Jurnal Manajemen Bisnis Vol. 10, No.2 (2023) September, Page. 517-524
e-ISSN: 2621-1971|p-ISSN: 2088-7086

Driving Profitability: Exploring The Impact of Diversifying Environmentally Friendly Project Credits on Bank Performance

Fananah V. Viverita
Universitas Indonesia, FEB-UI Dean Building Widjojo Nitisastro Campus, Jl. Prof. Dr. Sumitro Djojohadikusumo, Kukusan, Beji District, Depok City, West Java 16424

ARTICLE INFO

Correspondence Email:
fananah@ui.ac.id

Keywords:
Green Finance; Green Credit; Bank Profitability; Sustainable Finance

DOI:
https:doi.org/10.33096/jmb.v11i1.766

ABSTRACT

Green finance is a concept that combines financial and environmental aspects, focusing on sustainable and environmentally friendly investments. This research aims to examine the impact of expanding the allocation of green project loans on bank profitability. The study utilizes secondary data obtained from financial reports of banks and other financial institutions, as well as data related to green finance policies and regulations in Indonesia. The hypotheses are tested using the GMM method for data processing, with Stata17 as the main platform. The results indicate that the disbursement of green credit (GC) has a significant negative effect on the bank's Return on Assets (ROA). However, it does not have a significant influence on the Net Interest Margin (NIM). The research provides recommendations to enhance awareness and understanding of green finance through educational campaigns and training. Efforts are also needed to improve access to relevant data and information on green finance, and to strengthen collaboration among the government, financial institutions, and private sector in developing a more inclusive and sustainable green finance ecosystem in Indonesia.

ABSTRAK

Green finance merupakan konsep yang memadukan aspek keuangan dan lingkungan, dengan fokus pada investasi berkelanjutan dan ramah lingkungan. Penelitian ini bertujuan untuk menguji dampak perluasan alokasi pinjaman proyek hijau terhadap profitabilitas bank. Penelitian ini menggunakan data sekunder yang diperoleh dari laporan keuangan perbankan dan lembaga keuangan lainnya, serta data terkait kebijakan dan peraturan keuangan ramah lingkungan di Indonesia. Hipotesis diuji menggunakan metode GMM untuk pengolahan data, dengan Stata17 sebagai platform utama. Hasil penelitian menunjukkan bahwa penyaluran green credit (GC) berpengaruh negatif signifikan terhadap Return on Assets (ROA) bank. Namun tidak mempunyai pengaruh yang signifikan terhadap Net Interest Margin (NIM). Penelitian ini memberikan rekomendasi untuk meningkatkan kesadaran dan pemahaman tentang keuangan ramah lingkungan melalui kampanye pendidikan dan pelatihan. Upaya juga diperlukan untuk meningkatkan akses terhadap data dan informasi relevan mengenai keuangan ramah lingkungan, dan memperkuat kolaborasi antara pemerintah, lembaga keuangan, dan sektor swasta dalam mengembangkan ekosistem keuangan ramah lingkungan yang lebih inklusif dan berkelanjutan di Indonesia.

This work is licensed under a Creative Commons Attribution 4.0 International License.

INTRODUCTION

The importance of sustainability and environmental protection is increasingly recognized globally, including in Indonesia. As a country with diverse abundant natural resources, Indonesia faces challenges in preserving the environment and achieving sustainable development. One sector that has great potential to drive positive change is the financial sector.

The challenge of environmental change remains a critical concern for countries worldwide, including both developed and developing nations (Ngwenya and Simatele, 2020; Aslam et al., 2021). Globally, the banking sector initiated the integration of environmental and social aspects into their business in the 1980s. The initial activities focused on internal environmental management (Jeucken and Bouma, 1999), resulting in environmental resource

savings, reduced emissions, and enhanced reputation (Babiak and Trendafilova, 2011). As a second step, banks integrated environmental issues into lending, investing, asset management, and project financing (Schmidheiny and Zorraquin, 1996; Scholtens, 2008a). Environmental risks, such as those associated with climate change, can significantly impact the financial risks of credit and investment portfolios. Therefore, these risks need to be effectively managed (Weber, 2017; Zeidan et al., 2015). Consequently, many banks have implemented environmental credit risk assessment procedures (Weber, 2014). Finally, the financial industry embraced socially responsible investment (SRI) processes to manage investment risks and capture SRI opportunities (Cerin and Scholtens, 2011).

According to the stakeholder theory, achieving good company performance is not solely for the benefit of the company itself. Companies are required to consider and provide benefits to stakeholders as well. This is done because stakeholders have the ability to influence the company's policies and have an impact on its overall activities. (Bani-Khalid & Kouhy, 2017) Stakeholder support needs to be pursued as it holds significant meaning for the sustainability of company operations (Gray, 1995). In every business activity undertaken, companies are expected to be able to meet the expectations and demands of stakeholders.

In recent years, the concept of green finance has gained attention in Indonesia. Green finance involves the integration of sustainable financial principles with environmentally friendly practices. Through the disbursement of green credit and sustainable investments, the financial sector can play a significant role in accelerating the transition to a sustainable and low-carbon economy. The disbursement of credit by banks is subsequently used for production and consumption activities that drive economic growth.

The financial system in Indonesia is predominantly led by the banking sector, which holds a significant share of the financial sector's assets, amounting to 78% as of June 2022 (BI, 2022). Commercial Banks recorded total assets of Rp10,308.57 trillion in the second quarter of 2022, surpassing other sectors like the Capital Market with a total market capitalization of Rp9,015.25 trillion, and Non-Bank Financial Institutions with total assets of Rp2,956.86 trillion (OJK, 2022). Robust banking institutions play a pivotal role in driving economic growth, while weak banks can impede progress and potentially lead to economic crises, as exemplified during the 1997-1998 economic downturn. However, The Financial Services Authority (OJK) as the regulator of the financial sector in Indonesia has introduced various policies and regulations to promote the development of green finance.

Despite positive developments, there is still a lack of understanding and awareness of green finance among the Indonesian public. Other challenges include limited relevant data and information, as well as a lack of strong collaboration between the government, financial institutions, and the private sector. In this context, this research aims to analyse the development and impact of green finance in Indonesia, with a focus on the influence of diversifying the disbursement of environmentally friendly project credits on bank profitability.

With a deeper understanding of green finance in Indonesia, this research is expected to provide valuable insights for policymakers, regulators, and financial industry players in accelerating the adoption of green finance practices and achieving better sustainable development. Based on the series of arguments above, the hyphotheses are as follows:
H1: Green credit affects banks' profitability performance.

RESEARCH METHODS

The population in this study consists of banks registered and supervised by the Financial Services Authority (OJK) from the period of 2017 to 2022. The total population of banks, based on the Indonesian Banking Statistics - December 2021 (OJK, 2022), is 107 banks. This study utilizes the purposive sampling method. The purposive sampling method involves making judgments in selecting units from the data, and researchers use specific criteria that must be possessed by the relevant samples (Gujarati & Porter, 2012). The selection criteria for the samples are banks registered with the OJK during the research period and having adequate and relevant data and information related to the variables under study from 2017 to 2022.

Research Design, The objective of this study is to investigate the effect of expanding the distribution of green project loans on the profitability of banks. This study employed two indicators to assess the financial performance of banks. The first indicator is Return on Assets (ROA), which measures the ability of the bank to generate net profit in relation to its total assets (Dendawijaya, 2015; Riyadi, 2006). The higher the ROA ratio, the more efficient the capital invested by owners or investors in generating profits. The second indicator is Net Interest Margin (NIM), which represents the ratio of net interest income to interest-bearing assets. NIM was selected due to its close relationship with green credit, an asset that generates interest income. According to Dendawijaya (2015), NIM is a ratio that indicates management's ability to effectively manage its productive assets to generate net interest income. This study employed green credit (GC) as an independent variable to assess the extent to which the disbursement of green credit by commercial banks influences profitability. In addition to the Independent and Dependent Variable listed above, this research also implements several control variables that is commonly used to determine its effect on bank profitability, which consist of Capital Adequacy Ratio (CAR), Liquidity Ratio, Credit Risk, Loan to Deposit Ratio (LDR), and Bank's Size. In addition to the control variables derived from internal bank factors, this study also includes external control variables, including GDP growth, interest rate, and the period of the pandemic. Therefore, the model of the research can be seen on the figure below.

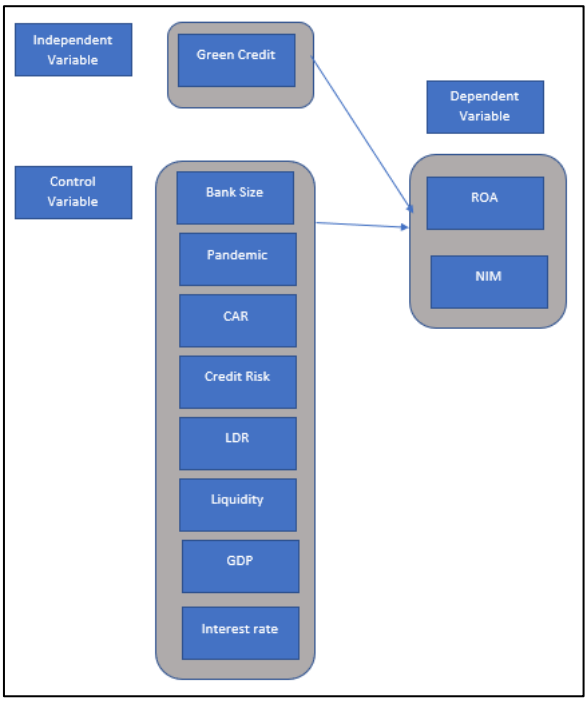

Figure 1. Research Framework

The operational definition of variables in this study is as follows:

1. Return on Asset Return on Asset (ROA)

ROA is a measure of profitability in relation to total assets. It is calculated by comparing net income after tax with the average total assets. ROA indicates the effectiveness of a company in managing its assets, both from equity and borrowed capital. Investors assess how effectively a company manages its assets. A higher ROA has a greater influence on the volume of stock sales, indicating that ROA affects investor interest in investing, which in turn affects the volume of stock sales. Conversely, a low ROA reduces investor interest. To measure the level of ROA, one can compare the earnings obtained with the total assets owned by the company (Scholtens and Dam, 2007; Finger et al., 2018).

The formula to calculate ROA is as follows:

$$ROA = \frac{Net\ Profits}{Total\ Assets} \times 100\%$$

2. Net Interest Margin (NIM)

The difference (spread) between the interest rate on loans/financing and the interest rate on deposits is reflected in the Net Interest Margin (NIM) ratio. The higher the difference between the loan (financing) interest rate and the deposit interest rate, the higher the NIM ratio, and vice versa. The NIM ratio is calculated by dividing net interest income by the average productive assets that generate interest. Net interest income is the interest income minus annual interest expenses. The productive assets considered are those that generate interest and do not include the issuance of guarantees, letters of credit, standby letters of credit, unused credit facilities, which do not generate interest (Nguyen, et., al. 2012). The formula to calculate NIM is as follows:

$$NIM = \frac{Net\ Interest\ Income}{Interest - bearing\ assets} \times 100\%$$

1. Green Credit (GC)

   Green Credit (GC) in this study is measured using a dummy variable, where banks that have disbursed green credit and published it in sustainability reports are assigned a value of 1, while the rest are assigned a value of 0.
2. Capital Adequacy Ratio (CAR)

   Capital is one of the key factors for banks to enhance their business growth. According to Athanasoglou, et. al (2008), profitability is determined by capital, Non-Performing Loan (NPL), productivity growth, operating costs, inflation, and cyclical output, but is not significantly influenced by total assets, industry concentration, and ownership. Meanwhile, according to Ratnasari et al. (2021), CAR has a significant impact on profitability. The formula for calculating CAR is as follows:

   $$CAR = \frac{Capital}{Risk - weighted\ assets} \times 100\%$$
3. Liquidity (Liq)
4. Credit Risk (CR)

   Credit risk is the risk that arises when a debtor defaults or fails to repay principal or interest installments as agreed in the credit agreement, in addition to interest rate risk. According

to Ahmad and Arif (2007) and Zhou et al. (2021), credit risk is measured by dividing impaired loans by total gross loans, as shown in the following formula:

$$Credit\ Risk_{i,t} = \frac{Impaired\ Loan_{i,t}}{Gross\ Loan_{i,t}}$$

Regression Model

This study will utilize dynamic panel data analysis, which involves the use of a single regression equation to examine and explain the relationship between the Independent Variable, Control Variables, and the Dependent Variable. The regression equation can be observed in the following model:

$$BP_{i,t} = \alpha_1 + \beta_0 BP_{i,t-1} + \beta_1 GC_{i,t} + \beta_2 GDP_{i,t} + \beta_3 IR_{i,t} + \beta_4 CAR_{i,t} + \beta_5 Liq_{i,t} + \beta_6 CR_{i,t} + \beta_7 LDR_{i,t} + \beta_8 SIZE_{i,t} + \beta_9 Dum\_PDM + \varepsilon_{i,t}$$

In the regression equation, Bank Profitability (BP) is the dependent variable, α1 represents the constant term, and β1 - β10 denote the regression coefficients. The independent variables include Green Credit (GC), Gross Domestic Product (GDP) growth, Interest Rate (IR), Capital Adequacy Ratio (CAR), Liquidity (Liq), Credit Risk (CR), Loan-to-Deposit Ratio (LDR), Total Asset Logarithm (SIZE), Dummy Pandemic (Dum_PDM), and ε represents the error term.

RESULTS AND DISCUSSION

Table 1. Statistic Descriptive

Variables	Obs	Mean	Std. dev.	Min	Max
ROA	534	1.42	1.34	-1.80	3.68
NIM	534	4.42	1.91	0.71	7.55
GC	534	0.90	0.29	0	1
GDP Growth	534	3.70	2.63	-2.07	5.31
IR	534	4.67	0.91	3.5	6
Liq	534	19.13	8.90	7.38	39.83
CR	534	7.58	5.69	1.61	22.94
LDR	534	84.84	16.35	51.72	119.72
Size	534	30.96	1.21	29.27	33.43
Dum_Pdm	534	0.6	0.50	0	1

Source: Processed data, 2023

Table 2. The Influence of Green Credit Disbursement on Bank Profitability

	ROA	NIM
Constant	0.147***	0.230
	(0.003)	(0.152)
ROA_{t-1}	0.151*	
	(0.076)	
NIM_{t-1}		0.612***
		(0.002)
GC	-0.00273**	-0.00483
	(0.041)	(0.001)
GDP	-0.00248**	0.0421
	(0.032)	(0.112)
IR	-0.00559	0.137**
	(0.861)	(0.016)
CAR	0.00705	0.0104
	(0.179)	(0.437)

Liq	-0.0112*	-0.00874
	(0.080)	(0.459)
CR	-0.0240**	-0.0204*
	(0.021)	(0.085)
LDR	-0.00510*	0.00603
	(0.088)	(0.542)
SIZE	-0.00156	-0.00686
	(0.308)	(0.173)
Dum_Pdm	-0.00171*	-0.00485*
	(0.062)	(0.084)
AR (2) (p-value)	0.7075	0.5548
Sargan test (p-value)	0.4212	0.3668

p-values in parentheses
* p<0.1, ** p<0.05, *** p<0.01
Source: Processed data, 2023

Upon performing diagnostic tests on the panel data, it was observed that the data does not exhibit autocorrelation, multicollinearity, or heteroskedasticity issues. The validity of the model was assessed using the Sargan test, while the consistency of the model was evaluated through the Arellano-Bond test. Additionally, an autocorrelation test was conducted, and the results from all these tests confirmed the appropriateness and validity of the model.

Overall, green credit disbursement (GC) has a significant negative impact on the bank's Return on Assets (ROA). However, green credit disbursement does not have a significant impact on the Net Interest Margin (NIM). Other factors such as previous period's ROA, liquidity ratio, reserve ratio, and operational expenses to operating income have a significant influence on ROA. Meanwhile, NIM is influenced by the previous period's NIM and interest rate. Macroeconomic variables such as GDP do not have a significant impact on ROA or NIM.

In the model for Return on Assets (ROA), there is a significant negative impact between Green Credit Disbursement (GC) and ROA. The regression coefficient of GC on ROA is -0.00273, with a significance level (p-value) less than 0.05. This implies that an increase in green credit disbursement will adversely affect bank profitability in terms of ROA.

However, in the model for Net Interest Margin (NIM), GC does not exhibit a significant influence on NIM. The regression coefficient of GC on NIM is -0.00483, with a p-value of 0.001. This suggests that green credit disbursement does not significantly affect the bank's net interest margin.

Other factors that affect Bank Profitability, specifically Return on Assets (ROA), are as follows. Firstly, the variable ROAt-1 (Return on Assets in the previous period) significantly and positively influences ROA. The regression coefficient of ROAt-1 on ROA is 0.151 with a p-value less than 0.1. Additionally, the variable Liq (Liquidity Ratio) has a significant negative impact on ROA, as indicated by the regression coefficient of -0.0112 and a p-value less than 0.1. Moreover, the variable CR (Credit Risk) significantly and negatively affects ROA, with a regression coefficient of -0.0240 and a p-value less than 0.05.

On the other hand, there are additional factors that influence Bank Profitability, particularly the Net Interest Margin (NIM). Firstly, the variable NIMt-1 (Net Interest Margin in the previous period) significantly and positively impacts NIM, as indicated by the regression coefficient of 0.612 and a p-value less than 0.01. Furthermore, the variable IR (Interest Rate) also has a significant positive impact on NIM, with a regression coefficient of 0.137 and a p-value less than 0.05.

However, while the variable GDP (Gross Domestic Product) does not significantly influence ROA, it does have a significant negative impact on NIM. Similarly, the variable IR (Interest Rate) does not significantly influence ROA but does have a significant positive impact on NIM. Additionally, the variables CAR (Capital Adequacy Ratio), LDR (Loan-to-Deposit Ratio), SIZE (Bank Size), and Dum_Pdm (Dummy Period of Study) do not significantly influence either ROA or NIM.

CONCLUSION

Based on the analysis conducted on the relationship between green credit disbursement (GC) and bank profitability, as measured by Return on Assets (ROA) and Net Interest Margin (NIM), along with other influencing factors, the following conclusions can be drawn: Impact of Green Credit Disbursement on ROA and NIM: Green credit disbursement (GC) has a significant negative impact on Return on Assets (ROA), indicating that an increase in green credit disbursement adversely affects bank profitability in terms of ROA. However, GC does not exhibit a significant influence on Net Interest Margin (NIM), suggesting that green credit disbursement does not significantly affect the bank's net interest margin.

Other Factors Influencing ROA: Previous period's ROA (ROAt-1) has a significant positive impact on ROA, implying a degree of persistence in bank profitability over time. Liquidity ratio (Liq) and credit risk (CR) also significantly influence ROA, with liquidity ratio negatively affecting and credit risk exerting a negative impact on bank profitability. Other Factors Influencing NIM: Previous period's NIM (NIMt-1) and interest rate (IR) significantly influence NIM positively, indicating that the bank's net interest margin is influenced by its past performance and prevailing interest rates. Macroeconomic Variables: Gross Domestic Product (GDP) does not significantly influence ROA but negatively impacts NIM, suggesting that economic conditions might affect the bank's interest margin.

Interest rate (IR) does not significantly influence ROA but has a positive impact on NIM, implying that changes in interest rates can affect the bank's net interest margin positively. Other Variables: Variables such as Capital Adequacy Ratio (CAR), Loan-to-Deposit Ratio (LDR), Bank Size (SIZE), and Dummy Period of Study (Dum_Pdm) do not significantly influence either ROA or NIM, indicating their limited role in explaining bank profitability. In summary, while green credit disbursement negatively impacts ROA, it does not significantly affect NIM. Various other internal and external factors, including previous financial performance, liquidity, credit risk, interest rates, and macroeconomic conditions, play significant roles in determining bank profitability. These findings can inform strategic decisions regarding green credit disbursement and other factors affecting bank profitability.

REFERENCE

Ahmad, N. H., & Ariff, M. (2008). Multi-country study of bank credit risk determinants. *International Journal of banking and Finance*, *5*(1), 135-152.

Aslam, W., Farhat, K. and Arif, I. (2021), "Regular to sustainable products: an account of environmentally concerned consumers in a developing economy", International Journal of Green Energy, Vol. 18 No. 3, pp. 243-257.

Babiak, K., & Trendafilova, S. (2011). CSR and environmental responsibility: Motives and pressures to adopt green management practices. *Corporate social responsibility and environmental management*, *18*(1), 11-24.

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of international financial Markets, Institutions and Money*, *18*(2), 121-136.

Bani-Khalid, T., & Kouhy, R. E. Z. A. (2017). The impact of national contextual factors on corporate social and environmental disclosure (CSED): The perceptions of jordanian stakeholder. *International Review of Management and Business Research*, *6*(2), 556.

Cerin, P., & Scholtens, B. (2011). Linking responsible investments to societal influence: motives, assessments and risks. *Sustainable Development*, *19*(2), 71-76.

Dendawijaya, Lukman. 2015. Manajemen Perbankan, Edisi Kedua, Jakarta : Ghalia Indonesia

Finger, M., Gavious, I., & Manos, R. (2018). Environmental risk management and financial performance in the banking industry: A cross-country comparison. *Journal of International Financial Markets, Institutions and Money*, *52*, 240-261.

Gray, D. (1995). *Reforming the energy sector in transition economies: selected experience and lessons* (Vol. 296). World Bank Publications.

Gujarati, D. N., & Porter, D. C. (2012). Dasar-dasar ekonometrika. *Jakarta: Salemba Empat*, *1*.

Jeucken, M., & Bouma, J. (1999). J (1999)"The Changing Environment of Banks" GMI Theme Issue. *GMI-27, Autumn*.

Nguyen, D. T. T., Diaz-Rainey, I., & Gregoriou, A. (2012). Financial development and the determinants of capital structure in Vietnam. *Dung and Diaz-Rainey, Ivan and Gregoriou, Andros, Financial Development and the Determinants of Capital Structure in Vietnam (February 22, 2012)*.

Ngwenya, N. and Simatele, M.D. (2020), "The emergence of green bonds as an integral component of climate finance in South Africa", South African Journal of Science, Vol. 116 Nos 1/2, pp. 1-3.

Ratnasari, T., Surwanti, A., & Pribadi, F. (2021, March). Implementation of green banking and financial performance on commercial banks in indonesia. In *Recent Developments in Asian Economics International Symposia in Economic Theory and Econometrics* (Vol. 28, pp. 323-336). Emerald Publishing Limited.

Schmidheiny, S., & Zorraquin, F. J. (1996). *Financing change: the financial community, eco-efficiency, and sustainable development*. MIT press.

Scholtens, B., & Dam, L. (2007). Banking on the equator. Are banks that adopted the equator principles different from non-adopters?. *World Development*, *35*(8), 1307-1328.

Scholtens, B. (2008). A note on the interaction between corporate social responsibility and financial performance. *Ecological economics*, *68*(1-2), 46-55.

Weber, O. (2014). The financial sector's impact on sustainable development. *Journal of Sustainable Finance & Investment*, *4*(1), 1-8.

Weber, O. (2017). Corporate sustainability and financial performance of Chinese banks. *Sustainability Accounting, Management and Policy Journal*, *8*(3), 358-385.

Zeidan, R., Boechat, C., & Fleury, A. (2015). Developing a sustainability credit score system. *Journal of Business Ethics*, *127*, 283-296.

Zhou, L., Fujita, H., Ding, H., & Ma, R. (2021). Credit risk modeling on data with two timestamps in peer-to-peer lending by gradient boosting. *Applied Soft Computing*, *110*, 107672.