

The Influence of CAR, NPL, LDR and DPK Ratios on ROE at Rural Credit Banks (BPR) in West Java

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Abstract: The objectives of this research are: 1) To determine and analyze the effect of the CAR ratio on ROE. 2) To find out and analyze the effect of the bad credit ratio (NPL) on ROE. 3) To find out and analyze the influence of the Loan Deposit Ratio (LDR) on ROE. 4) To determine and analyze the influence of Third Party Funds on ROE. 5) To determine and analyze the influence of the CAR Capital Adequacy Ratio, NPL, LDR and DPK together on ROE. This research uses a quantitative approach method. The total population of BPRs in the West Java region is 224 (two hundred and twenty four) Rural Banks (BPR). The sampling technique in this research is purposive sampling. The sample was 13 Rural Banks in the West Java region. Multiple linear regression method and to make the calculation easier, this research uses the Eviews 12 tool. The results of this research are that CAR has a positive and significant effect on the ROE variable. NPL has a negative and significant effect on the ROE variable. CAR, NPL, LDR and DPK simultaneously influence ROE

Keyword: CAR, NPL, LDR, DPK, ROE

INTRODUCTION

In Indonesia, Rural Credit Banks (BPR) play an important role in providing financial services to MSMEs and communities in remote areas. According to the OJK, the number of BPRs decreased from 1,545 in 2019 to 1,402 in December 2023, with 143 BPRs closed due to poor financial performance, especially in terms of capital. As many as 53.5% of BPRs operate on the island of Java, with West Java having 224 BPRs, the third highest after East Java and Central Java, reflecting the high demand for local financial services that are not yet met by large banks.

In the era of digitalization and tight competition, BPRs face the challenge of innovating and adopting technology to compete with larger financial institutions. Other challenges include managing risky credit and keeping Non-Performing Loans (NPL) low. BPRs need to strengthen capital and maintain financial performance for business continuity. Innovation is needed to increase public trust. BPRs also support the micro economy, especially in rural areas. OJK supervises BPRs and sets minimum capital regulations, such as KPMM of 12% of ATMR and minimum core capital of IDR 6,000,000,000.00 (six billion rupiah) according to POJK number 5/POJK.03/2015.

The OJK regulation aims to strengthen the banking sector, especially BPR capital, so that it can compete and grow. In April 2023, the government passed Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector. This law states that the financial system includes financial service institutions, financial markets, and financial infrastructure that supports the economy. The stability of the financial system is regulated in this law, with the aim of preventing and handling financial system crises.

The number of BPRs decreased from 1,633 in 2016 to 1,402 in December 2023, mainly due to consolidation through mergers and amalgamations. However, the number of BPR branches increased by 333, to 1,938. Meanwhile, the number of BPRS increased to 174 in the same period.



Source: OJK, 2024 Figure 1. Development of the Number of BPR and BPRS, Total Assets, Credit, DPK of the BPR and BPRS Industry (2016 – 2023)

Although the number of BPRs has decreased, the performance of assets, credit, and thirdparty funds of BPRs and BPRSs continues to grow close to pre-pandemic levels. In December 2023, total assets increased by 7.8% yoy to IDR 218,161 billion, credit grew by 9.8% to IDR 157,816 billion, and third-party funds increased by 9.1% to IDR 153,179 billion. Good management, such as maintaining CAR, NIM, ROA, ROE, and NPL, is needed to increase public trust and financial performance, which are important for the survival and stability of BPRs.

Research on BPR is interesting because of its role in financial inclusion, especially for MSMEs in rural areas. BPR excels in understanding local needs and adjusting services to community conditions. The small BPR business model faces different challenges, especially in risk management and competition with fintech. BPR's advantages include strict supervision by OJK and deposit guarantees from LPS, as well as close relationships with local communities. Based on this, this study is entitled "The Effect of CAR, NPL, LDR, and DPK on ROE at BPR in West Java."

Problems in this research can be as follows:

- 1. Does Capital Adequacy Ratio (CAR) affect ROE?
- 2. Does the non-performing loan (NPL) ratio affect ROE?
- 3. Does the Loan Deposit Ratio (LDR) affect ROE?
- 4. Do Third Party Funds affect ROE?
- 5. Do the Capital Adequacy Ratio (CAR), NPL, LDR and Third Party Funds together affect ROE?

Where a research conducted by a researcher will have a purpose. Therefore, this research has the following research objectives:

1. To determine and analyze the effect of Capital Adequacy Ratio (CAR) on ROE.

- 2. To determine and analyze the effect of the non-performing loan (NPL) ratio on ROE.
- 3. To determine and analyze the influence of the Loan Deposit Ratio (LDR) on ROE.
- 4. To determine and analyze the influence of Third Party Funds on ROE.
- 5. To determine and analyze the influence of Capital Adequacy Ratio (CAR), NPL, LDR and Third Party Funds together on ROE.

METHOD

Signal Theory

According to Brigham and Houston (2019), signal theory is a management action that gives investors clues about the company's prospects. A positive signal in the financial report indicates good performance, thus attracting investors and increasing Third Party Funds such as savings and deposits. Conversely, a negative signal indicates a decline in performance, which can be bad news for investors.

According to Spence in Nursanita (2019:157), Signal Theory explains that the sender (information owner) provides a relevant signal, and the recipient adjusts their behavior based on their understanding of the signal.

Capital

Sawir (2015) defines working capital as all current assets used to finance company operations. Kasmir (2018) refers to business capital as money or assets used to trade or generate wealth. According to Meij in Riyanto (2015), capital is a collection of capital goods in the debit balance sheet that function productively in generating income.

Capital Adequacy Ratio

According to Harahap (2015:307), Capital Adequacy Ratio (CAR) shows the adequacy of capital set by the regulatory agency to assess the security and health of the company in terms of capital. Hasibuan in Wardiah (2018:297) explains that CAR reflects the ability of capital to cover losses on credit and investment. The BIS standard sets a minimum CAR of 8%. Latumaerisa (2014:75) adds that CAR ensures that banks can overcome losses, thereby maintaining bank stability.

$$CAR = \frac{Capital}{Risk Weighted Assets} x 100\%$$

NPL (Non Performing Loan)

According to PSAK No. 31 (Indonesian Institute of Accountants, 2016), non-performing loans are non-performing loans whose principal or interest installment payments are 90 days or more late after maturity, and the payments are doubtful. Djohanputro (2015) explains that Non-Performing Loans (NPL) include substandard, doubtful, and bad loans according to Bank Indonesia criteria. Ismail (2016) adds that NPL is a loan that cannot be paid by the customer according to the agreement.

RESULTS AND DISCUSSION

This section contains data (in brief form), data analysis, and interpretation of the results. Results can be presented in tables or graphs to clarify the results verbally because sometimes the display of an illustration is more complete and informative than the display in narrative form.

This section must answer the problems or research hypotheses that have been formulated previously.

$$NPL = \frac{\text{Total Non Performing Loan}}{\text{Total kredit}} x \ 100\%$$

Loan Deposit Ratio (LDR)

Loan Deposit Ratio (LDR) measures the bank's ability to provide credit from third-party funds collected. LDR shows the proportion of funds distributed in the form of credit. The level of bank liquidity is influenced by the LDR value; the higher the LDR, the lower the liquidity, which can make it difficult to fulfill short-term obligations. Conversely, a low LDR indicates high liquidity, but many funds are deposited, reducing potential income. According to PBI No. 17/11/PBI/2015, the LDR standard ranges from 78% to 92%. According to Ismail (2018:42), Gustaf (2016), Ni Putu (2018) the formula used is:

$$LDR = \frac{Amount of Credit Given}{Total Third Party Funds} x 100\%$$

Third- party funds

Funds are a key factor in the operation of financial institutions, and without sufficient funds, financial institutions cannot function. Funds include cash and assets that can be immediately converted into cash, which comes from owners and deposits from the public.

Third Party Funds (TPF) are funds obtained from the public through savings, current accounts, and deposits. According to Bank Indonesia Regulation No. 10/19/PBI/2008, TPF is a bank's obligation to residents in rupiah and foreign currency, and is usually used to fund real sector activities through credit distribution. TPF also includes the same instruments in sharia and conventional banking, such as current accounts, savings, and deposits.

DPK = Savings + Current Account +

Profitability

Company profitability is a measure to assess the level of return from investment activities (Arindita, 2015). Firaus et al. (2016) stated that profitability reflects the company's ability to make a profit. The higher the profit obtained, the greater the return expected by investors, thereby increasing the company's value. According to Santoso and Priatinah (2016), profitability is also related to sales, total assets, and equity, and reflects the level of net profit achieved by the company in its operations.

 $ROE (Return On Equity) = \frac{Profit After Tax}{Average Equity}$

Deposit

Deposits, according to the Sharia Banking Law No. 21 of 2008, are investment funds based on a mudharabah contract or other sharia contracts, the withdrawal of which is carried out at a certain time according to the agreement with the sharia bank. Kasmir (2018) explains that deposits are a place of investment in the form of securities, where the owner is called a depositor and receives a higher interest rate than current accounts or savings, so they are considered expensive funds for banks. Andika (2019) states that deposits are third-party deposits in banks with a certain period of time.

Framework of Thinking and Hypothesis



Based on this framework of thought, the following research hypothesis can be formulated:

- 1. There is an influence of the Capital Adequacy Ratio (CAR) on ROE.
- 2. There is an influence of the non-performing loan (NPL) ratio on ROE.
- 3. There is an influence of the LDR ratio on ROE .
- 4. There is an influence of Third Party Funds on ROE.
- 5. There is an influence of the Capital Adequacy Ratio (CAR), NPL and Third Party Funds which together have an effect on ROE.

This study uses a quantitative approach, which involves measuring, calculating, and analyzing numerical data. This type of research is descriptive and associative. Descriptive research aims to describe the facts and characteristics of a population or area systematically and accurately.

(Ginting, 2018:55). While it is said to be associative research because this research connects two or more variables. (Ginting, 2018:57)

According to Sugiyono (2018:115) population is an area consisting of: objects or subjects that have certain qualities and characteristics that are determined by researchers to be studied and then conclusions are drawn. The number of BPR populations in the West Java region is 224. (two hundred and twenty-four) Rural Credit Banks (BPR). Determination of samples using the Purposive sampling method with the following conditions :

Table 1. Research Sample					
No	Information				
1	Total BPR Population in West Java	224 BPR			
2	BPRs that do not have published reports 5 BPRs (224-5)	219 BPR			
3	BPR Paid-up capital less than IDR 6 billion 112 BPR (219-112)	107 BPR			
4	BPR Paid-up capital less than IDR 15 billion 67 BPR (107-67)	40 BPR			
5	BPR Paid-up capital less than IDR 40 billion 27 BPR (40-27)	13 BPR			

There are 13 BPRs that meet the criteria with 5 (five) years of historical data so that the data used is (5x13) = 65 historical data.

Data Analysis Results

- a. Analysis Test Assumptions Classic
 - 1) Normality Test



From the normality test table above, it shows that the Jarque prob values are >0.05. So it can be concluded that the data in this study are normally distributed.

Table 2. Multicollinearity Test Results					
	Coefficient	Uncentered	Centered		
Variable	Variance	VIF	VIF		
С	17.61534	32.21307	NA		
CAR_X1	0.001453	4.523926	1.738869		
NPL_X2	0.043831	2.369390	1.048565		
LDR_X3	0.000902	12.17518	1.222470		
DPK_X4	4.705283	6.090050	1.638253		
VAR	VIF	1/VIF			
CAR_X1	1.738869	0.575086			
NPL_X2	1.048565	0.953684			
LDR_X3	1.22247	0.818016			
DPK_X4	1.638253	0.610406			

2) Multicollinearity Test

Source: Eviews 12.0 Panel Data Regression Output

Based on the table above, it can be concluded that the data is free from multicollinearity because the centered VIF value is <10.

3) Autocorrelation Test

The autocorrelation results in this study using the Durbin-Watson test are:

Table 3. Autocorrelation						
	Test l	Results				
Dependent Variable: Y_ROE	Dependent Variable: Y_ROE					
R-squared	0.8744	Mean dependent variable	92.33611			
Adjusted R-squared 0.8723		SD dependent var	97.74118			
SE of regression	2E+06	Akaike information criterion	31.53841			
Sum squared residual	9.54	Black criterion	31.70729			
Log likelihood	-626.77	Hannan-Quinn critter.	31.59947			
F-statistic	456.51	Durbin-Watson stat	1.925869			
Prob(F-statistic) 0						

Source: Data processed by Eviews 12.0

Based on the table above, the autocorrelation test indicates that the data is free from autocorrelation problems because the Dwatson value = 1.92 between the values 1.55 - 2.46.

4) Heteroscedasticity Test

Table 4.	Heteroscedasticity Test
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Heteroskedasticity Test: Glejser	
Null hypothesis: Homoskedasticity	

F-statistic	3.459574Prob. F(4,10)	0.0637
Obs*R-squared	3.445757Chi-Square Prob.(4)	0.0634
Scaled explained SS	2.941371Chi-Square Prob.(4)	0.0863

Source: Data processed by Eviews 12.0

From the results of the Heteroscedasticity test using the Glejser method, the Chi-Squared Prob. value is 0.0863 > 0.05 so it can be concluded that there is no Heteroscedasticity symptom.

b. Multiple Linear Regression Method

Table 5. Multiple Linear Regression Test Dependent Variable: Y_ROE						
Variable	Coefficient	Std. Error	t-Statistic	Prob.		
С	1.338143	0.234998	5.694277	0		
X1 CAR	0.454655	0.061043	7.448096	0		
X2 NPL	-0.69246	0.220766	-3.13663	0.0029		
X3 LDR	-0.01023	0.003377	-3.03001	0.003		
X4 ^{DPK}	0.007801	0.003333	2.340716	0.02		

Source: Data processed by Eviews 12.0

12 data above, the regression equation is as follows:

Y = 1.33+0.45CAR-0.69NPL-0.01LDR+0.007DPK +e

constant value is 1.338143 This means that if $CAR(X_1)$, NPL (X_2) , LDR (X_3) , and DPK (X_4) , then the value of ROE (Y) is 1.338143.

The CAR regression coefficient (X1) of 0.454655 shows that every 1 unit increase in CAR will decrease ROE by 0.454655.

The NPL regression coefficient (X2) of -0.69246 means that every 1 unit increase in NPL will decrease ROE (Y) by -0.69246.

The regression coefficient of the LDR variable (X3) is -0.01023, meaning that every 1 unit increase in LDR will increase ROE (Y) by -0.01023.

The regression coefficient of DPK (X4) of 0.007801 means that every 1 unit increase in DPK will increase ROE (Y) by 0.007801.

c. Analysis of Panel Data Regression Model Results 1) Partial Test (t)

Table	6.	Partial	Test	(t)
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-test

Dependent Variable: Y_ROE							
Variable	Coefficient	Std. Error	t-Statistic	Prob.			
С	1.338143	0.234998	5.694277	0			
X1 CAR	0.454655	0.061043	7.448096	0			
X2 NPL	-0.69246	0.220766	-3.13663	0.0029			
X3 ⁻ LDR	-0.01023	0.003377	-3.03001	0.003			
X4_DPK	0.007801	0.003333	2.340716	0.02			

Source: Data processed by Eviews 12.0

H_{a1}: Ha1 is accepted CAR t-test. CAR has a positive and significant effect on ROE. CAR Coefficient Value (X1) : 0.454655, t-Statistic : 7.448096 and Probability 0.0000 < 0.05H_{a2}; Ha2 is accepted NPL t-test . NPL has a negative effect and significant to ROE. NPL Coefficient (X2) : -0.69246, t-Statistic - 3.13663, Probability 0.0029 < 0.05

H_{a 3}: Ha3 is accepted. The LDR t-test has a negative and significant effect on ROE. LDR Coefficient (X3): -0.01023, t-Statistic : -3.03001, Probability 0.003 < 0.05H_{a 4}: Ha4 is accepted. The t-test of DPK has a positive and significant effect on ROE. DPK Coefficient (X4): 0.007801, t-Statistic : 2.340716, Probability 0.02 < 0.05

2)F Test (Simultaneous)

		muntancous r 1 cst	
Dependent Variable: Y_ROE			
R-squared	0.874387	Mean dependent variable	9233611
Adjusted R-squared	0.872252	SD dependent var	9774118
SE of regression	1628133	Akaike information criterion	31.53841
Sum squared residual	9.54E+13	Black criterion	31.70729
Log likelihood	-626,768	Hannan-Quinn critter.	31.59947
F-statistic	456.5097	Durbin-Watson stat	1.925869
Prob(F-statistic)	0		

Table 7 Simultaneous F Test

Based on the table above, the probability value is 0.000 < 0.05. This shows that the CAR, NPL, LDR, and DPK variables simultaneously have a significant effect on ROE.

3) Coefficient of Determination Test

Table 8. Determination Coefficient Test

Dependent Variable: Y_ROE

0.874387Mean dependent variable	9233611
0.872252SD dependent var	9774118
1628133 ^{Akaike} information	31.53841
9.54E+13Black criterion	31.70729
-626.7681Hannan-Quinn critter.	31.59947
456.5097Durbin-Watson stat	1.925869
0	
	0.874387Mean dependent variable 0.872252SD dependent var 1628133 ^{Akaike} information criterion 9.54E+13Black criterion -626.7681Hannan-Quinn critter. 456.5097Durbin-Watson stat 0

Source: Data processed by Eviews 12.0

it can be concluded that the R-squared is 0.874 or 8.7,4 %, meaning that the influence of the CAR, NPL, LDR and DPK on ROE by 8.7, 4% and the remaining 1.2, 6 % is influenced by variables not studied.

CONCLUSION AND SUGGESTION

Conclusion

Based on the chapter of analysis and discussion results, the author will draw conclusions from the results of this study. The conclusions from the results of this study are as follows:

- 1) CAR has a positive and significant influence on the ROE variable.
- 2) NPL has a negative and significant impact on ROE
- 3) LDR has a negative and significant effect on ROE
- 4) DPK has a positive and significant influence on ROE
- 5) CAR, NPL, LDR and DPK simultaneously have a significant influence on ROE.

Suggestion

The suggestions are as follows: For companies:

- 1) BPRs need to maintain an adequate capital adequacy ratio (CAR) for operational stability and strengthen credit risk management to reduce NPLs, thereby increasing profitability (ROE).
- 2) Management must maintain a balance between asset growth, liquidity and credit risk by implementing a prudent credit policy and ensuring the availability of capital to face economic challenges.
- 3) Funds collected from third parties must be managed wisely to maximize interest income, reduce interest expenses, and increase net profit.

For Investors :

- 1) Investors should consider the capital adequacy ratio (CAR), non-performing loan (NPL) level, loan to deposit ratio (LDR), and DPK management as important indicators in assessing the risk and potential return on investment in BPR.
- 2) The NPL ratio should be a primary concern as it reflects the quality of bank assets and has the potential to impact profitability, so investors need to be careful before investing.

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