

Analysis of Sustainability and Inclusive Strategies in Achieving Profitability: Studies on Banking Listed on the Indonesia Stock Exchange



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ABSTRACT: Sustainable and inclusive finance are concepts that are currently developing rapidly. This concept emerged as a response to the challenges and needs that exist in the current financial system. This study aims to determine the effect of implementing a green banking strategy, fintech adoption, and financial inclusion on profitability in the banking sector in Indonesia. The object of this study are banking companies listed on the Indonesia Stock Exchange for the 2015-2021 period. In this study, it was found that there were 46 banking companies listed on the IDX, but not all of them were sampled. Panel data regression analysis is used to see the effect of independent variables on the dependent variable. This study shows the simultaneous results that green banking strategy, fintech adoption, and financial inclusion significantly affect banking profitability. Partly, implementing green banking strategies and ATM numbers affect bank profits. Meanwhile, fintech adoption, the number of loans, the number of third parties, and the number of branch offices have no effect.

KEYWORDS: sustainability, green banking, fintech, inclusive finance, banking

INTRODUCTION

Indonesia is one of the countries with the highest level of environmental pollution. Air quality in Indonesia, especially in the capital city of Jakarta, is in the first worst ranking, with PM 2.5 concentrations reaching 158 micrograms per cubic meter. This figure has exceeded the clean air standard limits set by WHO (IQAir, 2021). Another environmental pollution that also has a negative impact is water quality. The Ministry of Environment and Forestry report in 2019 shows that the water quality in Indonesia is still mild to heavily polluted (Kementerian Lingkungan Hidup dan Kehutanan, 2021). Based on the quantity of existing natural pollution and damage, they are caused by human behavior as the main factor, so environmental problems like this become a moral problem of human behavior itself (Akhiryanti, 2018).

Efforts to prevent environmental destruction require strong cooperation from various sectors of life. Countries globally unify the vision to develop various effective strategies for sustainable development (*sustainability development*) in various fields. Sustainable development focuses on three main aspects (*triple bottom line/3P*), namely, profit (*profit*), social relations (*people*), and protection of natural resources and the environment (*planet*).

In the economic field, countries that support this vision of sustainable development apply the *green economy concept*, which is expected to provide long-term benefits for society and the environment. A *green economy* is a system that creates economic activities that will improve the quality of human life in the long run without compromising the interests of future generations due to risks related to environmental impacts and ecological limitations (UNEP, 2010). The financial and banking sectors support this green economy strategy through the *sustainable finance program*. The success of *sustainable finance* requires harmony between economic, social, and environmental factors supported by the financial services industry. *Sustainable finance* has five main elements, namely achieving industrial excellence, social and economic activities in order to reduce the threat of global warming and prevent other environmental and social problems, shifting goals towards a competitive low-carbon economy, promoting environmentally friendly investments in various economic sectors, and provide support for the implementation of the 4P development principles (*pro-growth, pro-jobs, pro-poor, and pro-environment*). Then this concept was further studied and modified so that a specific sustainable finance strategy was born for banking, namely *Green Banking*.

Even though the banking industry is not classified as a high-level environmental polluter, implementing *green banking* will impact the bank's reputation so that it can attract public sympathy. The implementation of the concept of *green banking* in Indonesia is regulated in Peraturan Bank Indonesia Nomor 14/ 15 /Pbi/2012 Tentang Penilaian Kualitas Aset Bank Umum (2012) and Peraturan

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Otoritas Jasa Keuangan Nomor 51 /Pojk.03/2017 Tentang Penerapan Keuangan Berkelanjutan Bagi Lembaga Jasa Keuangan, Emiten, Dan Perusahaan Publik (2017) where financial service institutions and issuers or public companies are required to inject funding sources aimed at sustainable development and funding related to climate change is provided in adequate amounts. A positive impact will be obtained if banks apply *green banking*; firstly, the awareness of business people on the importance of environmentally friendly business practices will increase. Second, it is more paperless because banks that apply the concept of green banking will make transactions *online*.

Moreover thirdly, business people are concerned and concerned about their business practices because there is a policy from banks to give loans to business people with conditions that the business must be environmentally friendly (Sharma et al., 2022). Through *green banking*, which in its business processes cares about the environment and the sustainability of human life, it also results in operational cost efficiency, competitive advantage, good corporate image and identity, and achievement of business targets. However, on the other hand, *green banking activities* have a negative effect on the efficiency of the company's operational costs; where every year of observation, the company's BOPO ratio has increased so that the level of efficiency of the company's operational costs has decreased every year (Pusva & Herlina, 2017). The practice of *green banking* recommends that banking operations will be much better if they implement *online banking*, *mobile banking*, and *green cards*, whose materials can be recycled to be more *paperless*. One solution to this is through *financial technology (fintech)*, which uses technology to maximize financial services (Harefa et al., 2018). Currently, banking *fintech services* that are frequently used are ATMs (*Automatic et al.*), *e-banking*, *phone banking*, *SMS banking*, *mobile payments*, and *e-money*.

Banking goals can also be achieved by utilizing fintech to improve financial performance (reducing operational costs, increasing profitability, and overcoming non-performing loans). Apart from increasing banking profitability, adopting and developing fintech in its operational activities also includes activities that support increasing financial inclusion. The National Financial Literacy and Inclusion Survey from OJK shows that Indonesia's financial inclusion index reached 85.10%, an increase from the previous survey period conducted in 2019 with an index of 76.19%. Increasing financial inclusion in Indonesia has impacted the growth of the banking business because the number of customers has also increased. Financial inclusion positively impacts banking profitability, both in developed markets such as Germany and the United States and in developing markets such as India and Indonesia (Kumar et al., 2022a). Banks operating in countries with high levels of financial inclusion will have good financial performance because the number of customers and financial transactions increases. Hence, the income and profits of the banking industry also increase (Demirgüç-Kunt et al., 2020).

Green banking, *fintech* adoption, and financial inclusion have a close relationship because all three have the same goal: to promote sustainable and inclusive economic growth. This research aims to provide knowledge and empirical evidence about the effect of implementing *green banking*, *fintech*, and financial inclusion as a strategy for the profitability of banks listed on the Indonesia Stock Exchange. The results of this study will provide encouragement and motivation for banks to implement *green banking*, adopt *fintech*, and increase financial inclusion if the results positively affect bank profitability. The more and the maximum number of banks implement this matter, the more environmental sustainability can be maintained, environmental pollution will gradually decrease, and a sustainable economy can be achieved.

HYPOTHESIS DEVELOPMENT

The Effect of Green Banking Policy on Profitability

The green banking policy describes banking efforts to be socially responsible towards the environment. Based on research from Rachman & Saudi (2021), *green banking* positively impacts profitability proxied by ROA. The high *green banking* index indicates that the more influential the banking system is in implementing *green banking* to achieve a *green economy*, which will have implications for increasing profitability. These results are also supported by various studies from Deka (2015) and Chasbiandani et al. (2019), which state that *green banking policies* positively impact banking profitability.

H1: It is suspected that there is a positive influence between *Green Banking Policy* on Banking Profitability

Effect of Fintech Adoption on Profitability

Banks that have adopted *fintech* in carrying out their activities will have advantages in terms of speed and accuracy of business operational processes. Wang et al. (2021) stated that adopting *fintech* in banking operations will positively and significantly impact ROA. For commercial banks, *Fintech* development increases profitability, financial innovation, and risk control. Click or tap here to enter text. In their research, Le et al. (2021) also concluded that *fintech innovation*, especially *mobile banking*, positively impacts the financial performance of banks in Vietnam. The above research is supported by Ogutu (2018) and (Rauf & Fu, 2014), who state that *fintech adoption* positively and significantly impacts ROA. Meanwhile, (Akhisar et al., 2015) his research, he concluded that

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electronic banking services (*Fintech*) have a significant and negative effect on profitability due to the diversity of levels of state development, sociocultural structures, and electronic banking infrastructure.

H2: It is suspected that there is a positive influence between *Fintech Adoption* on Banking Profitability

Effect of Loan Amount on Banking Profitability

The more credit disbursement is made, the more banking income is obtained from credit recipients (debtors) in the form of interest and administrative costs. Thus, the higher the quantity of loans or credit is directly proportional to the increase in profitability of a bank. This is in line with the results of research by Wei et al. (2021), who found that credit growth positively affects profitability proxied by ROA because if credit grows, the interest income received by banks will also increase. However, it is different from the results of research by (F. Shihadeh & Liu, 2019), which concludes that there is a negative effect between credit growth on ROA. This is because there are other factors, such as credit risk and cost of capital, which may significantly influence ROA as a proxy for profitability.

H3: It is suspected that there is a positive influence between the number of loans on bank profitability

Effect of Total Third-Party Funds on Banking Profitability

One source of banking funds as an institution with an intermediary function is from Third Party Funds. According to Kasmir (2014), third-party funds are collections of funds collected by banks obtained from customers. DPK consists of various deposits, such as savings, time deposits, current accounts, and other customer fund accounts. Findings from research by Shihadeh et al. (2018) concluded that the amount of third-party funds from MSMEs positively impacts ROA but is not significant. Larasati et al. (2017) also conclude that there is no significant influence between third-party funds and bank profitability. This is due to an imbalance in the collection of funds with credit distributed to the public.

H4: It is suspected that there is a positive influence between the Amount of Third Parties Funds on banking profitability

Effect of Number of ATM Units on Banking Profitability

For banks, providing ATMs will result in *fee-based income* from customer administration fees when transacting using ATMs. Shihadeh et al. (2018) examined the relationship between financial inclusion and banking performance in Jordan. They found that the number of ATMs and the number of credit cards had an impact on increasing bank profitability. While the findings from the study, Widyaningsih & Hersugondo (2021) concluded that the number of ATMs has a significant negative effect on bank profitability because the more ATM units, the greater the machine maintenance costs, and these costs cannot be fully covered by the income earned from ATMs.

H5: It is suspected that there is a positive influence between the number of ATM units on banking profitability

Effect of Number of Branch Banks on Banking Profitability

Procurement of branch offices can increase revenue because many customers come and make transactions because they are easy to visit and more cost-effective. Based on research conducted by Kumar et al. (2022) and Chen et al. (2018), It can be concluded that there is a positive and significant influence between the number of branch offices and the profitability of a bank because an increase in the number of branch offices will increase the number of customers which will ultimately increase savings and loan portfolios and diversify risks. In comparison, the findings by Harimaya & Kondo (2016) in his research shows that the number of branch offices at a certain level will result in lower cost inefficiencies. However, this is also influenced by the region of the branch office.

H6: It is suspected that there is a positive influence between the Number of Banking Branch Offices on bank profitability

METHOD

Population and Sample

The population in this study are all banking companies listed on the Indonesia Stock Exchange or IDX. This research is included in the panel data research with a research period of 10 years from 2012-2021. Then obtained, 46 companies in the banking sector were listed on the IDX. From the results of classifying the sample, 29 out of 46 banking companies listed on the Indonesia Stock Exchange for the 2015-2021 period met the criteria to be sampled in this study. This research was conducted from 2015-2021 or seven consecutive years. Hence, annual and financial reports total 203 data from the company's official website and the Indonesia Stock Exchange (www.idx.com). The data were also obtained from several other sources, such as 99 books, scientific journals, and other literary works that could be useful in the research process.

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Research Variables

This study has six independent variables: *green banking policy*, *fintech* adoption, the number of loans, the number of third-party funds, the number of ATMs, and the number of branch offices. While there is one dependent variable, namely profitability. This study uses three control variables to minimize the influence other than the independent variables that may influence the results of the dependent variable, namely liquidity, capital adequacy, and non-performing loans.

The summary of the variables and their measurements used in this study are as follows:

Table 1. Variables and Measurements

Variable	Symbol	Measurement
Green Banking Policy (X1)	GBDI	Expected number of <i>green banking indicators</i> x 1 if disclosed; x 0 otherwise
Fintech Adoption (X2)	FINTECH	Dummy variable
Loan Amount (X3)	FIN_LOAN	Loan amount/GDP x 100%
Total Third Party Funds (X4)	FIN_DEPO	Total third-party funds/GDP x 100%
Number of ATMs (X5)	ATM	Number of ATMs/Number of adult population x 100
Number of Branch Offices (X6)	BRANCH	Number of branch offices/Number of adult population x 100
Profitability (Y)	ROA	Net profit after tax/total assets
Liquidity (X7)	LDR	Credits given/Funds received x 100%
Capital Adequacy (X8)	CAR	Risk-balanced capital/assets x 100%
Problem Credit (X9)	NPLs	Non-performing loans/total credit x 100%

Source: Research Summary, 2023

Data analysis

This study uses the panel data analysis method using Stata 17 software to facilitate research data processing. Panel data regression is a regression that combines *time series data* and *cross-section data*. The equation for estimating regression with panel data in this study is:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 + e_{it}$$

To describe the regression estimation with panel data, three models are used, namely 1) the *standard effect method*, 2) the *fixed effect method*, and 3) the *random effect method*. In order to determine the best approximation model, we can do the Chow Test and Hausman Test (Widarjono, 2017). Furthermore, to test the hypothesis simultaneously (F-test) and partially (T-test) and test the coefficient of determination (R^2).

RESULTS

Results of Descriptive Statistics

The results of descriptive statistics in this study can be seen in the table below:

Table 2. Descriptive Statistics

	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9
Means	0.01	0.53	2.54	0.01	0.015	2.08	0.22	0.85	0.21	0.04
minimum	-	0.05	0	0.00016	0.00019	0	0.005	0.12	0.08	0
	0.1475									
Maximum	0.04	1	4	0.09	0.10	12,8	1.28	1.63	0.98	0.63
std. Deviation	0.03	0.26	1.04	0.021	0.025	3.57	0.29	0.19	0.08	0.05
Observations	203	203	203	203	203	203	203	203	203	203

Source: Data processed using Stata 17

The analysis results in Table 4.1 show that the number of observations is 203, consisting of 29 banking sector companies listed on the Indonesia Stock Exchange. Variable Y or *Return on Assets* (ROA) produces a *mean* (average) of 0.02 or 2%, meaning that a sample of 29 banks has an average ROA value of 2%. The maximum value for the ROA variable is 0.04 or 4%, meaning that the

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highest ROA is 4% and is found at PT Bank Mega in 2021, while the minimum value is -0.1475 or -14.75%, meaning that the lowest ROA value is of -14.75% and will be at PT Bank Raya Indonesia in 2021.

The GDBI variable (X1) produces an average value of 0.53, which means that the average disclosure index of 115 green banking activities from 29 banking samples is 53%. The maximum value is 1 or 100%, meaning that the highest *green banking index* is 100%, and was founded at PT Bank Rakyat Indonesia in 2019. The minimum value for the GDBI variable is 0.05, meaning 5% at PT Bank Bumi Arta in 2015. The standard deviation of the variable X1 (0.26) < the mean value indicates that the GDBI data has more limited variability or data spread.

The Fintech Adoption Variable (X2) has a mean of 2.54, meaning that the average fintech adopted by 29 banking samples is 2.54, or when rounded up, it becomes three fintech. The minimum value of the FINTECH variable is 0, meaning that the lowest number of adopted fintech is 0 or does not adopt fintech. The maximum value is 4, meaning that the highest number of fintechs adopted is four fintechs. The value of the data distribution at the standard deviation of X2 is 1.04. The standard deviation of variable X2 < the mean value indicates that fintech adoption data has more limited variability or data spread.

The Financial Inclusion Variable proxied by the Number of Loans (X3) produces an average value of 0.01, meaning that the average level of financial inclusion of the 29 banking samples is 1% when using a proxy for the number of loans. The maximum value is 0.09, meaning that the highest level of financial inclusion is 9%, found at PT Bank Rakyat Indonesia in 2020. The minimum value for variable X3 is 0.00016, meaning that the lowest level of financial inclusion is 0.016%, found at PT BANK IF INDIA INDONESIA in 2021. The standard deviation of the X3 variable is 0.021 > the mean value indicates that the data is spread more widely or has a more considerable variance.

The Financial Inclusion variable proxied by Total Third Party Funds (X4) produces an average value of 0.015, which means that the average level of financial inclusion of the 29 banking samples is 1.5% when using a proxy for the number of third-party funds. The maximum value of 0.10 was found at PT Bank Rakyat Indonesia in 2020. The minimum value for the X4 variable is 0.00019 at PT BANK IF INDIA INDONESIA in 2021. The standard deviation of the X4 variable is 0.025 > the average value obtained indicates that the data is spread more widely or has more significant variance.

The Financial Inclusion variable proxied by the number of ATMs (X5) produces an average value of 2.08. This means the average financial inclusion level of the 29 banking samples is 2.08 or 208 ATMs per 100 residents. The maximum value is 12.8, meaning that the highest level of financial inclusion is 12.8 or 1,280 ATMs per 100 adult population, found in PT Bank Rakyat Indonesia and Bank Raya Indonesia in 2017. The minimum value of variable X5 is 0, meaning that the level of the lowest financial inclusion is 0 number of ATMs per 100 adult population. The standard deviation of the X5 variable is 3.57 > the mean value indicates that the data is spread more widely or has a more significant variance.

The Financial Inclusion variable proxied by the Number of Branch Offices (X6) yields an average value of 0.22, meaning that out of 29 banking samples, there are 22 branch offices per 100 adult population using the proxy for the number of branch offices owned. The maximum value is 1.28, meaning that the highest level of financial inclusion is 1.28 or 128 branch offices per 100 adult population at PT BANK MANDIRI in 2017. The minimum value of variable X6 is 0.005, meaning that there are 0.5 total branch offices per 100 adult population at PT BANK IF INDIA INDONESIA in 2017. The standard deviation of FINBRANCH is 0.29 > the average value obtained indicates that the data is spread more widely or has a more significant variance.

The Liquidity Variable proxied by the LDR ratio (X7), as well as the control variable, produces an average value of 0.85, which means that the average level of liquidity of the 29 banking samples is 85%. The maximum value is 1.63 or 163%, found in PT BANK BTPN in 2019. The minimum value of the X7 variable is 0.12, which was found in PT BANK CAPITAL INDONESIA in 2021. The standard deviation of LDR is 0.19 < the average value. The mean obtained indicates that the LDR data has more limited variability or data spread.

The capital adequacy variable proxied by the CAR ratio (X8) and the control variable produces an average value of 0.21, which means that the average capital adequacy level of the 29 banking samples is 21%. The maximum value of 0.98 or 98% is found in PT BANK IF INDIA INDONESIA in 2021. The minimum value of the X8 variable is 0.08 in PT BANK PEMBANGUNAN DAERAH BANTEN in 2015. The value of the data distribution at the standard deviation of CAR is 0.08 < the average value indicating that the CAR data has more limited variability or data spread.

For Non-Performing Loans Variable, based on descriptive statistics, the average level of non-performing loans (NPL/X9) from 29 banking samples is 4%. The maximum 0.63 or 63% value is found in PT BANK JTRUST INDONESIA 2021. The minimum value for variable X9 is 0%, found in PT BANK CAPITAL INDONESIA in 2020 and 2021. The standard deviation value of NPL is 0.05 > the average value obtained indicates that the data is spread more widely or has a more significant variance.

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Panel Data Regression Results

From the test results using the Chow test and Hausman test, it can be concluded that *the fixed effect model* is the most suitable model to be used as a panel data regression analysis in this study. Interpretation of the regression results based on this model is to obtain a deeper understanding regarding the influence of the studied variables, which are summarized in the following table:

Fixed Effect Model Panel Data Regression Results

Variable	Coef	Std. Err.	t	P> t
C	0.0187824	0.0188368	1.00	0.320
LogX1	0.0118036	0.0039549	2.98	0.003
X2	-0.0050538	0.0036446	-1.39	0.167
X3	0.102785	1.082439	0.09	0.924
X4	-0.1412789	0.7376355	-0.19	0.848
X5	0.0042389	0.0015105	2.81	0.006
X6	0.0004164	0.0185518	0.02	0.982
X7	0.0054048	0.0123955	0.44	0.663
X8	0.0103368	0.0233463	0.44	0.659
X9	-0.0902836	0.0304594	-2.96	0.003
R-Squared	0.1410	F-Statistics		3.01
Prob (F-statistic)	0.0024			

Source: Research Processed Data, 2023

Based on the processing results in Table 3 above, the model equation is as follows:

$$\text{ROA} = 0.0187824 + 0.0118036 \text{ GBDI} - 0.0050538 \text{ FINTECH} + 0.102785 \text{ FIN_LOAN} - 0.1412789 \text{ FIN_DEPO} + 0.0042389 \text{ FIN_ATM} + 0.0004164 \text{ FIN_BRANCH} + 0.0054048 \text{ LDR} + 0.0103368 \text{ CAR} - 0.0902836 \text{ NPL}$$

The results of the equation above can be translated as follows:

Independent variables of *green banking policy* (GBDI), *fintech* adoption (FINTECH), financial inclusion by proxy of the number of loans (FIN_LOAN), financial inclusion by proxy of the number of third-party funds (FIN_DEPO), financial inclusion by proxy of the number of ATMs (FIN_ATM), financial inclusion by proxy number of branch offices (FIN_BRANCH), liquidity level (LDR), capital adequacy level (CAR), and non-performing loans (NPL) are considered 0, then ROA is 1.878 %.

Assuming that each of the other variables is in a constant or fixed condition, from the panel data regression analysis above, it is found that:

1. *Green banking* policy (X1) positively affects ROA or banking profitability by 1,180%.
2. The fintech adoption variable (X2) that negatively affects ROA is -0.00505, where every 1% increase in fintech adoption will decrease ROA or banking profitability by 0.5054%.
3. The financial inclusion variable with a proxy for the number of loans (X3) shows that any increase in financial inclusion with a proxy for the loan amount of 1% will increase ROA or banking profitability by 0.2785%.
4. The financial inclusion variable with a proxy for the number of third-party funds (X4) shows that any increase in financial inclusion with a proxy for the number of third-party funds of 1% will decrease ROA or bank profitability by 14.1278%.
5. The financial inclusion variable with a proxy for the number of ATMs (X5) increases bank ROA or profitability by 0.4239%.
6. The financial inclusion variable with a proxy for the number of branch offices (X6) shows that any increase in financial inclusion with a proxy for the % of branches of 1% will increase banking ROA or profitability by 0.4164%.
7. The variable level of liquidity (X7) shows that each increase in the proportion of liquidity by 1% will increase ROA or banking profitability by 0.5405%.
8. The capital adequacy level variable (X8) shows that each increase in the proportion of liquidity by 1% will increase ROA or banking profitability by 1.0337%.
9. The non-performing loans variable (X9) has a negative regression coefficient of -0.0902836, which means that any increase in non-performing loans will reduce ROA or bank profitability by 9.0284%.

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Hypothesis test

Test Results t

In this test, it is assumed that when the probability value of *the t*-statistic is smaller than the alpha value (t -statistic $< \alpha/0.05$), then the hypothesis of each variable is accepted. The result of the t-test for the GBDI variable is $0.003 < 0.05$, so *green banking* policy significantly influences the profitability variable proxied by Return on Assets (ROA). Then the p-value of fintech adoption is $0.167 > 0.05$, indicating no significant effect on banking profitability. Likewise, the Financial Inclusion variable with the Proxy of Loan Amount and the Proxy of Third Party Funds, respectively, has a p-value of 0.924 and $0.848 > 0.05$, so the two variables do not significantly affect profitability. The Financial Inclusion Variable with the Proxy Number of ATMs shows that 0.006 on a P-value < 0.05 indicates a significant influence on profitability. Furthermore, the financial inclusion variable with the Proxy Number of Branch Offices has no effect with a p-value of $0.982 > 0.05$.

The liquidity variable has a p-value of $0.663 > 0.05$, meaning there is no significant difference between banks with higher LDR ratios and banks with lower LDR ratios. The capital adequacy variable also shows a p-value greater than 0.05 , which is 0.659 , so there is no significant difference between banks with higher and lower CAR ratios. The non-performing credit variable has a highly significant effect with a p-value of $0.003 < 0.05$ with a negative coefficient, indicating that increasing non-performing loans will undoubtedly reduce bank profits.

Based on the results of each t-test, it is concluded that H1 and H5 are accepted, and H2, H3, and H4 are rejected.

F Test Results (Model Feasibility)

Based on the processing results in the fixed effect model test, it produces a probability value of F-Statistic of 0.0024 , which is smaller than alpha 5% ($0.0024 < 0.05$), which means H_0 is rejected. Thus, it can be concluded that the variables of *green banking policy*, *fintech* adoption, level of financial inclusion by proxy of the number of loans, financial inclusion by proxy of third-party funds, financial inclusion by proxy of the number of ATMs, and financial inclusion by proxy of the number of branch offices **together** affect the profitability of 29 banks listed on the Indonesia Stock Exchange at the 2015-2021 representative year.

Coefficient of Determination (R^2)

R^2 test show that profitability with a proxy Return on Assets (ROA) **of 14.10% can be explained by the *green banking* policy variable, *fintech* adoption, the level of financial inclusion with a proxy for the number of loans, financial inclusion with a proxy for third party funds, financial inclusion with a proxy for total ATMs, and financial inclusion by proxy for the number of branch offices.** While other variables outside this research model explain the remaining 85.90% .

DISCUSSION

Analysis of the Effect of Green Banking Policy on Profitability

Green banking is not just a means of dissolving environmental and social responsibility but has become one of the strategies to gain profits and the continuity of the banking business. The reasons that influence it include operational efficiency, portfolio diversification, market growth, consumer demand, and a positive image as a long-term benefit. The results of this study indicate that *green banking policies have a positive effect* on profitability. This follows previous research from Rachman & Saudi (2021).

Analysis of the Effect of Adoption of Fintech on Profitability

According to the statistical analysis results conducted in this study, no strong correlation and evidence was found between the diversity of fintech adoption and banking profitability. The results of this study also do not support the hypothesis which states that fintech adoption has an influence on profitability for the following reasons:

1. Implementation and development costs.
2. Intense competition.
3. Mismatch with customer preferences.
4. Data security and privacy risks
5. The need for regulatory reform.

The results of this study are contradictory to research conducted by et al. (2021); Ogutu (2018); Rauf & Fu(2014); dan Wang et al. (2021), who found that the adoption of fintech in banking operations will have a positive and significant impact on profitability. However, the results obtained from this study are in line with findings by (Aditya & Rahmi, 2022; Ali Khrawish & Mousa Al-Sa, n.d.; Gutu, 2014; Mohammad Hossein, 2013), stating that **fintech adoption does not affect banking profitability.**

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Analysis of the Effect of Financial Inclusion with a Proxy of Loan Amount on Profitability

The results of this study also do not support the hypothesis that Financial Inclusion with a Proxy Number of Loans influences profitability. This finding is in line with the findings of research conducted by Shihadeh et al. (2019), Chen et al. (2018), and Kumar et al. (2022), which state that there is no **significant effect of lending on the profitability of a bank** because there is credit risk: income diversification, and factors related to the stability of interest income.

Analysis of the Effect of Financial Inclusion with a Proxy of Total Third-Party Funds on Profitability

According to the statistical analysis results conducted in this study, no strong correlation or evidence was found between the amount of Third Party Funds and banking profitability. This study's results contradict research conducted by Han & Melecky (2013) dan Kistiyaputri (2022), who found that an increase in customer deposits can prevent the risk of withdrawing deposits when banks are in a state of financial stress. The results of this study are in line with the findings by (Ayu Larasati et al. 2017; Mahmudah & Harjanti, 2016; F. H. Shihadeh et al., 2018), which state that there is no significant influence between third-party funds and banking profitability.

Analysis of the Effect of Financial Inclusion with a Proxy Number of ATMs on Profitability

The existence of an ATM is one source of income or profit. This idea was built for operational efficiency, increasing *free-based income, branding* to customers, and ease of access that customers will get. This study found that financial inclusion by proxy of the number of ATMs **positively affects profitability**. This result is relevant to previous findings from (Aliabadi et al., 2016; Chaarani & Abiad, 2018; Jacinta Itah, 2014; Sumra et al., 2011), the opinion that the number of ATMs as a proxy for financial inclusion strategy has a significant positive impact on profitability.

Analysis of the Effect of Financial Inclusion with a Proxy of the Number of Branch Offices on Profitability

The results of this study also do not support the hypothesis that Financial Inclusion with the number of branch offices influences profitability because there are factors of changes in customer preferences and the development of digital services. The results of this study are in line with findings by those Harimaya & Kondo (2016), Hensel (2003), dan Hirtle (2007), who concluded that the number of branch offices at a certain level would result in lower cost inefficiencies therefore, whether or not the number of branch offices owned by banks does not significantly affect profitability.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the hypothesis testing of the variables tested, it can be concluded that *green banking policy* (H1) and financial inclusion with a proxy for the number of ATMs (H5) have a positive and significant effect on profitability as measured by *Return on Assets* (ROA). While adopting *fintech*, financial inclusion with the number of loans and branch offices has no significant effect on banking profitability as measured by ROA. Nevertheless, simultaneously, the independent variables tested, namely the green banking disclosure index (GBDI), the number of adopted fintech, financial inclusion by proxy, the number of loans, the number of third-party funds, the number of ATMs, and the number of branch offices together have a significant effect on banking profitability which measured by *Return on Assets* (ROA) in banks listed on the Indonesia Stock Exchange.

The results of this study certainly still have many shortcomings, so it is suggested for further research to increase the measurement parameters for each variable using more specific and complex indicators and add a classification component to the selection of more complete and up-to-date research samples.

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