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IMPACT OF CAR, OCOI, NIM, NPL, DAN LDR ON ROA (CASE STUDY OF BANKS REGISTERED IN LQ45 YEAR 2017)

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Abstract

The purpose of this research is to analyse the influence of CAR, OCOI, NIM, NPL, and LDR on to ROA of a few banks which have been registered in LQ45 year 2017. The type of data which been used in this research is a secondary data that were acquired from the bank's Annual Reports in 2013-2017 which are listed in LQ45. The sampling technique used is saturated sampling. Samples consisted of five banks based on its performance from 2012 until 2017. Multiple regression analysis using the SPSS 20 with 0.05 significant level is the analysis tool to test the hypothesis. The empirical result of this research indicates that Capital Adequacy Ratio (CAR) has an effect on Return On Asset (ROA), Operating Income Operating Costs (OIOC) has an effect on Return On Asset (ROA), Net Interest Margin (NIM) gives an effect onto Return On Asset (ROA), Non-Performing Loan (NPL) have no effects on Return On Asset (ROA) and Loan to Deposit Ratio (LDR) has an effect on Return On Asset (ROA).

Keyword*: Capital Adequacy Ratio, Operational Costs Operating Incomes, Net Interest Margin, Non-Performing Loan, Loan to Deposit Ratio,* and *Return on Asset.*

Introduction

The stability of the economy in a country is determined by many factors, one of which is the banking sectors which has the primary task as a board accumulator and a distributor of public funds (Cipta, 2015). Bank can be regarded as a major driver of the economy because of its role as an alternative source of capital to the real sector, to fund state projects and also financing the needs of society in general (Dewi, 2015). The strategic role of the bank makes the banking industry in Indonesia highly developed. However, the development of the banking industry in Indonesia does not necessarily make the government to just leave it as it is. The monetary crises that have occurred since the end of 1997 has made banks slump, which marked the numbers of banks that is being liquidated. Since 1998, many of the *Bank Indonesia's* regulations have been updated to anticipate similar incidents in the future. *Bank Indonesia* chose ROA as the bank health value indicator because this ROA variable measures assets which funds are mostly from the third party so that they are considered to be able to represent the measure of banking profitability levels (Dendawijaya, 2009: 119). Some factors that may affect the ROA are CAR (*Capital Adequacy Ratio*), OCOI (Operational Costs Operating Income), NPL *(Non-Performing Loan*), NIM (*Net Interest Margin*), LDR (*Loan to Deposit Ratio*) (Anne, 2015). Various studies have been conducted to predict bank failures and its health conditions. From the results of previous studies, the major problem was the differences in research gap on ROA, including the research/s conducted by Akhtar (2012), Dhian (2012), Intan and Mustanda (2016), Maria (2015), Dwi et al (2016), Ninas and Djoko (2016).

Research Method

The type of research used in this study is explanatory research. While the type of data used is secondary data. The data used was acquired from the financial statements of banks listed on LQ45 in 2017 by looking at the performance of these banks for six years, from 2012 to 2017 were obtained directly from the Indonesian Stock Exchange website (www.idx.). The sample selection in this study uses saturated sampling method. The method of data analysis which been used is the SPSS version 20 software, and the data analysis techniques used are

descriptive analysis, classical assumption test, simultaneous significance test (statistical test F), R2 determination coefficient, and partial significance test (t statistical test).

Research Result and Discussion

Research Result

In multiple linear regression analysis must meet the classic assumption test requirements, this test is conducted to determine how much deviation that occurs in the data used for research. The research data that fills the classic assumption test requirements will give BLUE results (Best Linear Unbiased Estimator), which shows that the decision control of F cannot be biased, since not all data can be applied in the regression method. The series of classic assumption test is normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test.

Table 1
CLASSIC ASSUMPTION TEST RESULTS

Descriptions	Multicollinearity	Multicollinearity	
	Sig.	*Tolerance*	VIF
CAR	.990	.824	1.213
OCOI		.149	6.717
NIM		.300	3.330
NPL		.234	4.277
LDR		.168	5.936

Normality Test Results

The normality test uses the Normal Probability Plot Graph to analyse graphs and Kolmogorov-Smirnov non-parametric statistical tests or (K-S) Test to test the data normalities. The data distribution is normal if the results of the residual graphic data analysis form a diagonal straight line. These results indicate that normal data with the data residuals follow the direction of the diagonal line. The statistical data analysis is said to be normally distributed if the value of Asymp. Sig (2-tailed) is more than 0.05 (5%), the results of this study indicate that the value of Asymp. Sig (2-tailed) is 0.746, this indicates that the residual data is normally distributed, therefore it can be concluded that the regression model meets the assumption of normality.

Multicollinearity Test Results

To detect the existence of multicollinearity in the regression model can be seen through the value of tolerance and variance inflation factor (VIF). If the tolerance value is 0.10 or equal to the value of VIF 10 then it indicates the existence of multicollinearity, this study shows that all variables pass the test in accordance with the above conditions.

Autocorrelation Test Results

Based on the test results, the Durbin-Watson value is 1.559 which means the DW value is between -2 to +2 so it can be concluded that there is no autocorrelation problem.

Table 2
Model Summary[b]

Mode l	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
1	.988[a]	.976	.971	.18242	1.559

Heteroscedasticity Test Results

The test results in the figure show that the Scatter Plot pattern of the regression spreads. This indicates that there is no indication or sign of heteroscedasticity.

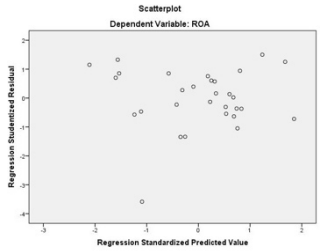

Table 3
T-Test Results

t-Test	T-TEST RESULTS			
	B	T	Sig.	Description
(*Constant*)	5.973	6.815	.000	
CAR	-.043	-3.028	.006	Has a negative influence
OCOI	-.090	-8.782	.000	Has a negative influence
NIM	.471	8.635	.000	Has a positive influence
NPL	-.116	-1.488	.150	Has no effect
LDR	.017	2.141	.043	Has a positive influence
Dependent Variable: ROA				
F-Test			.000[b]	Has an effect
Adjusted R²			0.971	

Based on the table 3 it can be seen that there is one variable that has no effect, namely NPL, while the four influential ones are CAR, OCOI, NIM, and LDR. As the result NPL has no effect, thus it rejects Ha4. The results of the variables CAR, OIOC, NIM, NPL, and LDR conjointly influence the ROA. The determination coefficient (R2) that has been seen through Adjusted R2 value is 0.971. Based on the result, it can be concluded that the capability of the model to calculate the variation of dependent variables is about 97.1%, while the remaining 2.9% is influenced by other variables outside the regression model used in this study.

Discussion

The impact of CAR on Profitability (ROA)

The 1st Hypothesis testing shows that the value of t-test CAR on ROA is -3.02 with a significance value of 0.00 ($p < 0.05$). CAR has an effect on ROA therefor 1st hypothesis is accepted. Negative numbers in t-test indicates the contrary movement between CAR variables to ROA variables. This means that an increase in the bank's CAR ratio causes a decrease in ROA ratio. The results of this study are in line with Fakhri and Chadabib (2015) research which states that CAR variable has an effect on ROA. Capital Adequacy Ratio is a capital ratio that indicates the capability of banks to provide funds for business development purposes and to cover the risk of loss of funds resulting from the operations of the bank, the higher the CAR value, the lower the ROA of the bank is. Based on the *Bank Indonesia* regulations, CAR ratio is 8% to 14%.

The impact of OCOI on Profitability (ROA)

The 2nd hypothesis testing indicates that the T-test value of OCOI to ROA is -8.78 with the significance value of 0.00 ($p < 0.05$). OCOI has an effect on ROA so the 2nd hypotheses is accepted. Negative numbers on t-Test show a contrary movements between OCOI variable and/on ROA variable. This means that an increase in the bank OIOC's ratio causes a decrease in the ROA ratio. The results of this study are in line with the study of Dhian (2012, Farah and Marsheilly (2013), Fakhri and Chadabib (2015) which states OCOI variable have an effect on ROA. The OIOC ratio reflects the efficiency of bank management, the higher the OCOI value of a bank, the more inefficient the bank can be in running its business. Based on the *Bank Indonesia*'s regulations, the ratio of OCOI ratio shall not exceed 85%.

The impact of NIM on ROA

The 3rd hypothesis testing shows that the T-test value of NIM to ROA is 8.63 with the significance value of 0.00 ($p < 0.05$). NIM has an effect on ROA therefor the 3rd hypotheses is accepted. Positive numbers on t-Test indicates a movements in line between NIM variable and/on ROA variable. This means that an increase in the bank NIM's ratio causes an increase in the ROA's ratio. The results of this study are in line with Farah and Marsheilly (2013), Fakhri and Chadabib (2015), Anne (2015), Ninas and Djoko (2016) which states that the NIM variable has a significant effect on ROA. NIM ratio is related to earning assets and bank management capabilities in managing credits considering the bank operating incomes in the form of interest, the higher the NIM value of a bank is, the healthier of the bank can become. Under the terms of the *Bank Indonesia*, the minimum limit of NIM ratio is 1.5%.

The impact of NPL on ROA

The 4th hypothesis testing shows that the T-test value of NPL on ROA is 1.48 with a significance value of 0.15 (p <0.05). NPL has no effect on ROA therefor the 4th hypotheses is rejected. The result of this research is in line with Anne (2015) research which stated that NPL variable does not have a significant effect on ROA. The purpose of NPL calculation is to know the credit risks of a bank, the higher the NPL value of a bank, the more-unhealthy the bank is. Under the *Bank Indonesia*'s regulations, the normal limit of NPL ratio is less than 5%.

The impact of LDR on ROA

The 5th hypothesis testing shows that the T-test value of the LDR onto ROA is 2.14 with a significance value of 0.04 (p <0.05). LDR has an effect on ROA therefor the 5th hypotheses is accepted. Positive numbers on t-Test indicates a movements in line between the LDR variable and/on ROA variable. This means that an increase in the bank LDR's ratio causes an increase in the ROA's ratio. The results of this study are consistent with Farah and Marsheilly's (2013) research that LDR has a significant positive effect on ROA, Ninas and Djoko (2016) saysthe same thing that the LDR variable has a significant effect on ROA. The purpose of the LDR calculation is to know and assess how far a bank can have a healthy condition in running its operations, the higher the LDR value of a bank, the more-unhealthy the bank is. Under the *Bank Indonesia*'s regulations, the normal LDR ratio limit is 78% to 92%.

Conclusions and Recommendations

Based on the results of the research, the simultaneous test (Test F) results indicated that the Capital Adequacy Ratio (CAR), Operational Costs Operating Income (OCOI), Net Interest Margin (NIM), Non-Performing Loan (NPL), and Loan to Deposit Ratio (LDR) conjointly have an influence on Return on Asset (ROA). Partial test (t-Test) results indicates Capital Adequacy Ratio (CAR) has a negative effect on Return on Asset (ROA). Partial test (t-Test) results shows Operational Costs Operating Income (OCOI) has a negative effect on Return on Asset (ROA). Partial test (t-Test) results shows Net Interest Margin (NIM) has a positive effect on Return on Asset (ROA). Partial test (t-Test) resulted that Non Performing Loan (NPL) has no partial effect on Return on Asset (ROA). Partial test (t-Test) results shows Loan to Deposit Ratio (LDR)) has a positive effect on Return on Asset (ROA). Based on partial test results, the most influential variables on Return on Asset are Net Interest Margin (NIM). Determination Coefficient (R2) Test Results articulated an Adjusted R2 values indicate that 97.1% variation in ROA performance can be determined by financial ratios consisting of CAR, OCOI, NIM, NPL, and LDR. While the other 2.9% of the data is explained by other variables outside this model. Recommendations from this research for the future researchers, it is better to deepen a research on Non-Performing Loans (NPL) related to the research gap between researchers and previous researchers, then if you want to focus on the research object then it is advisable to choose the *Bank Tabungan Negara* (BTN) as an object because based on the complied data, BTN have a numbers of ratio in the vulnerable phase compared to other sample banks but still remained in LQ45 in recent years.

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