THE INFLUENCE OF CAPITAL ADEQUACY RATIO, NET INTEREST MARGIN AND OPERATIONAL COSTS OF OPERATING REVENUE ON RETURN ON ASSET WITH LOAN TODEPOSIT RATIO AS INTERVENING VARIABLE

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Abstract

Research Problems: To further increase the existence of conventional banks and the trust of the Indonesian people in conventional banking services, it is necessary to improve the performance of conventional banking. The problems in this study are whether CAR, NIM, BOPO and LDR have a significant effect on ROA; Do CAR, NIM, and BOPO have a significant effect on LDR; and whether CAR, NIM and BOPO have a significant effect on ROA through LDR as an intervening variable. Research purposes: To find out how much influence CAR, NIM, BOPO and LDR have on ROA; to find out how much influence CAR, NIM, and BOPO have on LDR; and to find out how much influence CAR, NIM and BOPO have on ROA through LDR as an intervening variable. Research methods: This type of research is quantitative research with a descriptive approach. The object of this research is a commercial bank listed on the Indonesia Stock Exchange (IDX) for the 2015-2019 period. The sample in this study was 10 conventional commercial banks, which were selected based on the purposive sampling method. Data analysis technique using multiple linear regression analysis. Research Findings: Partially there is no significant effect of the CAR variable on the LDR, there is a significant negative effect of the NIM variable on the LDR; and there is a significant positive effect of BOPO on LDR; there is an insignificant negative effect of the CAR variable on ROA, there is a significant positive effect of the NIM variable on ROA, there is no significant effect of the BOPO and LDR variables on ROA. Simultaneously CAR, NIM, BOPO have a positive and significant effect on LDR and CAR, NIM, BOPO and LDR have a positive and significant effect on ROA. LDR is the intervening variable of CAR on ROA, because the number of direct effects of CAR on ROA is smaller, but LDR is not an intervening variable of NIM and BOPO on ROA because the number of direct effects of NIM and BOPO on ROA is greater than the indirect effect.

Keywords**: *CAR, NIM, BOPO, LDR, ROA***

1. INTRODUCTION

Conventional bank is a bank which in its activities, both in raising funds and in distributing funds, provides and charges rewards in the form of interest or a certain amount of compensation in a certain percentage of funds for a certain period, while Islamic bank is a bank which in its activities, both in raising funds and in In the framework of distributing funds, it provides and imposes rewards according to Islamic law, and in its activities it does not charge interest, nor does it pay interest to customers. The rewards received by Islamic banks, as well as those paid by customers, depend on the contract and agreement between the customer and the bank (Mawaddah, 2015). To further increase the existence of conventional banks and the trust of the Indonesian people in conventional banking services, it is necessary to improve the performance of conventional banking (Sekarwati, 2018). The financial performance of a company becomes a general description of how the financial condition of a company at a time (certain period) will report all its financial activities. The financial performance of a company is an important factor in assessing the company in the future. Financial performance can be seen from the company's financial statements by analyzing the company's financial statements, namely the statement of financial position and income statement. To measure the company's financial performance, it can be done using an analytical tool in the form of financial ratios (Sanjaya & Rizky, 2018).

Every company will try to improve the performance of its company in order to increase

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productivity and company profits. Bank's financial performance is a measure that describes the financial condition of a bank. For customers, before depositing their funds in a bank, they will first see the bank's financial performance through financial statements in the form of a balance sheet and profit and loss. One of the indicators used to see financial performance in terms of profitability is Return on assets (ROA). Bank Indonesia assesses the condition of banking profitability in Indonesia based on two indicators, namely Return On Assets (ROA) or the rate of return on assets and the Ratio of Operating Costs to Operating Income (BOPO).

Profitability ratio is a ratio that aims to determine the company's ability to generate profits during a certain period and also provides an overview of the level of management effectiveness in carrying out its operations. The effectiveness here is seen from the profit generated on the company's sales and investment. The policy taken by the company in determining profit can be seen from the level of profitability (Sanjaya & Rizky, 2018).

Profitability is a ratio to assess the company's ability to seek profit and also provides a measure of the level of effectiveness of a company's management. Companies can maximize their profits if the company's financial managers know what factors affect profitability. All factors contained in a company have an influence on the company's ability to earn profits. To maximize each factor, it is necessary to have asset management, cost management and debt management (Triyanto, P, Samad, & et.al, 2017).

The indicator of the barometer of increasing banking financial performance can be measured at the level of profitability. In this study, profitability is measured by Return On Assets (ROA). The reason for choosing ROA as a profitability ratio is because ROA can measure the company's ability to generate profits by using the wealth owned by the company after adjusting for the costs incurred to fund these assets (Sekarwati, 2018). And the variables that are thought to affect the profitability (ROA) of banking are Capital Adequacy Ratio (CAR), Non Performing Financing (NPF), Net Interest Margin (NIM), Operating Costs to Operating Income (BOPO), Third Party Funds (DPK), and Loan to deposit ratio (LDR) (Arianty et al., 2017). According to Ni'mah (2019) the ratio used as an indicator to measure a bank's ability to earn overall profit is Return On Assets (ROA). Return On Assets is a comparison between profit before tax with the average total assets which shows the overall ability of the assets used to generate profits or profits. Financial ratios that affect ROA are Capital Adequacy Ratio (CAR), Loan to deposit ratio (LDR), Non Performing Financing (NPF), Operating Costs to Operating Income (BOPO), and Size. Banks that generate high returns have a tendency to expand their business.

Based on this description, this study uses ROA as a benchmark for banking performance, especially in researching conventional banking with the financial ratios used are CAR (Capital Adequacy Ratio), NIM (Net Interest Margin), Operating Costs of Operating Income (BOPO), and Loans. to Deposit Ratio (LDR) as an intervention.

According to Ariyanti et al., (2017) Capital Adequacy Ratio (CAR) or capital adequacy ratio is a bank performance ratio to measure the capital adequacy owned by banks to support assets that contain or generate risk. Based on the research results of Edwar Yokeu Bernardin (2016), Ni'mah (2019) and Astohar (2016) the CAR variable has a positive and significant effect on ROA. These results contradict the research conducted by Rahmah (2018) and Efriyenty (2020) that the CAR variable does not show a significant effect on Profitability (ROA); and research by Nurvarida (2017) that the CAR variable has a significant negative effect on ROA.

2. LITERATURE REVIEW
2.1 Bank
Many bankers and experts define banks differently, but basically agree that banks are business entities whose main activity is receiving deposits from the public and then reallocating them to earn profits and provide services in payment traffic (Ihsan, 2000).

Definitively, there are many definitions put forward by experts, both banking experts and

banking legal experts, including:

The definition of a bank according to Law Number 10 of 1998 concerning Amendments to Law Number 7 of 1992 concerning Banking as a business entity that collects funds from the public in the form of savings and distributes it to the public in the form of credit and or other forms in order to improve people's living standards a lot (Sumartik & Hariasih, 2018).

According to the Financial Services Authority (2014) Bank is a business entity that collects funds from the public in the form of savings and distributes them to the public in the form of credit and or other forms in order to improve people's living standards.

According to GM Verryn Stuart in his book Bank Politics, a bank is an entity that aims to satisfy credit needs either with its own means of payment or with money obtained from other people, or by circulating new means of exchange in the form of demand deposits. According to OP Simorangkir in his book Fundamentals and Mechanisms of Banking, the bank is one of the business entities of financial institutions that aims to provide credit and services. The granting of credit is carried out either with own capital or with funds entrusted by third parties or by circulating payment instruments in the form of demand deposits (Yuliatin, 2012).

The definition of bank according to Law no. 14 of 1967 concerning Banking Principles, a bank is a financial institution whose main business is to provide credit and services in cross-payment and circulation of money (article 1 letter (a), while financial institutions are all entities which through their activities in The financial sector withdraws money from and distributes it to the public (article 1 letter (b). Meanwhile, according to Law No. 7 of 1992 concerning Banking, a bank is a business entity that collects funds from the public in the form of deposits, and distributes them to the public in the context of improve the standard of living of many people (Article 1 point 1). In this law there is no definition of financial institution as in Law No. 14 of 1967 (Yuliatin, 2012).

Therefore, banks have the function of collecting unused funds and then channeling these funds back into the community for a certain period of time. This function will determine the growth of a bank, because the funds that have been raised will also determine the volume of funds that can be developed by the bank in the form of providing credit, purchasing securities or securities in the money market

As a financial intermediary institution, the bank has a main function and a side function. In accordance with their duties, the main functions of banks can be categorized into: (Sumartik & Hariasih, 2018)

1) Raising funds from the community
2) Distributing funds to the community

While the side functions of the bank include other bank services such as: (Sumartik & Hariasih, 2018)

1) Support the smooth payment mechanism
2) Supports smooth international transactions
3) Money creation
4) Investment tools
5) Valuables storage

The types of banks based on their operational activities are as follows: (Sumartik & Hariasih, 2018)

1) Conventional Bank
2) Islamic Bank

2.2 Financial Statement Ratio Analysis

Financial ratio analysis is an activity carried out to obtain an overview of the financial development and financial position of the company. Financial ratio analysis is useful as an internal analysis for company management to find out the financial results that have been achieved for future planning and also for internal analysis for creditors and investors to determine credit and investment policies of a company (Ariyanti et al., 2017).

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Ratio analysis can reveal important relationships and become the basis for comparisons in finding conditions and trends that are difficult to detect by studying each of the components that make up the ratio. In addition, it is necessary to assess the factors that have the potential to affect the ratio in the future. Therefore, the usefulness of the ratio depends on its application and interpretation skills (Ariyanti et al., 2017).

a. Profitability

Profitability ratio is a ratio to assess the company's ability to seek profit. This ratio also provides a measure of the level of management effectiveness of a company. This is indicated by the profit generated from sales and investment income. The point is that the use of this ratio funds shows the efficiency of the company. The profitability ratio used in this study is return on assets. Return on assets (ROA) is the ability of the capital invested in overall assets to generate net profits. Return on assets is a measure of the efficiency of the use of capital in a company. Capital can be defined as total assets or total investment. For companies in general, the problem of efficient use of working capital is more important than the problem of profit.

b. Profitability Measurement

Profitability is usually measured using a comparison ratio, namely ROA and ROE. In determining the soundness of a bank, Bank Indonesia is more concerned with assessing the size of the ROA than the ROE. This is because Bank Indonesia, as the supervisor and supervisor of banking, prioritizes the profitability of a bank as measured by assets whose funds are mostly from public deposits. Profitability becomes so important to know whether the company has run its business efficiently or not. The efficiency of a new business can be known after comparing the profit earned with the assets or capital that generates the profit (Pinasti, 2017).

c. ROA (Return On Assets)

Return on assets (ROA) is an indicator to measure the company's financial performance and is a profitability ratio used to measure the company's effectiveness in generating profits by utilizing its total assets. The greater the Return on assets (ROA) indicates the better the company's performance. However, companies with too few assets can experience shortages and difficulties in maintaining smooth operations (Gultom, Manurung, & Sipahutar, 2020).

d. CAR (Capital Adequacy Ratio)

Understanding the Capital Adequacy Ratio (CAR) in the opinion of some experts is a bank performance ratio that is used to measure the adequacy of capital owned by a bank to support assets that contain or generate risks, such as loans. Capital Adequacy Ratio (CAR) is the ratio between RWA capital and the ratio is used as a measure of the minimum capital adequacy requirement". Capital Adequacy Ratio (CAR) is the minimum capital requirement of a bank which is calculated based on risk-weighted assets". Capital Adequacy Ratio (CAR) is a ratio calculated from the total bank capital with total Risk Weighted Assets (RWA) (Sari & Monica, 2016).

e. NIM (Net Interest Margin)

Net Interest Margin is a ratio that shows the ability of bank management in managing its productive assets to earn net interest. With the increase in interest income can contribute to profits to the bank. So it can be concluded that the greater the change in the NIM of a bank, the greater the profitability of the bank, which means that the financial performance is increasing. Net Interest Margin (NIM) is the ratio between Interest Income (interest income) minus Interest Expenses (bank interest costs that become expenses) divided by Average Interest Earning Assets (average earning assets used). This ratio shows the bank's ability to obtain operating income from funds placed in the form of loans (credit) (Pardede & Pangestuti, 2016).

f. BOPO (Operating Cost to Operating Income)

BOPO is the ratio between total operating costs and total operating income. From this ratio, it can be concluded that the lower the BOPO ratio, the better the performance of the bank's management, because it is more efficient in using existing resources in the company. The smaller this ratio means the more efficient the operational costs incurred by the bank concerned so that the possibility of a bank in a problematic condition is getting smaller (Ali & Triyuliawan, 2017).

g. LDR (Loan to Deposit Ratio)

According to some experts, the Loan to Deposit Ratio (LDR) is one of the ratios used to pay bank liabilities. Rivai stated that the Loan to Deposit Ratio (LDR) is a bank's ability to repay the withdrawal of funds made by depositors by relying on credit provided as a source of liquidity, or in other words, how far lending to customers can offset the bank's obligation to immediately meet the demands of depositors want to withdraw funds that have been disbursed by the bank in the form of credit. And Siamat said that "Loan to Deposit Ratio (LDR) is a ratio that gives an indication of the amount of third party funds disbursed in the form of credit".

2.3 Theoretical framework

a. CAR (Capital Adequacy Ratio) to LDR (Loan to Deposit Ratio)

One of the functions of bank capital is to meet minimum capital requirements, the level of capital adequacy is very important for banks to channel credit. If the bank's capital adequacy level is good, then the public will be interested in taking credit, and the bank will have sufficient reserve funds in case of bad credit at any time. Banks that have a high CAR have a lot of credit, so if the CAR increases it will increase the LDR. Research conducted by Pratama (2010), Prayudi (2011), Sasongko (2011), Hersugondo & Tamtomo (2012) resulted that CAR has a positive and significant effect on LDR (Pardede & Pangestuti, 2016).

From this description, the research hypothesis can be formulated as follows: H1: CAR has a positive and significant effect on the LDR of Conventional Banking in Indonesia in 2015-2019.

b. NIM (Net Interest Margin) to LDR (Loan to Deposit Ratio)

NIM shows the bank's ability to obtain operating income from funds placed in the form of loans (credit). Net Interest Margin (NIM) has an influence on banking intermediation because good and bad intermediation will have an impact on the Net Interest Margin (NIM) that will be obtained by banks. The higher the Net Interest Margin (NIM) indicates the more effective the bank is in placing earning assets in the form of credit. Previous research conducted by Almalia (2005), Prayudi (2011), Agustina and Wijaya (2013) resulted in NIM having a positive and significant effect on LDR. The previous year's NIM will affect the LDR of the next period (Pardede & Pangestuti, 2016).

From this description, the research hypothesis can be formulated as follows: H2: NIM has a positive and significant effect on the LDR of Conventional Banking in Indonesia in 2015-2019.

c. BOPO (Operating Costs to Operating Income) to LDR (Loan to Deposit Ratio)

The increase in BOPO at banks encourages banks to strengthen their funds to cover all these costs. One way is to increase lending/financing (LDR) to obtain more operating income. In operational activities, banks may experience excess or lack of liquidity. If there is an excess, then it is considered as the bank's profit. Based on research from Utari (2011), Agustina (2013) and Astuti (2016), the results show that BOPO has a positive and significant effect on LDR (Sekarwati, 2018).

From this description, the research hypothesis can be formulated as follows: H3: BOPO has a positive and significant effect on the LDR of Conventional Banking in Indonesia in 2015-2019.

d. CAR (Capital Adequacy Ratio) to profitability (ROA)

Capital Adequacy Ratio (CAR) is a ratio that shows how far all bank assets that contain risks (credit, investments, securities, claims on other banks) are also financed from the bank's own capital

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in addition to obtaining funds from sources outside the bank, such as funds from the public, loans, and others. CAR is an indicator of a bank's ability to cover a decline in its assets as a result of bank losses caused by risky assets. The higher the CAR, the better the bank's ability to bear the risk of any risky credit/productive assets. If the CAR value is high, the bank is able to finance operational activities and make a sizeable contribution to profitability (Triyanto et al., 2017).

CAR shows the extent of the decline in bank assets that can still be covered by available bank equity, the higher the CAR, the better the condition of the bank. The greater the Capital Adequacy Ratio (CAR), the greater the bank's profits. In other words, the smaller the risk of a bank, the greater the profit obtained by the bank (Sudarmawanti & Pramono, 2017).

The results of research by Fitria & Widiati (2018), and Ni'mah (2019) state that CAR has a positive and significant effect on Return on Assets (ROA).

From this description, the research hypothesis can be formulated as follows: H4: CAR has a positive and significant effect on ROA of Conventional Banking in Indonesia in 2015-2019.

e. NIM (Net Interest Margin) to profitability (ROA)

Net Interest Margin (NIM) is a measure of the difference between interest income generated and fees paid to their lenders (eg deposits), relative to the amount of interest earning assets or in other words NIM is the ratio between net interest income and average earning assets. Net Interest Margin (NIM) is used to measure the ability of bank management to earn income by using its productive assets, considering that the bank's operating income is highly dependent on the difference in interest from loans disbursed. The higher the NIM number indicates that the bank's profitability is getting better, because the difference between interest income and interest costs is getting bigger. NIM has a positive effect on ROA (Triyanto et al., 2017).

From this description, the research hypothesis can be formulated as follows: H5: NIM has a positive and significant effect on ROA of Conventional Banking in Indonesia in 2015-2019.

f. BOPO (Operating Cost to Operating Income) to profitability (ROA)

BOPO or Operational Efficiency Ratio is a comparison between total operating costs and total operating income. This ratio is used to measure the level of efficiency and ability of the bank in carrying out its operations. The higher the BOPO ratio, the bank's performance will decrease. Vice versa, the lower the level of the BOPO ratio means the better the performance of the bank's management. Thus the size of the BOPO will affect the bank's profitability (ROA). Based on the explanation of the theory above, the hypotheses that can be formulated are as follows: (Nurvarida, 2017)

From this description, the research hypothesis can be formulated as follows: H6: BOPO has a negative and significant effect on ROA of Conventional Banking in Indonesia in 2015-2019.

g. LDR (Loan to Deposit Ratio) to ROA

Loan to Deposit Ratio (LDR) is the ratio between the amount of financing provided by the bank and third party funds received by the bank. The Loan to Deposit Ratio (LDR) is determined by the comparison between the amount of financing provided and the public funds collected, which include demand deposits, time deposits (deposits) and savings. Loan to Deposit Ratio (LDR) is a ratio that measures a bank's ability to meet financial obligations that must be fulfilled immediately. This obligation is in the form of call money that must be fulfilled when there is a clearing obligation, where the fulfillment is carried out from current assets owned by the company (Astohar, 2016).

Loan to Deposit Ratio (LDR) states how far the bank's ability to repay the withdrawal of funds made by depositors by relying on loans provided as a source of liquidity. Based on Bank Indonesia Circular No. 12/11/DPNP/2010. The LDR ratio can be said to be liquidity in the banking sector which will have a positive and significant impact on banking profitability (Astohar, 2016).

Loan to Deposit Ratio (LDR) is analogous to the Loan to Deposit Ratio (LDR) in conventional

banks, is a ratio used to measure the level of bank liquidity that is shows the ability of the bank to meet the demand for credit by using the total assets owned by the bank. So that the higher the LDR, the bank's profit will increase (assuming the bank is able to channel its credit effectively), with the increase in bank profit, the bank's performance will also increase. Thus, the size of a bank's LDR will affect the bank's performance. Based on the explanation of the theory above, the hypotheses that can be formulated are as follows: (Nurvarida, 2017)

From this description, the research hypothesis can be formulated as follows: H7: LDR has a positive and significant effect on ROA of Conventional Banking in Indonesia in 2015-2019.

h. CAR (Capital Adequacy Ratio), NIM (Net Interest Margin), BOPO (Operational Cost to Operating Income) to LDR (Loan to Deposit Ratio)

Dendawijaya (2003) in his book reveals, the capital adequacy ratio shows the ability of banks to cover the decline in its assets as a result of bank losses caused by risky assets. Banks with a high CAR will have an effect on their financing activities and the level of liquidity (Loan to Deposit Ratio). The higher the LDR, the company's profit will increase (assuming the bank is able to channel loans effectively, so the number of bad loans will be small) (Wijayanti, 2019).

An efficient bank is a bank that is able to reduce operating costs and increase operating income to obtain high profits. The level of efficiency of the bank in carrying out its operations affects the level of income generated by the bank. The smaller the BOPO ratio means the more efficient the bank is in carrying out its business activities. On the other hand, if the BOPO ratio is high, it means that the bank's performance is not efficient. An increase in BOPO causes a decrease in profits, which results in a decrease in ROA. So that the test results indirectly show that liquidity is able to mediate the effect of operating costs and operating income on profitability (Wijayanti, 2019).

From this description, the research hypothesis can be formulated as follows: H8: CAR, NIM and BOPO have a positive and significant effect on the LDR of Conventional Banking in Indonesia in 2015-2019.

i. CAR (Capital Adequacy Ratio), NIM (Net Interest Margin), BOPO (Operating Costs to Operating Income) to Profitability (ROA) through LDR

LDR is a comparison ratio between the amount of funds distributed to the public (credit) with the amount of public funds and own capital used. The higher the LDR, the higher the disbursed funds, the bank's income will increase. CAR is a bank performance ratio to measure the adequacy of capital owned by a bank. The higher the CAR value, the bank is able to finance operational activities and provide a sizeable contribution to Return On Assets (ROA). NIM is the ratio between net interest income and average earning assets. The higher the NIM value, the better the bank's profitability. (Triyanto et al., 2017) BOPO (Operational Efficiency Ratio) is a comparison between total operating costs and total operating income. The higher the BOPO ratio, bank performance will decrease. Vice versa, the lower the level of the BOPO ratio means the better the performance of the bank's management. Thus, the size of the BOPO will affect the bank's profitability (ROA) (Nurvarida, 2017).

From this description, the research hypothesis can be formulated as follows: H9: CAR, NIM, BOPO have a positive and significant effect on ROA through LDR in Conventional Banking in Indonesia in 2015-2019.

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2.4 Research Framework

Based on the description of the theoretical framework above, the researcher's conceptual framework in this research can be seen in the following figure.
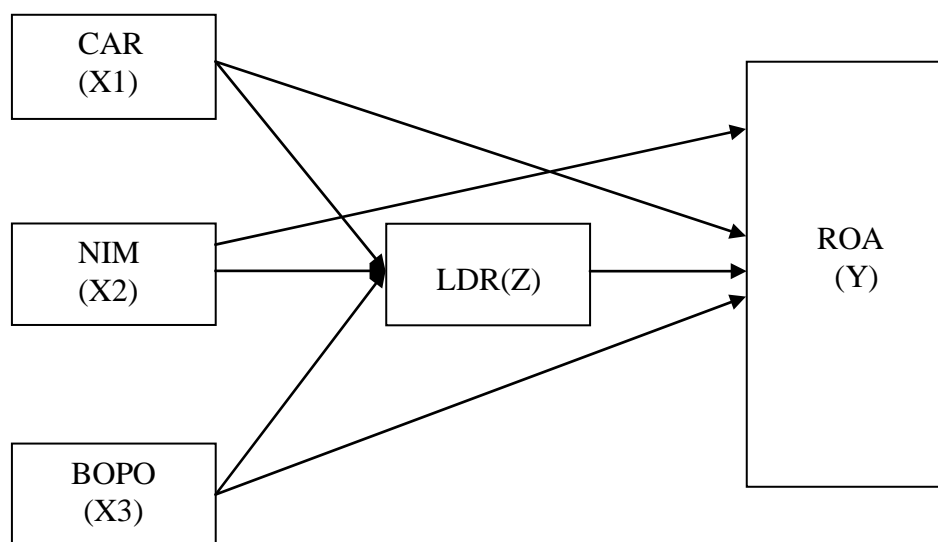

Figure 2.1 Research Concept Framework Drawing

2.5 Hypothesis

From the conceptual framework of the research above, the hypotheses in this study are as follows:

1. There is an effect of CAR (Capital Adequacy Ratio) on LDR (Loan to Deposit Ratio).
2. There is an effect of NIM (Net Interest Margin) on LDR (Loan to Deposit Ratio).
3. There is an effect of BOPO (Operational Cost of Operational Income) on LDR (Loan to Deposit Ratio).
4. There is an effect of CAR (Capital Adequacy Ratio) on ROA (Return On Assets).
5. There is an effect of NIM (Net Interest Margin) on ROA (Return On Assets).
6. There is an effect of BOPO (Operational Cost of Operational Income) on ROA (Return On Assets).
7. There is an effect of LDR (Loan to Deposit Ratio) on ROA (Return On Assets).
8. There is an effect of CAR (Capital Adequacy Ratio) on ROA (Return On Assets) through LDR (Loan to Deposit Ratio).
9. There is an effect of NIM (Net Interest Margin) on ROA (Return On Assets) through LDR (Loan to Deposit Ratio).
10. There is an effect of BOPO (Operating Costs on Operational Income) which has an effect on ROA (Return On Assets) through LDR (Loan to Deposit Ratio).

3. IMPLEMENTATION METHOD

The type of research used is quantitative research with a descriptive approach. Quantitative methods can be interpreted as research methods based on the philosophy of positivism, used to examine certain populations or samples, data collection using research instruments, quantitative or statistical data analysis, with the aim of testing predetermined hypotheses. The descriptive approach is to systematically describe the facts and characteristics of the objects and subjects studied appropriately (Sugiyono, 2013). This study aims to determine the effect of CAR, NIM and BOPO on Profitability with LDR as an intervening variable (Case Study of Conventional Commercial Banks

2015-2019).

The population in this study were 10 conventional banks listed on the Indonesia Stock Exchange, namely Bank Mestika, Bank Bumi Arta, Bank HSBC, Bank Panin, Bank BCA, Bank Artha Graha Internasional, Bank BRI, Bank BTN, BNI, and Bank Permata. .

The sample in this study was 10 Conventional Commercial Banks, which were selected based on the census method. And all of them are used as samples (total sampling). According to Sugiyono (2013) saturated sampling is a sampling technique when all members of the population are used as samples. Another term for saturated sample is census, where all members of the population are sampled.

The criteria for conventional general banking that are used as samples in this study are as follows:
a. Banks listed on the Indonesia Stock Exchange
b. Consistently record complete financial statements during the 2015-2019 period
c. Has been published in Bank Indonesia or on their respective websites
d. Having complete data based on the variables studied during the period 2015-2019 Data analysis techniques using multiple linear regression analysis.

Classical Assumption Test, Normality Test, Multicollinearity Test, Heteroscedasticity Test, Autocorrelation Test, Multiple Linear Regression Analysis, Statistical Test, T Test, F Test.

4. RESULTS AND DISCUSSION
4.1 RESEARCH RESULT
4.1.1 Statistical Analysis Results

Multiple linear regression model (multiple regression) can be called a good model if the model meets the BLUE (Best Linear Unbiased Estimator) criteria. BLUE can be achieved if it satisfies the classical assumptions. There are at least five classical assumption tests that must be carried out on a regression model, namely: normality test, autocorrelation test, multicollinearity test and heteroscedasticity test (Sethadharma, 2010).

a. Normality test results

The normality test aims to determine whether in the regression model, the confounding or residual variables have a normal distribution or not. A good data model is normally distributed or close to normal. To see data that is normally distributed, it is done by taking into account the normal probability plot on a normally distributed scatter plot. Normality test can be seen in the image below:
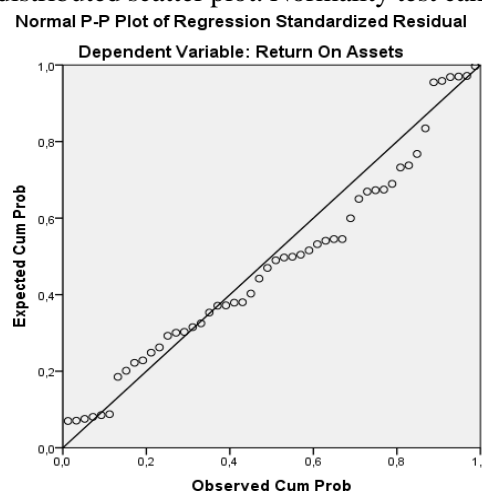

Figure 4.1 P-Plot . Normality Test Results

Based on Figure 4.1, it can be seen that the data is evenly distributed along the diagonal line. This proves that the data used in this study meet the normality assumption.

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The following are the results of normality testing using the Kolmogorow-Smirnov approach:

Table 4.1 One-Sample Kolmogorov-Smirnov Test
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		50
Normal Parameters, b	Mean	,0000000
	Std. Deviation	10.01912653
	Absolute	,133
Most Extreme Differences	Positive	,133
	Negative	-,081
Kolmogorov-Smirnov Z		,939
asymp. Sig. (2-tailed)		,341

a. Test distribution is Normal.
b. Calculated from data.
Source: SPSS 21 Processing Results (2021)

The basis for decision making in the Kolmogorov-Smirnov normality test is as follows:
1) If the significance value (Sig.) is greater than 0.05, the research data is normally distributed.
2) If the significance value (Sig.) is less than 0.05, the research data is not normally distributed.
Based on Table 4.7 One-Sample Kolmogorov-Smirnov Test obtained p-value of 0.341> 0.05, then according to the basis for decision making in the Kolmogorov-Smirnov normality test above, it can be concluded that the data is normally distributed. Thus, the assumptions or requirements for inner normality have been met.

b. Multicollinearity Test
There are many ways to determine whether a model has symptoms of multicollinearity, in this study only the VIF test was used. This method is very easy, just see if the VIF value for each variable is greater than 10 or not. If the VIF value is greater than 10, it is indicated that the model has symptoms of multicollinearity (Sethadharma, 2010).
The results of the multicollinearity test can be seen in the image below:

Table 4.2 Multicollinearity Test Results

Variable		*Collinearity Statistics*	
		Tolerance	**VIF**
1	Capital Adequacy Ratio	,792	1.263
2	*Net Interest Margin*	,942	1.062
3	Operating Expenses Operating Income	,859	1.165
4	*Loan to Deposit Ratio*	,748	1.337

Source: SPSS 21 Processing Results (2021)

From Table 4.8 the results of the multicollinearity test above, it is known that the variance inflation factor (VIF) value of the four variables, namely the Capital Adequacy Ratio of 1.263, Net Interest Margin of 1.062, Operating Costs of Operating Income of 1.165 and Loan to Deposit Ratio of 1.337 is smaller than 10, so that it can be concluded that between independent variables there is no multicollinearity problem.

c. Heteroscedasticity Test

The heteroscedasticity test is used to determine whether or not there is a deviation from the classical assumption of heteroscedasticity, namely the existence of variance inequality from the residuals for all observations in the regression model. The prerequisite that must be met in the regression model is the absence of heteroscedasticity symptoms. The test method used in this study is the scatter plot test (Prayitno, 2009). The results of the scatter plot test can be seen in the following figure:
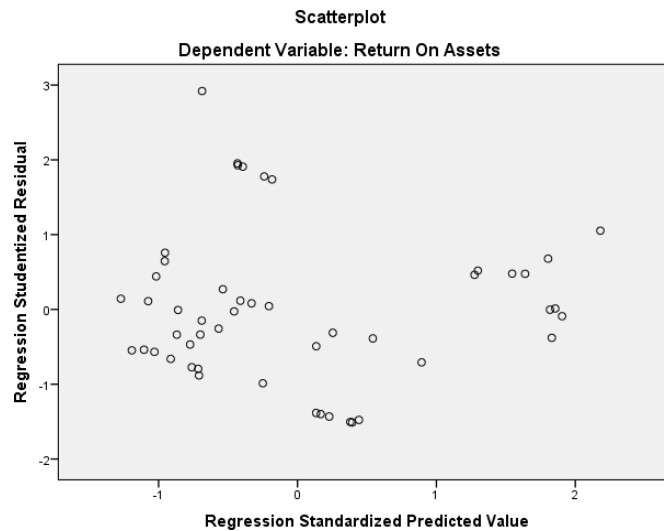

Figure 4.2 Heteroscedasticity Test Results

Based on Figure 4.2 above, it can be seen that the distribution of the data is irregular and does not form a certain pattern, and is spread above and below the number 0 on the Y axis, so it can be concluded that in this regression model there is no heteroscedasticity problem.

d. Autocorrelation Test

From the statistical test results of the Durbin Watson test, the following results were obtained:

Table 4.3 Durbin Watson Model
Test Results Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,435a	,190	,118	10,45494	2.082

Source: SPSS 21 Processing Results (2021)

The test conditions for the Durbin-Watson test (DW test) are as follows:
a) If d is less than dL or greater than (4-dL) then the null hypothesis is rejected, which means that there is an autocorrelation.
b) If d lies between dU and (4-dU), then the null hypothesis is accepted, which means there is no autocorrelation.
c) If d lies between dL and dU or between (4-dU) and (4-dL), it does not produce a definite conclusion.

Based on Table 4.9 the results of the Durbin Watson test above, the DW value is 2.082. Meanwhile, based on the DW table with a significance of 0.05 and the amount of data (n) = 50, and k

= 4 (k is the number of independent variables) the dL value is 1.3779 and the dU value is

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1.7214. (Dw, Reproduction, & Reading, nd)

In this study, because the value of DW (2.082) lies between dU and (4-dU), the null hypothesis is accepted, which means there is no autocorrelation. It can be explained as follows:

Is known:

dL = 1.3779

dU = 1.7214

DW = 2.082

Based on the provisions if d lies between dU and (4-dU), then:

2.082 = 1.7214 and (4-1.7214)

2.082 = 1.7214 and 2.2786

It means that the value of DW (2.082) lies between dU (1.7214) and 4-dU (2.2786)

4.1.2 Path Analysis

Path analysis is a further part of regression analysis. Where, if the regression analysis is generally used to test whether there is a direct effect given from the independent variable to the dependent variable. Meanwhile, path analysis not only examines the direct effect, but also explains whether or not there is an indirect effect given by the independent variable through the intervening variable on the dependent variable (Raharjo, 2014).

a. Path Analysis Model (Path Diagram) Sub Model I

From the results of the analysis of the sub Model I Capital Adequacy Ratio, Net Interest Margin, Operating Costs, Operating Income to Loan to Deposit Ratio, the following results are obtained:

Table 4.4 Path Coefficient Test Results
Sub Model I Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	,726	,204		3,560	.001
Capital Adequacy Ratio	-,364	,108	-,432	-3,364	,002
1 *Net Interest Margin*	-,002	,003	-,096	-,736	,466
Operating Expenses Operating Income	,154	0.069	,291	2,224	,031

a. Dependent Variable: Loan to Deposit Ratio
Source: SPSS 21 Processing Results (2021)

Based on Table 4.10, it can be seen that the equations of the path analysis of the sub Model I in this study are:

Furthermore, to determine the magnitude of the influence of the independent variable on the dependent variable is to use the coefficient of determination test R below in Table 4.151.

Table 4.5 Coefficient of Determination (R2) Sub Model I
Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,502a	,252	,203	,47754

a. Predictors: (Constant), Operating Costs, Operating Income,
Capital Adequacy Ratio, Net Interest Margin
b. Dependent Variable: Loan to Deposit Ratio
Source: SPSS 21 Processing Results (2021)

Referring to the output of the Model I regression, in the coefficients table it can be seen that the significance value of the four variables is CAR = 0.002; NIM = 0.466; and BOPO = 0.031. The results showed that the NIM variable had a positive and significant effect on the LDR, the CAR variable has no positive and insignificant effect on the LDR, while the BOPO variable has a positive and significant effect on the LDR. The value of R2 or R-Square contained in the Model Summary table is 0.252, this shows that the contribution or contribution of the CAR, NIM, and BOPO variables to the LDR is 25.2%, while the remaining 74.8% is a contribution from the variable -other variables not included in the study. Meanwhile, for the value of 1 can be searched with the formula

1 = = 0.865

Furthermore, the results of the F hypothesis test (simultaneously) in the path analysis of the sub Model II can be seen in Table 4.12 below:

Table 4.6 Hypothesis Test Results (Test F)
Sub Model I ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,532	3	1,177	5.162	,004b
	Residual	10,490	46	,228		
	Total	14,022	49			

a. Dependent Variable: Loan to Deposit Ratio
b. Predictors: (Constant), Operating Costs, Operating Income, Capital Adequacy Ratio, Net Interest Margin
Source: SPSS 21 Processing Results (2021)

Based on Table 4.12, it is found that the F-count value is 5.162 with a significant level of 0.004 <0.05. F-table can be searched in MsExcel by typing in an empty cell

=finv(0.05,4,5) then enter so that the f-table is 2.557. The resulting F-count is 5.162, which is greater than the F-table, which is 2.557. Thus simultaneously CAR, NIM, BOPO have a positive and significant effect on LDR.

Furthermore, the results of the t hypothesis test (partially) in the sub-Model II path analysis can be seen in Table 4.13 below:

Table 4.7 Hypothesis Test Results t (Partial Test) Sub
Model I Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,726	,204		3,560	.001
	Capital Adequacy Ratio	-,364	,108	-,432	-3,364	,002
	Net Interest Margin	-,002	,003	-,096	-,736	,466

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Operating Expenses Operating Income	,154	0.069	,291	2,224	,031

a. Dependent Variable: Loan to Deposit Ratio
Source: Processing Results of SPSS 21 (2021)

Determining the Hypothesis: (Prayitno, 2009)
1. There is no significant relationship if –t-table t-count t-table
2. There is a significant relationship if –t-count≤-t-table or t-count>t-table.
    Based on Table 4.13 it can be explained as follows:
1. The t-count value of the Capital Adequacy Ratio variable is -3.364 while the t-table value is 1.676, meaning -t-count <-t-table (-3.364<-1.676) while the significant value for *Capital Adequacy Ratio* of 0.002 <0.05, so it can be concluded that there is no significant effect of the Capital Adequacy Ratio variable on LDR, thus the hypothesis is rejected.
2. The t-count value of the Net Interest Margin variable is -0.736 while the t-table value is 1.676 meaning t-count <t-table (-0.736>-1.676) and the significant value for Net Interest Margin is 0.005 <0.05, so it can be concluded that there is a significant effect of the Net Interest Margin variable on LDR, thus the hypothesis is accepted.
3. The t-count value of the Operating Income Operating Cost variable is 2.224 while the t-table value is 1.676 meaning t-count > t-table (2.224 > 1.676) and the significant value for Operating Income Operating Cost is 0.031 <0.05, so it can be drawn the conclusion that the BOPO has a significant effect on the variable operating costs of operating income on LDR, thus the hypothesis is accepted.
4. Constant value 0.726. This means that if the CAR, NIM and BOPO values remain or do not change, then the ROA will increase by 0.726.

4.2 DISCUSSION
a. Effect of CAR (Capital Adequacy Ratio) on LDR (Loan to Deposit Ratio)
    The results of the study indicate that the t-count value of the Capital Adequacy Ratio variable is -3.364 while the t-table value is 1.676, meaning -t-count <-t-table (-3.364<- 1.676) while the significant value for the Capital Adequacy Ratio is 0.002 <0.05, so it can be concluded that there is no significant effect of the Capital Adequacy Ratio variable on LDR. So H4 is rejected.
    The results of this study are in line with research conducted by Pardede & Pangestuti (2016) which states that CAR does not have a significant effect on LDR. The basic reason for not getting a significant effect of CAR on LDR is the variation of CAR from a small sample of banks, a small variation of CAR will not affect the LDR.

b. Effect of NIM (Net Interest Margin) on LDR (Loan to Deposit Ratio)
    The results of the study indicate that the t-count value of the Net Interest Margin variable is -0.736 while the t-table value is 1.676 meaning t-count <t-table (-0.736>- 1.676) and the significant value for Net Interest Margin is 0.005 <0 0.05, so it can be concluded that there is a significant effect of the Net Interest Margin variable on LDR, so H5 is accepted.
    There is a significant effect of the Net Interest Margin variable on LDR in a negative direction, indicating that if last year's NIM decreased, it means that last year's interest income decreased. The decline in interest income last year will reduce the availability of funds in banks so that it can cause a decrease in lending this year, so that the LDR will decrease.
    The results of this study are in line with the research of Pardede & Pangestuti (2016) which states that NIM has a significant effect on LDR. The NIM of the previous year will affect the LDR of the next period.

c. Effect of BOPO (Operational Cost of Operating Income) on LDR (Loan to Deposit Ratio)

The results of the study indicate that the t-count value of the Operating Income Operating Cost variable is 2.224 while the t-table value is 1.676 meaning t-count > t-table (2.224 > 1.676) and the significant value for Operating Income Operating Expenses is 0.031 <0, 05, so that it can be concluded that there is a significant effect of the Operating Income Operating Cost variable on LDR, so H6 is accepted.

The results of this study are in line with research conducted by Agustina & Wijaya (2013) which states that partially operational costs on operating income have a positive and significant effect on the Loan Deposit Ratio.

The smaller the BOPO indicates the more efficient the bank in carrying out its business activities.

d. Effect of CAR (Capital Adequacy Ratio) on ROA (Return On Assets)

The results of the study indicate that the t-count value of the Capital Adequacy Ratio variable is -0.242 while the t-table value is 1.676, meaning -t-count>-t-table (-0.242>- 1.676) while the significant value for the Capital Adequacy Ratio is 0.810. > 0.05, so it can be concluded that there is a negative but not significant effect of the Capital Adequacy Ratio variable on ROA, so H1 is rejected.

There is a regulation from the central bank, namely Bank Indonesia regarding CAR, which states that every commercial bank must meet the minimum capital ratio (CAR) criteria of 8%. This situation encourages commercial banks to always maintain their capital ratios are always met. It can be seen from the period 2012 to 2016 that the CAR ratio, especially for Conventional Commercial Banks, has an average of 15.2513% with a maximum number of 20.23% and a minimum figure of 12.12%.

Fulfillment of a minimum CAR of 8% is only intended by Bank Indonesia to adjust conditions with international banking in accordance with the Bank for International Settlement (BIS). In business reality, a bank that is profitable does not have to have a CAR of 8% but must fulfill the main basis that must be possessed in carrying out banking activities, namely trust from the public. So it can be concluded that the increase or decrease in CAR has no effect on the size of the overall profit (ROA).

The results of this study are in line with research conducted by Rahmah (2018) and Efriyenty (2020) that the CAR variable shows an insignificant effect on Profitability (ROA) and research by Latifah et al., (2012) that partially tested the Capital Adequacy Ratio (CAR) variable.) is not significant to Return On Assets (ROA). This means that in this study the CAR ratio has no effect on changes in the ROA ratio.

Meanwhile, research conducted by Wahyuni & Prayogi (2019) states that partially, the Capital Adequacy Ratio has a significant effect on the Profit Growth of Banking Companies Listed on the Indonesia Stock Exchange (IDX) for the 2013-2017 period. This difference occurs because the number of companies used by Wahyuni & Prayogi (2019) as research objects is only 6 companies, while this study uses 10 companies as research objects with different companies.

e. Effect of NIM (Net Interest Margin) on ROA (Return On Assets)

The results of the study indicate that the t-count value of the Net Interest Margin variable is 2.957 while the t-table value is 1.676 meaning t-count>t-table (2.957>1.676) and the significant value for Net Interest Margin is 0.005 <0.05, so it can be concluded that there is a significant effect of the Net Interest Margin variable on ROA, so H2 is accepted.

The results of this study are in line with research conducted by Ariyanti et al., (2017) which states that the Net Interest Margin (NIM) variable has a direct influence on ROA. And Mawaddah's research, (2015) Net Interest Margin (NIM) has a direct effect on Return On Assets.

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f. Effect of BOPO (Operational Cost of Operating Income) on ROA (Return On Assets)

The results of the study indicate that the t-count value of the Operating Income Operating Cost variable is 0.465 while the t-table value is 1.676 meaning t-count <t-table (0.465 <1.676) and the significant value for Operating Income Operating Expenses is 0.644>0, 05, so it can be concluded that BOPO has no significant effect on ROA, so H3 is rejected.

The results of this study are in line with research conducted by Nurvarida (2017) which states that BOPO has no significant effect on Return on Assets (ROA) and is not in line with Fitria & Widiati's research (2018) which states that the ROA variable has a negative effect on ROA.

g. Effect of LDR (Loan to Deposit Ratio) on ROA (Return On Assets)

The results of the study indicate that the t-count value of the Loan to Deposit Ratio variable is 0.575 while the t-table value is 1.676 meaning t-count <t-table (0.575 <1.676) and the significant value for Loan to Deposit Ratio is 0.568>0, 05, so it can be concluded that there is no significant effect of the Loan to Deposit Ratio variable on ROA, so H7 is rejected.

The results of this study are in line with research conducted by Astohar (2016) which states that the Loan to Deposit Ratio (LDR) is not proven to have a positive and significant effect on bank profitability or the greater the financing deposit ratio, the greater the bank's profitability at Islamic Commercial Banks (BUS). , but it will decrease, even though the statement is not meaningful (not significant).

h. Effect of CAR (Capital Adequacy Ratio), NIM (Net Interest Margin), and BOPO (Operational Cost of Operating Income) on ROA (Return On Assets) through LDR (Loan to Deposit Ratio)

From the results of the research conducted, it shows that NIM directly has a positive and significant effect on ROA while CAR, BOPO and LDR do not have a significant effect on ROA. CAR has a significant negative effect on LDR, NIM has no significant effect on LDR and Operating Costs Operating Income has a significant effect on LDR.

The results of this study are in line with research conducted by Ariyanti et al., (2017) and Mawaddah (2015) that the Net Interest Margin (NIM) variable has a direct influence on ROA.

i. Indirect Effect (Indirect Effect)

From the results of the research conducted, it shows that there is a significant effect of the Capital Adequacy Ratio variable on ROA through LDR as an intervening variable, meaning that LDR is an intervening variable, the CAR and ROA variables. The results of this study are not in line with the research conducted by Pardede & Pangestuti (2016) which stated that CAR had no significant effect on ROA by mediating LDR and Wijayanti's research (2019) which stated that LDR was unable to mediate the effect of CAR on ROA.

NIM has a positive and significant effect on ROA through LDR as an intervening variable, meaning that LDR is an intervening variable between NIM and ROA. The results of this study are in line with research conducted by Pardede & Pangestuti (2016) which states that NIM has a significant effect on ROA by mediating LDR.

And the BOPO variable has a positive and significant effect on ROA through LDR as an intervening variable, meaning that LDR is an intervening variable BOPO with ROA.

j. Total Effect (Total Effect)

From the results of the research conducted, it shows that the value of the total effect of CAR on ROA is -0.0392. The amount of direct effect of CAR on ROA is -0.036 smaller than the indirect effect of -0.0032, so it can be concluded that LDR is indirectly an intervening variable (intermediary) CAR and ROA in this study. The value of the total influence of NIM on ROA is 0.4452. The direct effect of NIM on ROA is 0.409 greater than the indirect effect of 0.0364, so it can be concluded that

indirectly LDR is not an intervening variable (intermediary) NIM and ROA in this study. And the total influence value of BOPO to ROA of 0.0739. The direct effect of BOPO on ROA is 0.068 greater than the indirect effect of 0.0059, so it can be concluded that indirectly LDR is not an intervening variable (intermediary) of BOPO and ROA in this study.

Based on the total coefficient of determination of 0.393, it shows that 39.3% of the information contained in the data can be explained by the model, while the remaining 60.7% is explained by errors and other variables outside the model. The coefficient number in Model I is relatively moderate so that it deserves further interpretation.

5. CONCLUSION

From the results of the analysis carried out, there are hypotheses proposed in this study with multiple regression analysis models and path analysis. From the results of the data analysis, the following conclusions were obtained:

1. Partially :
   a. There is an insignificant negative effect of the Capital Adequacy Ratio variable on ROA.
   b. There is a significant positive effect of the Net Interest Margin variable on ROA.
   c. There is no significant effect of the variable Operating Cost of Operational Income on ROA.
   d. There is no significant effect of the Capital Adequacy Ratio variable on LDR.
   e. There is a significant negative effect of the Net Interest Margin variable on LDR.
   f. There is a significant positive effect of the variable operating costs on operating income on LDR.
   g. There is no significant effect of the Loan to Deposit Ratio variable on ROA.
2. Simultaneously:
   a. CAR, NIM, BOPO and LDR have a positive and significant effect on ROA
   b. CAR, NIM, BOPO have a positive and significant effect on LDR.
3. LDR is the intervening variable of CAR on ROA, because the number of direct effects of CAR on ROA is smaller, but LDR is not an intervening variable of NIM and BOPO on ROA because the number of direct effects of NIM and BOPO on ROA is greater than the indirect effect.

6. SUGGESTION

The researcher suggests several things related to this research, which in this study still has many weaknesses in the results of research and discussion, including:

1. For Conventional Banks

   Conventional commercial banks must continue to increase Return On Assets in order to increase operating profit by utilizing their assets, so that the profitability of Islamic banks is higher. Banks are expected to further optimize their assets by channeling them into various financing sources that generate high profit-sharing margins.
   a. It is expected that banks can increase the CAR ratio by raising as much capital as possible which will later be channeled as credit, which is of course to cover operational costs needed by the company.
   b. It is expected that banks can increase the NIM ratio, effectively in financing
   c. Banks must also keep the BOPO level low because a low BOPO indicates the ability of good bank management to meet operational costs by generating optimal profits.
   d. Banks should try to increase the CAR value, because the higher the CAR, the better the bank's ability to bear the risk of any risky credit/productive assets. With high capital adequacy, banks can finance operational activities and make a sizeable contribution to profitability as well as increase confidence in disbursing credit so as to increase the LDR value.
   e. In addition, banks must also maintain a higher Net Interest Margin (NIM), because the higher the NIM, the more effective the bank in placing its assets in the form of credit, which will affect the increase in the LDR value.

f. The smaller the BOPO cost, the more efficient the operational costs incurred by the bank concerned or vice versa, the higher the BOPO ratio, the greater the possibility that the bank is in a problematic condition.

g. Banks must keep the LDR low because the lower the Loan to Deposit Ratio (LDR) indicates the better the bank's liquidity conditions, this is as a result of the smaller amount of funds needed to finance loans.

h. For conventional bank management, to improve financial performance through bank profitability (ROA) in the future, they should pay attention to aspects of capital, asset quality, liquidity, and cost efficiency.

i. Banks are expected to manage LDR considering the factors that significantly affect LDR in this study, namely CAR, NIM and BOPO

2. For Further Researchers

a. There are still many shortcomings in this research that need to be improved and developed. In this study, only 3 independent variables were used, even though many macro variables had not been studied. For this reason, further researchers should develop this research by using an analysis of internal and external influences on conventional commercial banks and with more macro variables that have not been studied.

b. It is expected to examine the effect of all bank soundness ratios on ROA. In addition, it is hoped that further researchers can use audited financial statements as a source of data, and can expand the number of research samples.

7. RESEARCH LIMITATIONS

This study still has several limitations, including:
following:

1. The research object is limited to using only 10 Islamic banks listed on the Indonesia Stock Exchange (IDX).

2. This study only examines the effect of Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Operating Costs on Operating Income (BOPO), and Loan to Deposit Ratio (LDR) on profitability (ROA). While there are still 60.7% of other factors that affect profitability (ROA) that are not explained in this study, such as Non Performing Loans (NPL), Third Party Funds, Debt To Equity Ratio (DER) and so on.

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