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Determinants That Influence Financial Sustainability Through Profitability

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Abstract: This research aims to determine whether LDR, NPL, BOPO, and CAR have a direct effect on FSR through ROA in banks listed on the Indonesia Stock Exchange. The sample was selected using purposive sampling with a total sample of 40 banks. The research data was tested using path analysis. The results of the direct analysis show that LDR does not affect FSR, while NPL, BOPO, and CAR have a negative and significant effect on FSR. Additionally, ROA has a positive and significant effect on FSR. Furthermore, LDR and CAR do not affect ROA, whereas NPL has a positive and significant effect, and BOPO has a significant negative effect on ROA. The results of the indirect analysis show that LDR, NPL, and CAR do not affect FSR through ROA, whereas BOPO has a significant negative effect on FSR through ROA.

Keyword: LDR, NPL, BOPO, CAR, FSR.

INTRODUCTION

The Covid-19 pandemic has had a broad impact, not only on human health but also the economy, in the form of disruption to poverty eradication programs and hampering progress on sustainable development goals. Concerns have shifted from manufacturing supply and demand issues to a decline in business in the services sector. The pandemic caused a global recession. Authorities are faced with a dilemma between managing the crisis and moving forward with a financial sustainability agenda. In the financial industry, the Indonesian authorities (Bank Indonesia and OJK) have responded, one of which is by issuing POJK No 51 /POJK.03/2017 concerning the implementation of financial sustainability for financial service institutions, issuers and public companies. The results of the Financial Services Authority's (OJK) post-pandemic follow-up regarding financial sustainability in 2022 are not yet optimal. Only 27% of funding by banks meets the desire principle (OJK, 2022). This shows that banking has a significant role in the movement of financial assets in Indonesia. Therefore, banks can become a driving force for sustainable economic development by implementing financial sustainability (Hartadinata & Varihah, 2023). (Nizam et al., 2023) study of *financial sustainability* in Basel, transparent

communication and collaboration with stakeholders is critical for banks to foster trust, share best practices and drive collective efforts towards sustainability in the financial sector. Therefore, the performance of financial institutions, including banks, needs to be maintained, so that they can operate optimally, because financial reports are one of the factors that must be taken into account in order to remain competitive.

Signals refer to steps taken by company management to provide shareholders with an indication of their assessment of the company's prospects (Brigham, 2019). One strategy used by management to provide signals to shareholders is through the company's annual financial reports. Financial Sustainability Ratio (FSR) is one of the tools used by management to provide positive signals to shareholders and the general public regarding bright prospects for the company's sustainable future (MacHdar, 2020). Financial sustainability aims to increase the resilience and competitiveness osf Financial Services Institutions and has principles, namely risk management, increasing capacity in implementing sustainable finance so that it is able to grow and develop sustainably (Majumder & Li, 2018). The phenomenon related to Financial Sustainability in Indonesia is interesting to continue researching because the aim is to realize a transformation in technological development. (Pungus et al., 2024) in his study used the variables return on assets, non-performing loans, loan to deposit ratio, financial sustainability and firm value as intervening variables. As for the development in this research, the ROA variable is used as a mediating variable in testing directly and indirectly the independent variables (LDR, NPL, BOPO, CAR) on the dependent variable Financial Sustainability.

Loan to deposit ratio (LDR) is a comparison between disbursed credit and third party funds to determine bank liquidity. Study from (Permatasari & Utiyati, 2018) shows that LDR has a negative effect on company performance, while company performance will affect financial sustainability. Research results from (Santoso & Sofiatun, 2022) and (Zheng et al., 2020) found that LDR has a positive effect on Financial Sustainability. Furthermore, non- performing loans (NPL) are considered as an influencing indicator of financial sustainability for the banking sector (Zheng et al., 2020). In study (Xu, 2015); (Nurhikmah & Rahim, 2021) and (Sanfa & Ida, 2023), there is a negative and insignificant influence on financial sustainability. Different results from (Permatasari & Utiyati, 2018) and (Santoso & Sofiatun, 2022) show that NPL has a negative effect on FSR. NPL has a significant effect on the proportion of funding distributed by banks. A high NPL will have an unfavorable impact where the bank will experience bankruptcy, and a low NPL reflects that the bank can continue its business with a greater FSR.

Furthermore, this BOPO variable provides an idea of how efficiently a bank's operational costs are managed. Based on studies from (Majumder & Li, 2018) and (Yuhasril, 2019) shows that BOPO has a negative and significant impact on FSR. This means that an increase in BOPO will cause a decrease in FSR, while a decrease in BOPO will result in an increase in FSR. Another variable CAR reflects the amount of capital required to balance the risk of loss associated with investing in risky assets, as well as to fund all fixed assets and bank inventories. (Xu, 2015); (Avrita & Pangestuti, 2016); and (Latuamury et al., 2023), found that CAR has a negative impact on FSR. The higher the CAR, the greater the amount of funds that are not used by the bank. This situation can cause bank performance to become less efficient because there are a lot of funds that are not utilized. And the profitability measure used is return on assets (ROA) in the banking industry. The reason why ROA was chosen as a performance measurement tool is because Return on Assets (ROA) is used to measure a company's effectiveness in generating profits by utilizing the assets it owns. A bank will experience difficulties if it has a low ROA. Based on the analysis results (Notoatmojo & Rahmawaty, 2016); (Nurhikmah & Rahim, 2021); (Alifiana et al., 2023), ROA has a positive effect on FSR. ROA reflects that a bank

can generate profits that are directly proportional to FSR. If ROA increases then FSR will also increase.

The results of direct studies of the ROA variable with other variables (LDR, NPL, BOPO, CAR) still show inconsistent results, namely (Zheng et al., 2020); (Ullah et al., 2020) and (Fauziah & Fadhilah, 2022) shows that NPL and LDR have a negative and significant effect on ROA and are inversely proportional to the study by (Avrita & Pangestuti, 2016), NPL and LDR do not have a significant effect on ROA. The results of the study by (Yuhasril, 2019) and (Fauziah & Fadhilah, 2022) found that CAR and LDR did not have a significant effect on ROA, while NPL and BOPO had a significant effect on ROA. Next (Avrita & Pangestuti, 2016); (Hasan et al., 2020) and (Fauziah & Fadhilah, 2022) shows that the CAR, BOPO, NPL and LDR variables have a positive and significant effect on ROA.

Based on the previous explanation, this research was developed from the research of (Adhim, 2019) and (Pungus et al., 2024) and the selection of variables was developed based on (Nurhikmah & Rahim, 2021), this was due to the development of a new model to test the direct and indirect influence of the LDR variable, NPL, BOPO, CAR, ROA and FSR. This research will focus on financial sustainability in banking. Apart from adding to the diversity of literature, the results of this research can also be used as material for consideration for important policies for banks. Therefore, the problem formulation in this research is: 1). Is there an influence of LDR, NLP, BOPO, CAR and ROA on financial sustainability in banks listed on the IDX?; 2). Is there an influence of LDR, NLP, BOPO, CAR on ROA in banks listed on the IDX?; 3). Is there an influence of LDR, NLP, BOPO, CAR on the financial sustainability ratio through ROA in banks listed on the IDX?

METHOD

Population, Sample and Data Collection Methods

The population is the entire research object that will be studied and has the same characteristics. The population in this research is banks listed on the Indonesia Stock Exchange during 2021-2023. The samples in this research are banks listed on the Indonesia Stock Exchange during 2021 - 2023. The sampling method in this research uses purposive sampling, namely with certain considerations. The data collection method used in this research is document study, which involves analyzing existing data within the company, especially annual financial report data over a three year period, from 2021 to 2023.

Table 1. Population Criteria

Kriteria Populasi	Amount
Banking companies registered continuously during 2021-2023	47
Banking companies that do not report annual financial reports for 2021-2023	(7)

Source: Data processed 2024

Data Analysis Techniques

The data analysis carried out in this research is:

Data analysis used in this research used SPSS 23.0 for Windows. The analytical tools used are path analysis, hypothesis testing and the sobel test for testing mediating variables using the calculate sobel test. The structural equation of path analysis:

Model I

Hypothesis: Loan to Deposit ratio (LDR), Non-performing loans (NPL), operational costs and operating income (BOPO), Capital Adequacy ratio (CAR), Return on Assets (ROA) has an effect on financial sustainability ratio (FSR)

$$Y = pyx\ X1 + pyx\ X2 + pyx\ X3 + pyx\ X4 + pyx\ Z + pyx$$

Model II

Hypothesis: Loan to Deposit ratio (LDR), Non-performing loans (NPL), operational costs and operating income (BOPO), Capital Adequacy ratio (CAR) has an effect on Return on Assets (ROA)

Z = pzx X1 + pzx X2 + pzx X3 +pzx X4+ ε1

Information :

Z = Return on Assets (ROA)

Y = Financial Sustainability Ratio

(FSR) X1 = Loan to Deposit ratio

(LDR)

X2 = Non-Performing Loans (NPL)

X3 = Operating Costs and Operating Income

(BOPO) X4 = Capital Adequacy Ratio (CAR)

In regression, there are several assumption tests that must be met, which consist of: a) data normality test which aims to test whether the regression model of the dependent variable and independent variables has a normal distribution or not. A good regression model means that the data must be normally distributed or close to normal, b) multicollinearity test, which is a situation where there is no or linear correlation between two or more independent variables, c) heteroscedasticity test, namely a test carried out to find out whether the model In regression, there is inequality of variance from the residuals of one observation to another (Sugiyono, 2018).

The final step is hypothesis testing consisting of three stages, namely the coefficient of determination test (R2) which measures how far the model's ability to explain variations in the dependent variable. Then the F test is carried out to determine whether there is a significant influence of the LDR, NPL, BOPO, CAR, ROA variables on overall Financial Sustainability (dependent variable). Apart from that, there is a t test, which is used to find out how much influence an independent variable individually has in explaining the dependent variable. And indirectly testing the variables LDR, NPL, BOPO, CAR, ROA on Financial Sustainability through profitability (ROA).

RESULTS AND DISCUSSION

Descriptive Statistics

This research uses secondary data related to banking performance including financial sustainability ratio (FSR), loan deposit ratio (LDR), non-performing loans (NPL), operational costs and operating income (BOPO), capital adequacy ratio (CAR), and returns. on assets (ROA) during 2021 - 2023. Next, descriptive analysis was carried out using the Statistical Package for Social Science 23 (SPSS 23) program.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Financial Sustainability Ratio	120	46.60	1145.70	236.7750	153.57584
Loan Deposit Ratio	120	26.32	532.53	93.8452	55.44807
Non-Performing Loans	120	-42.69	15.11	1.3603	7.71517
Operating Costs and Operating Income	120	21.50	229.24	81.3799	28.31530
Capital Adequacy Ratio	120	-11.65	274.33	40.4683	38.71697
Return On Assets	120	-44.73	11.90	1.1116	.28653
Valid N (listwise)	120				

Source: Processed Data, 2024

Based on table 1, it is known that the sample observed in this study was 120. In addition, the overall value of the variables is shown by the average value, highest value,

lowest value and standard deviation value. The financial sustainability ratio variable shows the lowest value of 46.60 and the highest value of 1145.70, while the average value is 236.77 and the standard deviation value is 153.575. The loan to deposit ratio variable shows the lowest value of 26.32 and the highest value of 532.53, while the average value is 93.84 and the standard deviation value is 55.44807. The non-performing loan variable shows the lowest value of -42.69 and the highest value of 15.11, while the average value is 1.36 and the standard deviation value is 7.715. The variables operational costs and operational income show the lowest value of 21.50 and the highest value of 229.24, while the average value is 81.37 and the standard deviation value is 28.315. The Capital adequacy ratio variable shows the lowest value of -11.65 and the highest value of 274.33, while the average value is 40.68 and the standard deviation value is 38.716697. And then there is the return on asset variable which shows the lowest value of -44.73 and the highest value of 11.90, while the average value is 1.11 and the standard deviation value is 8.286.

Discussion

Table 1. Testing the Direct Effect Hypothesis

Independent	Dependent	B	Std. Error	t-count	p-value
Loan to Deposit Ratio (LDR)	Financial Sustainability Ratio (FSR)	.093	.076	1.230	0.221
Non-Performing Loans (NPL)		-13.327	1.027	-12.974	0.000
Management Efficiency (BOPO)		-.668	.133	-5.038	0.000
Capital Adequacy Ratio (CAR)		-.347	.104	-3.333	0.001
Return on Assets (ROA)		-5.224	.903	5.783	0,000
Loan to Deposit Ratio (LDR)	Return on Assets (ROA)	-.014	0.061	-1.828	0.070
Non-Performing Loans (NPL)		-1,042	0.026	24,559	0.000
Management Efficiency (BOPO)		-.075	0.033	-6.394	0.000
Capital Adequacy Ratio (CAR)		.010	.011	.904	0.368

Source: Data processed, 2024

a. Oan to Deposit Ratio (LDR) to Financial Sustainability Ratio (FSR).

Loan to deposit ratio (LDR) is used to assess the level of liquidity of a bank by comparing the total loans disbursed by the bank with the total deposits held in the same period. In this study, the loan to deposit ratio is not significant to the financial sustainability ratio (FSR), this shows because a high LDR is not an indication of an increase in the Financial Sustainability Ratio (FSR). Banks are required to be able to manage the receipt and expenditure of funds well. Disbursement of funds such as efficient and careful credit distribution can reduce the risk of bad credit. In the descriptive statistics of this research, it was found that the average value of the LDR variable was 93.84%., with Bank Indonesia standards for a Loan to Deposit Ratio (LDR) between 80% and 110%. This LDR value reflects the percentage of funds distributed by the bank. A high LDR indicates a bank's liquidity capability is getting lower, which worsens the Financial Sustainability Ratio position and the bank's financial performance. Apart from that, the existence of signaling theory can provide information to customers or the general public because it will have an impact on customer trust in the bank. Several presearch that is not in line with the results of this research (Permatasari & Utiyati, 2018); (Santoso & Sofiatun, 2022) and (Sanfa & Ida, 2023) state that there is an influence of LDR on the financial sustainability ratio (FSR).

b. Non-Performing Loans (NPL) to Financial Sustainability Ratio (FSR).

Non-Performing Loans(NPL) is a tool for measuring bank business risk ratios which indicates the magnitude of the risk of non-performing loans in a bank (Panta, n.d.). In providing loans is the main business of retail banking and non-performing loans (NPL), NPL has a serious impact on both parties at the end of the agreement, namely the lender (bank) and the loan (domestic company). The results of the analysis show that non-performing loans (NPL) have a negative and significant effect on the financial sustainability ratio (FSR). This indicates that the lower the NPL value of a bank, the better the banking performance, which of course will have a good impact on banking Financial Sustainability. If a bank has a high NPL, then the bank will experience difficulty in making a profit, which will have an impact on financial sustainability. This supports the research results which show that during the research period the average value of NPL was 1.36%, which means it was in accordance with Bank Indonesia standards of below 5%. In accordance with signal theory which states that information will be very useful for shareholders in the form of reports and company management can use the Financial Sustainability Ratio (FSR) as a signal tool in the form of good news to shareholders and the public from company management regarding the company's good future prospects. sustainably (Rustam & Adil, 2022). Providing clear information obtained by investors will increase confidence in a company so that investors are willing to invest their capital and will be financially stable in banking. However, the results differ from research by (Permatasari & Utiyati, 2018), (Zheng et al., 2020); (Nurhikmah & Rahim, 2021); (Santoso & Sofiatun, 2022) and (Sanfa & Ida, 2023) state that NPLs do not have a significant impact on the Financial Sustainability Ratio (FSR). However, other results obtained from and related to NPL have a negative and insignificant effect on the financial sustainability ratio (FSR).

c. Operating Costs and Operating Income (BOPO) to Financial Sustainability Ratio (FSR).

Operating Costs and Operating Income (BOPO) is a ratio between operational costs and operational income which is used to measure the level of efficiency and ability of a bank in carrying out its operational activities. This ratio shows the bank management's ability to control operational costs towards operational income. The partial test results show that Operational Costs and Operational Income (BOPO) have a negative and significant effect on the financial sustainability ratio (FRS). This means that the lower the bank's efficiency level, the better the bank's sustainability level. Banks with high BOPO levels indicate that bank management cannot use operational costs effectively. To avoid a low BOPO ratio, banks can reduce operational costs and increase income. The low BOPO of a bank indicates that the bank is well managed so that it can increase its ability to remain a going concern, in other words the bank can utilize its production factors optimally with good and appropriate management in order to increase its ability to survive (Nuryanto et al., 2020). Supported by a good standard BOPO value of ≤85%, seen from descriptive statistics the average BOPO value during the research period was 81.38%. Of course, good BOPO during this research period shows that banks are able to control costs efficiently so as to increase the bank's financial sustainability. Apart from that, the results of this research support the signaling theory which states that a decrease in the BOPO value is a positive signal that will make customers believe in saving their funds in the bank because the amount of receipts is more than the amount of expenditure, resulting in an increase in financial sustainability. The results of this research support studies from (Majumder & Li, 2018) and (Yuhasril, 2019) showing that BOPO has a negative and significant impact on FSR. This means that BOPO will in creasecauses a decrease in FSR, while a decrease in

BOPO will result in an increase in FSR.

d. Capital Adequacy Ratio (CAR) to the Financial Sustainability Ratio (FSR).

The capital adequacy ratio or capital shows the bank's ability to maintain sufficient capital and the ability of bank management to carry out managerial functions against risks that arise and make it possible to influence bank capital (Dianita & Phety, 2021). This is an important indicator for evaluating the sustainability of banking health. Therefore, with a higher Capital Adequacy Ratio (CAR), the profits obtained by the bank will increase. A high CAR value indicates a good level of solvency for a bank. This indicates that a bank that has effective and good capabilities in financing its operational activities, then the bank's possibility of providing financing will also be greater. The results of the analysis show that CAR has a negative and significant effect on the financial sustainability ratio (FSR), meaning that although CAR reflects the bank's ability to overcome risks and maintain sustainability, it does not always correlate positively with the bank's sustainable financial performance in a certain period. Therefore, how much capital a bank has does not necessarily reflect its impact on sustainable finance. Capital not only acts as an important source in meeting bank funding needs, but capital position also has a significant impact on management decisions in achieving profits and evaluating potential risks. If a bank has excessive capital, this will affect the volume of bank profits, whereas if the bank has too little capital, apart from limiting its capacity to develop its business, this can also affect the special assessment of depositors, debtors and bank shareholders. The CAR condition in the three year observation period (2021–2023 period) was very good, where the average CAR was 40.46% (far above the minimum bank CAR standard of 8%). This can indicate that the bank has too much retained capital or capital reserves, which should be fully optimized for company operations and banking functions to achieve maximum profits. Of course, it supports stakeholder theory which states that differences in interests can cause different company orientations, so it needs to be considered because support from various parties influences the achievement of goals and the sustainability of company activities in the future (Matuszak & Różańska, 2020). Apart from that, this finding is also supported by the results of (Panta, n.d.) study that a CAR that is too high indicates that the bank has excessive capital, thus reflecting a lack of bank efficiency in distributing funds. A high CAR value indicates that too much capital owned by the bank is idle and unproductive. This condition can increase the risk of loss, resulting in a decrease in profits and in the long term will have an impact on decreasing Financial Sustainability. This study is supported by (Ayuningtyas et al., 2018), (Munandar & Aravik, 2022) and (Almaida et al., 2023) also support that there is an influence between CAR and financial sustainability as proxied by the Financial Sustainability Ratio (FSR).

e. Return on Assets (ROA) to Financial Sustainability Ratio (FSR).

Return On Assets (ROA) is a comparison between profit before tax and average total assets in a period. This ratio is very important, because the profits obtained from the use of assets can reflect the level of bank business efficiency (Yuhasril, 2019). Based on the partial test, Return on assets has a positive and significant effect on the financial sustainability ratio (FSR), this shows that The influence of ROA is directly proportional to the bank's financial sustainability ratio. It means the higher the resulting ROA value indicates that the company is efficient in managing its assets to generate profits. Because the bank's ability during the research period to generate profits is directly proportional to the bank's financial sustainability performance. This is supported by the average ROA value during the period of 1.11%. This means that if ROA increases, the financial sustainability ratio will also experience a significant increase in the bank's ROA value.

According to signal theory, if a bank gives a positive signal in the form of an increase in the ROA value, customers will entrust their funds to be deposited with the bank because the profits obtained by the bank have increased, and for the bank it can be allocated as additional capital that can support its operational activities so that there is an increase in financial sustainability (Sutikno, 2022). The higher the ROA value, it means that the company's position is better in utilizing its assets so that the company can maintain its business in the long term (going concern) (Asriyana et al., 2022). In addition, the results of this research validate signaling theory, in this case positive signals have an impact on customer trust in banks, however, this condition can influence increased financial sustainability. This statement is supported by research conducted by (Sutikno, 2022), (Miranti & Oktaviana, 2022) and (Alifiana et al., 2023) which revealed that there is an influence between ROA and financial sustainability which is proxied by the Financial Sustainability Ratio (FSR).

f. Loan to Deposit Ratio (LDR) to Return on Assets (ROA).

Statistical test results show that the loan to deposit ratio (LDR) has no effect on return on assets (ROA). This indicates that changes in rising or falling liquidity have no influence on the achievement or increase in bank profits. The standard deviation value range of 55.44% which is far below the mean value of 93.84% indicates that the volatility data deviation is low or stable. This is because during the observation year banks were quite careful in channeling funds in order to maintain their liquidity and tried to maintain stable Loan to Deposite Ratio (LDR) growth. Banking companies must maintain their LDR value, so that investors can see the health of the bank and make investment decisions (Sastrawan et al., 2023). This supports the signal theory where each company must be able to provide information related to the condition of its company. According to standards set by Bank Indonesia between 80% - 110%, if banks are unable to maintain the LDR value, banks will receive a warning from Indonesian banks. Moreover, banking is an intermediary institution that functions as an intermediary between fund owners so that it will act as a substitute for fund owners and users, so the size of this ratio also depends on the policies and strategies used by bank management to utilize the liquid assets they own to gain profits. Therefore, the LDR in the research has no influence on ROA in banking in Indonesia. These results support the research results of (Avrita & Pangestuti, 2016) and (Adhim, 2019) which state that LDR has no effect on ROA. However, the results are different from research by (Zheng et al., 2020), (Ullah et al., 2020), and (Fauziah & Fadhilah, 2022) show that the loan to deposit ratio (LDR) has a negative and significant effect on Return on assets (ROA).

g. Non-Performing Loans (NPL) to Return on Assets (ROA).

Non-performing loans (NPL) can also be interpreted as an indicator used to measure a bank's ability to cover the risk of non-payment of a loan by the borrower. Based on partial test results, it shows that non-performing loans (NPL) have a positive and significant effect on return on assets (ROA). If the NPL ratio increases, it will lead to a decrease in bank profit growth. This is because the Non-Performing Loan (NPL) ratio is a ratio used to measure how much problem credit a bank has. So if the level of problem loans becomes greater, it will reduce bank profits because the bank's income is small from paying customers' credit interest. So banks must be able to try to minimize any problem loans, so that the circulation of capital flows channeled through credit can have a good impact on increasing bank profitability, because the lower the risk of credit or problem loans, the greater the profitability that the bank will obtain, and vice versa, the higher the risk. credit, the smaller the profitability the bank will obtain (Adhim, 2019). Of course, this can

provide signals related to information for stakeholders in determining policies to increase banking revenues. These results are in accordance with research from (Sukmadewi, 2020), namely that there is a positive and significant influence between NPL and ROA. Different results obtained by (Adhim, 2019) and (Ullah et al., 2020) state that NPLs have a negative and significant effect on bank profitability.

h. Operational Costs and Operating Income (BOPO) to Return on Assets (ROA).

OPO is used as a parameter for the efficiency of banking operational activities, the method is by comparing operational costs to operational income. Based on the test results, it shows that BOPO has a negative and significant effect on ROA. This means that the more efficient the bank is in managing bank operational activities or the use of assets owned, the better the bank's performance. This can be seen from the smaller the BOPO ratio, indicating the more efficient a bank is in carrying out its operational activities, which will have an impact on increasing profitability, and vice versa. These results support the Signaling Theory which states that a company has more information than other parties, in this case investors and creditors which creates information inequality. The disclosure of information carried out by a company is considered to provide a signal to recipients of the information (Brigham & Houston, 2019). A good BOPO value is ≤85%, seen from descriptive statistics, the average BOPO value during the research period was 81.38%, which indicates that the bank managed the use of resources in operational activities effectively and was able to reduce operational costs, thereby having an impact on ROA. Of course this is in line with theory, where This ratio is used to measure the level of efficiency and ability of the bank in carrying out its operational activities. Considering that the main activity of banks is in principle to act as an intermediary, namely collecting and distributing funds (for example public funds), the bank's operational costs and income are dominated by interest costs and interest income. So that in the end it will have an impact on increasing the profitability that will be obtained. This result supports previous studies by (Yuhasril, 2019) stating that BOPO has a negative and significant effect on ROA. Meanwhile, other results were obtained by (Avrita & Pangestuti, 2016); (Hasan et al., 2020); and (Sukmadewi, 2020) sshow that the BOPO variable has a positive and significant effect on ROA.

i. Capital Adequacy Ratio (CAR) to Return on Assets (ROA).

CAR or often called capital ratio is the basic capital that must be met by banks. This study shows that CAR has no effect on ROA. It means, The higher the CAR achieved by the bank does not affect the size of the ROA. CAR is a ratio that describes profitability analysis, where theoretically an increase in the bank's own capital will reduce costs and so changes in company profits will increase, but if capital is low, third party funds will become expensive and interest costs will be high so that the bank's ROA willlow. The CAR condition in the three year observation period (2021– 2023 period) was very good, where the average CAR was 40.46% (far above the minimum bank CAR standard of 8%). A high CAR means that the bank does not fully use the CAR for its activities, because banks that have quite large capital but have not been able to allocate their capital effectively to generate profits, then the capital has not had a significant effect on Return on Assets (ROA). Of course, capital also functions to maintain public confidence in the bank's ability to carry out its function as an intermediation institution (Julius R. Latumaerissa, 2017). In accordance with studies by (Yuhasril, 2019) and (Hasan et al., 2020) which state that there is no influence between CAR and ROA. In contrast to the research results of (Adhim, 2019) and (Fauziah & Fadhilah, 2022), it shows that there is a positive and significant influence of CAR on ROA. This shows that the higher the CAR

value, the higher the bank's opportunity to generate profits.

Table 2. Indirect Effect Hypothesis Testing

Independent Variable	Mediation Variables	Dependent Variable	t-Statistics	p-Value	Information
Loan to Deposit Ratio (LDR)	Return on Assets (ROA)	Financial Sustainability Ratio (FSR)	-.990	,324	Not significant
Non-Performing Loans (NPL)	Return on Assets (ROA)	Financial Sustainability Ratio (FSR)	1,557	.122	Not significant
Operating Costs and Operating Income (BOPO)	Return on Assets (ROA)	Financial Sustainability Ratio (FSR)	-8,230	,000	Significant
Capital Adequacy Ratio (CAR)	Return on Assets (ROA)	Financial Sustainability Ratio (FSR)	-.764	,446	Not significant

Source: Processed Data, 2024

a. The Influence of Loan to Deposite Ratio (LDR) on the Financial Sustainability Ratio (FSR) through Return on Assets (ROA).

Return on assets (ROA) is a description of the measurement of a bank's ability to generate profits. ROA can also be interpreted as a bank's overall measurement of its ability to generate profits. Financial sustainability, a company can predict potential bankruptcy that might occur, so as a form of anticipation it is necessary to calculate the financial sustainability of a company (Nurhikmah & Rahim, 2021). The results of the study show that the loan to deposit ratio (LDR) has no effect on the Financial Sustainability Ratio (FSR) through Return on Assets (ROA). This means that return on assets (ROA) is unable to mediate the relationship between loan to deposit ratio (LDR) and FSR. This shows that the rise and fall of the LDR will not be able to affect the FSR or return on assets obtained by the bank during the research period. These results support the results of direct testing between LDR and FSR as well as between LDR and ROA which show results that have no effect. Because during the research period banks were quite careful in distributing their funds. If linked to the results of descriptive statistics, the average ROA value is 1.11%, this shows that the ROA position is in a fairly healthy position in accordance with what is determined by the bank and the LDR value in the research year shows an average of 93.84%. Therefore, LDR in this study has no influence on FSR or ROA. The results of this study support (Avrita & Pangestuti, 2016) and (Adhim, 2019) state that LDR has no effect on ROA. And other studies from (Oliveira & Raposo, 2020); (Santoso & Sofiatun, 2022) and (Sanfa & Ida, 2023)) state that there is an influence of LDR on the financial sustainability ratio (FSR).

b. The Influence of Non-Performing Loans (NPL) on the Financial Sustainability Ratio (FSR) through Return on Assets (ROA).

Return on assets (ROA) is a description of the measurement of a bank's ability to generate profits. ROA can also be interpreted as a bank's overall measurement of its ability to generate profits. In addition, a higher Return on Assets (ROA) value reflects a bank's ability to use assets. However, non-performing loans (NPL) will greatly affect the profitability of a bank, because the smaller the non-performing loan (NPL), the better the bank's performance. On the other hand, if non-performing loans (NPL) are high, it can indicate that there are a lot of problem loans which result in decreased profitability. bank. Likewise with the relationship between NPL and FSR, where NPL reflects credit risk, the smaller the NPL, the smaller the credit risk borne by the bank. This means that the lower

the Non-Performing Loans (NPL) of a bank, the better its Financial Sustainability Ratio. The test results show that non-performing loans (NPL) have no effect on the financial sustainability ratio (FSR) through return on assets (ROA), this shows that ROA is unable to mediate the influence on NPL and financial sustainability ratio (FSR). This means that the lower or higher the non-performing loans (NPL) will not be able to affect financial sustainability (FSR) and of course will not have any impact on return on assets (ROA). This is proven by the average value of NPL of 1.36% during the research which is below 5% which is said to be good. So indirectly NPL is not able to influence FSR through ROA, this is supported by the descriptive statistical value of ROA during the research period showing an average value of 1.11% which is said to be quite healthy, this is in accordance with the standards set by Bank Indonesia. So it can be concluded that NPL has no effect on FSR through ROA, because during the research period all variables were in a good position for the bank's sustainability. This study supports (Permatasari & Utiyati, 2018) and (Santoso & Sofiatun, 2022) regarding NPL having no effect on the financial sustainability ratio (FSR). Other research results from (Adhim, 2019), (Ullah et al., 2020) state that NPLs have a negative and significant effect on profitability.

c. The Influence of Operational Costs and Operational Income (BOPO) on the Financial Sustainability Ratio (FSR) through Return on Assets (ROA).

Return on Assets (ROA) is one of the ratios in profitability ratios which can measure a company's ability to generate profits in the past and then project them into the future. The assets referred to here are all of the company's assets obtained from its own capital or from foreign capital which the company has converted into company assets which are used for the survival of the company. In other words, companies must use costs appropriately in running their business so that the costs incurred do not increase. (Brigham: 2019). The company's inefficiency in using the assets it owns can affect ROA, ROA will decrease as a result of this inefficiency, which results in a lack of interest among investors in investing their capital in the company (Adhim, 2019). However, the efficiency level ratio (BOPO) has a negative effect on the Financial Sustainability Ratio (FSR), meaning that the lower the efficiency level ratio (BOPO), the better the Financial Sustainability Ratio (FSR) of a bank. The research results show that operational costs and operating income (BOPO) have a negative and significant effect on the financial sustainability ratio (FSR) through return on assets (ROA), meaning that ROA is able to mediate the effect of BOPO on FSR. This shows that the more efficient the BOPO ratio, the better the Financial Sustainability Ratio (FSR) of a bank and can increase income (ROA). The low BOPO of a bank indicates that the bank's production factors are well managed so that it can increase its ability to remain a going concern. The ROA variable can mediate the effect of BOPO on FSR and is associated with descriptive statistical results showing an average of 81.38%, in accordance with bank regulations of ≤85%. The statistical results show that the BOPO value is low, meaning that the bank is very efficient in managing the use of resources in operational activities effectively and is able to reduce operational costs so that it has an impact on financial sustainability (FSR) and will also have an impact on increasing banking ROA. Previous studies from (Majumder & Li, 2018) show that BOPO has a negative and significant impact on FSR. This means that BOPO will increasecauses a decrease in FSR, while a decrease in BOPO will result in an increase in FSR. Meanwhile, (Yuhasril, 2019) stated that BOPO has a significant effect on ROA

d. The Influence of Capital Adequency Ratio (CAR) on Return on Assets (ROA) through the Financial Sustainability Ratio (FSR).

Profitability is the final result achieved by management from every policy and decision. Profitability ratios are used to measure a company's ability to gain profits using the assets it owns. Profitability is measured by Return on assets (ROA) which measures the ability of bank management to obtain overall profits (Permatasari & Utiyati, 2018). However, the Capital Adequacy Ratio (CAR) is a ratio that describes the company's capability in providing sufficient capital that will support business development and anticipate possible risks of loss due to the company's operational activities. A high CAR due to an increasing capital trend is an indication that the bank can manage assets and asset turnover efficiently. This will have an impact on increasing bank performance as seen from the increase in Return on Assets. According to signal theory, if a bank gives a positive signal in the form of an increase in the CAR value, customers will entrust their funds to be deposited with the bank, where more funds will become capital for the bank to be able to support its operational activities so that financial sustainability increases (Sutikno, 2022). Based on the research results, it shows that CAR has no effect on the financial sustainability ratio (ROA) through return on assets (ROA), this means that ROA is not able to mediate the relationship with LDR or FSR in banking during the research period. This is supported by the descriptive statistical value that the bank's capital adequacy ratio (CAR) during the research period was very good, namely an average of 40.46% (far above the minimum bank CAR standard of 8%). This means that a high CAR means that the bank is not fully using the CAR for its activities, because a bank that has quite large capital but has not been able to allocate its capital effectively to generate profits, then the capital has not had a significant effect on the financial sustainability ratio (FSR) or Return on Assets (ROA). Of course, capital also functions to maintain public confidence in the bank's ability to carry out its function as an intermediation institution (Julius R. Latumaerissa, 2017). These results are not in accordance with the study (Fauziah & Fadhilah, 2022) show that there is a positive and significant influence of CAR on ROA. This shows that the higher the CAR value, the higher the bank's opportunity to generate profits. Likewise with (Almaida et al., 2023) also supports that there is a positive influence between CAR and financial sustainability as proxied by the Financial Sustainability Ratio (FSR).

CONCLUSION

The conclusion must be linked to the title and answer the research formulation or objectives. Do not make statements that are not adequately supported by your findings. Write down improvements made to industrial engineering or science in general. Don't create further discussion, repeat abstracts, or simply list research findings. Don't use bullet points, use paragraph sentences

Based on research results related to the determinants of Determinants That Influence Financial Sustainability Through Profitability are as follows:

This shows that the influence of the loan to deposit ratio (LDR) is not significant on the financial sustainability ratio (FSR). A high LDR is not an indication of an increase in the Financial Sustainability Ratio (FSR). Banks are required to be able to manage the receipt and expenditure of funds well. The effect of non-performing loans (NPL) is negative and significant on the financial sustainability ratio (FSR). This indicates that the lower the NPL value of a bank, the better the banking performance, which of course will have a good impact on banking Financial Sustainability. If a bank has a high NPL, then the bank will experience difficulty in making a profit and this will have an impact on financial sustainability.

Influence of operating costs and operating income (BOPO) has a negative and significant effect on the financial sustainability ratio (FRS). This means that the lower the bank's efficiency level, the better the bank's sustainability level. Banks with high BOPO levels indicate that bank management cannot use operational costs effectively.

The effect of the capital adequacy ratio (CAR) is negative and significant on the financial sustainability ratio (FSR), meaning that although the CAR reflects the bank's ability to overcome risks and maintain sustainability, it does not always correlate positively with the bank's sustainable financial performance in a certain period. Therefore, how much capital a bank has does not necessarily reflect its impact on sustainable finance.

The influence of Return on assets (ROA) is positive and significant on the financial sustainability ratio (FSR), this shows thatThe influence of ROA is directly proportional to the bank's financial sustainability ratio. It meansThe higher the resulting ROA value indicates that the company is efficient in managing its assets to generate profits.Because the bank's ability during the research period to generate profits is directly proportional to the bank's financial sustainability performance.

The influence of the loan to deposit ratio (LDR) has no effect on return on assets (ROA). This indicates that changes in rising or falling liquidity have no influence on the achievement or increase in bank profits. This is because during the observation year banks were quite careful in channeling funds in order to maintain their liquidity and tried to maintain stable Loan to Deposite Ratio (LDR) growth.

The influence of non-performing loans (NPL) has a positive and significant effect on return on assets (ROA). If the NPL ratio increases, it will lead to a decrease in bank profit growth. This is because the Non Performing Loan (NPL) ratio is a ratio used to measure how much problem credit a bank has. So if the level of problem loans becomes greater, it will reduce bank profits because the bank's income is small from paying customers' credit interest. The influence of operational costs and operating income (BOPO) has a negative and significant effect onreturn on assets (ROA). This means that the more efficient the bank is in managing bank operational activities or the use of assets owned, the better the bank's performance. This can be seen from the smaller the BOPO ratio, the more efficient a bank is in carrying out its operational activities so that it will have an impact on increasing profitability, and vice versa.

The influence of the capital adequacy ratio (CAR) has no effect on return on assets (ROA). It means, The higher the CAR achieved by the bank does not affect the size of the ROA. CAR is a ratio that describes profitability analysis, where theoretically an increase in the bank's own capital will reduce costs and so changes in company profits will increase, but if capital is low, third party funds will become expensive and interest costs will be high so that the bank's ROA willlow.

The influence of the loan to deposit ratio (LDR) has no effect on the Financial Sustainability Ratio (FSR) through Return on Assets (ROA). This means that return on assets (ROA) is unable to mediate the relationship between loan to deposit ratio (LDR) and FSR. This shows that the rise and fall of the LDR will not be able to affect the FSR or return on assets obtained by the bank during the research period.

The influence of non-performing loans (NPL) has no effect on the financial sustainability ratio (FSR) through return on assets (ROA), this shows that ROA is unable to mediate the influence of NPL or financial sustainability ratio (FSR). This means that the lower or higher the non-performing loans (NPL) will not be able to affect financial sustainability (FSR) and of course will not have any impact on return on assets (ROA).

The influence of operational costs and operating income (BOPO) has a negative and significant effect on the financial sustainability ratio (FSR) through return on assets (ROA), this shows that ROA is able to mediate the influence of BOPO on FSR. This shows that the more efficient the BOPO ratio, the better the Financial Sustainability Ratio (FSR) of a bank and can increase income (ROA). The low BOPO of a bank indicates that the bank's production factors are well managed so that it can increase its ability to remain a going concern.

The influence of the capital adequacy ratio (CAR) has no effect on the financial sustainability ratio (ROA) through return on assets (ROA), this means that ROA is not able to mediate the relationship with LDR or FSR in banking during the research period. A high CAR means that the bank does not fully use CAR for its activities, because a bank that has quite large capital but has not been able to allocate its capital effectively to generate profits, then capital has not had a significant effect on the financial sustainability ratio (FSR) or Return on Assets (ROA).

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