

# Analysis of the Influence of CAR, LDR, NIM, BOPO, and NPL on Profitability in Conventional Banking Companies Listed on the IDX in 2017-2021

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## Analysis of the Influence of CAR, LDR, NIM, BOPO, and NPL on Profitability in Conventional Banking Companies Listed on the IDX in 2017-2021

Marice Br Hutahuruk<sup>1\*</sup>, Sudarno Sudarno<sup>2</sup>, Erica Valencia<sup>2</sup>, Dian Angelina<sup>2</sup>, Priyono Priyono<sup>2</sup>

Institut Teknologi dan Bisnis Master, Indonesia<sup>1</sup>; Institut Bisnis dan Teknologi Pelita Indonesia, Indonesia<sup>2</sup>

Email: [mrctalenta@yahoo.com](mailto:mrctalenta@yahoo.com)<sup>1</sup>, [sudarno@lecturer.pellitaindonesia.ac.id](mailto:sudarno@lecturer.pellitaindonesia.ac.id)<sup>2</sup>, [ericaavalenciaa@gmail.com](mailto:ericaavalenciaa@gmail.com)<sup>3</sup>

\*Corresponding Author

### ABSTRACT

This research aims to determine the effect of CAR, LDR, NIM, BOPO and NPL on profitability in conventional banking companies listed on the IDX in 2017-2021. This study uses secondary data. The sample technique in this study used purposive sampling. The number of samples obtained were 20 companies. The analytical method of this research uses descriptive analysis and several types of evaluation using the SmartPLS software. From this study it was found that only LDR and BOPO had a significant effect on profitability (ROA). Meanwhile, CAR, NIM and NPL have no significant effect on profitability (ROA).

**Keywords:** CAR, LDR, NIM, BOPO, NPL, Profitability

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### INTRODUCTION

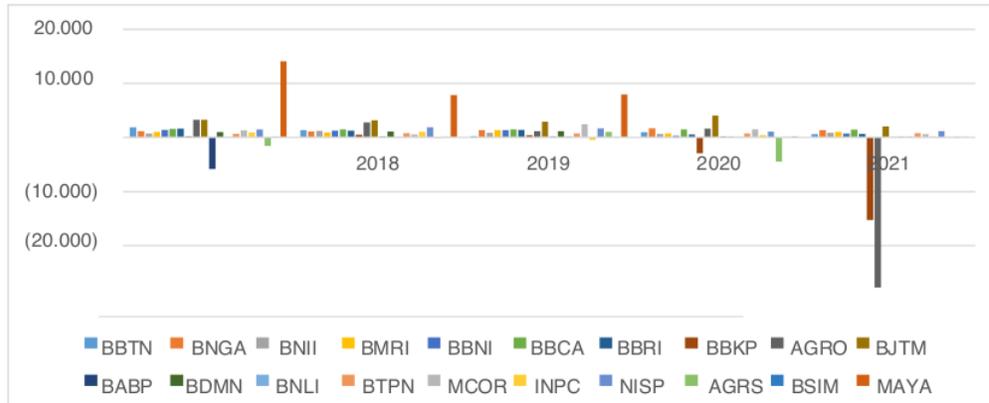
The current globalization has changed many aspects of economic and cultural development. Rapidly growing economic development results in more capital needed to finance a country's investment, distribution and consumption. One of the sources of capital needed to develop the country's economy is savings from the community. In order for public savings to be useful for economic growth, it needs to be channeled to groups of people who need capital to finance productive activities. Companies that provide financial services to all levels of society are known as banks. Economic development cannot be separated from the banking sector, because banking has an important role in economic growth. This is because the banking sector has a main function, namely as a financial intermediary between parties who have funds (surplus) and parties who need deficit funds (Indah Putrianingsih & Yulianto, 2016). The main goal of banking is to achieve maximum profitability. The banking sector plays an important role in a country's economy, because it acts as the lifeblood of trade which aims to provide all kinds of financing and lending needs (Prasanjaya & Ramantha, 2013).

Profitability is the company's ability to earn profits during a certain period (Riski Agustiningrum, 2016). The measure of profitability used is the rate of return equity (ROE) for companies in general and return on assets (ROA) in the banking industry (Putra, Sudarno, et al., 2023; Renaldo, Junaedi, et al., 2022; Sudarno et al., 2023; Suyono et al., 2022). Return on Asset (ROA) focuses on the company's ability to earn earnings in the company's operations, while Return on Equity (ROE) only measures the return obtained from the company owner's investment in the business, so in this study ROA is used as a measure of banking performance (Renaldo, Junaedi, et al., 2022; Renaldo, Suhardjo, Suyono, et al., 2022; Renaldo, Junaedi, et al., 2023). ROA is important for banks because it is used to measure the company's effectiveness in generating profits by utilizing its assets (Fadrul et al., 2023; Panjaitan et al., 2023; Wijaya et al., 2023). ROA is the ratio between profit before tax to total assets. Then based on Bank Indonesia, ROA is a comparison between profit before tax and average total assets in a period (Hidayat et al., 2022; Renaldo, Andi, et al., 2021; Sudarno et al., 2022). This ratio can be used as a measure of financial health. This ratio is very important and related to the performance of the bank because we can see the level of efficiency of a bank's business from the profit earned by using its assets (Ansorimal et al., 2022; Lumbantoran et al., 2021; Renaldo, Suharti, et al., 2021). In the framework of bank health assessment, BI will give a maximum value of 100 (healthy) if the bank has ROA > 1.5% (Bilian & Purwanto, 2015). The greater the ROA indicates better financial performance, because the rate of return is greater. If ROA increases, it means that the company's profitability increases, so that the final impact is an increase in profitability enjoyed by shareholders (Juprizon et al., 2022; Renaldo, Sudarno, et al., 2021; Saputro et al., 2022). According to the Decree of the Director of Bank Indonesia NO. 6/10/PBI/2004 of 2004, to assess the financial performance of banks, five aspects of assessment are used, namely CAMEL (Capital, Assets, Management, Earnings, Liquidity). The capital aspect is reflected in CAR, the assets aspect is reflected in NPL, the earnings aspect is reflected in NIM and BOPO (Operating Costs on Operating Income), while the liquidity aspect includes LDR and Reserve

Requirement (Lasrya et al., 2021; Sari et al., 2021; Suyono et al., 2020). Four of the five aspects namely capital, assets, management, earnings, liquidity are assessed using financial ratios (Renaldo, Rozalia, et al., 2023; Renaldo, Sally, et al., 2023; Renaldo, Suhardjo, Suharti, et al., 2022). This shows that financial ratios can be useful in assessing the financial condition of banking companies (Chandra et al., 2023; Hocky et al., 2023).

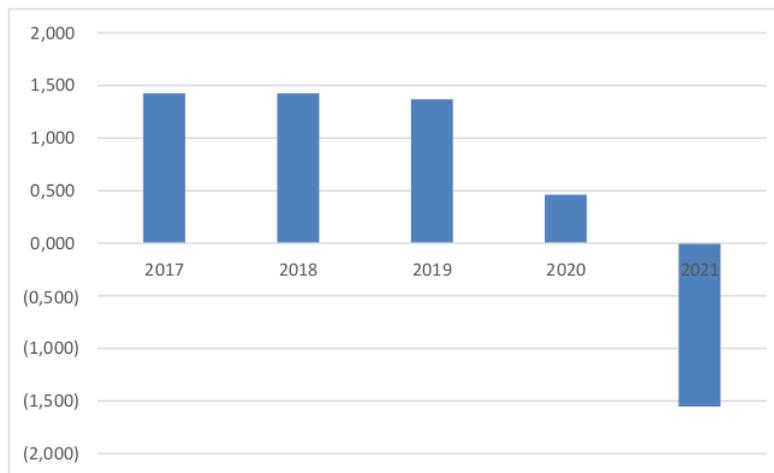
Broadly speaking, the profit generated by the company comes from sales and investment income made by the company (Putra, Farnila, et al., 2023; Putra & Kudri, 2024; Suhardjo et al., 2023). Increasingly fierce business competition requires banks to improve their performance to attract investors (Kudri & Putra, 2024; Marillo et al., 2024; Muhrodin et al., 2024). Investors before making a decision to invest their funds in a bank need information about the company's performance. Bank Indonesia also prefers the profitability value of a bank measured by ROA (Return on Asset) because Bank Indonesia prioritizes the profitability value of a bank measured by assets whose funds mostly come from public deposits so that ROA is more representative in measuring the level of bank profitability (Indah Putrianingsih & Yulianto, 2016). According to (Bilian & Purwanto, 2015), ROA can provide an overview of how much profit the company gets from each dollar of assets invested (Anton et al., 2023; Pramesti & Renaldo, 2023; Rifa'i et al., 2023). And it is also said that ROA is used to measure the extent to which the company can benefit from the use of its operating assets (Alfat, 2024; Hanapiah, 2023; Junaedi et al., 2023). By knowing ROA, we can assess whether the company has been efficient in using its assets in operating activities to generate profits. Compared to ROE, ROA is more effective to see the profitability of the company or the company's financial performance because ROA focuses on the company's ability to earn profits in the company's operations while ROE measures the return obtained from the company owner's investment. ROA is important for banks because ROA is used to measure the company's effectiveness in generating profits by utilizing its assets. ROA is the ratio between profit after tax to total assets. The greater the ROA, the better the company's performance, because the greater the rate of return. Credit risk is the risk that occurs because loan payments or loan principal cannot be made within the due date. The financial ratio that can be used to measure credit risk is Non-Performing Loan (NPL), this ratio measures the bank's ability to minimize non-performing loans faced (Indah Putrianingsih & Yulianto, 2016). ROA can provide an overview of how much profit the company gets from each dollar of assets invested. And it is also said that ROA is used to measure the extent to which the company can benefit from the use of its operating assets. By knowing ROA, we can assess whether the company has been efficient in using its assets in operating activities to generate profits. Compared to ROE (return on equity), ROA is more effective to see the profitability of the company or the company's financial performance because ROA focuses on the company's ability to earn profits in the company's operations while ROE measures the return obtained from the company owner's investment (Bilian & Purwanto, 2015). Various crises in Indonesia and also many banks were paralyzed by bad credit. According to (Ponco, 2008), the cause of the economic crisis in Indonesia is not weak economic fundamentals, but because of the decline in the rupiah exchange rate against the US dollar. The high interest rate was also one of the causes. The use of bank services had decreased due to the high interest rates so that people were not interested in using bank services. The prolonged pandemic has also affected Indonesia's economic health recently, resulting in weak economic growth and rising living costs. Competition between banks in collecting funds from the public and channeling them back in the form of credit, in practice many deviate from the rules that apply in the banking business world such as not heeding the principles of prudential banking by giving unlimited credit to customers of the banking group, so that it is often detrimental to depositors and investors and has an impact on the country's economy due to the tendency to increase non-performing loans or bad debts. The economic crisis that occurred resulted in banks in Indonesia as of 2019 there were only 115 banks left which in 2000 there were 151 banks.

The following is data on Net Profit Margin of Conventional Banks from 2017 - 2021.



Source: Processed Data, 2022

#### Comparison of Profit with Income of Conventional Banks listed on the IDX in 2017 - 2021



Source: Processed Data, 2022

#### Average Net Profit Margin of Conventional Banks

From the data above, it can be seen that the average income of Conventional Banks began to decline in 2020 where there was an economic crisis, one of the factors was due to Covid-19. Another factor in the financial crisis in Indonesia is due to the high interest rate, where the application of interest rates dominates every banking operational activity. To anticipate this, Bank Indonesia raised the SBI interest rate sharply. Many private banks and government banks compete to raise interest rates. A certain interest rate given by the bank to the public is the main attraction for the public to deposit their money in the bank. As for the bank itself, the greater the public funds that can be collected will increase the bank's ability to finance its operational activities, which are mostly in the form of providing credit to the public. The increase in SBI interest rates set by Bank Indonesia encourages an increase in lending rates. The increase in lending rates causes the cost of loan interest to increase, so that the income received by banks from loan interest will also increase. If the bank's interest income rises, it will increase the profit or profit of the bank concerned. However, the government's policy of raising SBI interest rates has not been able to change the monetary conditions in Indonesia, and has even worsened the financial performance of national banks. On the one hand, debtors have difficulty repaying loans coupled with interest expenses. And on the other hand, the funds that have been collected from depositors are increasingly difficult to channel back to the community, because credit applications are reduced due to the burden of loan interest also increased. The consequences of this policy make banks have to bear losses in their operational activities.

As a result of the monetary crisis, Bank Indonesia as the Central Bank has tightened the regulation and supervision of national banking so that the crisis does not happen again. This regulation and supervision is intended to monitor the performance of banks in Indonesia. One technique to assess bank performance is from the bank's financial statements by calculating ratios. The results of the ratio calculation will be used as a tool to analyze whether the bank's condition is good or not. As said (Bilian & Purwanto, 2015) we can see the capital aspect with the Capital Adequacy Ratio (CAR), the liquidity aspect with the loan to deposit ratio (LDR), and the income aspect with return on assets (ROA), net interest margin (NIM) and operating costs to operating income (BOPO) which are then assessed using financial ratios so as to assess the financial condition of banking companies.

Performance appraisal for management is an assessment of achievements. This is important for shareholders, management, government, and other interested parties. The measure of achievement can be seen from its profitability. Banks need to maintain high profitability, develop business prospects, pay dividends well, and fulfill prudential banking regulations well so that their performance is considered good (Riski Agustiningrum, 2016). It is important for banks to always maintain good performance, especially maintaining a high level of profitability, being able to distribute dividends properly, business projects that are always growing, and being able to fulfill prudential banking regulation provisions properly. If the bank can maintain its performance well, it can increase the value of shares in the secondary market and increase the amount of funds from third parties. The increase in the value of shares and the amount of funds from third parties is one indicator of increased trust in the bank concerned. The trust and loyalty of fund owners to the bank is a very helpful factor and makes it easier for bank management to develop a good business strategy. The owners of funds who lack trust in the bank in question then the loyalty is very low. This is very unfavorable for the bank concerned, because the owners of funds at any time can withdraw their funds.

Research (Ponco, 2008) shows that the Capital Adequacy Ratio (CAR) has a positive and significant effect on Return on Asset (ROA). While research conducted by (Manikam, 2013) CAR has no significant effect on profitability. Latin American countries place high demands on minimum capital formation, this affects the high level of bank interest rates. The high level of interest rates will have an impact on interest income and increase banking profits. The increase in profit will directly affect the increase in ROA. With the inconsistencies in the research (Ponco, 2008) and (Manikam, 2013), it is necessary to conduct further research on the effect of CAR on ROA.

The results (Ponco, 2008) show that NPL has a negative and insignificant effect on ROA. In research (Sudarmawanti & Pramono, 2017) it is concluded that NPL has a significant effect on ROA. Meanwhile, research (Manikam, 2013) on interest rate differentials in Latin American countries shows a significant negative effect of NPLs on ROA due to low legal quality. It can be in the law and jurisdiction makes the judicial process slow, it makes the uncertainty of legal treatment when there is a case related to the recovery of bad debts so that bad credit cases continue to accumulate because there is no firm resolution. The high level of bad debts makes creditors experience losses because their productive assets do not get a return. These losses have an impact on decreasing profits which affect the decline in the ROA ratio. With the inconsistencies in previous research, it is necessary to conduct further research on the effect of NPL on ROA.

In research (Sudarmawanti & Pramono, 2017) it was concluded that there is a significant influence between NIM on ROA. On the other hand, research conducted (Dewi, 2018) shows the results that Net Interest Margin (NIM) has a negative and insignificant effect on Return on Asset (ROA). While research conducted by (Manikam, 2013) shows a positive influence between NIM on ROA. NIM has a positive correlation with interest rates, which are measured based on credit and loan interest rates, and Latin American countries have high interest rates. The high level of interest rates has an impact on the increase in interest income and affects profits which directly increases ROA.

The results of the study (Ervani, 2010) show that BOPO has a significant effect on bank profitability and has a coefficient sign that is in accordance with the theory. The negative value shown by BOPO indicates that the smaller BOPO shows the more efficient the bank is in carrying out its business activities, a small BOPO indicates that the bank's operating costs are smaller than its operating income so that it shows that bank management is very efficient in carrying out its operational activities.

Research on Loan to Deposit Ratio (LDR) shows different results. Research conducted (Aji Arifianto, 2016) shows the results that the Loan to Deposit Ratio (LDR) has a positive and significant effect on the Profitability of Conventional Commercial Banks. Meanwhile, according to research (Bilian & Purwanto, 2015), LDR does not have a significant effect on the profitability of state-owned banks. The lack of effect of LDR on ROA is probably due to the large asset ownership of the Persero Bank. The second possibility is that the Persero

Bank's income is not only from interest from loans provided to the public but also generated from commission-based income. While research conducted by (Manikam, 2013) showed a significant positive effect of LDR on ROA because of the high interest rates in Latin American countries. The high level of interest rates results in high third-party funds in countries in Latin America. With the high third-party funds, the amount of credit that can be distributed increases. The increase in the number of loans originating from third party funds has a positive impact on increasing loan interest income which will increase profits which affect the increase in ROA. With the inconsistencies in previous research, it is necessary to conduct further research on the effect of LDR on ROA.

## LITERATURE REVIEW

### Banking

Hearing the word bank or the term banking, people always associate it with finance. The origin of banking activities began with money exchange services. In the further development of banking operations, banking activities increased again to become a place for depositing money or called deposit activities. Then banking activities developed with money lending activities, namely by means of money that was originally deposited by the community, by banks lent back to the community who needed it. As a result of the increasing need for financial services, the role of the banking world is increasingly needed by all levels of society both in developed and developing countries. So that people think that in the banking world, Banks are financial institutions that collect funds from the public and are channeled back in the form of credit loans and then offer other services. As a financial institution, banks provide various services in the financial sector, including bank business activities such as Funding (deposits in the form of current accounts, savings, deposits and certificates of deposit). As well as Lending (distribution of Funds in the form of credit, Consumer Credit, Working Capital, Investment, Export-Import, Bank Guarantee). Then Services, in the form of transfer services, clearing, SDB, Export-Import, Collection, Forex). Some of the people in Indonesia understand banking is often confused with the definition of bank. Even though these two things are very different. Banking is everything that concerns banks, including institutions, business activities, and the way and process of doing business. While the Bank only covers the institutional aspect.

### Profitability

The measure of profitability used is the rate of return equity (ROE) for companies in general and return on assets (ROA) in the banking industry. Return on Asset (ROA) focuses on the company's ability to earn in the company's operations, while Return on Equity (ROE) only measures the return obtained from the company owner's investment in the business. Measuring the level of profitability is a very important thing that is needed, this aims to ensure whether the profits targeted by the company in several periods have been achieved. This profitability ratio analysis uses ROE. The reason for using ROA is because BI as a banking supervisor and supervisor is more concerned with assets whose funds come from the public (Buyung Nusantara, 2009). ROA reflects the ability of bank management in how effectively a bank manages its assets to generate a profit (Prasanjaya & Ramantha, 2013). Bank Indonesia sets the amount of ROA at 1.5 percent. In addition, ROA is an objective measurement method based on available accounting data and the amount of ROA can reflect the results of a series of company policies, especially banking.

### Capital Adequacy Ratio (CAR)

Capital Adequacy Ratio (CAR), namely according to Bank Indonesia (Number 9/13/PBI/2007) "CAR is the provision of minimum capital for banks based on asset risk in a broad sense, both assets listed on the balance sheet and administrative assets as reflected in contingent liabilities and / or commitments provided by banks to third parties and market risk (Rahmi & Herlina, 2021). CAR is also the main proxy for bank capital. CAR reflects the company's own capital, the greater the CAR, the greater the bank's opportunity to generate profits, because with large capital, bank management is very free to place its funds into profitable investment activities. Therefore, it can be concluded that the greater the CAR ratio indicates the bank's ability to earn good profits, so that the CAR ratio has a positive effect on profits and increases the ROA ratio.

### Loan to Deposit Ratio (LDR)

Loan to Deposit Ratio is the ratio of the possibility of depositors or debtors withdrawing their funds from the bank. The risk of withdrawing funds is different between each liquidity. Current accounts certainly have higher liquidity because the nature of this source of funds is very unstable because it can be withdrawn at any time so that banks must be able to project their liquidity needs to meet current account customers. Meanwhile, time deposits have a relatively lower risk because banks can project when liquidity is needed to meet the

withdrawal of maturing time deposits. In other words, Loan to Deposit Ratio is a bank performance ratio to measure the liquidity of the bank in meeting the needs of funds withdrawn by the public in the form of savings, current accounts and deposits (Aji Arifianto, 2016).

#### Net Interest Margin (NIM)

Net Interest Margin (NIM) is a ratio that shows the ability of bank management to manage its productive assets to generate net interest income. Net Interest Margin also reflects management's ability to generate positive returns on deposits. This ratio is used to measure the ability of bank management to manage its productive assets to generate net interest income (Dewi, 2018). The greater this ratio, the higher the interest income on productive assets managed by the bank so that the possibility of a bank in problematic conditions is smaller. So, it can be concluded that the greater the change in Net Interest Margin (NIM) of a bank, the greater the profitability of the bank, which means that the financial performance is increasing. NIM is the ratio between interest income to average earning assets. Income is derived from interest received from loans given minus the interest cost of the sources of funds collected. The source of bank funds consists of: (1) funds from the first party (own capital), (2) funds from the second party (loans from other banks), (3) funds from the third party (funds from the public). NIM reflects market risk arising from changing market conditions, which can harm banks (Aji Arifianto, 2016).

#### Operating Expenses and Operating Income (BOPO)

The BOPO ratio indicates the operational risk borne by the bank. BOPO is the ratio between operating expenses and operating income. The greater the BOPO, the smaller or lower the financial performance of the bank. Vice versa, if BOPO is getting smaller, it can be concluded that the financial performance of banks is increasing or improving. BOPO ratio is used to measure the level of efficiency and ability of banks in conducting their operations.

The BOPO ratio is often called the efficiency ratio which is used to measure the ability of bank management to control operating costs against operating income. The smaller the BOPO value, the better the performance of bank management. Thus, the operating efficiency of a bank proxied by the BOPO ratio will affect the bank's performance. The success of the bank is based on a quantitative assessment of bank profitability can be measured using the ratio of operating expenses to operating income (Ponco, 2008). Operating Expenses to Operating Income (BOPO) is the result of the division between total operating expenses and total operating income. Based on the provisions of Bank Indonesia, the normal BOPO ranges from 94%-96%. According to Bank Indonesia, operating efficiency is measured by comparing total operating costs with total operating income or what is often called BOPO. So, it can be arranged a logic that the operating efficiency variable proxied by BOPO has a negative effect on banking performance proxied by Return on Asset (ROA). So that the greater the BOPO, the smaller / lower the financial performance of the bank, and vice versa, if the BOPO is getting smaller, it can be concluded that the financial performance of a company (banking) is increasing or improving.

#### Non-performing loan (NPL)

Banks in carrying out their operations certainly cannot be separated from various kinds of risks. One of the bank risks is credit risk. Credit risk is the risk that occurs because loan payments or loan principal cannot be made within the due date. The financial ratio that can be used to measure credit risk is Non-Performing Loan (NPL), this ratio measures the bank's ability to minimize non-performing loans faced. The amount of NPL allowed by Bank Indonesia is currently a maximum of 5%. The higher the NPL level indicates that the bank is not professional in managing its credit so that the bank experiences bad credit which will ultimately have an impact on bank losses. With the increase in NPLs, as a result, the bank must provide a large enough write-off reserve, so that the ability to provide credit is very limited and if it is uncollectible it will result in losses (Indah Putrianingsih & Yulianto, 2016).

#### Hypothesis Formulation

##### Effect of Capital Adequacy Ratio on Return on Asset

CAR is an indicator of a bank's capital ratio used to determine the ability of bank capital adequacy in supporting bank activities efficiently. Bank Indonesia sets the minimum capital adequacy requirement at 8%. The higher the CAR figure, the greater the bank's available capital in anticipating risks arising from asset investment. So, the higher the CAR, the better the bank's performance in maintaining sufficient capital. The more CAR increases, the lower the level of profitability obtained. In research (Gagah Purwana, 2009) concluded that CAR has a positive and significant effect on the profitability of domestic banks and a positive and insignificant effect on the profitability of foreign banks. And in the study (Ponco, 2008) it was concluded that

**CAR has a positive and significant effect on profitability.**

H1: Capital Adequacy Ratio (CAR) has a positive effect on profitability in conventional banking companies listed on the IDX in 2017-2021.

#### **Effect of Loan to Deposit Ratio on Return on Asset**

LDR is a ratio that measures the bank's ability to issue credit from third party funds collected at the bank. LDR provides an indication of the amount of third-party funds channeled in the form of credit. The lower the LDR, the less effective the bank is in extending credit. A low LDR indicates that the bank has not been able to fully optimize the use of public funds to expand credit (Setyarini, 2020). The standard used by Bank Indonesia for a bank's LDR ratio is 80% to 110%. If the LDR ratio of a bank is below 80%, it can be concluded that the bank can only distribute credit below the standard set by Bank Indonesia and can cause a decrease in ROA. The higher the LDR, the profit earned by the bank will increase, assuming that the bank is able to distribute its credit effectively so that it is expected that the number of bad debts is low. Research (Prasanjaya & Ramantha, 2013) and (Buyung Nusantara, 2009) state that LDR has a positive and significant effect on ROA.

H2: Loan to Deposit Ratio (LDR) has a positive effect on profitability in conventional banking companies listed on the IDX in 2017-2021.

#### **Effect of Net Interest Margin on Return on Asset**

NIM is a ratio that shows the bank's ability to manage productive assets in generating net interest income. NIM is obtained from the comparison between bank interest income, loan interest income minus deposit interest expense, and outstanding loans (Manikam, 2013). The greater the NIM ratio indicates high interest income on productive assets and shows the effectiveness of banks in managing corporate assets in the form of credit. Increased interest income can make a positive contribution to bank profits which can be shown by the high ROA ratio. Therefore, it can be concluded that the greater the NIM ratio, the greater the profitability. In research (Bilian & Purwanto, 2015) and (Aji Arifianto, 2016) it is concluded that NIM has a significant positive effect on ROA.

H3: Net Interest Margin (NIM) has a positive effect on profitability in conventional banking companies listed on the IDX in 2017-2021.

#### **The Effect of Operating Costs and Operating Income on Return on Asset**

BOPO is the ratio between total operating expenses and total operating income. BOPO is used to measure the level of efficiency and ability of the bank in its operating activities. The level of operating efficiency can affect the financial performance of the bank by showing whether bank management has used all its production factors effectively and efficiently (Widianata, 2014). A healthy bank has a BOPO ratio of less than 1 and a less healthy bank has a BOPO ratio of more than 1. The higher the cost of income, the more inefficient the bank becomes. Thus, it can be concluded that, the greater the BOPO ratio shows the level of bank inefficiency in managing its activities which will reduce profits so that BOPO has a negative relationship with bank performance and has a negative effect on ROA. The effect of BOPO on ROA in (Ponco, 2008) stated that BOPO has a negative and significant effect on ROA where the greater the BOPO, the smaller or lower the financial performance of banks. Vice versa, if BOPO is getting smaller, it can be concluded that the financial performance of a company (banking) is increasing or improving.

H4: Operating Costs and Operating Income (BOPO) have a negative effect on profitability in conventional banking companies listed on the IDX in 2017-2021.

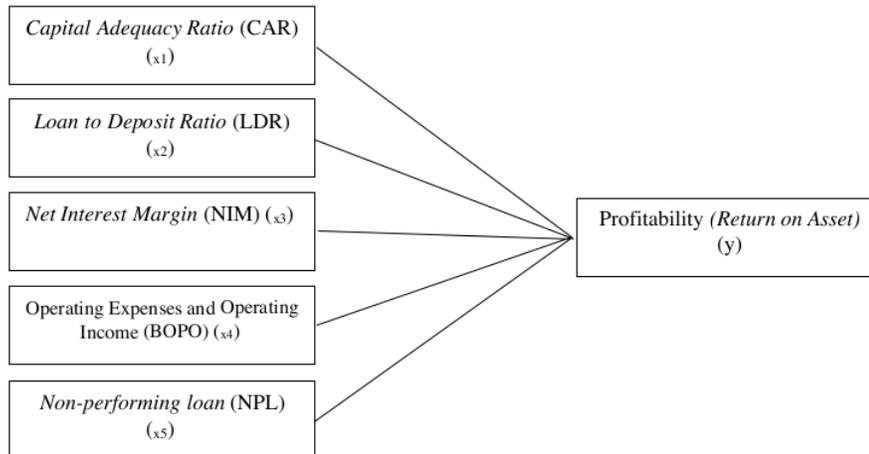
#### **The Effect of Non-Performing Loan on Return on Asset**

NPL is a ratio used as a proxy for the quality of productive assets and is the ratio between total non-performing loans (substandard, doubtful and loss loans) and total loans granted by banks to debtors. The quality of earning assets shows the quality of assets in connection with the credit risk faced by banks due to lending and investment of bank funds in different portfolios. NPL is also a ratio used to measure the bank's ability to withstand the risk of credit failure by debtors. The greater the NPL, the greater the risk of failure of the loans disbursed, which has the potential to reduce interest income and reduce profits. According to research (Manikam, 2013) NPL has a significant negative effect on ROA. Research (Indah Putrianingsih & Yulianto, 2016) also concluded that NPL has a negative effect on ROA.

H5: Non-performing loan (NPL) has a negative effect on profitability in conventional banking companies listed on the IDX in 2017-2021.

**Framework of Thought**

From the hypothesis that has been set above, this study will conduct further research on the effect of CAR, LDR, NIM, BOPO and NPL on profitability. Based on the background, literature review, previous research and hypothesis formulation, the following framework is made:



Source: Processed Data, 2022

**Figure 3. Research method framework**

**METHODOLOGY**

**Place and Time of Research**

This research was conducted on conventional banking companies listed on the Indonesia Stock Exchange (IDX) by downloading information data from the IDX official website at www.idnfinancials.com. This research was conducted from September 2022 to February 2023.

**Population and Sample**

According to (Saputra, 2015) Population is a collection of all measurements, objects, or individuals being studied. So, the definition of population in statistics is not limited to a group / collection of people, but refers to all measures, counts, or qualities that are the focus of attention of a study. Population is often called a universe or a group of individuals or objects that have the same characteristics. The population in this study are 107 conventional banking companies listed on the Indonesia Stock Exchange (IDX) as of February 2021. Based on certain criteria, the companies selected to be the research sample were 20 conventional banking companies listed on the Indonesia StockExchange in 2017 - 2021.

**Operational Research Variables**

**Table 1. Operational Research Variables**

NO.	VARIABLE	INDICATOR	SCALE
1.	Capital Adequacy Ratio (CAR) (X <sub>1</sub> )	$CAR = \frac{\text{Bank Capital}}{\text{ATMR (Credit, Market, Operating)}} \times 100\%$ <p>Sumber : (Widianata, 2012)</p>	Rasio
2.	Loan to Deposit Ratio (LDR) (X <sub>2</sub> )	$LDR = \frac{\text{Given Credit}}{\text{Total Third - Party Funding}} \times 100\%$	Rasio

NO.	VARIABLE	INDICATOR	SCALE
		Sumber : (Dewi, 2018)	
3.	Net Interest Margin (NIM) ( $X_3$ )	$NIM = \frac{\text{Net Interest Income}}{\text{Productive Assets}} \times 100\%$ Sumber : (Asna Widyanto et al., 2020)	Rasio
4.	Biaya Operasional dan Pendapatan Operasi (BOPO) ( $X_4$ )	$BOPO = \frac{\text{Total Operating Load}}{\text{Total Operating Income}} \times 100\%$ Sumber : (Widianata, 2012)	Rasio
5.	Non Performing Loan (NPL) ( $X_5$ )	$NPL = \frac{\text{Non - performing Credit}}{\text{Total Credit}} \times 100\%$ Sumber : (Manikam & Syafruddin, 2013)	Rasio
6.	Return On Asset (ROA) ( $Y_1$ )	$ROA = \frac{\text{Net Profit Before Tax}}{\text{Total Assets}} \times 100\%$ Sumber : (Rahmi & Herlina, 2021)	Rasio

#### Data Collection Technique Descriptive Analysis

This analysis is intended to provide an overview of the general description of the data obtained. This description itself includes Minimum, Maximum, Mean and Standard Deviation which are directly related to the research instrument being carried out. Descriptive statistics are carried out to provide an overview of the research variables to be observed. The descriptive statistics used in this study are mean, maximum and minimum and standard deviation.

#### Classical Assumption Test Data Normality Test

This test tool aims to test in the regression model and the residual variable (observation value) has a normal distribution. A good regression model is a model that has a normal or near normal data distribution. Proof that a data has a normal distribution can be seen in the form of its data distribution on a histogram or normal probability plot or Kolmogorov-Smirnov.

#### Multicollinearity Test

The multicollinearity test is used to see if there is a high correlation between the independent variables in a research model. If there is a high correlation between the independent variable and the dependent variable, the relationship between the variables will be disrupted. The statistical tool that is often used in testing for multicollinearity disorders is by using variance inflation factors (VIF) and looking at the tolerance value of each variable. If the tolerance value is greater than 0.1 and the VIF value obtained is smaller than 10, it can be said that the data does not occur multicollinearity problems.

#### Test Coefficient of Determination ( $R^2$ )

This model aims to measure how far the model's ability to explain and explain variations in the dependent variable. The range of the coefficient of determination value is between 0 and 1. A small Adjusted  $R^2$  value indicates that the ability of the independent variables to explain the dependent variable is very limited. A value close to 1 indicates that the independent variables provide almost all the information needed to predict variations in the dependent variable. Conversely, if the adjusted  $R^2$  value obtained is further away from 1, it means that the independent variables are considered unable to explain a strong influence on the dependent variable.

#### Hypothesis Test (t Test)

The t test illustrates how far the influence is caused between one independent variable individually in explaining the dependent variable. The basis for making t test decisions is as follows: If  $\text{Sig } t < 0.05$ , then  $H_0$  is rejected and  $H_a$  is accepted, which means that the independent variable has a significant effect on the dependent variable. If  $\text{Sig } t > 0.05$ , then  $H_0$  is accepted and  $H_a$  is rejected, which means that the independent variable does not have a significant effect on the dependent variable.

**Results and Discussion**

**Descriptive Analysis**

**Variable Capital Adequacy Ratio (CAR)**  
 Capital Adequacy Ratio is a ratio used to measure capital adequacy to cover possible failures in lending (Munawar, 2017). The results of this test concluded that the lowest Capital Adequacy Ratio was in 2017 in the BBKP company of 10.52, while the highest Capital Adequacy Ratio was held by the AGRS company of 39.67.

**Loan to Deposit Ratio (LDR) Variable**

Loan to Deposit Ratio (LDR) is a liquidity measure that measures the amount of funds placed in the form of credit originating from funds collected by banks, especially funds from the public (Fanesha et al., 2021). The lowest Loan to Deposit Ratio value is in 2021 at the BSIM company of 41.22 and the highest value is in 2019 at the BTPN company of 171.28.

**Net Interest Margin (NIM) Variable**

Net Interest Margin is used to measure net interest margins on conventional banks listed on the Indonesia Stock Exchange in 2017 - 2021 (Setyawati, 2020). Through the results of the data, it can be concluded that the highest value of the overall average Net Interest Margin is in the MAYA company of 0.47 in 2020 and the highest is in the BBKP company in 2019, which is 91.54.

**Variable Operating Expenses and Operating Income (BOPO)**

BOPO is the ratio between total operating expenses and total operating income. BOPO is often called the efficiency ratio used to measure the ability of bank management to control operating costs against operating income. It is concluded that the highest overall BOPO value is in the AGRO company of 287.86 in 2021 while the lowest value is in the BBKA company in 2021.

**Non-performing loan (NPL) variable**

Non-performing loan is a form of problem that arises in the loan repayment process. In general, this is caused by the economic crisis which results in an increase in the percentage of bad debts. The lowest Non-Performing Loan value was in the BTPN company in 2019 of 0.78 and the highest Non-Performing Loan value was in the AGRS company in 2019 of 11.68.

**Variable Return on Asset (ROA)**

Return On Asset is also one of the profitability ratios. Return On Asset is the ratio between pre-tax income and total assets, Return on Asset shows how much the company has earned on the assets in the company (Munawar, 2017). It was found that overall, the results showed that the INPC company obtained the lowest Return on Asset value in 2021 of 0.03 and the BBKA company obtained the highest Return on Asset value in 2019 of 4.02.

**Multicollinearity Test**

**Table 2. Multicollinearity Test**

Variables	VIF	Conclusion
Capital Adequacy Ratio	1.156	No Multicollinearity
Loan to Deposit Ratio	1.030	No Multicollinearity
Net Interest Margin	1.055	No Multicollinearity
Operating Expenses and Operating Income	1.495	No Multicollinearity
Non-performing Loan	1.631	No Multicollinearity

Source: SmartPLS Processed Data

In the table above, it can be seen that the independent variables in this study have a VIF value <10. So it can be concluded that the independent variables do not occur symptoms of multicollinearity between the dependent variables in this study or mean free from the influence of multicollinearity.

**Test Coefficient of Determination (r<sup>2</sup>)**

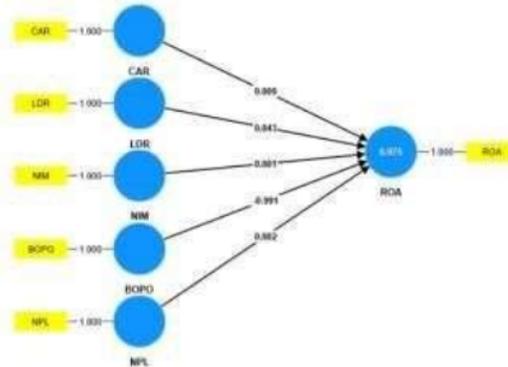
**Table 3. Test Coefficient of Determination (r<sup>2</sup>)**

Variables	R-Square	Adjusted R-Square
Return On Asset	0.975	0.973

Source: SmartPLS Processed Data

From the test results table above, it can be seen that the Adjusted R Square is 0.973 or 97.3%. This means that Return on Asset in conventional banking companies is influenced by the variables of Capital Adequacy Ratio, Loan to Deposit Ratio, Net Interest Margin, Operating Costs and Operating Income and Non Performing Loan by 97.3%. While the remaining 2.7% is influenced by other variables not examined in this study.

### Multiple Linear Regression Analysis



Source: SmartPLS Processed Data

### Multiple Linear Analysis

Based on the test results in the table above, the following linear regression model is known:

$$Y = 0.009 X_1 + 0.043 X_2 + 0.001 X_3 - 0.991 X_4 + 0.002 X_5$$

### T Statistical Test

This T test is conducted to measure or determine whether the independent variable has an influence on the dependent variable. The trick is to compare T table with T count. Each calculated T value will be compared with the T table obtained using a significant 0.05.

Table 4. T Statistical Test

	T-count	T-table	Sig	Decision
CAR -> ROA	0.556	1.65833	0.578	Hypothesis Rejected
LDR -> ROA	2.000	1.65833	0.046	Hypothesis Accepted
NIM -> ROA	0.048	1.65833	0.961	Hypothesis Rejected
BOPO -> ROA	41.105	1.65833	0.000	Hypothesis Accepted
NPL -> ROA	0.053	1.65833	0.957	Hypothesis Rejected

Source: SmartPLS Processed Data

With  $df = 114$  and a significant level  $\alpha = 0.05$ , the t table = 1.65833 is obtained. The critical areas in this study are:  $H_0$  is accepted ( $H_1$  is rejected) if t count < 1.65833 and  $H_1$  is accepted ( $H_0$  is rejected) if t count > 1.65833. From the table above, the partial test results can be explained as follows: (1) The test results show that the t value of the CAR variable is smaller than the t table (0.556 < 1.65833) with a significant level of 0.616 which is greater than  $\alpha = 0.05$  so it can be concluded that CAR has no significant effect on the ROA variable. This shows that  $H_0$  is accepted and  $H_1$  is rejected. (2) The test results show that the t value of the LDR variable is greater than the t table (2.000 > 1.65833) with a significant level of 0.046 which is smaller than  $\alpha = 0.05$  so it can be concluded that LDR has a significant effect on the ROA variable. This shows that  $H_0$  is rejected and  $H_1$  is accepted. (3) The test results show that the t value of the NIM variable is smaller than the t table (0.048 < 1.65833) with a significant level of 0.961 which is greater than  $\alpha = 0.05$  so it can be concluded that NIM has no significant effect on the ROA variable. This shows that  $H_0$  is accepted and  $H_1$  is rejected. (4) The test results show that the t value of the BOPO variable is greater than the t table (41.105 > 1.65833) with a significant level of 0.000 which is smaller than  $\alpha = 0.05$  so it can be concluded that BOPO has a significant effect on the ROA variable. This shows that  $H_0$  is rejected and  $H_1$  is accepted. (5) The test results show that the t value of the NPL variable is smaller than the t table (0.053 < 1.65833) with a significant level of 0.957 which is greater than  $\alpha =$

0.05 so it can be concluded that NPL has no significant effect on the ROA variable. This shows that H0 is accepted and H1 is rejected.

### Discussion of Research Results

#### Effect of Capital Adequacy Ratio on Return on Asset

The average value of the CAR ratio from 2017 to 2021 experienced fluctuating movements, as did the average value of the ROA ratio in conventional banking companies. Based on the results of multiple linear regression analysis, it is known that CAR has a value of 0.009. This shows that there is a positive influence between the Capital Adequacy Ratio and Return on Asset, which means that if the Capital Adequacy Ratio increases, the Return on Asset will also increase. The results of this study state that CAR has no effect and is not significant to ROA.

#### The Effect of Loan to Deposit Ratio on Return on Asset

The average value of the LDR ratio from 2017 to 2021 experienced fluctuating movements, as did the average value of the ROA ratio in conventional banking companies. Based on the results of multiple linear regression analysis, it is known that LDR has a value of 0.043. This shows that there is a positive and significant influence between the Loan to Deposit Ratio and Return on Asset, which means that if the Loan to Deposit Ratio increases, the Return on Asset will also increase. The results of this study state that LDR has a significant positive effect on ROA.

#### The Effect of Net Interest Margin on Return on Asset

The average value of the NIM ratio from 2017 to 2021 experienced fluctuating movements, as did the average value of the ROA ratio in conventional banking companies. Based on the results of multiple linear regression analysis, it is known that NIM has a value of 0.001. This shows that there is a positive influence between Net Interest Margin and Return on Asset, which means that if the increase in Net Interest Margin will make Return on Asset increase.

#### The Effect of BOPO on Return on Asset

The average value of the BOPO ratio began to increase from 2019 to 2021, as well as the average value of the ROA ratio in conventional banking companies which experienced fluctuating movements. Based on the results of multiple linear regression analysis, it is known that BOPO has a value of -0.991. This shows that there is a negative influence between BOPO and Return on Asset, which means that if BOPO increases, Return on Asset will decrease. The results of this study indicate that BOPO has a significant effect on ROA.

#### The Effect of Non-Performing Loan on Return on Asset

The average value of the NPL ratio experiences fluctuating movements as well as the average value of the ROA ratio in conventional banking companies. Based on the results of multiple linear regression analysis, it is known that the NPL has a value of 0.002. This shows that there is a positive influence between NPL and Return on Asset, which means that the increase in NPL will make Return on Asset increase. This may occur in companies that have an NPL ratio of less than and equal to 5% so that they have a small credit risk.

### CLOSING

Based on the results of the research discussion, the following conclusions can be drawn: (1) Capital Adequacy Ratio has no significant effect on Return on Asset in conventional banking companies listed on the Indonesia Stock Exchange in 2017 - 2021. (2) Loan to Deposit Ratio has a significant effect on Return on Asset in conventional banking companies listed on the Indonesia Stock Exchange in 2017-2021. (3) Net Interest Margin has no significant effect on Return on Asset in conventional banking companies listed on the Indonesia Stock Exchange in 2017-2021. (4) Operating Expenses and Operating Income have a significant negative effect on Return on Asset in conventional banking companies listed on the Indonesia Stock Exchange in 2017-2021. (5) Non-performing loans have no significant effect on Return on Assets in conventional banking companies listed on the Indonesia Stock Exchange in 2017-2021.

Based on the research that has been done, there are still some limitations, including (1) The sample of companies used as research is limited to conventional banking companies. (2) The research model is relatively simple because it only reveals the effect of the capital adequacy ratio (CAR), loan to deposit ratio (LDR), net interest margin (NIM), operating expenses on operating income (BOPO) and non-performing loans (NPL) on

profitability. There are still many possible other factor variables that influence but are not included in this study.

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