

The Effect of LDR, NPL, CAR on Return on Asset of Conventional National Commercial Bank in Indonesia

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ARTICLE INFO

Date of entry:
3 January 2023
Revision Date:
14 February 2023
Date Received:
2 March 2023

ABSTRACT

Loan distribution is measured by the Loan to Deposit Ratio (LDR) and effective credit management to maintain credit collectability is measured by Non-Performance Loans (NPL). Besides that, the adequacy of the minimum capital provision is measured by a good Capital Adequacy Ratio (CAR). The purpose of this study is to prove the effect of LDR, NPL and CAR on Return on Assets (ROA). Do LDR, NPL and CAR have an effect on ROA in the 2017 to 2021 research period. The population for this study takes conventional national commercial bank entities in Indonesia during the 2017-2021 period. By using purposive sampling, a representative sample is obtained with certain criteria. This study uses a linear regression technique to examine the effect of LDR, NPL and CAR variables. The results of the study show that the Loan to Deposit Ratio and Non-Performance Loans have a significant effect on Return on Assets while the Capital Adequacy Ratio has no effect.

Keywords: CAR, LDR, NPL and ROA



Cite this as: Sochib, S., Liyundira, F. S., & Yulianti, A. (2023). The Effect of LDR, NPL, CAR on Return on Asset of Conventional National Commercial Bank in Indonesia. *International Journal of Accounting and Management Research*, 4(1), 51–59. <https://doi.org/10.30741/ijamr.v4i1.1104>

INTRODUCTION

Profit for banking companies is a focus that must be considered in every operational policy. KR Subramanyam, (2010) profit is a summary of the net results of business operating activities in a certain period stated in finance. Profit is the main performance measure that attracts management's attention in addition to other specific performance that is of concern to sections with a more specific scope. Profit is interpreted as a measure of the effectiveness and efficiency of management in managing the resources entrusted to it (Suwardjono, 2005). Various factors that may affect the profit are always considered by management. Three things can be related to profits in banking, firstly Third Party Funds obtained and their distribution to the real sector in the form of credit or loans given. Loans provided by banks pay attention to bank prudential principles so that loan disbursement is more effective. The level of credit disbursement is indicated by the Loan to Deposit Ratio (LDR). LDR research is still limited to how LDR is able to form bank profits. Lending is not only limited to making profits, banks are also required to maintain an adequate level of liquidity at all times. A credible bank means a bank that is able to maintain liquidity for withdrawing funds, bank operations and disbursing approved credit facilities. The Loan to Deposit Ratio of banks provides information that shows the ability of banks to allocate funds to provide public loans and signals the ability of

banks to pay for withdrawing their deposits or debtors who have received loan realization but have not yet withdrawn (Sochib & M Rijalus Sholihin, 2022).

The second thing that is of concern to the bank is credit control so that high collectibility does not occur. This collectibility is a factor that will reduce the company's performance. Regardless of the loan given by the bank, it will not be able to boost its performance if there are many problem loans. Third, that bank operations require sufficient equity to be able to encourage company operations by providing sufficient credit to the real sector. As a financial institution that functions as a mediation, it requires sufficient equity for the bank to be able to serve customers. Equity or capital has two functions, namely to strengthen banking operations and to maintain bank liquidity

Performance in the form of a bank's ability to earn profits can be seen from the amount of banking Return on Assets (ROA) associated with company assets. The purpose of this study is to prove the effect of Loan to Deposit Ratio (LDR), Non-Performance Loans (NPL) and Capital Adequacy Ratio (CAR) on Return on Asset (ROA). Do LDR, NPL and CAR affect ROA in the observation period from 2017 to 2021?

Return On Asset

Return on Asset (ROA) is a measurement of business performance that can be used by management to determine the efficient use of company assets. This measurement is more directed to the acquisition of profit for a period based on company assets. Pairing with assets because assets are a part that can move the wheels of the company to increase profits. Management is more assessed from the aspect of operational effectiveness of assets so that they are able to generate profits (Sochib, Yusuf Wibisono, 2021). Earning a profit is usually referred to as profitability. The measure of profitability according to Stephen A. Ross, Randolph w. Westerfield, Bradford D. Jordan, Joseph Lim (2015) is to measure how efficient a company is in utilizing its assets and managing its operations. Profit acts as an indicator of company profitability (KR Subramanyam, 2010). Profitability is measured by Return on Asset (ROA) to see the ability to optimize the company's assets in its operational activities

Loan to Deposit Ratio

The Loan to Deposit Ratio (LDR) relates to cash in banking which must be managed regularly so that operations run smoothly and effectively. More specifically, it is called liquidity which has a dual function to maintain the health of the bank. Maintenance of liquidity is more flexible, there may be speculative motives to maintain liquidity but not necessarily to hold cash (Stephen A. Ross, Randolph W. Westerfield, Bradford D. Jordan, Joseph Lim, 2014). Liquidity can be measured by the Loan to Deposit Ratio (LDR). On the first side, LDR is used to measure third party funds (DPK) that have been channeled into loans to the real sector. Loan to Deposit Ratio, hereinafter abbreviated as LDR, is the ratio of loans extended to third parties in Rupiah and foreign currencies, excluding loans to other banks, to third party funds which include current accounts, savings and time deposits in Rupiah and foreign currencies, excluding funds between banks (Bank Indonesia, 2015).

One of the functions of a bank is to distribute credit or loans so that the economy can move forward. Management will try to increase the amount of loans given to the public through working capital loans or investment loans in order to obtain profits. On the second side, the LDR is a measure of the level of bank liquidity to be able to meet short-term funding needs. This liquidity is to meet the withdrawal of funds for depositors, disbursement of credit that has been realized by management and the daily operational needs of the bank. Liquidity adequacy must be measured precisely every time a bank operates so that banks are not trapped in a situation with a surplus of funds or a minus of funds. Because with an inaccurate estimate of liquidity, the bank will be burdened with idle cash funds. Research conducted by Haryati & Widyarti (2016), Suyitno & Djawoto (2017) states that LDR has an effect on ROA.

Non-Performance Loans

The bank's main income comes from fund distribution activities in the form of profit-generating loans or credit. Distributed credit must receive good monitoring so that credibility runs smoothly. There are several criteria for credit collectibility in banking, namely current, on special attention, doubtful substandard and loss. Loans granted by banks whose principal and/or interest payments are late or are likely not to be repaid by the debtor are loans in the Non-Performance Loan (NPL) category. The ratio of Non-Performing Loans in total credit is referred to as the ratio of NPL to total credit, which is the ratio between the total number of loans with substandard, doubtful and bad qualities to total loans (Bank Indonesia, 2015). Distribution of credit with good quality will improve the company's performance and vice versa if there are lots of loans with poor quality it can burden the bank's financial performance. Research conducted (OJK, 2015). Research conducted by Suyitno & Djawoto (2017) states that NPL has an effect on ROA. NPL has a negative effect on ROA (Batari Ayunda Praja & Hartono, 2018).

Capital Adequacy Ratio

Equity is an important part for banking entities, namely as the basic capital and operational capital of the bank. In banking, equity or capital must be met by bank management so that the bank as an intermediary institution can function properly. Banks are required to provide a minimum capital of 8% of Risk Weighted Assets (Bank Indonesia, 2008). The function of capital in the banking industry is quite important which is used for expansion and operational purposes, and to fulfill liquidity (Sochib, 2016). In this case the Bank is required to comply with the Minimum Capital Adequacy Ratio (CAR) requirements regulated by Bank Indonesia and the Financial Services Authority. The bank's capital requirements fluctuate from time to time following the development of the bank's productive assets and the need to cover the risks that occur. The Capital Adequacy Ratio (CAR) is a ratio that indicates the extent to which a bank's capital capacity is able to absorb the risk of credit failure that may occur. According to Bank Indonesia Regulations, the Capital Adequacy Ratio (CAR) is a ratio that shows how much the total risky bank assets (loans, investments, securities, claims on other banks) are also financed from their own capital in addition to obtaining funds from other sources. sources outside the bank. Bank capital includes core capital and supplementary capital and Risk Weighted Assets (RWA) calculated based on the value of each productive asset item on the balance sheet multiplied by the respective risk weight. The higher the CAR, the better the financial condition of a bank. Research conducted by Batari Ayunda Praja & Hartono (2018) states that the Capital Adequacy Ratio (CAR) has an effect on Return on Asset (ROA).

METHODS

This research is a quantitative study with research data in the form of numbers and analyzed using statistics (Sugiyono, 2019). The research object consists of Loan to Deposit Ratio (LDR), Non-Performance Loan (NPL), Capital Adequacy Ratio (CAR) and Return on Assets (ROA) variables of conventional national commercial banks in Indonesia. The type of data used is secondary data taken from the publications of the Indonesia Stock Exchange (IDX) for the 2017-2021 period (www.idx.co.id)

The population of this study is conventional national commercial banks listed on the Indonesia Stock Exchange (IDX) in 2017-2021. The sample was selected using a sampling technique, namely a technique for taking samples used as research data (Sugiyono, 2015). With a purposive sampling method approach, a representative research sample can be obtained. The sample criteria used include: Conventional National Commercial Banks in Indonesia which are listed on the Indonesia Stock Exchange for the 2017-2021 period, publish annual financial reports during the study period, and entities earn successive profits during the study period. Based on the sample selection criteria, a sample of 24 bank entities was obtained with 120 observations.

Analysis of research data includes grouping data based on variables, tabulating, presenting and calculating data to answer research problems and test the proposed hypotheses (Sugiyono, 2019).

While the data analysis technique uses linear regression analysis by taking into account the classical assumptions so that the regression model meets the requirements of the Best Linear Unbiased Estimator (BLUE). According to (Sofyan Yamin, 2009), some of the classic assumptions that must be met in regression research are: Normality of residuals, Independence of residuals, autocorrelation and multicollinearity. The normality of residual test is a data normality test to prove that research data is normally distributed. According to Ghozali (2016) data normality can be tested through graphical analysis or statistical tests. Graphical normality testing was carried out using the PP Plot normal chart and confirmed statistically using the Kolmogorov Smirnov Test (Sofyan Yamin, 2009). One Kolmogorov Smirnov Test can state normal with the criteria of $\text{sig Sym} > 0.05$.

The independent test of residuals indicates that there is no autocorrelation problem in the residuals calculated by the Durbin Watson value. The decision criteria for autocorrelation testing according to Sofyan Yamin (2009) quoted from Danamodar N Gujarati (1995) use the criterion $du < d < 4-du$. Multicollinearity testing to test the correlation between independent variables modeled in the study. According to Ghozali (2016) that a good regression model does not have a correlation with the independent variables. Multicollinearity criteria with a Variant Inflated Factor (VIF) value of < 10 and a tolerance value of > 0.10 so that there is no multicollinearity between independent variables. In the classical heteroscedasticity test on the residuals, it is necessary to see the random distribution of data and not form certain patterns (Sofyan Yamin, 2009).

Descriptive statistical analysis is needed to illustrate something related to collecting, summarizing data and presenting the results of summarizing research data (Gunawan, 2020). This descriptive statistic provides a general description of the condition of the independent and dependent research variables. While testing the regression model was carried out by examining the results of statistical tests, namely the F test. F test with the criteria for a p value < 0.05 in the ANOVA table which shows the magnitude of the influence of all independent variables used in the study. A feasible research model so that it can predict the predicted value in the future. While the coefficient of determination or R Square is assessed in the Model Summary table.

Meanwhile, the Individual Significance Test or t-test is required to determine the effect of each independent variable on the dependent variable. The criterion for measuring the influence between variables uses a significant level of 0.05 ($\alpha = 5\%$). The decision maker accepts or rejects the proposed hypothesis using the following criteria: If the significance level has a p value < 0.05 , the hypothesis is accepted, which means that the independent variable has a significant effect on the dependent variable. Which means accepting H_0 and accepting alternative H. If the significance level is with a p value > 0.05 , it means that the independent variable has no effect on the dependent variable. Which means accepting H_0 and rejecting the alternative proposed in this study.

RESULTS AND DISCUSSION

The results of the SPSS analysis showing the normality of the data, the contribution of the independent variables and the research model are shown in table 1.

Table 1. Normalitas, Model Summary dan Anova

Asymp. Sig.	Durbin-Watson	R Square	Adj. R Square	F	Sig.
0,421	1,839	0,278	0,260	14,901	0,000 ^b

Source: SPSS processed results

Based on the results of the analysis in table 1, the data normality test was carried out using the Statistical One Sample Kolmogorov Smirnov Test. The results of the One Sample Kolmogorov Smirnov Test show that the Asymp Sig on Unstandardized Residual has a value of 0.421 greater than 0.050. The test results indicate that the research data is in the normal distribution category. The autocorrelation test on the independent variables LDR, NPL, CAR with a total sample of 120 obtained a du value of 1.7536 and a 4-du of 2.2364 so that the Durbin Watson value is between du and 4-du, namely $1.7536 < 1.839 < 2, 2464$ which indicates a Durbin Watson value between -2 to +2 which means that there is no autocorrelation Santoso (2015) so that the linear regression model is free from autocorrelation.

Whereas in table 2 the multicollinearity test is to ensure that there is a perfect linear relationship between several independent variables from the regression model. Techniques that can be used for multicollinearity by using the Variance Inflation Factor (VIF) and tolerance values. The result is that all of the independent variables have a VIF value of < 10 and a tolerance value of > 0.10 , which means that there is no multicollinearity. The heteroscedasticity test shows that there is no specific pattern on the scatterplot graph, which means that there is no heteroscedasticity.

Based on the results of the analysis in table 1, the R Square value is 0.278, which means that the contribution of the independent variables affects the dependent variable by 27.80%, while the rest is influenced by other variables that are not included in this research model. And the ANOVA value on all the independent variables LDR, NPL and CAR really has an influence on the Return on Assets (ROA) which is indicated by a sig value of 0.00 below 0.05. In table 2, the results of the descriptive statistical test are obtained which describe the value of the Loan to Deposit Ratio (LDR) variable, namely the average value of 86.36 with a standard deviation of 20.16. The Non-Performance Loan (NPL) variable has an average value of 2.39 with a Standard Deviation of 1.78. Capital Adequacy Ratio (CAR) variable with an average value of 25.77 and a standard deviation of 11.53. The overall standard deviation is below the average value which indicates representative research data.

Table 2. Coefficient Value, Deskriptif Statistic dan collinearitas statistic

	Beta Unstandar dized Coefficient	t	Sig.	Mean	Std. Deviatio n	Toleran ce	VIF
(Constant)	,058						
Loan to Deposit Ratio	,004	2,109	0,037	86,365	20,170	0,952	1,051
Non Performance Loan	-,110	-5,620	0,000	2,399	1,788	0,908	1,101
Capital Adequacy Ratio	-,001	-,3740	0,709	25,778	11,539	0,885	1,130

Source: SPSS processed results

The effect of Loan to Deposit Ratio on Return On Assets

Based on the results of the analysis of the influence of the Loan to Deposit Ratio (LDR) on the Return on Assets (ROA) it shows that there is a significant positive influence. Thus the research hypothesis which states that there is an effect of LDR on ROA is sufficient evidence to be accepted. These results indicate that the Loan to Deposit Ratio (LDR), which is reflected by loans made to third party funds, is able to explain changes in the level of profit proxied by ROA. This finding means that efforts to collect third party funds by bank management have had an impact on company

profits during this study. Because the bank as an intermediary function has a surplus of funds in the community and is passed on to a deficit of funds in the community who need credit to develop their business.

The aggregate measurement results in the 2017-2021 research period show that the Loan to Deposit Ratio (LDR) variable, which is reflected by loans extended to third party funds, shows an increase. Meanwhile, ROA, which is reflected in profit before tax on total assets, has also increased. This means that the collection of third-party funds followed by lending to the real sector can effectively generate profits for the company. The increase in third-party funds also contributes to an increase in assets through the provision of credit so that it will affect the level of Return on Assets (ROA).

The results of the analysis show that the LDR fluctuates from 89.71% in 2017 to 96.22% in 2019 and has decreased to 81.45% in 2021 with a downward trend. Meanwhile the development of ROA started at 2.59% in 2017 until 2019 experienced a significant change and then decreased to 2.03% in 2021 with a downward trend during the year of research. The empirical fact is that the activity of collecting DPK from the public and channeling it to the real sector in the form of credit is not as large as the acquisition of DPK. Given that lending must consider the ratio allowed by the regulator, namely BI Regulation number 17/11/PBI/2015. In terms of the LDR ratio, the level of loan disbursement during the study period averaged 89.43% with an LDR at the beginning of 2017 of 89.71%, decreasing to 81.45% in 2021. Meanwhile, the rate of profit with an average ROA of 2.30% with an initial ROA of 2.59% in 2017, decreasing to 2.03% in 2021.

The results of this study are in line with those conducted by Harun (2016), Sinung, Wardiningsih, & Wibowo (2016), Halimah & Komariah (2017) stated that the Loan to Deposit Ratio (LDR) has a significant effect on ROA. But other studies that produce different research, namely those conducted by Ovami (2017), Pinasti & Mustikawati (2018), Batari Ayunda Praja & Hartono (2018) and Martini (2022) state that the Loan to Deposit Ratio (LDR) has no effect on the bank's financial performance. conventional private sector proxied ROA.
Effect of Non-Performance Loans on Return On Asset.

Based on the results of the analysis of the effect of Non-Performing Loans (NPL) on Return on Assets (ROA), it shows that there is a significant negative effect. Thus the research hypothesis which states that there is an effect of NPL on ROA is sufficient evidence to be accepted. These results indicate that the Non-Performance Loan (NPL), which is reflected by non-performing loans on total loans, is able to explain changes in the level of profit proxied by ROA. This finding means that credit management efforts by bank management have an impact on company profits.

Aggregate measurements in the 2017-2021 research period show that the Non-Performing Loan (NPL) variable, which is reflected by non-performing loans to the total loans given, shows an increase. Meanwhile, ROA, which is reflected in profit before tax on total assets, has also increased. This means that managing non-performing loans effectively is able to maintain the profits that have been obtained by the company. NPL reduction contributes to reducing operational expenses so that it will affect the level of Return on Assets (ROA). The results of the analysis show that NPL fluctuated from 1.63% in 2017 to 1.54% in 2019 and increased to 1.81% in 2021 with an upward trend. Meanwhile the development of ROA started at 2.59% in 2017 until 2019 experienced a significant change and then decreased to 2.03% in 2021 with a downward trend during the research year

The empirical facts of controlling non-performing loans during the study period averaged 1.66% considering Bank Indonesia's provisions that the gross NPL ratio for total loans is less than 5% (Bank Indonesia, 2015). In terms of the NPL ratio during the study period, the average was 1.66% with an initial NPL of 1.63% in 2017, increasing to 1.81% in 2021. Meanwhile, the rate of profit with an average ROA of 2.30% with Initial ROA in 2017 was 2.59%, decreasing to 2.03% in 2021.

The results of this study are in line with research conducted by Ni Made Inten Uthami Putri Warsa (2016), Setyowati & Budiwinart (2017), Batari Ayunda Praja & Hartono (2018), Martini (2022) which results that Non-Performance Loans (NPL) have a significant effect on ROA. Meanwhile, the same research was conducted by Harun (2016), Sinung et al. (2016), Ovami (2017), Pinasti & Mustikawati (2018), Jihan Aprilia & Siti Ragil Handayani (2018) state that Non-Performance Loans (NPL) have no effect on ROA.

The effect of Capital Adequacy Ratio on Return On Assets

Based on the results of the analysis of the effect of the Capital Adequacy Ratio (CAR) on the Return on Assets (ROA) it shows that there is no effect. Thus the research hypothesis which states that there is an influence of Capital Adequacy Ratio on Return on Assets is rejected because it is not proven. These results indicate that the Capital Adequacy Ratio as reflected by the ratio of total capital to Risk Weighted Assets (RWA) is unable to explain changes in the level of profit proxied by ROA. This finding means that management's efforts to raise capital from company investors did not have a significant impact on company profits during this study. CAR, which is also known as Minimum Capital Adequacy Requirement, is used as a reserve to overcome possible risk of loss.

The results of the analysis during the study showed that CAR was fluctuating from 21.20% in 2017 to 22.14% in 2020 and decreased to 20.86% in 2021 with a downward trend. Meanwhile the development of ROA starting at 2.59% in 2017 until 2019 did not experience significant changes and even then decreased to 2.03% in 2021 with a downward trend during the year of research with an average ROA profit rate of 2.30%. This means that the company's capital collected from the company's owners is based on the position of forming CAR only to comply with the provisions of bank capital regulations and does not have an impact on increasing bank profits. Bank capital that exceeds CAR requirements does not have an impact on increasing bank profits, and capital still functions to handle risks on credit, business operations and markets which are bank segments. CAR still represents a bank's ability to provide funds that are used as reserves in the event of a risk of loss. Assets owned by banks in the form of loans, participation, securities, and claims on other banks have risks that must be met with their own capital.

Research that is in line with this research, namely Pricilla Febryanti Widyastuti & Nur Aini (2021) which states that CAR has no effect on ROA. Meanwhile, another research that is different is Batari Ayunda Praja & Hartono (2018) who found that CAR has an effect on ROA.

CONCLUSION

From the results of the analysis it can be concluded that the Loan to Deposit Ratio (LDR) has an effect on Return on Assets (ROA). The collection of third party funds followed by lending to the real sector can effectively generate profits for the company. Non-Performance Loans (NPL) have a significant effect on Return on Assets (ROA), meaning that credit management efforts by bank management have an impact on company profits. Meanwhile, the Capital Adequacy Ratio (CAR) has no effect on ROA. Investor capital accumulation is based on the position of CAR formation and

capital still functions to handle risks on credit, business operations and markets which are bank segments.

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