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# The Influence of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and Loan to Deposit Ratio (LDR) on Profitability in Banking Companies on the Indonesia Stock Exchange



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ABSTRACT: Banking is a financial institution that has a role in the financial system in Indonesia. The existence of the banking sector has a fairly important role, where in public life most of it involves services from the banking sector. The main objective of bank operations is to achieve maximum profitability. The profitability ratio is the ratio to assess the company's ability to make a profit. This study aims to examine the effect of Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Loan To Deposit Ratio (LDR) on Profitability in Banking Companies Registered on the Indonesia Stock Exchange (IDX) for the 2018-2020 period.

The population used in this study were 43 banking companies listed on the Indonesia Stock Exchange (IDX). The sampling technique used purposive sampling method and obtained as many as 35 samples of companies with 3 years of observation, then the number of samples under observation was 105. This type of research is a quantitative study using multiple linear regression analysis methods.

The results of the study show that the Capital Adequacy Ratio (CAR) has a positive and significant effect on Profitability in Banking Companies listed on the Indonesia Stock Exchange (IDX), Non Performing Loans (NPL) has a negative and significant effect on Profitability in Banking Companies listed on the Indonesia Stock Exchange (IDX), and Loan To Deposit Ratio (LDR) have a positive and significant effect on Profitability in Banking Companies listed on the Indonesia Stock Exchange (IDX). Suggestions for further research are expected to add other variables that affect the level of banking profits such as external factors (inflation, interest rates, and exchange rates).

KEYWORDS: Capital Adequacy Ratio, Non-Performing Loans, Loan To Deposit Ratio, Profitability.

#### I. INTRODUCTION

Financial institutions in carrying out their business provide trust and services, each bank tries to attract as many new customers or investors as possible, increase its funds and also expand its credit and services. So that banking has a very strategic role. However, the health and stability of the banking system is very vital. Where a healthy bank, both individually and as a whole as a system, is a necessity for an economy that wants to grow and develop properly. However, the disruption of the banking intermediary function following the banking crisis in Indonesia has resulted in sluggish investment activity and economic growth.

The main objective of bank operations is to achieve maximum profitability. The profitability ratio is the ratio to assess the company's ability to make a profit. This ratio also provides a measure of the effectiveness of a company's management. The point is that the use of this ratio shows the efficiency of the company (Kasmir, 2018: 126). Based on (Almunawwaroh, 2018) profitability is a comparison made to assess the company's expertise to determine profit.

The profitability measure used is Return On Assets (ROA). Return on Assets (ROA) focuses on the company's ability to generate income in the company's operations. ROA is the ratio between profit before tax to total assets. The greater the ROA, the better the 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 the profitability enjoyed by shareholders. The factors that influence profitability in this study are the Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), and Loan to Deposit Ratio (LDR).

The first factor that can affect profitability is the Capital Adequacy Ratio (CAR). According to Avrita and Pangestuti (2016), CAR is a capital ratio that indicates a bank's ability to provide funds to accommodate the risk of loss of funds caused by bank operations and the company's business development needs. Regarding the Capital Adequacy Ratio (CAR) with a value of 8%, it means that the result is 8% of the RWA, or it could be the other way around, the result of the RWA is 12.5 times the capital

available or owned by the related bank. (Hasanah, et al 2019). Various previous studies related to CAR showed several results. These studies were conducted by several researchers, namely, among other things, research conducted by Korri and Baskara (2019) states that CAR has no effect on profitability. However, it has different results from the research conducted by Paramita and Dana (2019) which states that CAR has a positive and significant effect on profitability.

The second factor that affects profitability is Non Performing Loans (NPL). According to Kasmir (2018: 127), the notion of Non-Performing Loan (NPL) is credit in which there are obstacles caused by 2 elements, namely from the banking side in analyzing and from the customer who intentionally or unintentionally does not make payments in his obligations. Non Performing Loan (NPL) is the ratio of bad loans to total loans and down payments. Based on PBI No. 17/11/PBI/2015 dated 25 June 2015, Bank Indonesia has set a maximum Non Performing Loan (NPL) standard of 5%, if it exceeds it it will affect the rating of the soundness of the bank concerned, which will reduce the value it gets. According to previous research conducted by Korri and Baskara (2019) stated that NPL had a negative and significant effect on profitability. Meanwhile, research conducted by Praja and Hartono (2019) states that Non-Performing Loans (NPL) have an effect on profitability.

The third factor that affects profitability, namely the Loan to Deposit Ratio (LDR), is one of the assessments of the soundness of a bank from the aspect of liquidity. LDR is the ability of a bank to provide funds to its debtors with capital owned by the bank and funds that can be collected by the public (Sudarmawanti and Pramono, 2017). Based on Bank Indonesia Regulation Number 15/7/PBI/2013 the LDR standard is 78% -92%. If the LDR ratio is below or less than 78%, it means that the bank is unable to properly channel all the funds that have been raised. If the LDR ratio is above or more than 92%, then the total credit disbursed by the bank has exceeded the funds raised (Putri and Dewi, 2017). According to previous research conducted by Korri and Baskara (2019) stated that LDR has a positive and significant effect on profitability. Meanwhile, research conducted by Praja and Hartono (2019) states that LDR has no effect on profitability.

This research was conducted on banking companies on the Indonesia Stock Exchange because banking companies that offer shares on the Indonesia Stock Exchange where banking companies are one of the sectors that are expected to have quite bright prospects in the future, because currently the daily activities of Indonesian people cannot be separated from banking services. The financial performance of banking companies can be seen from the financial reports of companies listed on the Indonesia Stock Exchange. The following is data on the development of the financial performance of banking companies for 2018-2020 seen from table 1.1 as follows:

Table 1.1. Development of Financial Performance of Banking Companies on the Indonesia Stock Exchange 2018-2020

Year	Profitability (ROA)	Capital Adequacy Ratio (CAR)	Non Performing Loans (NPL)	Loan to Deposit Ratio (LDR)
2018	2.55%	22.97%	2.37%	94.78%
2019	2.47%	23.40%	2.53%	94.43%
2020	1.59%	23.89%	3.06%	82.54%

**Source:**www.ojk.co.id(data processed)

Based on table 1.1 it shows that Profitability proxied by Return On Assets (ROA) has decreased from 2018-2020. In 2018 the data was 2.55%, decreased in 2019 to 2.47%, and decreased again in 2020 to 1.59%. The Capital Adequacy Ratio (CAR) has increased from 2018-2020. In 2018 it was 22.97%, increasing in 2019 to 23.40%, and in 2020 it increased again by 23.89%. Non-Performing Loans (NPL) have also increased from 2018-2020. In 2018 it was 2.37%, in 2019 it increased to 2.53%, and in 2020 it increased by 3.06%. The Loan to Deposit Ratio (LDR) has decreased from 2018-2020. In 2018 it was 94.78%, decreased in 2019 to 94.43%, and decreased again in 2020 to 82.54%.

Based on the description above, the authors are interested in conducting further research by taking the title "The Influence of Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), and Loan To Deposit Ratio (LDR) on Profitability in Banking Companies Listed on the Stock Exchange" Indonesia Period 2018 – 2020"

## II. LITERATURE REVIEW

# Signal Theory (Signalling Theory)

Signaling theory or signaling theory explains how companies should be able to provide signals to interested parties such as investors regarding information data or company statements which can be in the form of company policy information, financial report data, and other information related to the company. In signal theory, there is the term information asymmetry which was put forward by George Akerlof in one of his works entitled The Markets for Lemons (1970). Information asymmetry can occur in

capital markets and money markets if investors get more company information data than other investors. This can happen because investors have different abilities in understanding company information (Muhammad and Biyantoro, 2019).

#### **Profitability**

According to Wicaksono (2016) the potential for success in the company is reflected in the company's financial statements in the form of profitability. Profitability of a company is not only seen from increasing the amount of profit and total assets each year, but profitability is seen from how the company manages and makes all existing assets efficient for use in its operational activities in order to obtain maximum profit (Putri and Dewi, 2017). Profitability is the bank's ability to earn profits from its operations. The profitability measure used is Return on Assets (ROA). If ROA increases, it means that the profit in a company increases which has an impact on increasing the profitability itself (Kasmir, 2018: 202).

# Capital Adequacy Ratio (CAR)

According to Warsha and Mustanda (2016) Capital Adequacy Ratio (CAR) or what is commonly referred to as the capital adequacy ratio is a ratio that reflects a bank's ability to cover the risk of loss from the activities it carries out and the bank's ability to fund its operational activities. All banks in Indonesia are required to provide a minimum capital of 8% of RWA. The greater the CAR, the greater the bank's profit. In other words, the smaller the risk of a bank, the greater the profit the bank will get.

# Non Performing Loans(NPL)

According to Kasmir (2018: 127), the notion of Non-Performing Loan (NPL) is credit in which there are obstacles caused by 2 elements, namely from the banking side in analyzing and from the customer who intentionally or unintentionally does not make payments in his obligations. Based on PBI No. 17/11/PBI/2015 dated 25 June 2015, Bank Indonesia has set a maximum Non Performing Loan (NPL) standard of 5%, if it exceeds it it will affect the rating of the soundness of the bank concerned, which will reduce the value it gets.

#### Loan to Deposit Ratio (LDR)

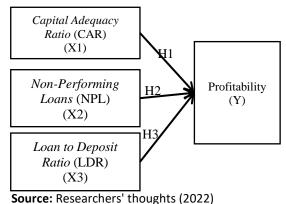
The distribution of credit to a bank can be seen from the value of the Loan to Deposit Ratio (Utami, 2016). According to Kasmir (2018: 16), the Loan to Deposit Ratio (LDR) is a ratio that aims to measure the composition of the amount of credit provided compared to the amount of public funds and own capital used. This ratio is also used to assess the liquidity of a bank by dividing the amount of credit extended by the bank to third party funds.

# III. FRAMEWORK FOR THINKING AND HYPOTHESES

#### Framework of Thinking

The framework of thinking in this study is as follows:

Figure 3.1. Framework of thinking



# **HYPOTHESIS**

H1: Capital Adequacy Ratiohas a positive effect on Profitability at Commercial Banks Listed on the Indonesia Stock Exchange.

H2: Non-Performing Loanshas a negative effect on Profitability at Commercial Banks Listed on the Indonesia Stock Exchange.

H3: Loan to Deposit Ratiohas a positive effect on Profitability at Commercial Banks Listed on the Indonesia Stock Exchange.

### IV. RESEARCH METHODS

#### **Research Sites**

This research was conducted at Commercial Banks listed on the Indonesia Stock Exchange. The data used in this study were obtained through www.idx.co.id.

#### Object of research

This research takes objects in the form of financial aspects at Commercial Banks listed on the Indonesia Stock Exchange during the 2018 – 2020 period, specifically regarding the Effects of Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Loan to Deposit Ratio (LDR) on Profitability

## **Population and Sample**

The population in this study are all Commercial Banks listed on the Indonesia Stock Exchange for the period 2018 – 2020. The number of Commercial Banks during this study period were 43 Commercial Banks.

The sampling technique used in this study is a purposive sampling technique, namely a sampling technique with certain considerations, where sample members will be selected in such a way that the sample formed can represent the characteristics of the population (Sugiyono, 2013: 120). Based on the criteria, the data obtained from the Indonesia Stock Exchange contained 43 Public Banks listed on the Indonesia Stock Exchange, only 35 Commercial Banks met the criteria proposed by the researcher.

### **Data Analysis Technique**

The data analysis technique in this study consisted of descriptive analysis, classical assumption test (normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test), multiple linear regression analysis, partial test (t test), simultaneous significant test (F test)., and Test the Coefficient of Determination (R2).

#### V. RESULTS AND DISCUSSION

**Assumption Test Classic** 

## 1. Normality test

**Table 5.1. Normality Test Results** 

One-Sample Kolmogorov-Smirnov Test				
		Unstandardize d Residuals		
N		105		
Normal	Means	.0000000		
Parameters, b	std. Deviation	.55852762		
Most	absolute	.147		
Extreme	Positive	093		
Differences	Negative	147		
Test Statistics	.147			
asymp. Sig. (2	.055c			
a. Test distribution is Normal.				
b. Calculated from data.				
c. Lilliefors Significance Correction.				

Source: Processed data, 2022

Based on the results of the normality test in table 5.1, it can be explained that the normality test results in the calculation results using the Kolmogorov-Smirnov Test can be explained that the test results show the value of *Unstandardized Residuals* in the Asymp column. Sig. (2-tailed) which is equal to 0.055 greater than 0.05 so that the data used in this study can be saidresidual data is normally distributed.

### 2. Multicollinearity Test

**Table 5.2. Multicollinearity Test Results** 

Coefficientsa					
		Collinearity	Collinearity Statistics		
Model		tolerance	VIF		
1	(Constant)				
	CAR	.245	4,075		
	NPLs	.979	1,022		
	LDR	.243	4,114		
a. Dependent Variable: ROA					

Source: Processed data, 2022

Based on the results of the multicollinearity test in table 5.2 it is known that the tolerance value that can be obtained from each variable is greater than 0.10. The same result seen from the value (VIF) in this study also fulfills other requirements from this multicollinearity test that the value of VIF must be <10.00. Thus, it can be concluded that there are no symptoms of multicollinearity between the independent variables in this study.

#### **Autocorrelation Test**

#### **Table 5.3. Autocorrelation Test Results**

F	₹	R Square	justed R Square	std. Error of the Estimate	Durbin- Watson
	908a	.824	.819	.56676	1,754

Source: Processed data, 2022

The results of the autocorrelation test using the Durbin-Watson Test (DW-test) in table 5.4 obtained a value of 1.754 with the number of independent variables 3 and N = 105, then the value of dU = 1.6237 and dL = 1.7411, so:

du < dw < 4-du

1.7411 < 1.754 < 4-1.7411

1.7411 < 1.754 < 2.2589

Based on the calculation results above, it shows that the Durbin-Watson value (d-count) is 1.938 and the location is at du < d < 4-du (1.7411 < 1.754 < 2.2589), it can be concluded that the data does not have autocorrelation

## **Heteroscedasticity Test**

**Table 5.4. Heteroscedasticity Test Results** 

Coefficientsa							
		Unstandardized Coefficients		Standardized Coefficients			
Mode	l	В	std. Error	Betas	t	Sig.	
1	(Constant)	.230	068		1,378	.104	
	CAR	.027	005	.685	.838	.488	
	NPLs	.015	002	.622	.918	.319	
	LDR	008	001	763	956	.379	
a. Dependent Variable: ABSRESS							

Source: Processed data, 2022

The results of the heteroscedasticity test using the Glejser test in table 5.5 show that the Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), and Loan to Deposit Ratio (LDR) each have a significance value greater than 0.05, so it can be it was concluded that there were no symptoms of heteroscedasticity.

# **Multiple Linear Regression Analysis**

Table 5.5. Recapitulation of Multiple Linear Regression Test Results

Variable	<b>Unstandardized Coefficients</b>		Standardized Coefficients		
variable	В	std. error	Betas	t	Sig
(Constant)	-1,595	.150		-10,623	.000
CAR	068	011	.507	6018	.000
NPLs	014	003	178	-4,229	.000
LDR	.015	003	.401	4,737	.000
R	0.908				
R Square	0.824				
Adjusted R Square	0.819				
F	157,802				
Sig.	0.000				

Source: Processed data, 2022

Based on the values in table 5.5, the multiple linear regression equation in this study becomes:

 $Y = -1.595\alpha + 0.068CAR - 0.014NPLs + 0.015LDR + e$ 

- a.  $\alpha$ =-1.595; this value means that if the Capital Adequacy Ratio, Non-Performing Loans and Loan to Deposit Ratio is zero, then the profitability value is-1.595.
- b.  $\beta$ 1 =0.068; means that every time there is an increase of 1 unit in the Capital Adequacy Ratio, there will be an increase in profitability of0.068. Assuming other variables remain (other variables equal to zero).
- c.  $\beta$ 2 = -0.014; means that every time there is an increase of 1 unit in Non-Performing Loans, the value of profitability will decrease by 0.014. Assuming other variables remain (other variables equal to zero).
- d.  $\beta$ 3 =0.015; means that every time there is an increase of 1 unit in the Loan to Deposit Ratio, there will be an increase in profitability of0.015. Assuming other variables remain (other variables equal to zero).

#### t test

The results of the t-test for the effect of Capital Adequacy Ratio, Non-Performing Loans and Loan to Deposit Ratio on profitability in table 5.5 show that:

- a. The effect of the Capital Adequacy Ratio on profitability shows a tcount value of 6.018 and a significant value of 0.000 <0.05, it can be concluded that the Capital Adequacy Ratio has a positive and significant effect on profitability, so the first hypothesis (H1) is accepted.</p>
- b. The effect of non-performing loans on profitability shows a tount of -4.229 and a significant value of 0.000 <0.05, so it can be concluded that non-performing loans have a negative and significant effect on profitability, so the second hypothesis (H2) is accepted.
- c. The effect of the Loan to Deposit Ratio on profitability shows a tount value of 4.737 and a significant value of 0.000 > 0.05, it can be concluded that the Loan to Deposit Ratio has a positive and significant effect on profitability, so the third hypothesis (H3) is accepted.

#### F test

The F statistical test basically shows whether all the independent variables or independent variables included in the model have a joint effect on the dependent variable or the dependent variable.

The results of the F test in table 5.5 show a calculated F value of 157.802 with a significant value of 0.000 < 0.05. This value means that the Capital Adequacy Ratio, Non-Performing Loans and Loan to Deposit Ratio simultaneously influence profitability.

# **Determination Analysis (R2)**

The coefficient of determination (R2) essentially measures how far the model's ability to explain the variation in the dependent variable. Table 5.5 shows that the value of R2 is 0.824. This means that 82.4% of profitability is influenced by the Capital Adequacy Ratio, Non-Performing Loans and Loan to Deposit Ratio, while 18.6% is influenced by other factors outside this study. This value is also close to one, meaning that the variables Capital Adequacy Ratio, Non-Performing Loans and Loan to Deposit Ratio provide almost all the information needed for variations in profitability.

# **RESEARCH DISCUSSION**

## 1) Effect of Capital Adequacy Ratio (CAR) on Profitability

Based on the results of the partial test (t test) it can be seen that the Capital Adequacy Ratio (CAR) variable has a tount of 6.018 with a significant level of 0.000. The significant value of CAR is lower than the expected significant value  $\alpha=(0.05)$ , so that shows that Capital Adequacy Ratio (CAR) positive and significant effect on profitability, so the first hypothesis (H1) is accepted. That is, the higher the CAR achieved by a commercial bank listed on the Indonesia Stock Exchange, the better the bank's performance in protecting its customers. This can increase customer trust in banks which in turn can increase company profits. The higher the CAR, the higher the ROA because the bank's profits will be higher, so the bank's management needs to increase its capital, because with sufficient capital, banks can expand their business safely.

This is supported by research from Erma Setiawati, et al. (2017) and Praja and Hartono (2019) state that CAR has an effect on Profitability. The same results were obtained by Putri and Dewi (2017), Ambarawati and Abudanti (2018), Paramita and Dana (2019), Aprilia Suciaty, et al (2019), Rivandi and Gusmariza (2021), Izza and Utomo (2021), and Sihite and Wirman (2021) obtained the result that CAR has a positive effect on Profitability.

# 2) The Effect of Non Performing Loans (NPL) on Profitability

Based on the results of the partial test (t test) it can be seen that the Non Performing Loan (NPL) variable has a tcount of -4,229 with a significant level of 0,000. The significant value of NPL is lower than the expected significant value  $\alpha = (0.05)$ , so that shows

that Non-Performing Loans (NPL) have a negative and significant effect on Profitability, so the second hypothesis (H2) is accepted. This result means that the higher the NPL ratio of a commercial bank listed on the Indonesia Stock Exchange, the higher the bank's credit risk, resulting in a bank's income originating from loan interest not being optimal and decreasing profitability. This ratio shows the number of non-performing loans. According to Dewi, et al (2015) credit risk proxied by NPL is a bank that is capable of managing problem loans experienced by banks. There are Bank Indonesia criteria that determine the NPL so that the company's value is still said to be good, namely below 5% (Arifianto, 2016).

The results of this study are supported by research conducted by Setiawan and Diansyah (2018), Ambarawati and Abudanti (2018), Korri and Baskara (2019), Aprilia Suciaty, et al (2019), and Wiranthie and Putranto (2022) showing that non-performing loans have an effect on significant negative effect on profitability.

## 3) The Effect of Loan to Deposit Ratio (LDR) on Profitability

Based on the results of the partial test (t test) it can be seen that the Loan to Deposit Ratio (LDR) variable has a tcount of 4,737 with a significant level of 0,000. The significant value of LDR is lower than the expected significant value  $\alpha=(0.05)$ ,so that shows that the Loan to Deposit Ratio has a positive and significant effect on Profitability, so the third hypothesis (H3) is accepted. This means that the higher the LDR, the profit earned by a commercial bank listed on the Indonesia Stock Exchange will increase, with the assumption that the bank is able to distribute credit effectively so that it is expected that the number of bad loans will be low, so that it will have an impact on increasing profitability (ROA). ). LDR is a ratio that measures a bank's ability to issue credit from third party funds accumulated at the bank. LDR provides an indication of the amount of third party funds disbursed in the form of credit (Pratama, Mubaroh, and Afriansyah, 2021).

This is supported by research from Putri and Dewi (2017), Ambarawati and Abudanti (2018), and Paramita and Dana (2019) showing that the Loan to Deposit Ratio has a positive and significant effect on profitability.

## VI. CONCLUSIONS AND SUGGESTIONS

#### Conclusion

- 1) The effect of Capital Adequacy Ratio (CAR) on Profitability shows that Capital Adequacy Ratio (CAR) has a positive and significant effect on Profitability in banking companies listed on the Indonesia Stock Exchange. Thus it is stated that the higher the CAR achieved by a commercial bank listed on the Indonesia Stock Exchange, the better the bank's performance in protecting its customers.
- 2) The effect of Non-Performing Loans (NPL) on Profitability shows that Non-Performing Loans (NPL) have a negative and significant effect on Profitability Profitability in banking companies listed on the Indonesia Stock Exchange. This result means that the higher the NPL ratio of a commercial bank listed on the Indonesia Stock Exchange, the higher the bank's credit risk, resulting in a bank's income originating from loan interest not being optimal and decreasing profitability.
- 3) The effect of the Loan to Deposit Ratio (LDR) on Profitability shows that the Loan to Deposit Ratio (LDR) has a positive and significant effect on Profitability Profitability in banking companies listed on the Indonesia Stock Exchange. This means that the higher the LDR, the profit earned by a commercial bank listed on the Indonesia Stock Exchange will increase, with the assumption that the bank is able to extend its credit effectively so that it is expected that the number of bad loans will be low, so that it will have an impact on increasing profitability (ROA).

#### Limitations

This research has limitations which can also be a direction for further research. Based on the results of the research and discussion, the limitations in this study can be stated as follows:

- 1) This research only takes a period of 3 years, namely from 2018 to 2020, so the data taken may not reflect the company's condition in the long term.
- 2) This research only examines the Capital Adequacy Ratio, Non-Performing Loans, and the Loan to Deposit Ratio as the independent variable in explaining Profitability as the dependent variable.

#### **SUGGESTION**

- 1) The company optimizes the Capital Adequacy Ratio (CAR), because CAR is the main proxy for bank capital, banks with high capital are considered relatively safer than those with low capital.
- 2) Companies must also pay attention to and maintain Non-Performing Loans (NPL) so that they are always below 5%, so that they can provide a positive signal to investors regarding the soundness of a good bank.

- 3) Loan to Deposit Ratio(LDR) should also be maximized, so that the bank will be considered capable of managing funds collected from customers effectively.
- 4) Future research is expected to develop research sites to examine other places and is also expected to expand the number of research samples and add other variables that affect the level of banking profits such as external factors (inflation, interest rates and exchange rates).

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