



INFLUENCE OF CAPITAL ADEQUACY RATIO (CAR), LOAN TO DEPOSITS RATIO (LDR), OPERATIONAL EFFICIENCY RATIO (OER), AND NON-PERFORMING LOAN (NPL) ON RETURN ON ASSETS (ROA) OF SOES BANK IN 2016 TO 2018

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Abstract

The banking sector is one of the institutions that carries the main function as a financial intermediary between parties who own funds and those who need them. An assessment of bank performance can be administered through analysing its financial statements, from which information regarding its financial position, cash flow, and other necessary data can be obtained. This study was set out to explain the influence of CAR, LDR, OER, and NPL on SOEs Bank's ROA in Indonesia. Data collected in this study is secondary data published on BNI, Mandiri, and BTN websites. Tests of Individual Regression Coefficients (t Test) and Multiple Linear Regression show positive relationship between CAR and ROA, negative relationship between LDR and ROA, negative relationship between OER and ROA, and positive relationship between NPL and ROA.

Keywords: CAR, LDR, OER, NPL, ROA

INTRODUCTION

Currently, economic development is indivisible from the banking sector since banks play a significant role in the growth of economic stability (Anggreni and Suardhika, 2014). In order to be a reliable public institution, bank has to be able to maintain its financial performance (Anggreni and Suardhika, 2014). Banking sector gains its important position from its primary function as a middleman between parties who have and need funds and as an institution that works on accelerating the flow of transaction (Veithzal, Andria, and Idroes in Warsa and Mustanda, 2016). According to Prasanjaya and Ramantha (2013), as an intermediary, bank functions as means for payment, saving, and loans with an ultimate aim to achieve people's welfare.

An assessment of a bank performance can be basically conducted by analysing its financial statement, from which information relating to its financial position, cash flow, and other data that can reflect its performance can be obtained. This data can be used to calculate a number of financial ratios that are commonly used as a basis for evaluating bank performance level (Setyowati and Budiwinarto, 2017).

Lasta, Arifin, and Nuzula (2014) state that a plethora of methods can be used to assess bank performance or health, including the Bank of Indonesia Regulation No.13/ 1 / PBI / 2011 which, in its evaluation, utilises the RGEC approach (Risk Profile, Good Corporate Governance, Earnings, and Capital). The first one, Risk Profile, is obtained using the indicators of the measurement of credit risk factor using the formula of Interest Rate Risk (IRR) and liquidity risk using Loan to Deposit Ration (LDR) formula. The second on, Good Corporate Governance, can be assessed by analysing the report of Good Corporate Governance using the indicators stated in the Bank of Indonesia provisions relating to commercial banks. The third on, Earnings (basic earning power), is the measurement of bank's ability in gaining revenue using Return on Asset (ROA) ratio. Finally, Capital, is a measurement method which is based on the capital owned by banks assessed using Capital Adequacy Ratio (CAR).

According to Pratiwi and Wiagustini (2015), in the mid-1997, the banking industry suffered a total setback due to the economic crisis that hit Indonesia. Reflecting on such phenomenon that occurred secondary to the bank failure, research on the factors that influence bank profitability is necessary (Pratiwi and Wiagustini, 2015). In this regard, knowing the ratio that affects bank profitability can be one of the keys to overcome back failures. Setiawan, Amboningtyas, and Aryanti (2019) argue that ROA can be used to measure bank profitability since it is more focused on calculating bank effectiveness in managing its assets to generate profits. In addition, Harun (2016) argues that factors affecting ROA which include in profitability ratio are numerous. They include (1) CAR which is a method used to evaluate banks based on

their capital; (2) Operational Efficiency Ratio (OER) which can indicate bank efficiency ratio; (3) NIM which is the difference between income and expense interests; (4) LDR which is the amount of the third party's funds in commercial banks loaned; (5) NPL which can show bank's ability in collecting back the loans issued until paid off.

Research Questions

Based on the background stated, the followings are the research questions formulated in this research:

1. Is there any influence of CAR on SOEs banks' ROA?
2. Is there any influence of LDR on SOEs banks' ROA?
3. Is there any influence of OER on SOEs banks' ROA?
4. Is there any influence of NOL on SOEs banks' ROA?

Research Objectives

1. Analysing the influence of CAR on SOEs banks' ROA;
2. Analysing the influence of LDR on SOEs banks' ROA;
3. Analysing the influence of OER on SOEs banks' ROA;
4. Analysing the influence of NPL on SOEs banks' ROA.

Limitations of the Current Study

Referring to the research background and questions, limiting the scope of the Current Study is necessary to provide more focused explanation.

1. Banks which are studied in this research are state-owned enterprises (SOEs) from them secondary data are obtained in the form of financial statements in a three-year period from 2016 to 2018. These banks are BNI, BRI, MANDIRI, and BTN in Indonesia Country
2. There are five variables studied in this research which are CAR, LDR, OER, NP, and the profitability of the aforementioned banks;
3. Profitability that is used is the ROA ratio.

LITERATURE REVIEW

Bank

Pinasti and Mustikawati (2018) state that collecting and distributing funds are the main activities conducted by banks, while other activities are supporting services done to fortify the main activities. These activities are necessary and they are what make banks the most important

institution in providing financial services to support the economy (Alper et al. in Prasanjaya and Ramatha, 2013).

Financial Statement

According to Ramadhan and Syarfan (2016), financial statement is a formal report obtained from the process of accounting and recording financial activities. It contains data that explains whether or not a financial institution performed well in certain period of time. Furthermore, financial statement consists of financial records of a company in a certain accounting period which can be used to explain its performance (Riswan and Kesuma, 2014). In addition, financial statement can be mathematically analysed by dividing one numerical value with the other. This activity is called financial ratio analysis (Kasmir in Maith, 2013). In this regard, there are five financial ratios that become the focus in this research: Return on Assets (ROA), Capital Adequacy Ratio (CAR), Loan to Deposits Ratio (LDR), Operational Efficiency Ratio (OER) or commonly known as BOPO in Indonesia, and Non-performing Loan (NPL).

Return on Assets (ROA)

The first financial ratio discussed in this research is Return on Assets (ROA) which can be used to indicate level of profitability. In this regard, Alshatti (2015) argues that bank profitability means its ability to generate revenues that outweighs the cost, and this is regarding the basis of the bank's capital, where the banking score is sound and profitable. This sector will be more amble to withstand negative shocks and contribute to the stability of the financial system. Moreover, Prasanjaya and Ramantha (2013) states that one of the ratios that is utilised by banks to measure their profitability level is ROA. Measurement using this ratio can reflect bank's management capability in generating revenues (Mudawamah, Wijoyo, and Hidayat, 2018). Based on the circular letter published by the Bank of Indonesia number 6/23/DPNP 2004 in Pandia (2012), the ROA formula is as follow:

$$\text{Ratio on Assets} = \frac{\text{NetIncome}}{\text{AverageTotalAssets}} \times 100\%$$

Capital Adequacy Ratio (CAR)

The second financial ratio is Capital Adequacy Ratio (CAR). Harun (2016) states that CAR focuses on capital which can indicate the bank capacity in providing funds for business development purposes and for accommodating the risk of financial loss resulted form bank operational activities. CAR is a financial ratio which is related to banking capital in which the amount of the capital of a bank will influence its ability to perform efficiently (Pinasti and

Mustikawati, 2018). Based on the circular letter published by the Bank of Indonesia number 13/24/DPNP on October 25 2012 in Prasanjaya and Ramantha (2013), the CAR formula is as follow:

$$\text{Capital Adequacy Ratio} = \frac{\text{Tier1Capital} + \text{Tier2Capital}}{\text{Risk-weightedAssets}} \times 100\%$$

Loan to Deposits Ratio (LDR)

Loan to Deposits Ratio (LDR) is the next financial ratio measured in this study. LDR is a ratio between whole sum of the credit loaned and the third party's funds (Pinasti and Mustikawati, 2018). Moreover, Aini (2013) argues that LDR is a ratio that shows the liquidity level of a bank and its ability in performing its function as an intermediary in distributing the third party's funds (deposits) to loans. Based on the circular letter issued by the Bank of Indonesia number 3/30DPNP on December 14 2001 in Kurniasih (2016), formula to calculate LDR is as follow;

$$\text{Loan to Deposits Ratio} = \frac{\text{TotalLoans}}{\text{TotalDeposits}} \times 100\%$$

Operational Efficiency Ratio (OER)

Operational Efficiency Ratio (OER) or commonly known as *Belanja Operasional terhadap Pendapatan Operasional (BOPO)* in Indonesia is the difference between the whole sum of operational expenditure and the total sum of operational revenues (Pinasti and Mustikawati, 2018). Moreover, Aini (2013) explains that OER is a ratio of the expenses spent by banks to support their main functions to the revenues they gain from accomplishing these functions. Furthermore, operational expenditures include the spendings in interest expenses, employees, marketing, and other operating costs. On the other hand, operational revenues include the profits obtained from interest income gained from fund investment in the form of loan and other operating revenues. Based on the circular letter issued by the Bank of Indonesia Number 6/23/DPNP 2004 in Pandia (2012), the following is the formula to calculate operational efficiency ratio:

$$\text{OER} = \frac{\text{OperationalExpenditure}}{\text{OperationalRevenue}} \times 100\%$$

Non-performing Loan (NPL)

The last financial ratio discussed in this research in Non-performing Loan (NPL). Dewi (2017) states that NPL is a ratio used to assess bank's ability to cover the credit risk. The NPL ratio is determined as the ratio between non-performing loans to total loans and usually is used as a

proxy of the credit risk (Ali Shingjergji and Marsida Hyseni, 2015). Furthermore, Aini (2013) states that the formula to calculate NPL is as follow:

$$\text{NPL} = \frac{\text{Non-performingCredit}}{\text{TotalLoans}} \times 100\%$$

Research Model

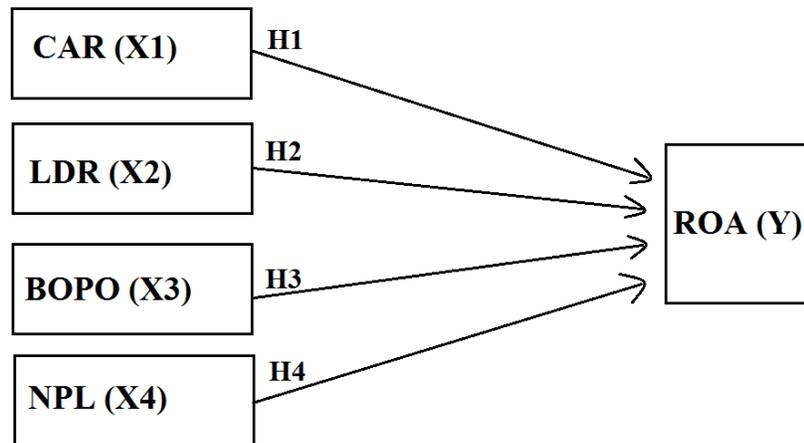


Figure 1 Proposed Research Model

Findings of the previous research on the influence of CAR on ROA conducted by Kurniasih (2016) showed that CAR affected ROA. The same trend was also found by Susanto and Kholis (2016). Reflecting on these studies, hypothesis of this research can be drawn as follow:

H1 = CAR affects ROA

In terms of the effect of LRD on ROA, pervious research conducted by Harun (2016) showed that LDF affected ROA. The same result was also found by Sari, Anshori, and Primasari (2018). Based on these studies, hypotheses can be drawn for this research as follow:

H2 = LDR affects ROA

Furthermore studies on OER consistently found that that it affects ROA. For instance, research conducted by Pratiwi and Wiagusti (2015) confirmed the effect of OER on ROA. This evidence is strengthen by a more recent research by Dewi (2017) that found that OER influenced ROA. From these findings, another hypothesis can be formulated as follow:

H3 = OER affects ROA

Finally, research conducted by Warsa and Mustanda (2016) found that NPL affected ROA. The evidence in line with this finding was found in a more recent study by Fajari and Sunarto (2017) which explained the consistent influence of OER on ROA. Conclusion drawn from these research could be used to formulate the following hypothesis:

H4 = NPL affects ROA

RESEARCH METHODOLOGY

Data analysed in this research is a secondary data in the form of annual financial statement of four SOEs Banks comprising Bank Nasional Indonesia (BNI), Bank Rakyat Indonesia (BRI), Bank Mandiri, and Bank Tabungan Negara (BTN) in a four-year period from 2016 to 2018. This data was collected from published financial statements issued on the banks' websites: www.bni.co.id, bri.co.id, bankmandiri.co.id, and btn.co.id. The population of this research is all the aforementioned state-owned enterprises (SOEs) banks. For this reason, the sample taken for this research is similar to the population, making the research population and research sample similar.

Collected data was then analysed using SPSS. In a research, data analysis method is necessary to help with answering research questions. The analysis methods used in this research were: Tests of Individual Regression Coefficients (*t* Test), Multiple Linear Regression, and Coefficient of Determination (R-squared).

RESULTS AND DISCUSSION

Individual Regression Coefficients (*t* Test)

Priyatno (2012) states that *t* value measures the significance of the influence of X variables on Y variables partially.

If the test uses the significance level of .05, it means that there is less than 5% probability that the null hypothesis is correct, given that it generates 95% confidence interval. It simply translates that the result calculated using this method is reliable with these following criteria:

- a. If significance < .05, it means there is a partial effect of independent variable on dependent variable.
- b. If significance > .05, it means there is no partial effect of independent variable on dependent variable.

Table 1: Result of Individual Regression Coefficients Test (*t* Test)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
(Constant)	10.583	4.059		2.607	.035			
1	CAR	.070	.068	.164	1.034	.335	.509	1.964
	LDR	-.004	.025	-.031	-.153	.883	.312	3.210
	OER (BOPO)	-.126	.031	-.999	-4.115	.004	.218	4.589
	NPL	.301	.494	.171	.608	.563	.163	6.141

Dependent Variable: ROA

According to the table 1, hypotheses formulated in this research are answered as follows:

i. CAR (X1)

Statistical hypothesis:

H_{01} = CAR does not affect ROA

H_{a1} = CAR affects ROA

It can be seen in table 1 that the significance level of these variables is .335 which is larger than .05. For this reason, H_{01} is accepted and H_{a1} is rejected. It can be concluded that there is no significant influence of CAR (X1) on ROA (Y).

ii. LDR (X2)

Statistical hypothesis:

H_{02} = LDR does not affect ROA

H_{a2} = LDR affects ROA

It can be seen in table 1 that the significance level of these variables is .883 which is larger than .05. For this reason, H_{02} is accepted and H_{a2} is rejected. It can be concluded that there is no significant influence of LDR (X2) on ROA (Y).

iii. OER (X3)

Statistical hypothesis:

H_{03} = OER does not affect ROA

H_{a3} = OER affects ROA

It can be seen in table 1 that the significance level of these variables is .004 which is less than .05. For this reason, H_{o3} is rejected and H_{a3} is accepted. It can be concluded that there is significant influence of OER (X3) on ROA (Y).

iv. NPL (X4)

Statistical hypothesis:

H_{o4} = NPL does not affect ROA

H_{a4} = NPL affects ROA

It can be seen in table 1 that the significance level of these variables is .563 which is larger than .05. For this reason, H_{o4} is accepted and H_{a4} is rejected. It can be concluded that there is no significant influence of NPL (X4) on ROA (Y).

Multiple Linear Regression Analysis

Multiple Linear Regression is used to find the linear relationship between two or more independent variables and one dependent variable used to predict or forecast the outcome of the response variable (Priyatno, 2012). In this research, Multiple Linear Regression analysis can describe the magnitude of the influence of the independent variables consisting of CAR (X1), LDR (X2), OER (X3), and NPL (X4) on dependant variable which is ROA (Y) (Table 2).

Table 2: Result of Multiple Linear Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
	(Constant)	10.583	4.059	2.607	.035			
1	CAR	.070	.068	.164	1.034	.335	.509	1.964
	LDR	-.004	.025	-.031	-.153	.883	.312	3.210
	OER/BOPO	-.126	.031	-.999	-4.115	.004	.218	4.589
	NPL	.301	.494	.171	.608	.563	.163	6.141

Dependent Variable: ROA

Table 2 illustrates that there is positive correlation between two independent variables CAR (X1) and NPL (X4) and dependent variable ROA (Y). On the other hand the other independent variables, LDR (X2) and OER (X3), are negatively correlated with dependent variable ROA (Y). These relationships are indicated in the unstandardised coefficient B column in figure 2. Therefore, statistical model of the multiple linear regression analysis drawn from this result is:

$$Y = 10.583 + 0.070 X1 - 0.004 X2 - 0.126 X3 + 0.301 X4$$

Where:

- Y = Dependent variable ROA
- X1 = Independent variable CAR
- X2 = Independent variable LDR
- X3 = Independent variable OER
- X4 = Independent variable NPL

In this regards, the constant a (Y intercept) is 10.583, which means if CAR, LDR, OER, NPL, and NIP are 0, ROA value would be 10.583%.

Regression coefficient for the CAR (X1) variable is 0.070%. It means, if LDR, OER, and NPL are constant and CAR increases by 1%, ROA would increase by 0.070%. The value of this coefficient is positive, meaning there is a positive relationship between CAR and ROA. For this reason, it can be concluded that the higher the CAR, the bigger the ROA– with the assumption that the other variables are constant.

Regression coefficient for the LDR (X2) variable is -0.004%. It means, if CAR, OER, and NPL are constant and LDR increases by 1%, ROA would decrease by 0.004%. The value of this coefficient is negative, meaning there is a negative relationship between LDR and ROA. For this reason, it can be concluded that the higher the LDR, the smaller the ROA– with the assumption that the other variables are constant.

Regression coefficient for the OER (X3) variable is -0.126%. It means, if CAR, LDR, and NPL are constant and OER increases by 1%, ROA would decrease by 0.126%. The value of this coefficient is negative, meaning there is a negative relationship between OER and ROA. For this reason, it can be concluded that the higher the OER, the smaller the ROA– with the assumption that the other variables are constant.

Regression coefficient for the NPL (X4) variable is 0.301%. It means, if CAR, LDR, and OER are constant and NPL increases by 1%, ROA would increase by 0.301%. The value of this coefficient is positive, meaning there is a positive relationship between NPL and ROA. For this reason, it can be concluded that the higher the NPL, the bigger the ROA– with the assumption that the other variables are constant.

Figure 3: Result of Coefficient of Determination (R-squared) Test
Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.954 ^a	.910	.859	.31518	1.074

a. Predictors: (Constant), NPL, CAR, LDR, BOPO

b. Dependent Variable: ROA

Coefficient of Determination (R-squared) Test

According to Priyatno (2012), the closer a determination to 1 (one), the more significant the influence of independent variable on dependent variable will be. R-squared (R^2) shows the coefficient of determination. This number would be in the form of percentage which indicates the magnitude of the influence an independent variable has on a dependent variable.

As illustrated in the figure 3, the value of the R-squared or coefficient of determination is .910 or 91%. It indicates that ROA is 91% affected by the CAR, LDR, OER, and NPL. The rest of .90 or 9% is affected by other variables excluded in this model. These variables could be GCG (Good Corporate Governance, ROE (Return on Equity), and NIM (Net Interest Margin).

CONCLUSION

Conclusion drawn from this research includes:

- There is a positive relationship between CAR and SOEs banks' ROA. It means that the higher the CAR, the bigger the ROA of the SOEs banks. High CAR indicates bank capital that is high as well, therefore it has more flexibility in placing the funds on earnings assets which will influence the revenues gained.
- There is a negative relationship between LDR and the ROA of the SOEs banks. This negative relationship means that the higher the LDR, the smaller the ROA. For this reason, issuing loans which are not effective will result in a bigger bad credit.
- There is a negative relationship between OER and ROA of the SOEs banks. This negative relationship means that the higher the OER, the smaller the ROA. For this reason, the higher the OER, the more ineffective the operating activities will be. It also works the other way around; the lower the OER, the more efficient the operating activities will be—resulting in bigger revenues of the SOEs banks.

- d. There is a positive relationship between NPL and the ROA of the SOEs banks. This positive relationship means that the higher the NPL, the bigger the ROA. The SOEs banks would perform better if their NPL is higher. However, the smaller the NFL, the SOEs banks would need to be more selective in issuing loans.

RECOMMENDATIONS

From the findings obtained in this research, recommendations are drawn and addressed for the SOEs banks and future researchers interested in this topic.

a. For Banks

Operational Efficiency Ratio (OER) affects the Return on Assets (ROA) of SOEs banks. This ratio has an influence on the trend of the ROA. This ratio can also indicate bank performance in efficiently organising operational expenses and maximising their revenues. For this reason, bank management should be able to make operational expenses and operational revenues efficient. If operational expenses are well allocated, the profitability (ROA) will increase.

b. For Future Research

Future research might want to include other independent variables to find what other variables that might affect ROA.

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