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ANALYSIS OF THE EFFECT OF GREEN BANKING FINANCING AND BANK HEALTH ON FINANCIAL PERFORMANCE THROUGH BANK SIZE AS A MODERATING VARIATION OF THE BANKING INDUSTRY IN INDONESIA

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Abstract

This study aims to analyze the effect of green banking financing and bank health on financial performance through bank size as a moderating variable in the banking industry in Indonesia. The type of research used is quantitative research. The data analysis technique used is descriptive statistical method and panel data regression analysis (Eviews). The sample in this study was conducted on banking companies listed on the Indonesia Stock Exchange by implementing the Green Banking financing concept in Indonesia for 5 periods, namely 2019 - 2023. The results of this study indicate that the implementation of green banking, capital adequacy ratio, non-performing loans, operating expenses to operating income (BOPO), loan to deposit ratio and total assets have a significant effect on return on assets. Green banking practice has a positive effect on bank financial performance. Non-performing loans have a negative effect on return on assets. Operating expenses to operating income (BOPO) have a negative effect on return on assets. Liquidity (LDR) has a positive effect on return on assets. Cost efficiency ratio has a negative effect on bank financial performance. Bank size can moderate green banking on return on assets. Company size can moderate CAR. Company size cannot moderate NPL. Company size cannot moderate the operational efficiency ratio (BOPO).

Keywords: ***Green Banking Practice, Capital Adequancy Ratio, Non Performing Loan, Operational Efficiency Ratio, Loan to Deposite Ratio, Cost Efficiency Ratio***

1. INTRODUCTION

In line with global awareness, Indonesia is committed to sustainable development. One of its manifestations is through Green Banking. This practice is not only good for the environment, but can also increase the attractiveness of investment in the banking sector. Return on assets in the last 5 years has experienced very significant fluctuations. Based on the Annual Report, Bank BRI's ROA in 2019 was 3.50%, in 2020 it decreased very significantly to 1.98%, in 2021 it increased to 2.72% in 2022 it increased again to 3.76% and in the last year it increased again to 3.93%. Bank BTN's ROA in 2019 was 0.13%, in 2020 it started to increase to 0.69%, in 2021 it increased to 0.81% and in 2022 it increased again to 1.20% and in 2023 it became 1.07%. Bank BCA's ROA in 2019 was 3.20%, in 2020 it decreased significantly to 2.70%, in 2021 it increased to 2.80% and in 2022 it increased again to 3.20% and in 2023 it increased to 3.60%. Bank OCBC's ROA in 2019 was 2.22%, in 2020 it decreased significantly to 1.47%, in 2021 it increased to 1.55%, in 2022 it increased again to 1.86% and in 2023 it increased to 2.14%. Bank BJB's ROA in 2019 was 1.68%, in 2020 it decreased significantly to 1.66%, in 2021 it increased to 1.73%, in 2022 it increased again to 1.75% and in 2023 it decreased to 1.33%.

The implementation of Green Banking financing in the last 5 years in the banking sector has experienced different fluctuations each year. Since 2019, there have been 9 banks that have published financial reports where in 2019 Bank BRI financed the economic sector that implemented Green Banking amounting to 492.874 billion against credit financing of 859.558 billion, which is 57% of total bank credit financing. In 2020 it increased to 63%, namely 562.000 billion with bank credit financing of 880.685 billion. In 2021 it decreased to 57%, namely 543.401 billion with bank credit financing of 943.703 billion. In 2022 it increased to 59%, namely 616.073 billion

with total bank credit financing of 1,029.703 billion. In 2023 it increased to 60%, namely 690.430 billion with total bank credit financing of 1,146.083 billion. *Capital Adequacy Ratio*(CAR) over the past five years has shown significant changes. In 2019, CAR was 22.55% and ROA was 3.5%. In 2020, CAR fell to 20.61% and ROA was 1.98%. In 2021, CAR rose to 25.28% and ROA was 2.72%. In 2022, CAR rose to 25.54% with ROA of 3.76%. In 2023, CAR reached 27.27% and ROA increased to 3.93%.

Loan to Deposit Ratio(LDR) Bank BRI in the last 5 years has shown significant fluctuations. In 2019, LDR was 88.64% and ROA was 3.50%, then dropped to 83.66% and ROA was 1.98% in 2020. In 2021, LDR stagnated at 83.67% with ROA of 2.72%. In 2022, LDR was 79.17% and ROA was 3.76%, increasing to 84.73% and ROA was 3.93% in 2023. Each bank experienced varying changes in LDR and ROA throughout the five-year period. These changes provide an overview of the financial health of each bank.

Non-performing loans(NPL) over the past five years has shown significant changes. Like Bank BRI, NPL in 2019 was 2.62% with ROA of 3.50%. In 2020, NPL fell to 2.94% and ROA fell to 1.98%. In 2021, NPL fell again to 3.08% with ROA increasing to 2.72%. In 2022, NPL fell to 2.82% and ROA increased to 3.76%. However, in 2023, NPL rose to 3.12% with ROA of 3.93%.

The Operational Efficiency Ratio or Operating Expenses to Operating Income (BOPO) over the past five years has shown significant fluctuations in several banks. Bank BNI started with a BOPO of 73.16% and ROA of 2.40% in 2019, which increased to 93.30% with ROA of 0.50% in 2020. In 2021, BOPO decreased to 81.20% and ROA increased to 1.40%, before BOPO fell again to 68.60% and ROA of 2.50% in 2022, then BOPO decreased slightly to 68.40% with ROA of 2.60% in 2023.

Cost efficiency ratio(CER) is a ratio to measure non-interest costs incurred by a bank in generating net interest income and other income. CER has fluctuated significantly in the last five years. Bank BTN in 2019 had a CER of 58.08% and ROA of 0.13%. In 2020, CER decreased to 53.85% and ROA increased. In 2021, CER decreased again but ROA increased. In 2023, CER was 45.26% and ROA increased to 1.07%.

Total assets(TA) in the last five years has experienced many significant changes. For Bank BRI, in 2019 TA was 1.416 Trillion with ROA of 3.50%. In 2020, TA increased to 1.610 Trillion, but ROA decreased to 1.98%. In 2021, TA rose again to 1.678 Trillion and ROA increased to 2.72%. In 2022, TA reached 1.865 Trillion with ROA of 3.76%, and in 2023, TA increased again to 1.965 Trillion with ROA of 3.93%.

2.LITERATURE REVIEW

2.1. Green Banking

*Green banking*plays an important role in preserving the environment and supporting sustainable development. Banks have a responsibility to ensure environmentally responsible banking practices, which also contribute to sustainable economic growth. Each bank may have a different approach in implementing green banking (Masukujjaman, 2013).

2.2. *Signaling Theory*

Signal theory explains how information conveyed by the sender of information to the public functions as a signal of the condition of a business. This theory influences investors' views of the company, which has an impact on investment decisions (Regehr, 2016). Positive signals can increase investor confidence, while negative signals will decrease investment intentions. Information about the company's support for government programs, such as the green economy, provides a positive signal and can affect the value of the company (Singh, 2017).

2.3 Profitability (ROA)

Profitability reflects the end result of activities carried out to achieve organizational goals. Profitability is a measure of a company's ability to gain profits from its activities (Alifah, 2014). Ratio*Return on Asset*(ROA) is used to measure bank profitability, which is set by Bank Indonesia at 1.5 percent (Brigham, 2018).

2.4 Liquidity (LDR)

Liquidity is an important factor in bank performance, describing the bank's ability to meet obligations, especially to depositors (Dang, 2018). A good level of liquidity is positively related to profitability. The safe limit for LDR is generally 81%-100%, but according to the central bank, 110%. LDR also reflects the bank's management strategy.

2.5 Non-Performing Loans (NPL)

Banks have the function of distributing funds, including providing credit to get returns. However, there is a credit risk measured by Non Performing Loan (NPL). This risk arises when customers cannot repay the loan (Kuncoro, 2018). A lower NPL indicates a lower credit risk, while a high NPL can reduce bank profitability. NPL below 5% is considered a healthy bank.

2.6 Operating Expenses Operating Income (BOPO)

The Operating Expense to Operating Income Ratio is used to measure the operational efficiency of a bank, by comparing operational efficiency to operating income (Dietrich, 2009). The amount of the BOPO ratio that can be tolerated by banks in Indonesia is 93.52%, this is in line with the provisions issued by Bank Indonesia. However, if this ratio is low, for example approaching 75%, this means that the performance of the bank in question shows a high level of efficiency.

2.7 Capital Adequacy Ratio (CAR)

Technically, analysis related to bank capital is used to determine the adequacy of bank capital that will be used to cover current risks or exposures as well as a form of anticipating risk exposures in the future.

2.8 Cost Efficiency Ratio (CER)

*Cost efficiency ratio*is a metric used to assess non-interest costs incurred by banks to generate net interest income and additional income that does not come from interest (Nusantara, 2019). Non-interest costs or non-interest expenses often referred to as overhead costs include reserves for losses from productive and non-productive assets, labor costs, employee benefits, and administrative and general costs (such as electricity, telephone, building rent, vehicles, maintenance, etc.). Meanwhile, non-interest income includes income from commissions and provisions that are not from credit, transfer income, check rejections and intercity transactions, profits from foreign exchange transactions, and other banking service income outside of those related to providing credit.

2.9 Bank Size*(Bank Size)*

Bank size is related to the concept of scale efficiency. In economic terms, if an industry can benefit from scale efficiency, larger institutions will be more effective and able to offer services at lower costs, and vice versa. Large banks are considered to benefit from scale efficiency because they can provide services or products at lower costs and more effectively compared to small banks (Yogi, 2013).

3. RESEARCH METHOD

This research is a quantitative/statistical research with the aim of testing the established hypothesis. This research was conducted on banking sector companies listed on the Indonesia Stock Exchange (IDX) in the period 2019-2023 (5 years) using financial statement data from banking companies (financial statements in the annual report company). This research was conducted from July 2023 to November 2024 and the population in this study was 45 companies.

4. RESULT AND DISCUSSION

4.1 Descriptive Statistical Test Table

	GB	CAR	NPL	BOPO	LDR	CER	ROA	BS
Mean	25.36	21.95	2.53	74.97	85.19	45.54	2.06	765021
Maximum	63.81	29.40	4.78	98.12	113.50	76.70	4.03	2174219
Minimum	1.52	16.80	1.02	43.80	62.00	22.45	0.13	123536
Std. Dev.	14.51	3.10	0.90	12.38	10.03	11.24	0.97	641684
Observations	45	45	45	45	45	45	45	45

4.2 Autocorrelation Test Table

Equality	Durbin Watson
Equation 1	2.038796
Equation 2	1.977337

4.3 F Test Table

Equality	F Count	Probability
Equation 1	35,08861	0.000000
Equation 2	36,10647	0.000000

DISCUSSION

The results of the analysis show that the value of the influence of green banking financing on ROA is -0.003, if the value of other variables is constant and the SG variable increases by 1%, then the Financial Performance (ROA) variable will decrease by 0.003%.

The value of the influence of CAR on bank profitability is 0.013100, if the value of other variables is constant and the CAR variable increases by 1%, then the Financial Performance (ROA) variable will increase by 3.

The value of the influence of NPL on bank profitability (ROA) is -0.006, if the value of other variables is constant and the NPL variable increases by 1%, then the Financial Performance (ROA) variable will decrease by 0.006%.

The value of the influence of BOPO on bank profitability (ROA) is -0.040, if the value of other variables is constant and the BOPO variable increases by 1%, then the Financial Performance (ROA) variable will decrease by 0.040%.

The value of the influence of LDR on bank profitability is 2.261 (positive) with a Probability value of 0.031 <0.05, so H0 is rejected and Ha is accepted, meaning that Liquidity has a positive effect on bank Financial Performance.

The effect of CER on bank profitability has a beta coefficient value of the Cost Efficiency Ratio (CER) variable of -0.001, if the value of other variables is constant and the CER variable increases by 1%, then the Financial Performance (ROA) variable will decrease by 0.001%.

The effect of bank size moderating green banking on ROA has a t-value of 2.561 (positive) with a probability value of 0.015 <0.05, so H0 is rejected and Ha is accepted.

The effect of bank size moderating the capital adequacy ratio (CAR) on ROA has a t-value of 1.351 (positive) with a probability value of 0.186 > 0.05, so Ha is rejected and H0 is accepted.

The effect of bank size moderating non-performing loans (NPL) on ROA has a calculated t value of -2.478007 (negative) with a probability value of 0.0191 <0.05, so H0 is rejected and Ha is accepted.

The effect of bank size moderating the operational efficiency ratio (BOPO) on ROA has a beta coefficient value of -0.003 and the Bank Size (BS) variable increases by 1%, then the effect of the Operational Efficiency Ratio (BOPO) variable on Financial Performance (ROA) will decrease by 0.003%.

The effect of bank size moderating liquidity / loan to deposit ratio (LDR) on ROA has a coefficient value of 0.001, if the value of other variables is constant and the Bank Size (BS) variable increases by 1%, then the effect of the Liquidity (LDR) variable on Financial Performance (ROA) will increase by 0.001%. The effect of bank size moderating the cost efficiency ratio (CER) on ROA has a t-value of -0.194 (positive) with a Probability value of 0.847> 0.05, then Ha is rejected and H0 is accepted.

5. CONCLUSION

Based on the research results above, it can be concluded that:

1. The implementation of green banking (GB), capital adequacy ratio (CAR), non-performing loans (NPL), operating expenses to operating income (BOPO), loan to deposit ratio (LDR) and total assets (TA), simultaneously have a significant effect on Return On Assets in Banking.
2. Green banking practices partially have a positive effect on financial performance.
3. NPL partially has a negative effect on ROA.
4. BOPO partially has a negative and significant effect on ROA.

5. LDR (liquidity) partially has a significant positive effect on ROA.
6. Cost efficiency ratio (CER) does not have a positive effect on financial performance.
7. The influence of bank size can moderate green banking on ROA.
8. The test of the moderating variable of company size on CAR has a beta coefficient value of the interaction variable of bank size on the capital adequacy ratio which has a positive result.
9. The test of the moderating variable of company size on NPL had negative results.
10. The test of the moderating variable of company size on the operational efficiency ratio (BOPO) had negative results.
11. The test of the moderating variable of company size on the loan to deposit ratio has positive results.
12. The test of the moderating variable of company size on the cost efficiency ratio has positive results.

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