The Impact of Green Credit, Green CSR, and Digital Financial Inclusion on Profitability in ASEAN Banks

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ABSTRACT

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| **Aims:** This study aims to (1) examine the positive effect of green credit on bank performance; (2) examine the positive effect of green corporate social responsibility (green CSR) on bank performance; (3) examine the negative effect of digital financial inclusion on bank performance.  **Study design:** This is a quantitative study analyzed using EViews software.  **Place and Duration of Study:** The study uses panel data covering the period from 2019 to 2022 in the ASEAN 5 region  **Methodology:** The data used are secondary data obtained from sustainability financial reports. The sampling technique employed is purposive random sampling, with a total sample of 24 banks.  **Results:** The findings of this study indicate that (1) Green credit has a significant positive effect on profitability; (2) Green CSR does not have a significant effect on profitability; (3) Digital financial inclusion (DFI) does not have a negative effect on profitability, but instead has a positive influence on profitability.  **Conclusion:** The findings suggest that green credit initially has a positive influence on bank performance, indicating that it has the potential to enhance bank profitability when strategically implemented to support sustainable activities |

*Keywords: Green Credit, Green CSR, Digital Financial Inclusion, Profitability*

1. INTRODUCTION

The World Meteorological Organization WMO (2025) revealed that the rise in global temperatures from 1850 to 2024 is due to the growth of industrial activity, which has led to an average annual global temperature increase of 1.55°C. The United Nations Climate Change Conference in Glasgow highlighted green finance as a major issue, specifically the mobilization and use of funds to support environmentally friendly projects with reasonable returns, in order to promote sustainable business practices and achieve the Sustainable Development Goals (SDGs) aligned with Environmental, Social, and Governance (ESG) principles (Fu, Lu, & Pirabi, 2024). The SDGs and the Paris Agreement on climate change have placed the banking sector at the center of the discussion, calling for the adoption of sustainable banking practices (Riegler, 2023).

Environmental, Social, and Governance (ESG) practices have been implemented across ASEAN, marked by the establishment of ESG-related regulations and policies aimed at promoting green economic growth through increased green investment, clean energy, and sustainable development. These efforts have significantly improved ESG practices in ASEAN’s industrial sectors (Phan, 2024). However, sustainable banking in ASEAN faces challenges in harmonizing policies among member countries. As a region experiencing rapid economic growth, ASEAN is under pressure to implement sustainable business practices to remain competitive in the global market while minimizing negative environmental impacts. In Indonesia, sustainable banking practices are outlined in Financial Services Authority Regulation No. 51/POJK.03/2017 concerning the implementation of sustainable finance for financial institutions, issuers, and public companies. The banking sector plays a leading role in the global market and holds a key position in driving sustainable development (Mia, Rahman, Alom, Ahmed, & Longpichai, 2022). According to Kumar, (2022) banks play an essential role in directly interacting with customers in managing assets, investment planning, and business behavior. Banks can also engage external stakeholders, such as customers, to adopt sustainability principles in their sectors through financial products specifically designed to support green initiatives (EC, 2022). This study focuses on three aspects of sustainable banking initiatives: green credit, green CSR, and digital financial inclusion.

Green credit refers to banking financial products used to fund environmentally friendly projects. In Indonesia, sustainable finance is regulated by the government through OJK Regulation No. 60/POJK.04/2017 on the issuance and requirements for environmentally oriented debt securities. The practice of sustainable credit presents challenges for some banks due to high initial costs. However, OJK provides incentives for banks that adopt sustainable credit practices, such as tax relief or access to additional funding. Sustainable credit practices align with stakeholder responsibility by enhancing reputation and stakeholder trust, especially among environmentally conscious investors and the public, while also reducing legal risks. In line with Xi et al.,( 2022), sustainable business practices can create long-term value for companies, which in turn positively impacts financial performance. Additionally, banks implementing sustainable credit practices gain legitimacy from both society and regulators by supporting environmentally friendly and sustainable projects, demonstrating that banks aim not only for profit but also for positive environmental contributions, thereby improving their reputation. According to Fitri et al.,(2023), a bank’s improving reputation is often reflected in its stock market valuation.

Green Corporate Social Responsibility (CSR) represents a company’s ethical commitment to contribute to economic development while improving the quality of life for employees, local communities, and society at large. In Indonesia, sustainable CSR implementation is regulated by Law No. 40 of 2007 and Government Regulation No. 47 of 2012, which require companies to allocate a portion of profits to sustainability programs and report them annually. Sustainable CSR may reduce company profits (Wrespatiningsih & Mahyuni, 2022). However, according to (Zahra, Ayub, & Abdullah, 2022), sustainable CSR can be a key success factor for banks in becoming more competitive in the business world, while also encouraging environmentally responsible behavior among human resources. It also enhances the bank's long-term reputation, which can influence investment valuation and stock price performance.

Digital financial inclusion serves as a technology-based banking service that promotes greater efficiency and effectiveness, aligning with the goals of the Sustainable Development Goals. Consistent with the findings of Malik & Singh (2022) and Kuntsman et al (2022), the use of digital technology services can reduce paper waste and transportation usage. Digital financial inclusion in Indonesia is formally regulated under OJK Regulation No. 12/POJK.03/2018, which has been updated through POJK No. 21/2023 concerning digital banking services adapted to technological developments. Digital services can increase the number of accounts, which in turn leads to a rise in lending and overall profitability, thus strengthening bank stability (Nguyen & Du, 2022). A greater number of accounts increases bank revenue through service fees. In addition to improving profits, it enhances customer satisfaction, which ultimately strengthens the bank’s position and supports stock price growth. The combination of these sustainable business aspects presents an interesting topic for research, particularly in understanding their impact on bank performance.

2. material

**Green credit**

Green credit is a financial product in the form of green financing that supports environmentally friendly projects, aiming not only to generate profits but also to provide positive impacts on the environment and society (Hinton, 2022). This type of credit is provided based on ESG (Environmental, Social, and Governance) principles and has a significant impact on bank performance. According to Ozparlak (2022), green credit with low interest rates can promote the development of environmentally friendly projects, while Y. Lian et al. (2022) noted that interest income from green credit enhances broader credit development, thereby supporting bank performance. Interest income, as the main source of bank revenue, also contributes significantly to financial performance (Buchory, 2020). Moreover, sustainable credit serves as a business strategy that attracts investors, ultimately increasing firm value. Research on green credit has shown an effect on profitability as a variable of bank performance. Danye (2020)found that a higher green credit ratio improves Return on Assets (ROA). Y. Lian et al. (2022) also found that green credit significantly enhances bank financial performance, particularly through increased ROA. Zhang (2018) reported a positive impact of green credit on financial performance, especially ROA. G. Zhou et al. (2021) showed a positive effect of green credit on both ROA and Return on Equity (ROE). Astari et al., (2023) found that the green accounting index significantly influences Tobin’s Q. Yasmin & Akhter (2021) discovered that green credit, measured through the Green Credit to Total Loan (GCTL) and Green Credit to Total Asset (GCTA) ratios, has a significant positive relationship with profitability (ROE) and financial stability (Z-score) in Bangladesh. Julia & Kassim (2016) demonstrated that green financing has a significant positive relationship with ROA, Return on Deposit (ROD), and Asset Utilization (AU). Overall, previous research indicates that green credit has the potential to support profitability. Therefore, the hypothesis of this study is as follows:

H1: Green credit has a positive effect on Profitability.

**Green Corporate Social Responsibility (Green CSR)**

Green Corporate Social Responsibility (Green CSR) that is carried out sustainably and consistently has a positive impact on bank performance. In the long term, CSR enhances the bank’s reputation and image, which increases customer and employee satisfaction and attracts investors. However, in the short term, green CSR may reduce profits due to high initial costs. According to Hossain et al. (2020), the high cost of CSR can improve risk management performance by prompting strategies to enhance the bank's financial performance. Research on green CSR shows a positive impact on bank performance. For example, Tran et al.(2022) found that CSR positively influences bank performance. Hossain et al. (2020) found that green banking practices in Bangladesh have a positive effect on ROA and ROE, with improved credibility and reputation being the main factors. Mamun & Rana, (2020) revealed that green CSR significantly enhances the profitability of commercial banks in Bangladesh, while Islam & Faruquee, (2022) noted that green banking investments through CSR have a positive impact on EPS, particularly when the Climate Risk Fund (CRF) is used to support environmental policies. Wu & Shen (2013) found that CSR has a positive relationship with firm performance as measured by ROA and ROE. On the other hand, Li et al.(2024) showed that the impact of CSR is non-linear, with significant benefits at the early stages of implementation but diminishing returns beyond a certain point. According to Fitri et al (2023), CSR has a positive effect on firm value. Overall, CSR is part of green banking practices that tend to enhance profitability and financial stability through improved reputation and credibility. Therefore, the hypothesis of this study is as follows:

H2: Green CSR has a positive effect on Profitability.

**Digital financial inclusion**

Digital financial inclusion provides positive benefits to bank performance by enabling faster, more efficient services and enhancing the bank’s reputation (Fivi Anggraini, 2020). A strong reputation serves as a positive signal that digitalization supports operational efficiency and the sustainability of banking services (Coryanata, Ramli, Puspita, & Halimatusyadiah, 2023). Isa-olatinwo et al. (2022) further note that digital banking helps improve bank performance by reducing the risk of loss and contributing to rising stock prices. According to Bellakhal & Mouelhi, (2023), well-established banks that adopt advanced technologies tend to achieve higher profitability and market valuations. This is supported by D. Zhou et al. (2021), who state that established banks more easily comply with government policies in adopting advanced technologies, thereby gaining strong legitimacy. This legitimacy sends a positive signal to customers regarding the bank’s ability to manage its business effectively, which enhances image, customer loyalty, and ultimately has a positive impact on financial performance. However, implementing digital financial inclusion often requires substantial initial investment, even though it improves operational efficiency and expands service reach. Still, these benefits may not be sufficient to directly enhance bank performance. According to the studies by Coryanata et al. (2023) dan D. Zhou et al (2021), the adoption of digital technology has a significantly negative effect on Return on Assets (ROA), indicating challenges in optimizing digitalization. Both studies highlight that digitalization may have adverse effects if not supported by appropriate complementary strategies, such as entrepreneurial orientation or effective asset management. Based on the differing findings from these two studies, which contrast with most of the existing literature, this research seeks to explore the issue further. Therefore, the hypothesis of this study is as follows:

H3: Digital financial inclusion has a negative effect on Profitability.

3. methodology

This study uses a population of 86 publicly listed banks registered on the stock exchanges in the ASEAN-5 countries. The population is defined as a collection of elements or units of analysis that share similar characteristics (Herlina & Wilujeng, 2025). The research sample consists of 24 banks, selected based on the availability of complete data relevant to the research variables. The sampling technique used is non-probability sampling with a purposive random sampling approach, which refers to the selection of samples based on specific criteria relevant to the research objectives (Britannia & Leon, 2020). Data collection was conducted through secondary data analysis, using annual financial reports and sustainability reports of the selected banks (Herlina, Rachmad, & Sasongko, 2024). The dependent variable is profitability, measured using Return on Assets (ROA), a financial ratio that assesses how effectively a bank utilizes its assets to generate profits. This study uses panel data; therefore, the data analysis technique is conducted using the EViews program. This research is causal in nature, thus requiring the selection of the best model, F-test, and t-test (Fernandes Andry, Herlina, & Marcellus Susanto, 2023).

The independent variables represent aspects of sustainable business, which include: (1) Green Credit (GC): Environmentally friendly credit, such as financing for projects related to water resource management, the environment, and public facilities. It is measured using the total green credit disbursed in a year; (2) Green Corporate Social Responsibility (GCSR): An indicator of sustainable business, referring to investments in community-based programs or charitable contributions made by the bank to society; (3) Digital Financial Inclusion (DFI): The extent to which the bank integrates digital technologies to expand financial access and efficiency. Measurement of Research Variables:

**Table 1.Measurement**

| **Variable** | **Measurement** | **Source** |
| --- | --- | --- |
| Return on Assets (ROA) | (Net Income) / (Total Assets) | (Tran et al., 2022) |
| Green Credit (GC) | (Green Credit) / (Total Credit) | (Danye, 2020),  (Lian et al., 2022) |
| Green Corporate Social Responsibility (GCSR) | (Total Charitable Contributions) / (Total Profit before Tax)  *Where:* *Total charitable contributions* refer to donations across various activities such as support for education, healthcare services, disaster relief, and environmental efforts aimed at improving sustainable living standards. | (Tran et al., 2022) |
| Digital Financial Inclusion (DFI) | ∑X / n  *Where:* ∑X = number of DFI items implemented by each bank n = total of 8 DFI items: internet banking, mobile banking, cloud computing, data management (big data analysis), artificial intelligence, blockchain, QR payment, and electronic money (e-money). | (Dan Zhou et al., 2021)  (Coryanata et al., 2023) |
| Non-Performing Loans (NPL) | (Non-Performing Loans) / (Total Loans) | (Atisu, Mensah, Alipoe, & Abdul-Rahman, 2024) |
| Bank Size | Natural logarithm of total assets | (Tran et al., 2022) |
| Leverage | (Total Debt) / (Total Assets) | (Moussa & Feidi, 2023) |

3. results and discussion

**3.1 Results**

**3.1.1 Descriptive Statistics**

Descriptive statistics consist of the dependent variable, which is bank performance (ROA**)**, and the independent variables, including green credit (GC), green CSR (GCSR), and digital financial inclusion (DFI). The the control variables are bank size (SIZE), risk (NPL), leverage (LEV). The results of the descriptive statistical analysis are presented as follows:

**Table 2. Descriptive Statistics**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **GC** | **GCSR** | **DFI** | **LEV** | **NPL** | **SIZE** | **ROA** |
| Mean | 0.135483 | 0.693529 | 0.609375 | 0.858021 | 2.568021 | 0.961746 | 1.508063 |
| Median | 0.056300 | 0.007000 | 0.625000 | 0.868250 | 2.690000 | 0.490150 | 1.390000 |
| Max | 0.637600 | 12.65370 | 1.000000 | 0.906700 | 4.700000 | 6.528600 | 3.760000 |
| Min | 0.000100 | 0.000100 | 0.250000 | 0.759900 | 0.460000 | 0.076700 | 0.040000 |
| Std. Dev. | 0.153695 | 2.268443 | 0.195551 | 0.035691 | 1.033245 | 1.150891 | 0.781394 |
| Skew | 1.376933 | 3.888185 | 0.241484 | -1.031904 | -0.145021 | 2.332741 | 0.733412 |
| Kurtosis | 4.440117 | 17.54535 | 2.201915 | 3.457973 | 2.234272 | 9.536883 | 3.250669 |
| Obs | 96 | 96 | 96 | 96 | 96 | 96 | 96 |

Source: Processed data using EVIEWS 9

Based on Table 2, the mean values are greater than the standard deviations for variables such as DFI, LEV, NPL, and ROA, indicating that these variables have good data quality. Meanwhile, GC, GCSR, and SIZE show less reliable data quality.

Descriptive statistics for Green Credit (GC) show a mean of 0.135, indicating that the average proportion of green credit to total credit is relatively low. The standard deviation of 0.153 suggests a moderate variation in green credit issuance. A positive skewness of 1.377 indicates that the distribution is skewed to the left (more data points are low, fewer are high). A kurtosis value of 4.44 (greater than 3) reflects a sharper peak than a normal distribution (leptokurtic). Overall, while a few banks provide significantly higher green credit, most are still at low levels.

Descriptive statistics for Green CSR (GCSR) show a mean of 0.693, but a much lower median of 0.007, indicating that most observations have very small values, with a few extreme outliers (up to 12.65). A positive skewness of 3.89 and a kurtosis of 17.55 indicate a highly skewed distribution to the right with a sharp peak and long tail (extreme outliers). Overall, only a few banks disclose or invest significantly in CSR, while the majority contribute very little.

Descriptive statistics for Digital Financial Inclusion (DFI) show a mean of 0.609 and a median of 0.625, suggesting a relatively symmetrical distribution. A skewness of 0.24 and kurtosis of 2.20 indicate an approximately normal distribution. Overall, the level of digital financial inclusion across banks is relatively balanced, with no extreme domination.

Descriptive statistics for Leverage (LEV) show a mean of 0.858 with a standard deviation of 0.035, indicating very low variation in leverage among banks. A skewness of 1.03 shows a right-skewed distribution (most data near higher values). The kurtosis of 3.46 suggests a distribution slightly sharper than normal. Generally, banks tend to have relatively high and homogeneous leverage levels.

Descriptive statistics for Risk (Non-Performing Loans/NPL) show a mean of 2.57 and a standard deviation of 1.03, indicating considerable variation among banks. The skewness of -0.145 indicates an almost symmetrical distribution, while a kurtosis of 2.23 suggests a slightly flatter distribution than normal. In general, NPL levels vary moderately without extreme values.

Descriptive statistics for Bank Size (SIZE) show a mean of 0.96, a median of 0.49, and a standard deviation of 1.15, indicating very high variability. A skewness of 2.33 and a kurtosis of 9.54 suggest the presence of a few very large banks compared to the majority (high outliers). Overall, most banks are relatively small, with only a few dominating in terms of asset size.

Descriptive statistics for Bank Performance (ROA) show a mean of 1.51 and a standard deviation of 0.78, indicating moderate variability in profitability across banks. The skewness of 0.73 suggests a slightly right-skewed distribution, while the kurtosis of 3.25 indicates a near-normal distribution. In general, ROA values among banks are fairly diverse, with some banks showing high profitability.

**3.1.2 Model Selection Test**

Based on the data processing results using EVIEWS, the model selection results are as follows:

**Table 3: Model Selection Test**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test** | **Hypothesis** | **P-value** | **Chi-square** | **Decision** | **Conclusion** |
| Chow Test | H₀: CEM  Hₐ: FEM | 0.0000 | 137.344429 | P < 0.05  H₀ rejected | FEM |
| Hausman Test | H₀: REM  Hₐ: FEM | 0.5857 | 4.677918 | P > 0.05H₀ accepted | REM |
| Lagrange Multiplier | H₀: CEM  Hₐ: REM | 0.0000 | 60.19464 | P < 0.05H₀ rejected | REM |

Source: Processed data using EVIEWS 9

To select the most appropriate model to estimate the data in this study, three tests were conducted. The first was the Chow Test, where the null hypothesis (H₀) assumes the Common Effect Model. The result shows a Chi-square probability value of less than 0.05. Therefore, the null hypothesis (H₀) is rejected, and the better model to use is the estimation with Individual Effects, represented by the Fixed Effect Model (FEM).The next step is to compare the Fixed Effect Model with the Random Effect Model (REM) using the Hausman Test. Based on the Hausman Test results, where the null hypothesis (H₀) is that the model follows a Random Effect, the Chi-square probability is greater than 0.05. Thus, the null hypothesis (H₀) fails to be rejected, and the better model to use is the Random Effect Model (REM). Based on the results of the model selection test, the chosen model is the Random Effect Model, which does not require classical assumption testing. The selection of the Random Effect Model means that classical assumption tests are unnecessary because the Generalized Least Square (GLS) method can address heteroscedasticity and autocorrelation (Melati & Suryowati, 2018; Ghozali & Ratmono, 2013)

**3.1.3 Simultaneous Test**

Based on the data processing results using Eviews, the simultaneous test results for the model without interaction are presented in Table 4 below.

**Table 4. Simultaneous Test**

|  | **Coefficient** | **Prob.** |
| --- | --- | --- |
| Konstanta | 7.002760 | 0.0022 |
| GC | 1.083637 | 0.0894 |
| GCSR | -0.008965 | 0.6942 |
| DFI | 0.850796 | 0.0806 |
| NPL | -0.344142 | 0.0000 |
| SIZE | -0.127670 | 0.2205 |
| LEV | -5.998922 | 0.0201 |
| R-squared | 0.294287 |  |
| Adjusted R-squared | 0.246711 |  |
| F-statistic | 6.185598 |  |
| Prob(F-statistic) | 0.000019 |  |

Source: Processed data using EVIEWS 9

The regression model equation without interaction is written as follows:

|  |  |
| --- | --- |
| ROA=7.002760 + 1.083637GC - 0.008965 GCSR + 0.850796 DFI - 0.344142 NPL - 0.127670 SIZE - 5.998922 LEV | (1) |

The R-square value or coefficient of determination of 29.43% indicates that the independent variables (GC, GCSR, DFI, LEV, NPL, and SIZE) contribute 29.43% in explaining the dependent variable (ROA), while the remaining 70.57% is explained by other variables outside this study.

**3.1.4 Partial Test**

Based on the data processing results using Eviews, the partial test results of the model used to answer the research hypotheses are presented in Table 5 below.

**Table 5: Hypothesis Testing Estimation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **Theory** | **Coef** | **Prob (1 Tail)** | **Conclusion** |
| C |  | 7.002760 | 0.0011\*\*\* |  |
| GC | + | 1.083637 | 0.0447\* | Significant (+) |
| GCSR | + | -0.008965 | 0.3471 | Not significant |
| DFI | - | 0.850796 | 0.0403\* | Significant (+) |
| NPL | - | -0.344142 | 0.0000\*\*\* | Significant (-) |
| SIZE | + | -0.127670 | 0.11025 | Not significant |
| LEV | - | -5.998922 | 0.01005\*\* | Significant (-) |

Source: Processed data using EVIEWS 9

Note: Significance levels \*\*\*1%; \*\*5%; \*10%

Based on Table 5, these findings indicate the influence of the variables under study green credit (GC), green CSR (GCSR), digital financial inclusion (DFI), leverage (LEV), NPL, and bank size (SIZE)—on bank performance (ROA).

**There is a positive effect of green credit on bank performance**

Based on Table 5, the coefficient value of green credit is 1.083637, meaning that if green credit increases by 1 unit, the average bank performance will increase by 1.083637 units. The test results show that the sign of the coefficient is consistent with the hypothesis proposed in this study, where theoretically green credit has a positive effect on bank performance. Furthermore, the p-value is 0.0447\* < 0.05 (at the 5% alpha level), indicating that statistically, at the 95% confidence level, green credit has a positive effect on bank performance.

**There is a positive effect of green CSR on bank performance**

Based on Table 5, the coefficient value of green CSR is -0.008965, meaning that if green CSR increases by 1 unit, the average bank performance will decrease by 0.008965 units. The test results show that the coefficient sign does not align with the hypothesis proposed in this study, where theoretically green CSR is expected to have a positive effect on bank performance. Therefore, the hypothesis testing is not continued, and it is concluded that statistically, there is no positive effect of green CSR on bank performance.

**There is a negative effect of digital financial inclusion (DFI) on bank performance**

Based on Table 5, the coefficient value of digital financial inclusion (DFI) is 0.850796, meaning that if DFI increases by 1 unit, the average bank performance will increase by 0.850796 units. The test results show that the coefficient sign does not match the hypothesis proposed in this study, which theorized a negative effect of DFI on bank performance. Therefore, the hypothesis testing is not continued, and it is concluded that statistically, digital financial inclusion does not negatively affect bank performance, but rather has a positive effect on bank performance.

**3.2 DISCUSSION**

**3.2.1 Green Credit and Bank Performance**

The analysis of the research findings shows that green credit has a positive effect on profitability. This aligns with the study by **Y. Lian et al (2022),** which found that green credit has a significantly positive impact on ROA. In line with Danye (2020), the Green Loan Ratio (GLR) enhances profitability. This is further supported by Qin et al., (2018) and G. Zhou et al., (2021), who found a positive influence of green credit on both ROA and ROE. Research by Rahaman et al.,(2018) suggests that green finance can have a positive effect on ROI. Similarly, the study by Julia & Kassim, (2016) confirms that green financing has a significantly positive impact on ROA. Zhang (2018)also noted a positive impact of green credit on financial performance, especially ROA. Astari et al., (2023) found that the green accounting index has a significant positive influence on Tobin’s Q. Yasmin & Akhter (2021) discovered that green credit, as measured by the Green Credit to Total Loan (GCTL) ratio and Green Credit to Total Asset (GCTA) ratio, has a significant positive relationship with profitability (ROE) and financial stability (Z-score) in Bangladesh. Julia & Kassim (2016) also confirmed that green financing is significantly positively related to ROA. These findings reflect a direct relationship between green credit and bank performance, and the results are consistent with studies from countries with relatively mature green credit implementation, such as China. A high proportion of green credit has a positive effect on bank profitability due to strong regulatory support and government incentives in China that mitigate credit risk. The study *Green Finance Regulation in China* (2024) explains that the China Banking Regulatory Commission (CBRC) issued Green Credit Guidelines in 2012. In 2022, the China Banking and Insurance Regulatory Commission (CBIRC), now known as the NFRA, issued Green Finance Guidelines for the Banking and Insurance Sectors, building upon the earlier Green Credit Guidelines. This reflects a global trend especially in China where regulatory and policy support has created a conducive ecosystem for green finance. In the future, this trend is expected to strengthen as awareness of climate risks and the importance of sustainability in the financial sector continues to grow.

**3.2.2 Green CSR and Bank Performance**

The analysis of the research results shows that CSR does not have a significant effect on bank performance, either without moderation or with moderation. This may be because CSR is a long-term investment, and thus the outcomes are not visible in the short term. In the short term, CSR investment is considered a financial burden that banks must bear Guo et al (2020) and G. Zhou et al ( 2021). However, in the long run, the impact of CSR becomes more apparent through enhanced reputation, customer loyalty, and public trust, which eventually lead to increased bank value and profitability. Additionally, the lack of impact of CSR on bank performance may occur because CSR implementation is merely symbolic. Consequently, CSR communication is ineffective in reaching the public, thus failing to influence public perception in a way that builds market value. This finding is in line with Surroca et al (2010) and Soana (2011), who showed no significant relationship between CSR and market value. Their studies emphasize that the influence of CSR on market value or profitability is not direct but depends on mediating variables such as innovation, reputation management, and risk management. Research by **Surroca et al. (2010)** and **Soana (2011),** also indicates that CSR requires time and strategic implementation to yield financial benefits. On the other hand, empirical phenomena in ASEAN show that CSR is often symbolic and not yet integrated into the core strategies of banks. Many banks conduct CSR merely to comply or as routine programs, which have yet to consistently form a positive perception in the public mind. These results are inconsistent with Signaling Theory and Legitimacy Theory. When banks implement green CSR half-heartedly or inconsistently, it fails to become a competitive resource or a positive signal recognized consistently by the public.

**3.2.3 Digital Financial Inclusion and Bank Performance**

The analysis of the research indicates that digital financial inclusion (DFI) does not have a negative effect on bank performance. The coefficient value of DFI is positive, supporting previous studies such as Ratnasari et al. (2021), F. H. Shihadeh et al. (2018), and D. Anggraini et al. (2020), where DFI—measured by the number of ATMs and credit cards—showed a positive coefficient. Similarly, studies by F. Shihadeh (2021), Arilesere et al. (2021), Desalegn et al. (2022), and Nwankwo & Agbo (2021), which used DFI measurements based on the number of online banking transactions, also found a positive influence on bank performance. In general, Digital Financial Inclusion (DFI) is expected to become a major driving trend in the transformation of the financial industry. Banks will continue to invest in digital services such as mobile banking, internet banking, QR code payments, and e-wallets.

4. Conclusion

This study aims to analyze the effect of green credit, green CSR, and digital financial inclusion (DFI) on profitability. Based on the hypothesis testing results: (1) Green credit has a significant positive effect on profitability; (2) Green CSR does not have a significant effect on profitability; (3) Digital financial inclusion (DFI) does not have a negative effect on profitability, but instead has a positive influence on profitability.

**COMPETING INTERESTS DISCLAIMER:**

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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