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The Influence of Capital Adequacy Ratio, Loan to Deposit Ratio, and Net Interest Margin on Return on Asset at Bank Jabar Banten

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Abstract

Based on the results of observations, this research is motivated by the fluctuating phenomenon in these ratios and the discrepancy with the theory put forward by experts. This study aims to find out how the effect of CAR on ROA at Bank BJB, find out how the influence of LDR on ROA at Bank BJB, find out how the influence of NIM on ROA at Bank BJB, and find out how the influence of CAR, LDR, and NIM simultaneously on ROA at Bank BJB. The object of research in this thesis is the ratio of CAR, LDR, and NIM to ROA. The type of research is quantitative with an associative approach with secondary data types and uses data collection techniques in the form of documentation and literature study. While taking the sample using purposive sampling technique. The population is Bank BJB quarterly financial report data for the 2017-2021 period. The results of the study show that there is no significant and negative effect between CAR on ROA at Bank BJB, there is no significant effect between LDR on ROA at Bank BJB and in a negative direction, but there is a significant effect between NIM on ROA at Bank BJB.Simultaneously there is no effect between CAR, LDR, and NIM on ROA at Bank BJB.

Keywords: *Capital Adequacy Ratio, Loan to Deposit Ratio, Net Interest Margin, Return on Asset*.

1. Introduction

Banking is a sector that has an influence on economic development in Indonesia. The attractiveness of banking can be seen in terms of its benefits. Banks can become a public medium in allocating their funds effectively and efficiently, meanwhile banks also provide services and facilitate the community in payment traffic so that the economy runs well. Banks become financial intermediaries or become liaisons for people who have excess funds with those who need them. Banks collect funds from customers in the form of deposits and channel them back into loans or other forms with the aim of supporting the improvement of people's living standards (Wahlen et al., 2022)

Even though Indonesia is a country hit by the Covid-19 pandemic, economic stability in the banking sector has continued to improve since August and is said to be safe by the OJK (Financial Services Authority). In the SPI (Indonesian Banking Statistics) as of October 2021 proposed by the OJK, third party funds in commercial banks increased by 0.8% (Fakhri & Darmawan, 2021).

Banks as financial institutions that have an important role in economic activity, and have other duties, namely agents of trust, require trust from customers to support banking activities. To maintain this trust, a series of analyzes are needed to detect the risk of bank failure as early as possible by looking at banking performance. The assessment of banking performance uses a measuring instrument set by Bank Indonesia as a standardization of the ability of a bank to gain profits from all bank assets and their management capabilities (Sudarmawanti & Pramono, 2017).

In assessing the ability of banks to generate profits, it can be seen from the analysis of financial ratios. The analysis is carried out by taking data for the entire accounting period that is needed from the financial statements. The financial ratios such as the ratio of profitability, solvency, liquidity and others.

The profitability ratios are useful in measuring bank skills in obtaining a stable profit from operational activities (Kewo & Afiah, 2017), the indicators used are Net Interest Margin (NIM) and Return on Assets (ROA) (Astuti & Husna, 2020). Capital or capital factors can use the Capital Adequacy Ratio (CAR), which is the ratio used to determine the bank's ability to finance operational activities using the capital it has (Bateni et al., 2014). The liquidity ratio is no less important for bank operations, this ratio uses the Loan to Deposit Ratio (LDR) to be calculated (Sudarmawanti & Pramono, 2017).

Efforts to maintain good performance were also carried out by Bank Jabar Banten, namely a bank owned by the West Java Provincial Government and the Banten Provincial Government. Bank Jabar Banten is also one of the Foreign Exchange Commercial Banks in Indonesia based on the Decree of the Board of Directors of Bank Indonesia Number 25/84/KEP/DIR. As with banks in general, there are asset and financing developments that strengthen Bank Jabar Banten. But in fact there are fluctuations in financial ratios at Bank Jabar Banten as shown in Table 1:

Table 1: CAR, LDR, NIM and ROA Ratios at Bank Jabar Banten 2017 – 2021

Period	Quarter	CAR (%)	Fluctuation (%)	LDR (%)	Fluctuation (%)	NIM (%)	Fluctuation (%)	ROA (%)	Fluctuation (%)
2017	I	17.04	-	80.24	-	6.51	-	2.32	-
	II	15.66	-8.09	85.85	6.99	6.76	3.84	2.40	3.4
	III	16.36	4.46	81.50	-5.06	6.73	-0.44	2.21	-7.9
	IV	18.77	14.73	87.27	7.07	6.76	0.44	2.01	-9.04
2018	I	17.33	-7.6	81.63	-6.46	5.99	-11.39	2.08	3.4
	II	17.44	0.63	86.45	5.90	6.31	5.3	2.06	0.96
	III	17.53	0.51	88.25	2.08	6.52	3.32	2.08	0.96
	IV	18.63	6.2	91.89	4.12	6.37	-2.23	1.71	-17.7
2019	I	19.00	1.98	89.00	-3.14	6.00	-5.8	2.00	4.15
	II	16.94	-10.8	87.10	-2.13	5.75	-4.16	1.80	-10
	III	16.62	-1.88	88.06	1.10	5.69	-1.04	1.68	-6.66
	IV	17.71	6.55	97.81	11.07	5.75	1.04	1.68	0
2020	I	17.08	-3.55	93.58	-4.32	5.54	-3.65	1.80	7.14
	II	16.72	-2.10	94.56	8.04	5.65	1.98	1.65	-8.3
	III	16.59	-0.77	78.37	-17.12	5.52	-2.30	1.61	-2.42
	IV	17.31	4.3	86.32	10.14	5.39	-2.35	1.66	3.10
2021	I	17.05	-1.50	84.37	-2.25	5.53	2.59	1.67	0.60
	II	16.86	-2.21	80.92	-4.08	5.60	1.26	1.61	-3.59
	III	17.71	5.04	78.27	-3.27	5.66	1.07	1.64	1.86
	IV	17.78	0.39	81.68	4.40	5.84	3.18	1.73	5.48

2. Literature Review

2.1. Capital Adequacy Ratio

Siddiqi, N. (2012) defines that, CAR is a ratio that is used as a measure of risk that will occur in providing credit to customers (Siddiqi, 2012). Meanwhile, according to Ichsan et al., (2021), CAR is a ratio that states the amount of an asset that has risks including credit, receivables from other banks and so on in addition to obtaining funds from other sources that are also financed by own capital (Ichsan, et al., 2021). Furthermore, in PBI Number 15/12/PBI/2013, CAR is the ratio of capital to RWA that must be provided by commercial banks (Anggriani & Muniarty, 2020).

CAR will show a decrease that occurs in bank assets and can be covered by capital or net assets owned by each bank. The higher the CAR percentage, the better the condition of the bank (Masyud Ali, 2014). The criteria for CAR assessment are stated in the regulations stated in Bank Indonesia 15/12/PBI/2013 for banking and currently the minimum amount is 8% which is stated in the CAR ratio of Risk Weighted Assets (RWA). The following are the evaluation criteria (Anggriani & Muniarty, 2020):

Table 2: CAR Assessment Criteria

Rating	Criteria	Predicate
1	CAR > 12%	Very healthy
2	9% ≤ CAR < 12%	Healthy
3	8% ≤ CAR < 9%	Healthy enough
4	6% ≤ CAR < 8%	Not healthy enough
5	CAR ≤ 6%	Not healthy

2.2. Loan to Deposit Ratio

LDR is a ratio in the banking world that affects the good or bad performance of banks, especially in the credit department. Saleh & Winarso, (2021) defines, LDR is an equality that is compared between the total credit disbursed with the amount of a Third Party Fund (DPK) that has been collected by the bank (Saleh & Winarso, 2021).

According to Wibowo & Aumeboonsuke, (2020) the definition of LDR is to explain the ratio that is useful as an assessor of the ratio of the amount of a credit loan given in accordance with the amount of public funds and bank capital used (Wibowo & Aumeboonsuke, 2020). Furthermore, according to Sudarmawanti and Pramono (2017), LDR is a ratio at a bank that shows the ability of a bank to repay customer funds by using credit that is channeled as a

source of liquidity, meaning that the total credit provided can be balanced with the obligations of the bank to fulfill customer demand for funds that have been made. used by banks as a source of funds for lending to other customers (Sudarmawanti & Pramono, 2017).

Meanwhile, in PBI Number 15/7/PBI/2013 concerning Statutory Reserves for Commercial Banks at Bank Indonesia in Foreign Currencies, LDR is the ratio of loans granted to third parties in rupiah and foreign currencies, excluding loans to other banks, to third party funds, which covers demand deposits, savings, and time deposits and does not include interbank funds (Minimum Statutory Reserves for Commercial Banks at Bank Indonesia in Rupiah and Foreign Currency, 2013).

With a high LDR ratio, it shows the low liquidity capacity of the bank so that it allows the bank to be in a bad condition, and if the LDR ratio is low, it means that the bank's effectiveness in lending is not good so that the profit obtained will decrease (Sudarmawanti & Pramono, 2017). The LDR assessment criteria are listed based on PBI Number 15/7/PBI/2013, a bank is considered healthy if the LDR is between 85% and 100%. The description of the assessment criteria is as follows (Minimum Statutory Reserves for Commercial Banks at Bank Indonesia in Rupiah and Foreign Currency, 2013):

Table 3: LDR Assessment Criteria

Rating	Criteria	Predicate
1	LDR ≤ 75%	Very healthy
2	75% < LDR ≤ 85%	Healthy
3	85% < LDR ≤ 100%	Healthy enough
4	100% < LDR < 120%	Not healthy enough
5	LDR > 120%	Not healthy

2.3. Net Interest Margin

NIM is a ratio that is quite considered in bank profitability. Ernayani et al., (2017) explained that, NIM is a ratio that is used to measure bank management in managing its productive assets (Ernayani et al., 2017).

Meanwhile, (Louzis & Vouldis, 2015), explains that NIM is a ratio used as a means for assessing the ability of banks to obtain a net interest income resulting from the management of existing productive assets1. The NIM value reflects the good bank management in managing productive assets so as to obtain high net interest income. Furthermore, in PBI Number 13/24/DNDP/2011, NIM is the result of calculating net interest with productive assets that generate interest in the balance sheet (Assessment of the Soundness Level of Commercial Banks, n.d.). Net interest income is the difference between interest income and interest expense. For productive assets, the calculated assets are derived from assets that generate interest, including loans, placement of funds in other banks, and other sources.

The higher the NIM ratio value, the better the bank's performance in managing its productive assets so that it generates high interest income, and vice versa if the NIM ratio is low, it shows low net interest income and bank management of productive assets is less than optimal. The criteria for assessing the best standard of NIM from the banking average is 3%, with the following description (Assessment of Soundness Level of Commercial Banks, n.d.) :

Table 4: NIM Assessment Criteria

Rating	Criteria	Predicate
1	NIM > 3%	Very healthy
2	2% ≤ NIM < 3%	Healthy
3	1.5% ≤ NIM < 2%	Healthy enough
4	1% ≤ NIM< 1.5%	Not healthy enough
5	NIM ≤ 1%	Not healthy

2.4. Return on Asset

In order to assess the skills of a bank and the effectiveness of management in generating profits from capital management, it is necessary to calculate the profitability ratio. One of the profitability is ROA. According to Saleh & Winarso, (2021), ROA is a ratio to assess profitability by showing the return on the amount of assets used. This means that ROA is also a ratio that shows the amount of profit obtained from the number of assets owned by the bank (Saleh & Winarso, 2021). As one way of analyzing financial statements, the overall nature of ROA has an important meaning in this regard. According to Ernayani et al., (2017), ROA can also be understood as a ratio that reflects the comparison between profit before tax and total bank assets, the level of efficiency in the bank in managing all its assets can also be measured by this ratio (Pandia, 2012). Furthermore, in PBI Number 13/24/DNDP/2011, ROA is the ratio of the ratio of the total profit to the average total assets Assessment of Soundness Level of Commercial Banks, n.d.).

The higher the ROA ratio of the bank, the higher the profit obtained by the bank and the better the position of the bank in managing its assets. The ROA Ratio assessment criteria have been regulated by Bank Indonesia with the following table description (Assessment of Soundness Level of Commercial Banks, n.d.) :

Table 5: ROA Assessment Criteria

Rating	Criteria	Predicate
1	ROA < 1.5%	Very healthy
2	1.25%-1.5%	Healthy
3	0.5%- 1.5%	Healthy enough
4	0% ≤ 0.5%	Not healthy enough
5	ROA ≤ 0%	Not healthy

3. Materials and Methods

3.1. Materials

The object of this study is the Bank BJB Financial ratio report for the 2017-2021 period. The data is taken from quarterly financial reports published by Bank Jabar Banten. The type of research used in this study is quantitative with an associative approach.

In this study, there was secondary data which was obtained directly from the official website of Bank BJB and the official website of OJK, namely the 2017-2021 quarterly financial reports, a brief history of the company, and other information.

Meanwhile, to analyze the data, Multiple Correlation Analysis, Multiple Regression Analysis, Coefficient of Determination Analysis, t-test, and F-test were carried out.

3.2. Methods

Formulas that are used in data analysis, as follows:

1) Capital Adequacy Ratio
   There is a formula for calculating CAR according to (Darmawi, 2014) , as follows :

$$\text{CAR} = \frac{Bank's\ Capital}{Risk-Weighted\ Assets} \times 100\%$$

2) Loan to Deposit Ratio
   The LDR calculation formula according to (Riyadi, 2015) , as follows

$$\text{LDR} = \frac{Total\ Loans}{Total\ Deposits} \times 100\%$$

3) Net Interest Margin
   The following is the formula for calculating the NIM ratio according to (Pandia, 2012) , as follows :

$$\text{NIM} = \frac{Investment\ returns - Interest\ expenses}{Average\ Earning\ Assets} \times 100\%$$

4) Return on Asset
   The formula used to calculate ROA according to (Pandia, 2012) **,** as follows :

$$\text{ROA} = \frac{Net\ Income}{Total\ Asset} \times 100\%$$

4. Results and Discussion

4.1. The Influence of Capital Adequacy Ratio on Return on Asset at Bank Jabar Banten

To find out whether or not the effect of CAR on ROA, the researchers tested the hypothesis through the analysis of the coefficient of determination and t-test.

1) Coefficient of Determination Analysis
   Based on the calculation of the coefficient of determination analysis, it is known that the value of R^2 is 0.0338 or 3.38%. So it can be concluded that CAR has an effect on ROA of 3.38% and the remaining 96.62% is influenced by other variables not examined.
2) t-Test
   The t-test was conducted to determine the magnitude of the effect of CAR on ROA partially, and it is known that the t-count value of CAR is -0.794 with a t-table value (df=n-k=20-3=17) of 1.73961 with a significance of 0.05 so that the obtained value tcount < ttable (0.794 < 1.73961). So it can be concluded that H1 is rejected and H0 is accepted, then CAR has no significant effect on ROA and the direction is negative.

4.2. The Influence of Loan to Deposit Ratio on Return on Asset at Bank Jabar Banten

1) Coefficient of Determination Analysis
   Based on the calculation of the coefficient of determination analysis, it is known that the value of R^2 is 0.026 or 2.6%. So it can be concluded that LDR has an effect on ROA of 2.6% and the remaining 97.4% is influenced by other variables not examined.
2) t-Test
   The t-test was conducted to determine the magnitude of the effect of LDR on ROA partially, and it is known that the t-count LDR value is equal to the t-table value (df=n-k=20-3=17) of 1.73961 with a significance of 0.05 so that the value of tcount < t table (0.705 < 1.73961). It is concluded that H1 is rejected and H0 is accepted, then LDR has no significant effect on ROA and the direction is negative.

4.3. The Influence of Net Interest Margin on Return on Asset at Bank Jabar Banten

1) Coefficient of Determination Analysis
   Based on the calculation of the coefficient of determination analysis, it is known that the value of R^2 is 0.64 or 64%. So it can be concluded that NIM has an effect on ROA by 64% and the remaining 36% is influenced by other variables not examined.
2) t-Test
   The t-test was conducted to determine the magnitude of the effect of NIM on ROA partially, and it is known that the t-count value of NIM is 5.65 with a t-table value (df=n-k=20-3=17) of 1.73961 with a significance of 0.05 so that the t-count value is obtained. < t table (5.65 > 1.73961). It is concluded that H1 is accepted and H0 is rejected, then NIM has a significant effect on ROA and the direction is positive

4.4. The Influence of Capital Adequacy Ratio, Loan to Deposit Ratio, and Net Interest Margin on Return on Asset at Bank Jabar Banten

To determine the effect of CAR, LDR, and NIM on ROA at Bank Jabar Banten for the 2017-2021 period, it can be seen using multiple correlation analysis, multiple regression analysis, coefficient of determination analysis and F test.

1) Multiple Correlation Analysis
   Multiple correlation analysis aims to determine the magnitude of the relationship between the independent variable and the dependent variable. Based on the calculation, it was obtained that r of 0.838 means that the relationship between CAR, LDR, and NIM, to ROA at Bank BJB for the period 2017-2021 has a moderate relationship.
2) Multiple Regression Analysis
   Based on calculations using matrix equations, multiple regression models can be obtained as follows :

$$Y = \alpha + x_1b_1 + x_2b_{2\,+}\, x_3b_3$$

$$Y = -0.44288 + 0.00015\ x_1 - 0.00523\ x_2 + 0.46064\ x_3$$

   a. If CAR, LDR, and NIM are considered constant then ROA is -0.44288.
   b. The value of the coefficient b1 = every one unit increase in the value of the variable x1 (CAR) then the variable y (ROA) will increase by 0.00015.
   c. The value of the coefficient b2 = every one unit increase in the value of the x2 variable (LDR) then the y variable (ROA) will decrease by 0.00523.
   d. The value of the coefficient b3 = every one unit increase in the value of the x3 variable (NIM) then the y variable (ROA) will increase by 0.46064.
3) Coefficient of Determination Analysis
   Based on the calculation of the coefficient of determination analysis, the coefficient of determination is 0.165 or 16.5%. Thus, CAR, LDR, and NIM affect ROA by 16.5% and the remaining 83.5% is influenced by variables not examined.
4) F Test
   The F test is used to determine the effect of CAR, LDR, and NIM on ROA simultaneously. Based on the calculation, the Fcount value is 0.0041 and the Ftable value (df1 = k-1, df2 = n-k-1) is 3.63. Thus Fcount < Ftable (0.0041 < 3.63), meaning that H1 is rejected.

5. Conclussion

Based on the results of research on the effect of the influence of CAR, LDR, and NIM on ROA at Bank Jabar Banten Period 2017-2021 at Bank Jabar Banten, it can be concluded that:

1) There is no influence and a negative direction between CAR and ROA at Bank BJB. This can be seen from the results of the CAR tcount value of -0.794 with a t-table value (df=n-k=20-3=17) of 1.73961 with a significance of 0.05 so that the value of tcount < ttable (0.794 < 1.73961). And the value of R^2 is 0.0338 or 3.38%. So it can be

concluded that CAR has an effect on ROA of 3.38% and the remaining 96.62% is influenced by other variables not examined.

2) There is no influence and a negative direction between LDR and ROA at Bank BJB. This can be seen from the results with a t-table value (df=n-k=20-3=17) of 1.73961 with a significance of 0.05 so that the value of tcount < ttable (0.705 < 1.73961). And the magnitude of the value of R^2 is 0.026 or 2.6%. So it can be concluded that LDR has an effect on ROA of 2.6% and the remaining 97.4% is influenced by other variables not examined.
3) There is a positive influence and direction between NIM on ROA at Bank BJB. With the results of the calculation of the NIM tcount value of 5.65 with a t-table value (df=n-k=20-3=17) of 1.73961 with a significance of 0.05 so that the value of tcount < ttable (5.65 > 1.73961). And the magnitude of the value of R^2 is 0.64 or 64%. So it can be concluded that NIM has an effect on ROA by 64% and the remaining 36% is influenced by other variables not examined.
4) There is no effect between CAR, LDR and NIM on ROA at Bank BJB simultaneously with the results of the calculated F value < F table of (0.0041 <3.63) and a significance of 0.05. With the results of the coefficient of determination of 0.165 or 16.5%. Thus, CAR, LDR, and NIM affect ROA by 16.5% and the remaining 83.5% is influenced by variables not examined.

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