursement include those involved in renewable energy, energy efficiency, pollution prevention and control, sustainable natural resources and land use, terrestrial and aquatic biodiversity conservation, sustainable transportation, sustainable water and
wastewater management, climate change adaptation, eco-efficient products, green building, other environmentally friendly business activities, and micro, small, and medium enterprises (MSMEs).

In 2022, Financial Services Authority of Indonesia published a green taxonomy that includes a list of classifications for sustainable business activities, providing a more detailed explanation of green sectors eligible for green credit. This publication also incorporates a classification within the green taxonomy, comprising 'green,' indicating that the activity meets the green criteria; 'yellow,' indicating that it meets several green criteria; and 'red,' indicating that it does not meet the green criteria. These initiatives underscore the government's commitment to encouraging financial service providers to streamline the green credit distribution process in Indonesia.

Empirical Review and Hypothesis Development

Green Credit and Bank Performance

Recent research has sought to examine the impact of green credit on bank performance. The referenced studies predominantly focus on banks in China. The following are several studies that have explored the influence of green credit on bank performance:

<table>
<thead>
<tr>
<th>Author</th>
<th>Subject</th>
<th>Bank Performance Measures</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cui et al.</td>
<td>Banks in China, 2009-2015.</td>
<td>Credit Risk (NPL)</td>
<td>Allocating a larger share of the total loan portfolio to green credit has led to a reduction in the non-performing loan (NPL) of the bank.</td>
</tr>
<tr>
<td>Yin et al.</td>
<td>Banks in China, 2011-2018.</td>
<td>Profitability (ROE), Credit Risk (NPL)</td>
<td>Large and profitable banks are more active in providing green credit. Bank risk does not have a significant impact on the proportion of green credit provided. State-owned banks have offered more green loans due to government policies and support. Green credit has a significant influence on bank profitability and credit risk. Green loans increase the profitability of non-state-owned banks and reduce their risk level, whereas state-owned banks provide green loans at the expense of their profitability.</td>
</tr>
<tr>
<td>Lian et al.</td>
<td>Banks in China, 2017-2018.</td>
<td>Profitability (ROA &amp; NIM)</td>
<td>Green credit had a significant positive impact on the financial performance of commercial banks, particularly at the level of the bank's return on interest-bearing assets. The growth of the green economy and government support had a more pronounced positive implication for the bank's performance.</td>
</tr>
<tr>
<td>Gao &amp; Guo</td>
<td>Banks in China, 2013-2020.</td>
<td>Profitability (ln PROFIT), Credit Risk (NPL)</td>
<td>The implementation of green credit policies has boosted the profits of commercial banks. These policies contribute to the profitability of commercial banks by increasing non-interest income and reducing the non-performing loan ratio. However, green credit policies do not enhance profitability by reducing the cost-to-income ratio. Furthermore, the implementation of green credit policies significantly increases the profits of banks with low non-performing loan ratios compared to banks with high non-performing credit ratios. Urban and rural commercial banks experienced a more substantial increase in profits after implementing environmentally friendly credit policies compared to large national banks.</td>
</tr>
<tr>
<td>Andaiyani et al. (2023)</td>
<td>Banks in Indonesia, 2015-2021.</td>
<td>Profitability (ROA)</td>
<td>Green credit did not have a significant impact on the bank's performance, given that the amount of green credit in the studied bank was relatively small compared to the overall credit portfolio.</td>
</tr>
</tbody>
</table>

Hypothesis Development

Research by (Cui et al., 2018; Gao & Guo, 2022; Yin et al., 2021) found that providing green credit by banks can influence bank credit risk by reducing the risk level. The greater the proportion of green credit issued by a bank, the lower the bank's credit risk.

Hypothesis 1: Green credit has a negative effect on bank credit risk.

Research by (Gao & Guo, 2022; Lian et al., 2022; Yin et al., 2021; Zhang, 2018) found that providing green credit can increase bank profitability. The greater the proportion of green credit provided by a bank, the bank tends to have a higher level of profitability.
Hypothesis 2: Green credit has a positive effect on bank profitability.

The study conducted by Yin et al. (2021) revealed that larger banks tend to be more active in disbursing green credit. Shang & Niu (2023) also found that the growth of green credit due to digitalization has a more significant impact on larger banks compared to smaller ones. Larger banks typically have more capital, access to information, and a broader network, making them better equipped to handle the risks associated with green financing.

Hypothesis 3: The size of the bank has a positive effect on green credit.

Research conducted by Yin et al. (2021) found that state-owned banks tend to provide more green credit compared to non-state-owned banks. Shang & Niu (2023) also emphasize that the growth of green credit due to digitalization has a more significant impact on state-owned banks. State-owned banks usually receive support and encouragement from the government to channel green credit to sustainable businesses, making these banks more likely to issue more green credit than non-government-owned banks.

Hypothesis 4: Government ownership of banks has a positive effect on green credit.

Good Corporate Governance indicates that a company is managed and controlled well, transparently, ethically, and responsibly. Financial Services Authority Regulation of Indonesia Number 17 of 2023 on the Implementation of Governance for Commercial Banks explains that banks must implement sustainable finance, including the implementation of social and environmental responsibility. Banks with good corporate governance should have a tendency or commitment to carry out more green credit.

Hypothesis 5: Good corporate governance has a positive effect on green credit.

**Research and Methodology**

This research utilizes a sample of forty-six commercial banks that represent banking activities in Indonesia during the 2018-2022 period. The researchers collected data from the annual reports of each bank obtained from the bank’s website. The research employs a panel data regression analysis method to test the influence of research variables. Model selection tests (Chow, Hausman, Lagrange multiplier) are conducted to determine the best model for testing the hypothesis through regression, considering fixed effect, common effect, or random effect models. Subsequently, the researchers perform classical assumption tests by the requirements of the selected model. Finally, hypothesis testing is conducted to conclude the research hypothesis. The research utilizes variables that represent each aspect studied to address the hypothesis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>Description</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Risk</td>
<td>Non-performing Loan</td>
<td>Comparing the total amount of non-performing loans to the total outstanding loans.</td>
<td>NPL</td>
</tr>
<tr>
<td>Profitability</td>
<td>Return on Assets</td>
<td>Calculated by dividing the bank's net income by its average total assets.</td>
<td>ROA</td>
</tr>
<tr>
<td></td>
<td>Return on Equity</td>
<td>Calculated by dividing the net income by the equity.</td>
<td>ROE</td>
</tr>
<tr>
<td></td>
<td>Net Interest Margin</td>
<td>Calculated by dividing the net interest income by the average interest-earning assets</td>
<td>NIM</td>
</tr>
<tr>
<td>Green Credit</td>
<td>Green Credit Proportion</td>
<td>Calculated by dividing the total green credit by the total financial credit distributed.</td>
<td>GC</td>
</tr>
<tr>
<td>Bank Ownership</td>
<td>Type of Bank Ownership</td>
<td>Categories of state-owned commercial banks or non-state-owned commercial banks.</td>
<td>BUMN</td>
</tr>
<tr>
<td>Bank Size</td>
<td>Bank size categories based on core capital</td>
<td>Assessment based on core bank capital groups regulated by Financial Services Authority of Indonesia.</td>
<td>KBMI</td>
</tr>
<tr>
<td>Good Corporate Governance</td>
<td>Good corporate governance composite rating</td>
<td>Assessment based on good corporate governance composite Financial Services Authority of Indonesia.</td>
<td>GCG</td>
</tr>
</tbody>
</table>

The research employs five regression models to test the hypothesis.

\[
NPL_{it} = \alpha + \beta_1 GCG_{it} + \beta_2 KBMI_{it} + \beta_3 GCG_{it} + \epsilon_{it} \quad (1)
\]

\[
ROA_{it} = \alpha + \beta_1 GCG_{it} + \beta_2 KBMI_{it} + \beta_3 GCG_{it} + \epsilon_{it} \quad (2)
\]

\[
ROE_{it} = \alpha + \beta_1 GCG_{it} + \beta_2 KBMI_{it} + \beta_3 GCG_{it} + \epsilon_{it} \quad (3)
\]

\[
NIM_{it} = \alpha + \beta_1 GCG_{it} + \beta_2 KBMI_{it} + \beta_3 GCG_{it} + \epsilon_{it} \quad (4)
\]

\[
GCG_{it} = \alpha + \beta_1 KBMI_{it} + \beta_2 BUMN_{it} + \beta_3 GCG_{it} + \epsilon_{it} \quad (5)
\]
Findings and Discussions

Descriptive Statistical Analysis

The descriptive statistical analysis in this study aims to provide a concise overview of the collected data, highlighting general patterns, central tendencies, and variations in the observed variables.

Table 3: Descriptive Statistical Analysis of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC</td>
<td>230</td>
<td>0.1637</td>
<td>0.1565</td>
<td>0.000</td>
<td>0.933</td>
</tr>
<tr>
<td>NPL</td>
<td>230</td>
<td>0.032</td>
<td>0.2501</td>
<td>0.000</td>
<td>0.222</td>
</tr>
<tr>
<td>ROA</td>
<td>230</td>
<td>0.005</td>
<td>0.3156</td>
<td>-0.158</td>
<td>0.111</td>
</tr>
<tr>
<td>ROE</td>
<td>230</td>
<td>0.024</td>
<td>0.1682</td>
<td>-0.954</td>
<td>0.244</td>
</tr>
<tr>
<td>NIM</td>
<td>230</td>
<td>0.048</td>
<td>0.0295</td>
<td>-0.035</td>
<td>0.193</td>
</tr>
<tr>
<td>KBMI</td>
<td>230</td>
<td>1.756</td>
<td>1.0414</td>
<td>1.000</td>
<td>4.000</td>
</tr>
<tr>
<td>BUMN</td>
<td>230</td>
<td>0.195</td>
<td>0.3976</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>GCG</td>
<td>230</td>
<td>2.900</td>
<td>0.4418</td>
<td>1.000</td>
<td>4.000</td>
</tr>
</tbody>
</table>

The value of Obs. 230 is derived from a sample and the overall population of the study, encompassing a total of 46 banks throughout 2018-2022. The average GC is 0.16, with a standard deviation of 0.16. The minimum and maximum values indicate a significant variation in the proportion of green credit across observations, ranging from 0 to 0.93. The average NPL is 0.03, with a standard deviation of 0.03. Despite a sizable variation, the minimum and maximum values indicate significant diversity in the asset return rates among observations. The average ROA is 0.01, with a standard deviation of 0.03. Despite a sizable variation, the minimum and maximum values indicate significant diversity in the equity return rates among observations. The average ROE is 0.02, with a standard deviation of 0.17. The high standard deviation reflects significant variation in the equity return rates among observations, with values ranging from -0.95 to 0.24. The average NIM is 0.05, with a standard deviation of 0.03. The relatively small variation suggests consistency in the bank's ability to generate profits from interest spreads, with limited minimum and maximum values between -0.04 and 0.19. The average KBMI is 1.76, with a standard deviation of 1.04. Moderate variation indicates limited diversity in the size of bank-based core capital group levels among observations, with minimum and maximum values ranging from 1 to 4. The BUMN has an average of 0.20, with a standard deviation of 0.40. The relatively high variation indicates significant differences in government ownership of banks, with minimum and maximum values ranging from 0 to 1. The average GCG score is 2.90, with a standard deviation of 0.44. The relatively low standard deviation indicates good consistency in the implementation of corporate governance practices, with minimum and maximum values ranging from 1 to 4.

Hypothesis Test Results

Widarjono (2009) explained that there are three tests for choosing a panel data model selection technique: the Chow test, the Hausman test, and the Lagrange multiplier test. These tests help select the best model among common effect, random effect, and fixed effect.

Table 4: Model Selection Test Results.

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Regression</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow</td>
<td>Prob.</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Analysis</td>
<td>&lt; 0.05</td>
<td>&lt; 0.05</td>
<td>&lt; 0.05</td>
<td>&lt; 0.05</td>
<td>-</td>
</tr>
<tr>
<td>Hausman</td>
<td>Prob.</td>
<td>0.458</td>
<td>0.075</td>
<td>0.609</td>
<td>0.035</td>
<td>0.993</td>
</tr>
<tr>
<td></td>
<td>Analysis</td>
<td>&gt; 0.05</td>
<td>&gt; 0.05</td>
<td>&gt; 0.05</td>
<td>&lt; 0.05</td>
<td>&gt; 0.05</td>
</tr>
<tr>
<td>Lagrange Multiplier</td>
<td>Prob.</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>-</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Analysis</td>
<td>&lt; 0.05</td>
<td>&lt; 0.05</td>
<td>&lt; 0.05</td>
<td>-</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Selected Model</td>
<td>random effect</td>
<td>random effect</td>
<td>random effect</td>
<td>fixed effect</td>
<td>random effect</td>
<td></td>
</tr>
</tbody>
</table>

The classical assumption test is conducted based on the results of the selected model. Regression (1), (2), (3), and (5) need to undergo normality and multicollinearity tests, while regression (4) requires heteroscedasticity and multicollinearity tests. LaMorte (2016) explains that, according to the central limit theory, the data will approach normality if the research sample is large and random (n >
30). Based on this, the research data is considered normal because it uses a random and large sample (n > 30). In the Glejser heteroscedasticity test, all significance values were found to be more than 0.05 (GC=0.350; KBMI=0.592; GCG=0.866), indicating that no heteroscedasticity occurred. In the multicollinearity test for regression (1), (2), (3), (4), all variable correlation coefficient values are less than 0.8 (GC and KBMI=0.326; GC and GCG=0.262; KBMI and GCG=0.412), indicating no multicollinearity. In the multicollinearity test for regression (4), all correlation coefficient values are less than 0.8 (KBMI and BUMN=0.326, KBMI and GCG = 0.412, BUMN and GCG = -0.419), indicating no multicollinearity.

### Table 5: Results of Research Hypothesis Tests.

<table>
<thead>
<tr>
<th>Variable</th>
<th>NPL</th>
<th>ROA</th>
<th>ROE</th>
<th>NIM</th>
<th>GC</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.079</td>
<td>0.000</td>
<td>0.012</td>
<td>0.427</td>
<td>0.151</td>
</tr>
<tr>
<td>GC</td>
<td>-0.001</td>
<td>0.956</td>
<td>-0.044</td>
<td>0.003</td>
<td>-0.068</td>
</tr>
<tr>
<td>KBMI</td>
<td>-0.001</td>
<td>0.808</td>
<td>0.013</td>
<td>0.000</td>
<td>0.065</td>
</tr>
<tr>
<td>GCG</td>
<td>-0.016</td>
<td>0.000</td>
<td>0.001</td>
<td>0.854</td>
<td>0.026</td>
</tr>
<tr>
<td>BUMN</td>
<td>-0.036</td>
<td>0.439</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Discussion

#### The Influence of Green Credit on Bank Credit Risk

The results of the hypothesis test on the influence of green credit (GC) on credit risk, represented by non-performing loans (NPL), show a significance value of 0.956 (0.9557 > 0.05). This implies that the proportion of green credit does not have a significant effect on non-performing loans. This finding differs from previous research (Cui et al., 2018; Gao & Guo, 2022; Yin et al., 2021), which, using samples from banks in China, found that green credit influences bank credit risk, resulting in lower credit risk. Whether banks in Indonesia distribute green credit on a large or small scale, the impact on non-performing loans (NPL) or bank credit risk is insignificant. Therefore, the first hypothesis of this research is rejected because the test results in this research indicate that the proportion of green credit does not affect credit risk (Non-performing Loans).

#### The Influence of Green Credit on Bank Profitability

The results of the hypothesis test on the influence of green credit (GC) on bank profitability (ROA, ROE, NIM) indicate that green credit (GC) negatively affects ROA, while it has no significant impact on ROE and NIM. This conclusion is drawn from the hypothesis testing results, which show that the significance value of the independent variable GC on the dependent variable ROA is 0.003, indicating statistical significance (0.003 < 0.05) with a negative coefficient (-). On the other hand, the significance value of the variable GC on ROE is 0.374 (0.374 > 0.05), and the significance value of GC on NIM is 0.855 (0.855 > 0.05). These findings differ from previous research (Gao & Guo, 2022; Lian et al., 2022; Yin et al., 2021; Zhang, 2018), which, based on a population and sample of banks in China, found a positive effect of green credit on bank profitability.

This finding contrasts with the research conducted by Andaiyani et al. (2023), using a population and sample of various banks in Indonesia, which found that green credit has no impact on bank profitability in terms of return on assets. In this research, which includes a larger number of banks in Indonesia, we found that green credit indeed affects return on assets but in a negative manner. The study reveals that as banks in Indonesia increase their distribution of green credit, it leads to a decrease in their return on assets ratio. However, whether banks distribute large or small portions of green financing, green credit does not affect the return on equity and net interest margin of banks in Indonesia. Therefore, the second hypothesis in this study is rejected as the results do not demonstrate a positive effect of green credit on profitability.

#### The Influence of Bank Size on Green Credit

The results of the hypothesis test regarding the influence of bank size on the proportion of green credit (GC) reveal a significance value of 0.008 (0.008 < 0.05), with the coefficient indicating a positive number (+). This implies that bank size, based on core capital, has a positive effect on the allocation of green credit. These findings align with prior research Yin et al. (2021) conducted on a population and sample of banks in China, which indicated that larger banks are more active in providing green credit. In Indonesia, banks with substantial core capital tend to distribute a larger share of green credit. The analysis suggests that the larger the core capital of a bank, the greater the portion of green financing it distributes, and vice versa. Therefore, we conclude that the third hypothesis is accepted, as the analysis results demonstrate a positive effect of bank size on green credit.
The Influence of Government Ownership on Green Credit

The results of the hypothesis test on government ownership (BUMN) and its impact on green credit (GC) distribution by banks reveal a significance value of 0.439 (0.439 > 0.05), indicating that government ownership does not influence the allocation of green credit. These findings diverge from the research conducted by Yin et al. (2021) on a population and sample of banks in China, which found that state-owned banks tend to be more actively involved in substantial green lending activities. The Chinese government is dedicated to leading in green financing to support the green economy through state-owned banks. In contrast, this research indicates that banks in Indonesia, whether predominantly owned by the government or privately owned, do not exhibit a preference for distributing more green credit. Both government-owned and private banks show no significant differences. Therefore, the fourth hypothesis in this research is rejected as the results do not support the hypothesis that government ownership has a positive effect on the green credit distributed by banks.

The Influence of Corporate Governance on Green Credit

The results of the hypothesis test on the influence of good corporate governance (GCG) on the allocation of green credit (GC) reveal a significance value of 0.089 (0.089 > 0.05). This indicates that good corporate governance does not have a significant impact on the distribution of green credit. Financial Services Authority Regulation of Indonesia Number 17 of 2023 on the Implementation of Governance for Commercial Banks, which outlines the implementation of governance for commercial banks and emphasizes the need for sustainable finance, is considered a positive step towards increasing green credit distribution. However, the findings of this research suggest that, currently, banks with good governance do not tend to distribute green credit in larger proportions compared to those with standard corporate governance practices. Therefore, the fifth hypothesis in this research is rejected, as the results do not support the notion that good corporate governance has a positive effect on the distribution of green financing by banks.

Conclusions

Based on the results of an analysis of forty-six banks in Indonesia during the 2018-2022 period, this research concludes several points:

i. The size of a bank has a positive impact on green credit allocation. In Indonesia, large banks, determined by their core capital, tend to dedicate a more substantial share to green credit. As banks increase in size, so does the allocation of green credit. Government ownership of banks does not influence green credit allocation. State-owned banks do not exhibit a preference for distributing more green credit compared to privately owned banks. In Indonesia, both state-owned and private banks do not demonstrate significant differences in the allocation of green credit. Good Corporate Governance in Indonesian banks does not impact the proportion of green credit distribution. The implementation of good corporate governance does not necessarily lead banks in Indonesia to allocate a larger share of green credit. This research concludes that one of the factors influencing the allocation of green credit is the size of the bank, while government ownership of the bank and corporate governance do not have an impact.

ii. Green credit doesn’t seem to significantly impact the credit risk for banks in Indonesia. Whether banks allocate a large or small portion to green credit, there’s no notable difference in their performance regarding credit risk, specifically in terms of non-performing loans. In terms of banking profitability, green credit exhibits a negative impact on the return on assets ratio, although it does not significantly affect the return on equity ratio and net interest margin. The increase in the proportion of financing allocated to green credit correlates with a decrease in the return on assets ratio. This study concludes that the allocation of green credit does not affect the credit risk of banks, as indicated by NPL (Non-performing Loans), and in relation to bank profitability, green credit does not impact ROE (Return on Equity) and NIM (Net Interest Margin), but it does have a negative effect on ROA (Return on Assets).

The authors recommend that the government make corrections to existing green financing programs, to cultivate a green credit ecosystem in Indonesia. One concrete step that can be taken is to support government-owned banks in becoming pioneers in the distribution of green credit in Indonesia. This research does not delve into the specific reasons for the variations in the impact of green credit distribution on performance observed between banks in Indonesia and banks in China. The author suggests an increase in research related to green credit and bank performance to provide a comprehensive understanding of the issue. Such research can serve as a valuable reference for establishing a robust green credit ecosystem aimed at fostering a green economy.

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Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.
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