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ANALYSIS OF THE EFFECT OF CAPITAL ADEQUACY RATIO (CAR), NON-PERFORMING LOAN (NPL), AND OPERATING COST OPERATING INCOME (BOPO), NET INTEREST MARGIN (NIM) TO LOAN TO DEPOSIT RATIO (LDR) OF STATE-OWNED BANKS IN INDONESIA

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ABSTRACT

A bank is an institution with a financial intermediation function that has the authority to raise public funds and also distribute money in the form of loans and other financial services. The purpose of this study is to analyze the effect of Capital Adequacy Ratio (CAR) on Loan to Deposit Ratio (LDR) at State-Owned Banks in Indonesia, 2015 – 2019 and to analyze the effect of Non-Performing Loans (NPL) on Loan to Deposit Ratio (LDR) at State-Owned Banks in Indonesia, 2015 – 2019. This study is a quantitative study. This study uses a hypothesis testing design which is a design aimed at testing the influence between variables where in this case the variables tested are factors that affect bank financial performance. Capital Adequacy Ratio (CAR) has a positive but not significant influence on the Loan to Deposit Ratio (LFR) at state-owned banks in Indonesia in the 2015-2019 period. Non-Performing Loans (NPL) have a negative and significant influence on the Loan to Deposit Ratio (LFR) at state-owned banks in Indonesia in the 2015-2019 period. Operating Costs to Operating Income (BOPO) have a positive and significant influence on the Loan to Deposit Ratio (LFR) of state-owned banks in Indonesia in the 2015-2019 period.

Keywords: *Bank, Loan to Deposit Ratio (LDR), Capital Adequacy Ratio (CAR), Non Performing Loan (NPL)*

INTRODUCTION

A bank is an institution with a financial intermediation function that has the authority to raise public funds and distribute money through loans and other financial services. (Utama, 2018). In an economic activity, banks certainly have a vital role. Healthy banking will make a country's financial system healthy as well (Yusuf & Al Arif, 2015). Therefore, as a business entity, the bank must also be healthy and profitable where this can be achieved with good performance so that the bank will have good survival and also provide benefits for its stakeholders and shareholders (Andriani et al., 2022).

The main product of the inner bank according to its function is credit (Lailiyah, 2014). Credit distribution to bank customers is one of the main sources of income from banks where the greater the credit distributed by a bank will certainly have an impact on the amount of profit or profit of the bank (Supeno & Hendarsih, 2020). However, credit also has risks, namely the possibility that the credit is like credit payments that are difficult to collect or not current known as non-performing loans.

Bank credit provided by banks is generally measured using the lon to deposit ratio (LDR) which is a comparison of credit provided by a bank to third-party funds raised by a bank (Armereo, 2015). The term LDR since the issuance of Bank Indonesia Regulation No.17/11/PBI/2015 dated June 26, 2015 has been changed to LFR (Loan to Funding Ratio), this is intended to expand the funding component and encourage lending to the larger Micro, Small and Medium Enterprises (MSMEs) sector. Bank Indonesia's macroprudential policy is

expected to provide greater room for lending (Indonesia & Perdoki, 2014). Over time, Bank Indonesia considers that LFR has not included the purchased securities, thus introducing the Macroprudential Intermediation Ratio (MIR) which will be calculated under the Financing to Funding Ratio (FFR) scheme. However, because this RIM calculation is tied to GWM, for consistency of calculation, the author only uses LDR as a dependent variable in this study.

A high LDR level from a bank, will reflect the bank's ability to disburse credit which of course will increase profits from the company assuming the level of non-performing loans is maintained low (Junianti et al., 2023). However, a high ratio of LFR also indicates decreased bank liquidity, which is because, funds owned by banks are mostly used for lending and vice versa banks will have high liquidity when LDR is low because it shows banks have funds stored or idle (Fitrianto & Mawardi, 2006). The LDR level itself has been determined by Bank Indonesia in the form of the Macroprudential Intermediation Ratio (MIR) to keep the bank healthy and able to carry out its functions properly. Where according to Bank Indonesia regulations, the value of bank RIM is around 84%-94%. Bank Indonesia has also determined sanctions for banks that violate this rule or benchmark where there will be sanctions in the form of lower disincentive parameters and upper disincentive parameters with the following details:

NPP/NPF	KPMM	Lower Disincentive Parameters
≥ 5%	-	0.00
< 5%	KPMM ≤ 14%	0.00
	14% < KPMM ≤ 19%	0.10
	KPMM > 19%	0.15

Meanwhile, the above disincentive parameter is set at 0.20 if the Bank has a RIM greater than 94% and KPMM smaller than 14% (KPMM Incentive) and 0.00 if KPMM > 14%.

One of the factors that affect the loan-to-deposit ratio (LDR) is the Capital Adequacy Ratio (CAR) (Pranata & Dwi, 2015). Capital adequacy ratio (CAR) is a ratio used by regulatory authorities in the banking field to assess the soundness of the banking system and ensure that banks can determine the level of capital adequacy of possible losses arising from bank operations (Fatma, 2020). The higher the CAR ratio indicates the stronger the bank is and the increasing ability of the bank to protect funds from investors (Sukma, 2013). This ratio ensures that the bank is able to meet obligations and other risks such as operational risk, credit risk and market risk. Dang (2011) argues that the capital adequacy ratio indicates the internal strength of the bank to bear losses incurred when the bank is in a crisis.

The CAR ratio is a ratio that shows the stability of the capital owned by the bank and is also related to the high and low risk owned by the bank. The higher the CAR value indicates that the bank has sufficient capital to support its needs and bear the risks posed including credit risk. With large capital, a bank can channel more credit, in line with increased credit, it will increase the LDR itself. Therefore, it can be said that a high CAR ratio will have an impact on LDR which is also getting higher (Ambaroita, 2015).

Another factor that can affect the Loan to Deposit ratio is non-performing loans (Pop et al., 2018). This ratio shows the ratio of non-performing loans owned by banks which are generally caused by customers who cannot pay part or all of the loan per a predetermined agreement. The NPL ratio is a bank risk in lending and is common, however, NPLs that are too high will certainly interfere with the performance of banks and every bank needs to try to reduce the NPL level as low as possible so as not to disrupt its performance. A high NPL value wherein, a value above 5% is considered high, indicates an unhealthy bank condition. This condition will disrupt credit disbursement activities from the Bank, hamper operational activities, and cause losses for the bank. A high ratio will also make banks to withhold lending to customers

because banks will have to form larger write-off reserves and therefore it can be said that the NPL ratio can affect the LDR of the bank.

Furthermore, the factor that affects the Loan to Deposit Ratio (LDR) is operating costs to operating income (BOPO). The BOPO ratio is a measure of the efficiency of the company which is a comparison of operating costs to operating income of the company (Syaepullah, 2022). A low ratio of BOPO indicates that the bank has high efficiency in its operational activities which will certainly reduce the costs borne compared to revenue or in other words the bank will get a better profit when the BOPO ratio is low. In accordance with Bank Indonesia regulations, the Bank ideally has a BOPO ratio between 50-75% where banks with high values from this lift show poor efficiency in their operational activities. High BOPO also shows that banks have relatively high operational costs compared to their revenues so that it will make banks potentially disrupted or problematic (Febrianti and Muid, 2013).

Another factor that can affect a bank's LDR is net interest margin (NIM). This ratio is a ratio that describes how the bank's ability to manage productive assets owned by the bank to generate income in the form of net interest (Agustina and Wijaya, 2013). According to Dendawijaya (2006), the ability of bank management to manage its productive assets will generate net profit that continues to grow because the operational activities of the bank will be able to run optimally. A good bank performance directly positively affects its financial performance. According to Primasari and Mahfud (2015) The greater the NIM ratio, the more effective the bank is in placing its productive assets in the form of loans or loans and therefore NIM can be tied to have an influence on the Loan to Deposit Ratio.

State-owned banks in Indonesia have an important role for the national banking industry and also the national economy in general. State-owned banks in Indonesia itself consisting of Bank Tabungan Negara (BTN), Bank Mandiri, Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI) have a large contribution, especially in lending in Indonesia. From 2016 to 2019, around 40% of loans from national banks were channeled through state-owned banks. Therefore, it is important for state-owned banks to continue to pay attention to their LDR ratio to continue to contribute well and carry out their functions. From its own background, it is known that there are factors that affect LDR and therefore this study seeks to analyze how the influence of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Operating Costs Against Operational Financing (BOPO) and Net Interest Margin (NIM) on Loan to debt Ratio (LDR) from state-owned banks listed on the Indonesia Stock Exchange during the period 2015 – 2019.

Based on the background that has been described, the formulation of the problem to be discussed is:

1. How is the Effect of Capital Adequacy Ratio (CAR) on Loan to Deposit Ratio (LDR) at State-Owned Banks in Indonesia, 2015 - 2019?
2. How is the Effect of Non-Performing Loan (NPL) on Loan to Deposit Ratio (LDR) at State-Owned Banks in Indonesia, 2015 - 2019?
3. How Do Operating Costs Affect Operational Financing (BOPO) on Loan to Deposit Ratio (LDR) at State-Owned Banks in Indonesia, 2015 - 2019?
4. How Does Net Interest Margin (NIM) Affect Loan to Deposit Ratio (LDR) at State-Owned Banks in Indonesia, 2015 - 2019?
5. How is the Effect of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Operating Costs on Operational Financing (BOPO), and Net Interest Margin (NIM) together on the Loan To Deposit Ratio (LDR) at state-owned banks in Indonesia, 2015 - 2019?

The purpose of this study is to answer the problems raised in the formulation of the problem above, namely to analyze the effect of Capital Adequacy Ratio (CAR) on Loan To Deposit

Ratio (LDR) at state-owned banks in Indonesia, 2015 - 2019?. To analyze the effect of Non-Performing Loans (NPL) on Loan To Deposit Ratio (LDR) at state-owned banks in Indonesia, 2015 - 2019?. To analyze the effect of Operating Costs on Operational Financing (BOPO) on Loan To Deposit Ratio (LDR) at state-owned banks in Indonesia, 2015 - 2019?. To analyze the effect of Net Interest Margin (NIM) on Loan To Deposit Ratio (LDR) at state-owned banks in Indonesia, 2015 - 2019?. To analyze the effect of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Operating Costs to Operating Income (BOPO), and Net Interest Margin (NIM) together on Loan To Deposit Ratio (LDR) at state-owned banks in Indonesia, 2015 - 2019?.

The benefit of this research is to contribute empirical research results in the topic of the effect of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Operating Cost to Operational Income (BOPO) and Net Interest Margin (NIM) to Loan To Deposit Ratio (LDR) at State-Owned Banks in Indonesia. The results of this study are expected to be a source of information or input material for further research. As a consideration and input for the banking industry in managing its company performance.

METHOD

This study aims to analyze the influence of CAR, NPL, BOPO and NIM on LDR with a sample of state-owned banks listed on the Indonesia Stock Exchange during the 2015-2019 period. This study is a quantitative study. This study uses a hypothesis testing design which is a design aimed at testing the influence between variables where in this case the variables tested are factors that affect bank financial performance. The unit of analysis of this research is a commercial bank listed on the Indonesia Stock Exchange. The test used is panel data testing.

Variable Operationalization

In order for this research to be carried out as expected, it is necessary to understand the various elements that form the basis of a scientific study contained in the operationalization of research variables. So there are two variables used in connection with this study, including:

1. Varibel Dependent

The dependent variable in this study is the Loan to Deposit Ratio (LDR). LDR is a ratio to measure the composition of the amount of credit provided compared to the amount of public funds (Third Party Funds) used (Siamat: 2003). This ratio indicates one of the bank's liquidity assessments. LDR is measured from the comparison between the amount of credit given to the amount of third-party funds, as formulated as follows:

$$\text{LDR} = 100\% \frac{\text{Number of Credits Granted}}{\text{Amount of Third Party Funds}} \; x$$

LDR states how far the bank is able to repay depositors' withdrawals by relying on credit as a source of liquidity. The higher the ratio, the lower the liquidity capability of the bank concerned. This is due to the increasing amount of bank funds needed to finance credit, Dendawijaya (2009).

2. Independent Variables

Independent variables are variables that cause or change in dependent variables, also called influencing variables. In this study the independent variables consist of:

a. *Capital Adequacy Ratio* (CAR)

The capital ratio is represented by the Captal Adequacy Ratio (CAR). CAR is a bank performance ratio used to measure the adequacy of capital owned by banks to support assets that contain or generate risk, such as credit provided by Siamat (2003). CAR is measured from the comparison between capital owned by banks with risk-weighted assets (ATMR), as formulated as follows:

$$\text{CAR} = 100\% \frac{\text{Own Capital}}{\text{Weighted Assets}} \; x$$

b. *Non Performing Loan* (NPL)

According to Dendawijaya (2009), NPL is a ratio to measure the ability of bank management to overcome non-performing loans provided by banks. Credit risk of a bank is one of the risks received from banking businesses or activities caused by non-repayment of credit that has been given by the bank to debtors. NPL is measured from the comparison between non-performing loans to total loans, as formulated as follows:

$$\text{NPL} = \text{x } 100\% \frac{\text{Number of Non-performing Loans}}{\text{Number of Credits Granted}}$$

c. Operating Expenses Operating Income (BOPO)

According to Riyadi (2004), BOPO is a ratio that shows the amount of comparison between expenses or operating costs to the operating income of a bank in a certain period. In banks, operational expenses generally consist of interest costs (interest expenses paid by the bank to customers who deposit their money in the bank in the form of third party funds) administrative costs, labor costs, marketing costs etc. Meanwhile, bank operating income generally consists of interest income (obtained from credit installment payments from the public), commissions, etc. It is mathematically formulated as follows:

$$\text{BOPO} = 100\% \frac{\text{Total Operating Expenses}}{Total\ Operating\ Income} \; x$$

d. *Net Interest Margin* (NIM)

According to Bank Indonesia Circular, No 06/23/DPNP. On May 31, 2004, NIM is a comparison between net interest income (interest-interest expense income) and average productive assets. Productive assets that are taken into account are productive assets that generate interest income. The greater this ratio, the increase in interest income on productive assets managed by the bank so that the possibility of the bank in a problematic condition is smaller. This ratio is formulated as follows:

$$\text{NIM} = 100\% \frac{\text{Net Interest Income}}{\text{Average Productive Assets}} \; x$$

Population and Sample

Population is the entire object of research, such as a group of people, events and an interest that researchers will take to be used as an object in research (Sekaran, 2006: 121). The population used in this study is state-owned banks in Indonesia for the period 2015 – 2019.

A sample is a portion or representation of a population consisting of a selected amount of data from the population. In other words, a number but not all of them can be taken and used for samples (Sekaran, 2006: 123). The sample used in this study is the financial statements of state-owned banks, namely 4 banks, namely PT Bank Negara Indonesia Tbk, PT Bank Rakyat Indonesia Tbk, PT Bank Mandiri Tbk, and PT Bank Tabungan Negara Tbk, with a research period of 5 years from 2015 – 2019. The sampling technique carried out is through the purposive sampling method. Purposive sampling method is a sampling technique based on certain considerations or criteria (Sugiono: 2010). The banking criteria used in the study are as follows:

1. State-owned banks in Indonesia that are still operating during the observation period of 2015 – 2019.
2. The Bank has published and published quarterly financial statements for the years 2015 – 2019.
3. Banks that have a complete ratio in accordance with the variables to be researched and used based on the sources used.

Based on the explanation above, the number of samples that meet in this study is as many as 4 state-owned banks, namely Bank Mandiri (Persero), Tbk, Bank Negara Indonesia (Persero), Tbk, Bank Rakyat Indonesia, Tbk, and Bank Tabungan Negara, Tbk.

In this study the authors used secondary data types. Secondary data is a source of data that has been processed, processed, obtained by other parties in a ready-made form in the form of publication. This secondary data is obtained from the Financial Services Authority (OJK), namely www.ojk.go.id such as Indonesian Banking Statistics data and quarterly financial statements from Persero Banks in Indonesia for the period 2015 – 2019, namely from bank websites that are used as objects in research (www.mandiri.co.id, www.bni.co.id, www.bri.co.id, www.btn.co.id).

The data collected in this study is secondary data, this study uses two data collection methods, namely:

1. Literature Study

This research is by collecting data and theories relevant to the problem to be researched by conducting a literature study of literature and other library materials such as articles, journals, books and previous research.

2. Documentary Studies

Secondary data collection in the form of financial statements obtained from the website of each Bank Persero and from Bank Indonesia. This research uses quantitative analysis methods. In quantitative analysis methods, the data used is in the form of numbers in the process of data processing. Data processing activities using Ms.Excel 2016 which include making graphs,

tables, and others. In processing data, this study used Eviews10 software to test the significance of panel data regression analysis.

1. Classical Assumption Test Regression Model

To answer the purpose of the study and conduct data analysis, this study uses multiple regression analysis techniques. In this case, before regression is carried out, classical assumption testing is needed to ensure the data and model used have quality (Ghozali, 2016).

2. Normality Test

In a regression model, it is necessary to ensure that the data is normally distributed. In regression models both for individual t-tests and f-or partial tests follow the rule of normally distributed residual data. According to Ghozali (2011: 160), one of the efforts to conduct a normality test is to use the Kolmogorov-Smirnov test where a data is said to be normal if the probability value is greater than α (0.05).

3. Heteroscedasticity Test

A good regression model needs to ensure there is no equal residual variance between observations. To ensure this, a heteroskedaticity test can be performed. One of the tests that can be done is to use the plot graph method where the comparison between Zpred and Sresid values and a model does not have heteroscedacity problems when there is no clear pattern and the point spreads above and below the Y axis (Ghozali, 2011).

4. Multicollinearity Test

In a regression model, there should not be a strong correlation between independent variables. To ensure this, testing can be done by looking at the Variance Inflation Factor (VIF) numbers and models. A model does not have a multicollinearity problem if the VIF value is less than 10 (Ghozali, 2015).

5. Autocorrelation Test

This test was conducted to ensure there was no correlation between the periods used in this study, because a strong correlation indicates an unfeasible model (Ghozali, 2015). To test this, the Durbin Watson test can be carried out with the following decision-making criteria:

Zero Hypothesis	**Decision**	**If**
No positive autocorrelation	Reject	$0 < d < dl$
No positive autocorrelation	No Decision	$dl \leq d \leq du$
No negative autocorrelation	Reject	$4 - dl < d < 4$
No negative autocorrelation	No Decision	$4 - du \leq d \leq 4 - dl$
No autocorrelation, positive or negative	Not Rejected	$du < d < 4 - du$

6. Test the hypothesis

Hypothesis testing in this study was conducted to test how the influence of the independent variable on the dependent variable. In this study, the hypothesis test was carried out using multiple regression analysis method. In multiple regression, the coefficient of determination test, t test and F test will be carried out.

7. Test t (Partial)

To test the effect of independent and dependent variables partially performed using the t-Test. A relationship between binding variables has a significant effect when the value of significance or probability is less than 5% or 0.05 or by comparing the value of t where the calculated t value must be greater than the t-table.

8. F Test (Simultaneous)

The F test is performed as a model test where a good model meets these criteria. Test F will examine how all independent variables simultaneously have a significant influence on independent variables where the decision-making criteria are as follows:

- If the value of F count is smaller than F table (F count < F table) or the probability value of each independent variable is smaller α = 0.05 (p-value < α). Then H0 is rejected and Ha is accepted. This means that independent variables have a significant effect simultaneously (together) on dependent variables. no significant effect simultaneously (together) on the dependent (bound) variable.
- If the value of F count is greater than F table (F count > F table) or the probability value of each independent variable is greater α = 0.05 (p-value < α). Then H0 is accepted and Ha is rejected. This means that the variable is indepedent.

9. Test Coefficient of Determination (R2)

This test is carried out to find out how the strength of the independent variable in explaining the dependent variable. If R2 is close to 1 (100%), then the calculation results show that the better or more precise the regression line obtained. Conversely, if the value of R2 is close to 0, it indicates that the regression line is increasingly inaccurate for measuring observational data.

RESULTS AND DISCUSSION

The object of research in this study is a state-owned bank in Indonesia registered with Bank Indonesia during the 2015-2019 period. The data needed in this study is financial statement data from banks per quarter obtained from each official website of a state-owned bank that is the object of this study.

In the description of the data will be described in general data from each variable in the research used where it can be seen in the table below. Eachvariable used in the study will be explained first before conducting further analysis. Description of statistical data consisting of mean, median, maximum, minimum, standard deviation skewness, cutosis, jarque-fallow statistics and p-value has different values in each variable.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CAR	80	.1478	.2296	.1959	.0197206
NPL	80	.0175	.0478	.0280	.0071170
NIM	80	.0332	.0843	.0587	.0131626
BOPO	80	.6301	.9812	.7488	.0755403
LFR	80	.8047	1.1424	.9453	.0901723

Valid N (listwise)	80

Source : Financial Report 2015-2019, (processed)

From the table above, it is known that for the Capital Adequacy Ratio (CAR) variable the minimum value is 0.1478 or 14.78% where the value of this CAR is at Bank BTN in 2015 quarter 2. Meanwhile, the highest value was 0.2296 or 22.96%, namely at Bank BRI in 2017 in quarter 4. In general, the average CAR value of state-owned banks during the observation period was 0.1959 or 19.59% where this value is a good and adequate value and has met the predetermined requirements.

For the value of Non-Performing Loans (NPL), the average value is 0.0175 or 1.75%, namely at Bank BNI in 2019 quarter 1. The highest value was 0.0478 or 4.78%, namely at Bank BTN in 2019 quarter 4 and 2015 quarter 1. In general, the average NPL value is 0.0280 or 2.8%, which shows a low ratio of NPL or in other words, most customers of state-owned banks have the ability to pay their obligations.

For the Net Interest Margin (NIM) variable from the description table above, the lowest value was 0.0332 or 3.2%, namely at Bank BTN in 2019 quarter 4. Meanwhile, the highest value was 0.0843 or 8.43%, namely at Bank BRI in 2016 quarter 2. Overall, the average value for the NIM variable is 0.0587 or 5.87%, which indicates that the bank has the ability to generate profits from net interest income.

For variable Operating Costs to Operating Income (BOPO), the lowest value was 0.6301 or 63.01%, namely at Bank Mandiri in 2019 quarter 1. In addition, the highest value was 0.9812 or 98.12%, namely at Bank BTN in 2019 quarter 4. In general, the average value for BOPO is 0.7488 or 74.88% which shows that the bank has a fairly good efficiency.

Based on the table above, it can be seen that the Loan to Fund Ratio (LFR) has the lowest value of 0.8047 or 80.47%, namely at Bank BRI in 2015 quarter 1. Meanwhile, the highest value was 1.1424 or 114.24%, namely at Bank BTN in 2019 quarter 1. Meanwhile, the average value of LFR is 0.9453 or 94.53%, which indicates that the Bank has been able to distribute funds to customers in the form of redit from third party deposits collected by the Bank.

1. Classical Assumption Test Regression Model

Because this study uses multiple regression as an analysis method, it is necessary to test classical assumptions as a condition for conducting regression analysis. The tests in question are normality, multicollinearity, autocorrelation and heteroscedasticity tests.

a. Normality Test

A good regression model must have data with a normal distribution. To test the normality of the data, the Kolomogorov-Smirnov test was carried out with the following test results:

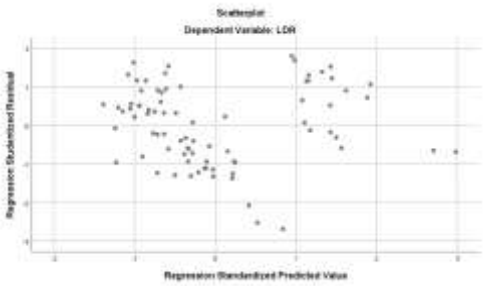
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		80
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.05053147
Most Extreme Differences	Absolute	.080
	Positive	.068
	Negative	-.080
Test Statistic		.080
Asymp. Sig. (2-tailed)		.200[c,d]

The test results show that the significant value of the normality test shows a value of 0.200 or greater than 0.05 so that it can be said that the data in this study has been distributed normally and meets the classical assumptions for the normality test.

b. Heteroscedasticity Test

This test is carried out as an effort to ensure that there are no variants or the same residue between observations in a regression model. One method that can be used is to use Scatterplot as follows:



From the Scatterplot, it can be seen that the points that are representations of the data used in this study have a random distribution above and below the number 0 (zero) so that it can be concluded that there is no heteroscedasicity problem in the regression model used so that it has met the classical assumption test.

c. Multicollinearity Test

Good regression models do not have a strong correlation between independent variables. To ensure this, a multicollinearity test is carried out by looking at the VIF value. Regression with a VIF (Variance Inflation Factor) value of less than 10 shows no multicollinearity problem in the model and the test results can be seen as follows:

Variabel Independen	VIF
CAR	1.797
NPL	1.780
NIM	1.901
BOPO	2.392

From the table of multicollinearity test results, it can be seen that each independent variaebl in this study has a VIF value of less than 10 so there is no multicollinearity problem in the research model.

d. Autocorrelation Test

This test was carried out to ensure there was no correlation between observation periods in the research model. To ensure a model does not have autocorrelation problems, the Durbin Watson test is carried out with the following decision-making:

1. If D-W < dL or D-W > 4 – dL, the conclusion is that there is an autocorrelation with the data.
2. If dU < D-W < 4 – dU, the conclusion is that there is no autocorrelation with the data.
3. There is no conclusion if: dL ≤ D-W ≤ dU or 4 – dU ≤ D-W ≤ 4 – dL

From the test results, the following results were obtained:

DU	D-W	4-DU
1.7430	2.012	2.257

From the table above, it is known that the value of DU with a sample of 80 and the number of independent variables (k) is 4 is 1.7430 so the value of 4-DU is 2.257. The DW value itself is 2.0212 where this value is between the values of DU and 4-DU or can be described as 1.743 (DU) < 2.212 < 2.257 so that it can be said that the value of D-W is between DU and 4-DU so it is said that there is no autocorrelation problem in this study.

e. Multiple Regression Analysis

After the classical assumption test has been qualified, the next step is multiple regression analysis. The results of the multiple regression analysis can be seen in the table below:

Coefficients[a]

Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.425	.131		3.251	.002		
	CAR	.618	.397	.135	1.560	.123	.557	1.797
	NPL	-.651	1.094	-.051	-.595	.554	.562	1.780

	BOPO	.772	.119	.646	6.460	.000	.418	2.392
	NIM	-2.737	.611	-.400	-4.478	.000	.526	1.901

a. Dependent Variable: LFR

Based on the table obtained the regression equation as follows:

Loan to Deposit Ratio (LFR) = 0.425 + 0.618CAR-0.651NPL+0.722BOPO – 2.737NIM

2. Test the hypothesis

Test t (Partial)

The t test or partial test is used to determine whether there is an influence of the independent variable partially or individually on the dependent variable. An independent variable can be said to have a significant influence on the dependent variable if the value of the probability of each independent variable (p-value) is less than α (p-value < α).

Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.425	.131		3.251	.002
	CAR	.618	.397	.135	1.560	.123
	NPL	-.651	1.094	-.051	-.595	.554
	BOPO	.772	.119	.646	6.460	.000
	NIM	-2.737	.611	-.400	-4.478	.000

The following are the hypotheses used for the t-test:

- Capital Adequacy Ratio (CAR)
  H0 : CAR has no significant effect on Loan to Deposit Ratio (LFR)
  Ha : CAR has a significant effect on the Loan to Deposit Ratio (LFR)

For the CAR variable, a t-statistic value of 1.560 is obtained With a probability value of 0.123 greater than the significant level of 5%, it can be concluded that Ha is rejected and H0 is accepted. So it can be explained that the CAR variable does not have a significant effect on the Loan to Fund Ratio.

- Non-Performing Loan (NPL)
  H0: NPL does not have a significant effect on the Loan to Deposit Ratio (LFR)
  Ha: NPL has a significant effect on the Loan to Deposit Ratio (LFR)

For the NPL variable, a t-statistic value of -0.595 is obtained With a probability value of 0.554 greater than the significant level of 5%, it can be concluded that Ha is accepted and H0

is rejected. So it can be explained that the NPL variable does not have a significant influence on the Loan to Fund Ratio.

3. Operating Costs to Operating Income (BOPO)

H0: BOPO does not have a significant effect on the Loan to Deposit Ratio (LFR)

Ha: BOPO has a significant effect on the Loan to Deposit Ratio (LFR)

For the BOPO variable, a t-statistic value of 6.460 is obtained With a probability value of 0.0000 smaller than the significant level of 5%, it can be concluded that Ha is accepted and H0 is rejected. So it can be explained that the BOPO variable has a significant effect on the Loan to Fund Ratio

- Net Interest Margin (NIM)

  H0 : NIM does not have a significant effect on the Loan to Deposit Ratio (LFR)

  Ha : NIM has a significant effect on the Loan to Deposit Ratio (LFR)

For the NIM variable, a t-statistic value of -4.478 is obtained With a probability value of 0.000 smaller than the significant level of 5%, it can be concluded that Ha is accepted and H0 is rejected. So it can be explained that the NIM variable has a significant influence on the Loan to Fund Ratio.

Test F (Simultaneous Test)

The F test is used to show whether all the free variables included in the model have a joint influence on the dependent variable or not. The hypotheses in this test are:

H0: CAR, NPL, BOPO, and NIM together have no significant effect on LFR

Ha : CAR, NPL, BOPO, and NIM together have a significant effect on LFR

Conditions:

If probability (F-statistic) < α (0.05), then H0 is rejected and Ha is accepted.

If probability (F-statistic) > α (0.05), then H0 is accepted and Ha is rejected.

Here are the processing results of the F test:

ANOVA[a]

	Type	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.441	4	.110	40.957	.000[b]
	Residuals	.202	75	.003		

Total	.642	79

a. Dependent Variable: LFR

b. Predictors: (Constant), NIM, NPL, CAR, BOPO

Based on these results, a Prob (F-statistical) value of 0.0000 is less than 5% (0.00000 < 0.05) so it can be concluded that H0 is rejected and Ha is accepted. This means that CAR, NPL, BOPO, NIM together have a significant influence on LFR at state-owned banks in Indonesia for the 2015-2019 period.

a. Test Coefficient of Determination (R2)

This test is used to determine the ability of regression models or independent variables to explain the dependent variable or it can be said to see the percentage of influence of the independent variable on the dependent variable.

Type	R	R Square	Adjusted R Square
1	.828[a]	.686	.669

Based on the test results of the Adjusted R-squared value of 0.686 or 68.6% This shows that the influence of independent variables namely CAR, NPL, NIM, BOPO simultaneously or together affects LFR. While the remaining 24.08% was explained by independent variables outside of this study.

A. Effect of Capital Adequacy Ratio (CAR) on Loan to Deposit Ratio (LFR)

Based on the results of testing with the t test (individually) it is known that the CAR variable obtained a p-value of 0.123 greater than the significant level of α = 5% (0.123 > 0.05) and the coefficient value of the CAR has a positive direction of 0.618 so that it can be concluded that the CAR variable has a positive and insignificant influence on the Loan to Fund Ratio This result is in line with research conducted by Ramadahi and Indiriani (2016) and Febrianto and Muid (2013) which shows that CAR has no significant effect on LFR. However, this study is not in line with research conducted by Edo and Wiagustini (2014) and Buchory (2014) showing a significant effect of CAR on LFR.

B. Effect of Non-Performing Loan (NPL) on Loan to Deposit Ratio

Based on the results of testing with the t test (individually) it is known that the NPL variable obtained a p-value of 0.562 greater than the significant level of α = 5% (0.123 > 0.05) and the coefficient value of NPL has a negative direction of - 0.651 so it can be concluded that the NPL variable has a negative and insignificant influence on the Loan to Fund Ratio The results of this study are in line with research conducted by Febrianto and Muid (2013) which shows no the influence of NPL on LFR. However, this research is not in line with the results of research conducted by Natasha, Sekar Primasari and Kholiq Mahfud (2015) which showed a significant effect of Performing Loan (NPL) on the Loan to Deposit Ratio.

C. Effect of Operating Expenses on Operating Income (BOPO) on Loan to Deposit Ratio (LFR)

Based on the results of testing with the t test (individually) it is known that the BOPO variable obtained a p-value of 0.00 smaller than the significant level of α = 5% (0.000 < 0.05) and the coefficient value of BOPO has a positive direction of 0.772. It can be concluded that the BOPO variable has a positive and significant influence on the Loan to Fund Ratio This result is in line with research conducted by Agustina and Wijaya (2013) which states that BOPO has a significant effect on the Loan to Fund Ratio While it is different from research conducted by Febrianto and Muid (2013) and Natasha, Sekar Primasari and Kholiq Mahfud (2015) which states that BOPO does not have a significant effect on the Loan to Fund Ratio.

D. Effect of Net Interest Margin (NIM) on Loan to Deposit Ratio

Based on the results of testing with the t test (individually) it is known that the NIM variable obtained a p-value of 0.0000 more kecl than the significant level of α = 5% (0.000 < 0.05) and the coefficient value of NIM has a negative direction of -2.737 so it can be concluded that the NIM variable has a negative and significant influence on the Loan to Fund Ratio This result is in line with research conducted by Agustina and Wijaya (2013) .which states that NIM has an effect significant to the Loan to Fund Ratio While different from the research conducted by Fitriawi 2017 which stated that NIM did not significantly affect the Loan to Fund Ratio.

E. Effect of CAR, NPL, BOPO, NIM together on LFR

From the processed data using Eviews 10 software, the F test (together) shows a prob value (F-statistical) of 0.000000 smaller than α = 5% (0.00000 < 0.05) which means Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Operating Expenses to Operating Income (BOPO), Net Interest Margin (NIM) simultaneously or together have a significant effect on the Loan to Fund Ratio This research is in line with the results conducted by Nandapipa (2010), Arditya Prayudi (2011), Fitri Rizki Amriani (2012) and Bob Saputro (2014) stated that Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Operating Cost to Operating Income (BOPO), Net Interest Margin (NIM) simultaneously or together have a significant effect on the Loan to Deposit Ratio.

CONCLUSION

From the results of the analysis that has been carried out on the effect of Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Operating Costs to Operating Income (BOPO), Net Interest Margin (NIM) on Loan to Deposit Ratio (LFR) at State-Owned Banks in Indonesia for the 2015-2019 Period. It can be concluded that the Capital Adequacy Ratio (CAR) has a positive but not significant influence on the Loan to Deposit Ratio (LFR) at state-owned banks in Indonesia in the 2015-2019 period.

Non-Performing Loans (NPL) have a negative and significant influence on the Loan to Deposit Ratio (LFR) at state-owned banks in Indonesia in the 2015-2019 period. Operating Costs to Operating Income (BOPO) have a positive and significant influence on the Loan to Deposit Ratio (LFR) of state-owned banks in Indonesia in the 2015-2019 period. Net Interest Margin (NIM) has a negative and significant influence on the Loan to Deposit Ratio (LFR) of

state-owned banks in Indonesia in the 2015-2019 period. Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Operating Cost to Operating Income (BOPO), Net Interest Margin (NIM) simultaneously or together have a significant effect on the Loan to Deposit Ratio (LFR) at state-owned banks in Indonesia in the 2015-2019 period.

In this study there are still many shortcomings or limitations, including this research that uses the variables Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Operating Costs to Operating Income (BOPO), Net Interest Margin (NIM) to determine the factors that affect the Loan to Fund Ratio.

In this study, the sample of banks used was a state-owned bank consisting of only 4 banks for research and a period taken for 5 years (2015-2019).

The recommendations that can be concluded in this studyare a matter of research,

Further researchcan conduct research on a wider sample such as commercial banks in Indonesia. Further research can also consider adding other variables to the research model such as adding macro variables such as inflation and interest rates. For Bank management, from the results of the analysis, it is known that BOPO and NIM factors have a significant influence on Loan to Funding (LFR) where banks need to increase the ratio of BOPO in a more efficient way in carrying out their operational activities. Banks can use a technological approach in serving customers where this method will be more efficient and effective. In addition, because NIM has a negative influence on the Loan to Funding Ratio, the Bank needs to improve its performance by encouraging credit growth with better products and in accordance with the needs of the community or customers.

REFERENCES

Ambaroita, M. N. (2015). Faktor-faktor yang mempengaruhi loan to deposit ratio (LDR) Bank Umum di Indonesia. *Economics Development Analysis Journal*, *4*(3), 273–281.

Andriani, A. D., Mulyana, A., Widarnandana, I. G. D., Armunanto, A., Sumiati, I., Susanti, L., Siwiyanti, L., Nurlaila, Q., Pangestuti, D. D., & Dewi, I. C. (2022). *Manajemen sumber daya manusia* (Vol. 1). TOHAR MEDIA.

Armereo, C. (2015). Analisis Faktor–Faktor yang Mempengaruhi Profitabilitas Bank Syariah yang Terdaftar di Bursa Efek Indonesia Indonesia. *Jurnal Ilmiah Ekonomi Global Masa Kini*, *6*(2), 48–56.

Fatma, E. R. T. (2020). Pengaruh ROA, ROE, LDR, CAR, dan NPL terhadap harga saham (studi kasus pada perusahaan sektor perbankan yang termasuk dalam indeks LQ45 2015-2019). *Jurnal Mitra Manajemen*, *4*(12), 1651–1663.

Fitrianto, H., & Mawardi, W. (2006). Analisis pengaruh kualitas aset, likuiditas, rentabilitas, dan efisiensi terhadap rasio kecukupan modal perbankan yang terdaftar di Bursa Efek Jakarta. *Jurnal Studi Manajemen Organisasi*, *3*(1), 1–11.

Ghozali, I. (2016). *Aplikasi analisis multivariete dengan program IBM SPSS 23*.

Indonesia, P. S. K. O., & Perdoki, S. (2014). *Penerbit*. Widya Karya-Semarang Cetakan, Ke-10.

Junianti, P., Wibowo, N. M., & Hartati, C. S. (2023). PENGARUH CAPITAL ADEQUACY RATIO DAN NON PERFORMING LOAN TERHADAP PROFITABILITAS MELALUI LOAN TO DEPOSIT RATIO. *Jurnal Ekonomi Bisnis Dan Manajemen*, *1*(2), 24–36.

Lailiyah, A. (2014). Urgensi analisa 5c pada pemberian kredit perbankan untuk meminimalisir resiko. *Yuridika*, *29*(2), 217–232.

Pop, I. D., Cepoi, C. O., & Anghel, D. G. (2018). Liquidity-threshold effect in non-performing loans. *Finance Research Letters*, *27*, 124–128.

Pranata, A., & Dwi, A. W. (2015). Pengaruh Capital Adequacy Ratio, Loan to Deposit Ratio dan Ukuran Perusahaan pada Profitabilitas Bank di Bursa Efek Indonesia. *E-Jurnal Akuntansi Universitas Udayana*, *11*(1), 235–251.

Sukma, Y. L. (2013). Pengaruh dana pihak ketiga, kecukupan modal dan risiko kredit terhadap profitabilitas (Perusahaan perbankan yang terdaftar di BEI). *Jurnal Akuntansi*, *1*(2).

Supeno, W., & Hendarsih, I. (2020). Kinerja kredit terhadap profitabilitas BPR pada masa pandemi Covid-19. *Akrab Juara: Jurnal Ilmu-Ilmu Sosial*, *5*(4), 147–161.

Syaepullah, R. (2022). The Influence of Financial Ratio and Corporate Governance on Financial Distress in Indonesian Islamic Banking Period 2013–2019. *EKONOMIKA SYARIAH: Journal of Economic Studies*, *5*(2), 179–192.

Utama, A. S. (2018). Independensi Pengawasan terhadap Bank Badan Usaha Milik Negara (BUMN) dalam Sistem Hukum Nasional di Indonesia. *Soumatera Law Review*, *1*(1), 1–21.

Yusuf, B., & Al Arif, M. N. R. (2015). *Manajemen sumber daya manusia di lembaga keuangan syariah*. Rajawali Pers.