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# The Effect of Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR) And Net Profit Margin (NPM) on Financial Performance of Bank DKI

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### ABSTRACT

The purpose of this study was to determine the effect of Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR) and Net Profit Margin (NPM) on Financial Performance at PT Bank DKI, period 2010 - 2019. The method used is descriptive quantitative by using classical assumption test, Multiple Linear Regression, T-test, F-test, and Coefficient of Determination Test. The t-test results showed that CAR has no significant effect on ROA. LDR has no significant effect on ROA. NPM has a significant positive effect on ROA. The F-test results showed that simultaneously CAR, LDR, NPM have a significant effect on ROA at PT Bank DKI for the 2010-2019 period. The coefficient of determination test results showed the contribution of the independent variables Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR) and Net Profit Margin (NPM) to Return On Assets (ROA), (by Adjusted R2) is 72.5% and the remaining 27.5% is influenced by other factors. The limitation of this research is the sampling of research using the financial statements of 2010 – 2019. The variables taken are only limited to banking fundamental factors, namely liquidity ratios and profitability ratios. This research is expected to enrich information as a reference as well as literature on banking financial performance by using banking fundamental ratios, namely Capital Adequacy Ratio (CAR), Loan to Deposits (LDR), Net Profit Margin (NPM) and Return On Assets (ROA).

Keywords: Capital Adequacy Ratio; Net Profit Margin; Loan to Deposit Ratio; Return On Assets.

### **INTRODUCTION**

The development of the banking world in Indonesia is increasingly competitive which requires every bank to be able to manage and implement banking management to be more professional (Choiriyah et al., 2021; Nastiti & Kasri, 2019; Sobol, 2016). Bank is a financial intermediary institution (*Financial Intermediary*), namely as an institution that can collect funds and distribute public funds effectively and efficintly (Adrian & Shin, 2011; Schaffer, 2019). The role of banking is very important, especially in the development and growth of the economy in a country (Chang & Lee, 2010; Loayza, 2016; Stroeva et al., 2016). With this function, banks can encourage more effective economic activities. Strategic steps that can be taken by improving bank performance, good performance is expected to be able to regain public trust in the bank (Dinçer et al., 2019; Raut et al., 2017; Wu, 2012).

Customer trust is very important so that banking operations can run well (Liébana-Cabanillas et al., 2013; Omar et al., 2011; Salman & Nawaz, 2018). And must be supported by action to

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control (*supervising*) conducted by banking supervision institutions: Indonesian banking institutions are not vulnerable to various economic shocks both from domestic and abroad (Hadad et al., 2011; Vania et al., 2018). In order to maintain the trust of depositors and the stability of the payment system, operating banks need to be assessed for their soundness or strength. Assessment of soundness level is a description of a bank's performance that can be used as a benchmark by interested parties in evaluating whether bank management has been carried out in accordance with sound and prudent bank operational principles (Albulescu, 2015; Ginevičius & Podviezko, 2013), including in managing existing risks. The assessment of the soundness level is also used as a benchmark in determining the direction of bank development and development, both individually and industrially.

To find out how the soundness of a bank can be assessed from several indicators (Albulescu, 2015; Fatima, 2014). One of the main indicators used as the basis for the assessment is the financial report of the bank concerned. The measurement of banking performance is carried out by observing the results achieved by banks with the standards determined by Bank Indonesia (Alagathurai & Nimalathashan, 2013; Apătăchioae, 2015; Behera et al., 2015), or the results of the average calculation. Banking financial ratios to measure their performance include: Liquidity, Financial Structure, Profitability, Earning Assets, Spread, Business Risk and Efficiency.

Good or bad banking financial performance and the success or failure of achieving business performance satisfactorily can be measured by financial benchmarks called financial ratios (Bassem, 2012; Surroca et al., 2010; Venkataramana et al., 2012). Of the various types of financial ratios that exist, profitability is the most appropriate ratio indicator to measure the performance of a bank. The ratio referred to is return on assets (ROA), because ROA focuses on the ability of companies/banks to earn earnings by utilizing all the assets they manage. So that ROA is used as a measure of banking performance. In addition, ROA also reflects the ability of bank management to manage their assets effectively.

In this study, to measure the level of bank financial performance using the ratio of *Capital Adquency Ratio* (CAR), *Loan to Deposits Ratio* (LDR) and *Net Profit Margin* (NPM), to *Return On Assets* (ROA). As the object of research is PT. Bank DKI which was first established in Jakarta under the name PT Pembangunan Daerah Djakarta Raya as stated in the Establishment of PT Pembangunan Daerah Djakarta Raya No. 30 dated April 11, 1961, with the stipulation of the Minister of Justice of the Republic of Indonesia with Decree No. JA5/31/13 dated April 11, 1961. Financial performance of PT. Bank DKI for 10 years is shown in table 1.1 below.

AR, LDR, NPM, and	<b>ROA at PT. Bank</b>	DKI Period 2010-20	19	
R CAR (%)	NPM (%)	LDR (%)	ROA (%)	
8.92	14.64	65.29	1.13	
9.05	27.35	68.82	1.54	
13.06	23.69	69.58	1.27	
16.02	31.42	87,90	1.92	
18.66	21.74	89.26	1.28	
	CAR (%) 8.92 9.05 13.06 16.02	CAR (%) NPM (%)   8.92 14.64   9.05 27.35   13.06 23.69   16.02 31.42	R CAR (%) NPM (%) LDR (%)   8.92 14.64 65.29   9.05 27.35 68.82   13.06 23.69 69.58   16.02 31.42 87,90	8.92 14.64 65.29 1.13   9.05 27.35 68.82 1.54   13.06 23.69 69.58 1.27   16.02 31.42 87,90 1.92

## Ratio of CAR, LDR, NPM, and ROA at PT. Bank DKI Period 2010-2019

Table 1

2015	25.81	9.88	89.56	0.59
2016	32.36	22.68	96.12	1.59
2017	31.42	28.06	76.76	1.38
2018	25,50	29,00	93.61	1.50
2019	29.91	29.20	93.32	1.46

Source: PT Bank DKI Financial Reports, 2010-2011 (processed data, 2021)

From the data in table 1, it can be seen that the *Capital Adquency Ratio* (CAR) tends to increase during the research year, namely in 2010 by 8.92% and in 2019 by 29.91%. A good CAR standard according to BI Circular No.13/24/DPNP, CAR >8% . This shows that the health condition of PT Bank DKI's CAR is healthy. According to Andreina Maria Kossoh *et al* . (2017) that CAR has an effect and is significant on ROA. However, Usman Harun's research (2016) showed that CAR has no significant effect on ROA. Given the *research gap* from previous studies, it is necessary to conduct further research on the effect of *Capital Adquency Ratio* (CAR) on *Return On* Assets (ROA) at PT Bank DKI.

The Loan to Deposits Ratio (LDR) tends to increase during the research year, namely in 2010 by 65.29% and in 2019 by 93.32%. The result shows that the condition of PT Bank DKI is good, because according to BI Circular No.13/24/DPNP, the LDR value is 94.755%. According to research by AA Yogi Prasanjata *et al*., (2013) shows that LDR has an effect and is significant on ROA. However, research by TanSau Eng (2013) shows that LDR has no significant effect on ROA. Given the *research gap* from previous studies, it is necessary to conduct further research on the effect of *Loan to Deposits Ratio* (LDR) on the *Return On* Assets (ROA) of PT Bank DKI.

The *Net Profit Margin* (NPM) ratio tends to increase during the research year, namely in 2010 by 14.64% and in 2019 by 29.20%. According to the provisions of PBI No.15/7/PBI/2013 effective as of October 1, 2013 that the level of health assessment of the Bank's Profitability Ratio at NPM is greater than 5%, meaning that the costs incurred are more efficient, so that the rate of return on net profit is greater and the bank and it is categorized as healthy. According to the research shows that NPM has an effect and is significant on ROA. This is supported by the research of Rezquati Inda Rochmah *et al.* (2018) which shows that the NPM has an effect and is significant on ROA. Based on previous research, researchers are interested in conducting further research on *Net Profit Margin* (NPM) on *Return On* Assets (ROA) at PT Bank DKI.

*Return On Assets* (ROA) where the lowest ROA value occurred in 2015 at 0.59% and the highest in 2013 at 1.92%. ROA standard according to SE BI No. 13/24/DPNP/2011 at least 1.5%. This shows that the health condition of PT Bank DKI is improving. The higher the resulting ROA ratio, the better or healthier the bank's performance is, because an increase in ROA means that there has been an increase in the profitability of the company/bank which will have a positive impact on the stakeholders.

Based on the phenomena and research gap described above, this research aims as follows:

- 1. To determine the effect of *Capital Adequacy Ratio* (CAR) on *Return On Assets* (ROA) at PT. Bank DKI 2010-2019 period.
- 2. To determine the effect of *Net Profit Margin* (NPM) on *Return On Assets* (ROA) at PT. Bank DKI 2010-2019 period.

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- 3. To determine the effect of *Loan to Deposits* (LDR) on *Return On Assets* (ROA) at PT. Bank DKI 2010-2019 period.
- 4. To determine the effect of *Capital Adequacy Ratio* (CAR), *Net Profit Margin* (NPM) and *Loan to Deposits* (LDR) simultaneously on *Return On Assets* (ROA) at PT. Bank DKI 2010-2019 period.

### **METHOD**

The research method used is a quantitative descriptive method using financial ratios in the financial statements of PT Bank DKI for the period 2010 - 2019 and using the SPSS 25 application for classical assumption testing, multiple linear regression, T-test, F-test and coefficient of determination test (Moussaoui & Varela, 2010; Surroca et al., 2010). The following is a framework of thinking with four hypotheses which were developed based on logical explanations from the theory and from previous research.

- 1. Ha Lis suspected to have an effect of CAR on ROA. Based on previous research, Wildan Farhat Pinasti *et al.* (2018) stated that CAR has an effect on ROA.
- 2. Ha <sub>2 is</sub> suspected to have an effect of LDR on ROA. Based on previous research, Usman Harun (2016) stated that LDR has an effect on and on ROA.
- 3. Ha <sub>3</sub>it is suspected that there is an influence of NPM on ROA. Based on previous research, Dani Pranata *et al.* (2017) stated that NPM has an effect and is significant on ROA
- 4. Ha <sub>4 is</sub> suspected that there is a simultaneous effect of CAR, NPM and LDR on ROA. Based on previous research, Adhista Setyarini (2020) states that CAR and LDR simultaneously have a significant and significant effect on ROA.

### **RESULT AND DISCUSSION**

### **Classic Assumption Test Results**

Normality test: the results of the P-Plot graph normality-test shows that the regression model meets the assumption of normality by showing that the data spreads around the diagonal line and follows the direction of the diagonal line. Multicollinearity-test to test whether the regression model found a correlation between the independent variables (independent). A good regression model should not have a correlation between the independent variables (independent). Multicollinearity can be detected by looking at the *Tolarance* and *Variance Inflation Factor* (VIF) values . Based on the test data, it is known that the tolerance and VIF values for each research variable are as follows:

- 1) The CAR *tolerance* value is 0.454 > 0.1, and the VIF CAR value is 2.201 < 10.
- 2) The LDR *tolerance* value is 0.45 > 0.1. and the VIF LDR value is 2.222 < 10.
- 3) Value *tolarance* NPM amounted to 0,974> 0.1 and NPM for 1,026 VIF <10.

So it can be concluded that there is no symptom of multicollinearity between the independent variables. Heteroscedasticity test using a *scatterplot* graph. The points spread randomly, spread both above and below the number 0 on the Y axis, so from this study there was no heteroscedasticity and the regression model was feasible to use. Autocorrelation test, d ari statistical test run-test is

obtained with a value of 1 is greater than the significance level of 0.05 (1>0.05), it can be concluded that the data did not experience problems or interference autocorrelation in this research model.

### **Multiple Linear Regression Test Results**

After testing the classical assumption, a multiple linear regression test was performed. Multiple linear regression is useful for finding the effect of two or more independent variables on the dependent variable.

### Table 2.

#### **Multiple Linear Regression Test Results**

Model		dardized icients	Standardized Coefficients	t	Sig.	
	В	Std. Error	Beta		C	
(Constant)	-0.012	0.53		-0.023	0.983	
1 CAR	-0.012	0.01	-0.304	-1.174	0.285	
LDR	0.007	0.008	0.229	0.88	0.413	
NPM	0.044	0.009	0.882	4,983	0.002	

a. Dependent Variable: ROA

Source: Output SPSS ver 25

From the results of the multiple linear regression test, the following multiple linear regression equations were obtained: ROA (Y) = -0.012 - 0.012(CAR) + 0.077(LDR) + 0.044(NPM) + e

Based on the results of multiple regression can be explained as follows:

- 1) the constant value is -0.012, indicating that if the *independent* variables (CAR, NPM, and LDR) are assumed to be 0. Then the *dependent* variable ROA is 0.012.
- 2) The CAR variable has a coefficient of -0.012. This means that if the CAR increases by 1 unit, *cet.par*. the ROA will decrease by 0.012.
- 3) The LDR variable has a coefficient of 0.007. This means that if the LDR increases by 1 unit, *cet.par*. the ROA will increase by 0.007.
- 4) The NPM variable has a coefficient of 0.044. This means that if the NPM increases by 1 unit, *cet.par*. the ROA will increase by 0.044.

### **Hypothesis Test Results**

### T Test (Partial Test)

Based on the results of the t test can be analyzed as follows:

1) The results of hypothesis testing the effect of CAR (X<sub>1</sub>) to ROA (Y) obtained value of  $T_{calculated} 1.174 < T_{table} 2.4469$  and the value of *sig* 0.284> 0.05 then H<sub>o</sub> accepted and H<sub>a</sub> rejected. So it can be concluded that the *Capital Adequacy Ratio* (CAR) partially has no effect and is not significant on *Return On Assets* (ROA).

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- 2) The results of hypothesis testing the effect of LDR (X<sub>2</sub>) to ROA (Y) obtained value of  $T_{count}0,880 < T_{table}2.44691$  and the value of *sig* 0.413> 0.05 then H<sub>0</sub> accepted and H<sub>a</sub> rejected. So it can be concluded that the *Loan to Deposit Ratio* (LDR) partially has no effect and is not significant on *Return On Assets* (ROA).
- 3) The results of hypothesis testing the influence of NPM (X<sub>3</sub>) to ROA (Y) obtained value of T<sub>count</sub> 4.983> T<sub>table</sub> 2.44691 and the value of *sig* 0.002 <0.05, H<sub>a</sub> received and H<sub>o</sub> rejected. So it can be concluded that *Net Profit Margin* (NPM) partially and significantly influences *Return On Assets* (ROA).
- 4) F Test (Simultaneous Test) The F test was conducted to measure the effect of the independent variables together, namely CAR (X<sub>1</sub>), LDR (X<sub>2</sub>) and NPM (X<sub>3</sub>), on ROA (Y).

Table 5	
F. Test	Results

			Mean		
Model	Sum of Squares	df	Square	F	Sig.
1 Regression	0.889	3	0.296	8,912	.013 b
Residual	0.200	6	0.033		
Total	1.089	9			
a. Dependent Var	riable: ROA				
b. Predictors: (Co	onstant), LDR, NPM, CAR				

Source: Output SPSS ver 25

From the test result of table 3 shows that the <sub>calculated</sub> F value is 8.912 and with the value of df1 = k -1 (3-1=2) and df2 = nk-1 (10-3-1=6), the F <sub>table</sub> value = 5.143. Then the <sub>calculated</sub> F value is  $_{8.912}$  > F <sub>table</sub> 5.143 and the significant value is 0.013 < 0.05, so it can be concluded that the *Capital Adquency Ratio* (CAR), *Loan to Deposit Ratio* (LDR) and *Net Profit Margin* (NPM) simultaneously have a significant effect on *Return on Assets* (ROA).

### **Determination Coefficient Test Result (R**<sup>2</sup>)

Measurement of the coefficient of determination was carried out to determine the contribution of the independent variable, namely CAR  $(X_1)$ , LDR  $(X_2)$ , and NPM  $(X_3)$ , to the dependent variable, namely ROA (Y). From here it will be known how much the dependent variable will be able to be explained by the independent variable, while the rest is explained by other reasons outside the research model (Ghozali, 2011). From the results of data processing, the following results are obtained:

Table 4   Results of the Coefficient of Determination						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson	
1	.904 ª	0.817	0.725	0.18237	2.289	
a. Predictors: (Constant), LDR, NPM, CAR						
b. Dependent	t Variable: RO	DA				

Source: SPSS version 25 . output

The test result of table 4 can be seen that the amount of Adjusted R Square is 0.725, which means the contribution of CAR, LDR and NPM to ROA is 72.5%, while the remaining 27.5% is explained by other variables not examined in this study.

#### Discussion

- 1. Hypothesis 1: it is suspected that there is an effect of CAR on ROA. Based on previous research, namely Wildan Farhat Pinasti *et al*,. (2018) stated that CAR has an effect on ROA. The results of this study are the *Capital Adequacy Ratio* (CAR) has no effect on *Return On Assets* (ROA) at PT Bank DKI for the 2010-2019 period. This is based on the results of the partial t-test research shown in table 2, it can be concluded that the CAR in this study has no effect and is not significant on ROA. The results of this study where the CAR does not have an effect on ROA may be caused by the banks operating in that year very much maintaining their existing or owned capital. These results have similarities with previous research by Usman Harun (2016) which states that CAR has no and no significant effect on ROA at Commercial Banks. Likewise, research by AA Yogi Pransaja *et al.* (2013) stated that CAR has no and no significant effect on ROA at banks listed on the Indonesia Stock Exchange.
- 2. Hypothesis 2: it is suspected that there is an effect of LDR on ROA. Based on previous research, Usman Harun (2016) stated that LDR has an effect on and on ROA. The results of this study are the *Loan to Deposit Ratio* (LDR) has no effect on *Return On Assets* (ROA) at PT Bank DKI for the 2010-2019 period. This is based on the results of the t-test research in table 2. These results have similarities with previous research, namely Tan Sau Eng (2013) which states that LDR has no effect and is not significant on ROA at International Banks and National Banks Go Public. Likewise, previous research by Jordi Suwandi et al. (2017) which states that LDR has no and no significant effect on ROA on Foreign Exchange BUSN. The results of this study, that the Loan to Deposit Ratio (LDR) has no effect on Return on Assets (ROA) is also due to the phenomenon of bank financial statement data during the research period showing the Loan to Deposit Ratio (LDR) has increased but is not always followed by an increase. Return on Assets (ROA).
- 3. Hypothesis 3: it is suspected that there is an influence of *Net Profit Margin* (NPM) on ROA. Based on previous research, namely Dani Pranata *et al.* (2017) stated that NPM has an effect and is significant on ROA. The results of this study are *Net Profit Margin* (NPM) has a significant positive effect on *Return On Assets* (ROA) at PT Bank DKI for the 2010-2019 period. This is based on the results of the t-test in table 2. These results have similarities with

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previous studies, namely Rezqyati Inda Rochmah *et al.* (2018) which states that NPM has an effect and is significant on ROA in the Indonesian Banking Industry. Likewise, research by Dani Pranata *et al.* (2014) which states that NPM has an effect and is significant on ROA at Private Commercial Banks.

4. Hypothesis 4: it is suspected that there is a simultaneous effect of CAR, NPM and LDR on ROA. Based on previous research, namely Adhista Setyarini (2020) stated that CAR and LDR simultaneously have a significant and significant effect on ROA. The results of this study are: *Capital Adequacy Ratio* (CAR), *Loan to Deposit Ratio* (LDR) and *Net Profit Margin* (NPM) simultaneously have a significant effect on *Return on Assets* (ROA) at PT Bank DKI. This is based on the results of the F-test research in table 3. These results have similarities with previous research by Wildan Farhat *et a*, (2018) which states that CAR and LDR have a significant effect on ROA. Listyorini Wahyu Widati (2012) said that simultaneously CAR, LDR, PPAP, DER, and BOPO had a significant effect on ROA.

### CONCLUSION

This study examines how the effect of *Capital Adequacy Ratio* (CAR), *Loan to Deposit Ratio* (LDR) and *Net Profit Margin* (NPM) on Financial Performance at PT Bank DKI for the 2010-2019 period.

The results of the analysis are as follows:

- 1. Capital Adequacy Ratio (CAR) has no effect on Return on Assets (ROA).
- 2. Loan to Deposit Ratio (LDR) has no effect on Return on Assets (ROA).
- 3. Net Profit Margin (NPM) has a positive and significant effect on Return on Assets (ROA).

4. *Capital Adequacy Ratio* (CAR), *Loan to Deposit Ratio* (LDR) and *Net Profit Margin* (NPM) simultaneously have a significant effect on *Return on Assets* (ROA) at PT Bank DKI.

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