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Impact of Return on Assets, Net Interest Margin, and Loan-to-Deposit Ratio on Capital Adequacy Ratio

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Abstract:
Bank operations can run smoothly if there is sufficient capital. The Financial Services Authority (OJK) issued OJK Regulation No. 12/POJK.03/2020 concerning the Reconsolidation of Commercial Banks. This regulation stipulates a minimum core capital of IDR 3 trillion for commercial banks, with a deadline of 2022, and for regional development banks (BPD) until 2025. According to detikFinance's 2021 data, Bank SulutGo is among the 15 regional banks that have a core capital shortfall of IDR 1.3 trillion. This study aimed to determine the impact of return on assets (ROA), net interest margin (NIM), and loan-to-deposit ratio (LDR) on capital adequacy ratio (CAR) from the audited 2011–2021 quarterly financial statements. This research can help understand the phenomenon occurring at Bank SulutGo and provides recommendations on how banks can improve their capital adequacy. This analysis can provide insight into how these variables interact and impact Bank SulutGo's capital adequacy. It can also make important contributions to the literature on banking financial management, particularly in the Indonesian context. The analysis used multiple linear regression. The results show that ROA, NIM, and LDR significantly affect overall CAR. Individually, ROA and LDR have a positive impact, whereas NIM has a negative impact on CAR. R2 of 0.227, 22.7% of Bank SulutGo's CAR variation in 2011–2021, is explained by variations in ROA, NIM, and LDR, whereas other influencing factors constitute 77.3%.

Keywords: capital adequacy ratio, loan-to-deposit ratio, net interest margin, return on assets.

资产收益率、净息差、存贷比对资本充足率的影响

摘要：
如果资本充足，银行业务就能顺利运转。金融服务管理局(奥杰克)发布了关于商业银行重组的第 12/POJK.03/2020 号奥杰克条例。该法规规定商业银行的核心资本最低为 3 万亿印尼盾，截止日期为 2022 年，区域开发银行(边缘性 PD)的核心资本最低为 3 万亿印尼盾，截止日期为 2025 年。根据德蒂克金融 2021 年的数据，苏鲁特戈银行是拥有核心资本的 15 家区域银行之一。资本缺口达 1.3 万亿印尼盾。本研究旨在从经审计的 2011-2021 季度财务报表中确定资产回报率（资产收益率）、净息差（尼莫）和贷存比（低密度脂蛋白）对资本充足率（车）的影响。这项研究有助于了解苏鲁戈银行发生的现象，并就银行如何提高资本充足率提供建议。该分析可以深入了解这些变量如何相互作用并影响苏鲁戈银行的资本充足率。它还可以对银行财务管理文献做出重要贡献，特别是在印度尼西亚背景下。该分析使用多元线性回归。结果表明，资产收益率、尼莫和低密度脂蛋白显着影响整体车。单独来看，资产收益率和低密度脂蛋白对车具有正向影响，而尼莫对车具有负向影响。右 2 为 0.227，占苏鲁特戈银行 2011 年至 2021 年车变化的 22.7%，可以通过资产收益率、尼莫和低密度脂蛋白的变化来解释，而其他影响因素则占 77.3%。

关键词：资本充足率、贷存比、净息差、资产回报率。

1. Introduction

To restore stability to the banking sector, the government is implementing a recapitalization program. In accordance with Law No. 10 of 1998 concerning banking, aspects of bank health are regulated by considering the five elements of CAMEL, namely Capital, Asset, Management, Earnings, and Liquidity, as well as the precautionary principle and other related factors. One of the most fundamental elements in the precautionary principle is the bank's capital adequacy ratio (CAR), which serves as a bulwark against potential risks (Astuti & Drajat, 2021; Hidayatullah, 2014). The level of capital owned has a direct impact on the bank's ability to conduct its operations (Nurhidayah & Purwitosari, 2013).

The Financial Services Authority (OJK) has implemented policies through the Financial Services Authority Regulation (POJK) No. 12/POJK.03/2020 concerning the reconsolidation of Commercial Banks, which requires banks to have a minimum core capital of IDR 3 trillion until 2022, and for regional development banks (BPD) until 2025. Banks with adequate capital can maintain smooth operations, especially when facing difficult liquidity situations (Sudaryanti et al., 2023). CAR was chosen as the main variable because it is considered by Bank Indonesia to be the most vital indicator of bank health. CAR is also affected by several factors, including profitability and liquidity. Similarly, profitability, as measured through return on assets (ROA) and net interest margin (NIM), is key to achieving minimum capital adequacy and becoming a sound CAR standard (Dewi & Cipta, 2022; Permatasari et al., 2020). Low liquidity can threaten credibility, whereas high liquidity can threaten profitability (Lutfi et al., 2021).

Indonesia, as a country with a strong banking system, shows interesting dynamics in terms of ROA, NIM, loan-to-deposit ratio (LDR), and CAR (Al Rasyid & Sosrowidigdo, 2022; Darmansyah, 2014; Syamsiah et al., 2021). ROA in Indonesia reached 2,775% in August 2023, showing a decrease from 2,787% in July 2023. ROA is an important indicator that shows how efficient a bank is in generating profits from its assets. NIM, which is an indicator of the NIM a bank generates from lending compared to the cost incurred to obtain funds, reached 4.968% in August 2023. This represents an increase from 4,946% in July 2023.

The LDR, which shows the proportion of funds lent by banks compared to the total funds they raise from customers, reached 85.078% in October 2023. This represents an increase from 83,922% in September 2023. The CAR, which shows how much capital banks have compared to their total risky assets, stands at 27.5% in October 2023. This represents an increase from 27.4% in September 2023 (Gultom & Sihombing, 2023).

Bank SulutGo, as a regional bank, is expected to be able to maintain a good CAR level, especially considering its status as one of the 15 regional banks experiencing a core capital shortage, which amounted to IDR 1.3 trillion in September 2021. This figure is still below the standard set by the OJK of Rp 3 trillion, as stipulated in POJK No. 12/POJK.03/2020, which requires banks to have a minimum core capital of Rp 3 trillion (Adriani & Umum, 2021).

Bank SuluGo's share ownership consists of 40.96% shares owned by the Provincial Government of North Sulawesi and Gorontalo, while the rest is owned by the city/regency government and PT. Mega Corpora through Chairul Tanjung. With a capital of Rp 1.3 trillion that has not met the OJK's minimum requirements for capital adequacy, it is a great concern for Bank SulutGo's business continuity. For example, if the ROA is low, this can indicate that the bank is inefficient in generating profits from its assets, which in turn can affect the CAR (Chatarine & Lestari, 2014). Similarly, a low NIM can indicate that the bank is unable to generate sufficient interest margins from lending, which can also affect the CAR (Pinasti & Mustikawati, 2018; Santoso & Firdausy, 2021). In

addition, a high LDR may indicate that banks have a high proportion of funds lent compared to the total funds they raise from customers, which can increase risk and potentially affect CAR (Ambarawati & Abundanti, 2018; Marismiati, 2021).

In this context, research on the effect of ROA, NIM, and LDR on CAR becomes very relevant. This analysis can provide insight into how these variables interact and impact Bank SulutGo's capital adequacy. Pratama (2018) shows that NIM, non-performing loans, ROA, LDR, operating expenses, and operating income together have a significant effect on CAR. Individually, NIM, non-performing loans, and ROA have a positive influence on CAR, whereas LDR, operating expenses, and operating income have a negative influence on CAR.

Therefore, this research can help understand the phenomenon occurring at Bank SulutGo and provides recommendations on how banks can improve their capital adequacy. It can also make important contributions to the literature on banking financial management, particularly in the Indonesian context.

2. Methods

This study employs a descriptive quantitative approach and uses measurement techniques on ROA, NIM, and CAR variables to formulate conclusions. Research design begins with a planning stage that includes problem identification, problem selection and formulation, and the formulation of hypotheses related to relevant theories and literature. The implementation of the research involves a series of research operations from the beginning to the stage of drawing conclusions.

This study used secondary, time series data from Bank SulutGo's quarterly report, covering the period from March 2011 to December 2021. Information regarding ROA, NIM, LDR, and CAR was obtained from the official OJK website (http://www.ojk.go.id). The research instrument in the form of a table containing the financial ratios of PT. Bank SulutGo was taken from the OJK's publications. This instrument acted as a tool to measure and collect data, which were the research focus (Azwar, 2016). The analysis method applied was multiple regression analysis, which was chosen to explain the effect of ROA, NIM, and LDR on CAR. In data analysis, the statistical tools used included EViews 12 Lite and Microsoft Excel as support.

Figure 1 demonstrates the research methodology.

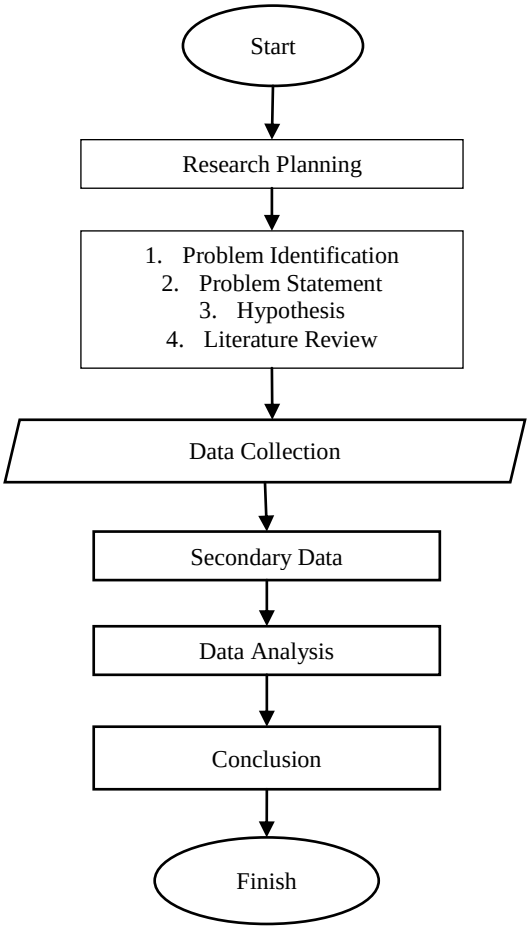

Figure 1. Research methodology flowchart (The authors)

2.1. Research Instrument

Research instruments are tools used in research activities, especially for measurement and data collection. It can be a questionnaire, a set of test questions, observation sheets, etc. The instrument of a study is also a means that must be made to accommodate and process various data collected for research. The research instrument used in this study was

a table in the form of a financial ratio report of PT. Bank SulutGo published by the OJK.

In this study, the statistical analysis tool used was EViews 12 Lite because this software includes a Windows-based computer program and can be used for statistical analysis of time series data. It has complete features and is easy for users to understand. EViews 12 Lite has many benefits, especially for analyzing the data in this study, such as descriptive quantitative analysis, classical assumption test, multiple linear regression test, and hypothesis test. In addition to EViews 12 Lite, this study used Microsoft Excel to conduct data analysis.

2.2. Data Collection Techniques

This study used secondary data, namely data whose sources are obtained indirectly. Data can be obtained through other parties or data that has been available. The data can be downloaded from the official website of the OJK. Information on ROA, NIM, LDR, and CAR is obtained from the company's quarterly report published by the OJK.

Literature sources for this study include books, published journals, and review literature in accordance with the subject matter studied.

2.3. Descriptive Analysis

Descriptive statistical analysis is an approach to data analysis that provides an overview of the variables investigated. This method involves assessing various statistics, including the mean, whose data are obtained by summing all the data and dividing it by counting the data. Furthermore, the middle value (median) is used to test the similarity of the middle value data with the presumptive value. The next statistic is the minimum value (smallest value) and maximum value (largest value) of existing and owned data (Pratama, 2018).

2.4. Multiple Linear Regression

Multiple linear regression is a statistical model that involves more than one independent variable to project or predict the dependent variable. This model provides excellence in understanding how several interrelated variables can affect the variables being analyzed. This approach has significant benefits in the context of decision making, both in the development of management policies and scientific research (Adyani & Sampurno, 2011).

Within the framework of this study, a multiple linear regression model was used (Adyani & Sampurno, 2011), with CAR as the dependent variable (non-free variable). On the other hand, ROA, NIM, and LDR are considered independent variables (independent variables) that play a role in formulating the model.

$Y = f\ (X1, X2, X3)$

From the functional model, the equation above can be written in an econometric model as follows:

$CARt = \beta 0 + \beta 1ROA + \beta 2NIM + \beta 3LDRet$

2.5. Assumption Test

The importance of classical assumption tests in regression analysis lies in the steps to ensure that the resulting estimator has a linear nature, is unbiased, and has a minimum variance, so that it can be considered the best linear unbiased estimator (BLUE). This process ensures that the regression model does not experience problems that can affect the results of the study. The non-fulfillment of classical assumptions can lead to bias in research results, thus becoming critical to ensure the reliability and validity of the analysis (Mahmudah & Harjanti, 2016).

Within the framework of this study, classical assumption tests were performed, which included data normality tests, multicollinearity tests, autocorrelation tests, and heteroscedasticity tests. These steps are important to verify whether the regression data and model meet the classical assumptions required in regression analysis to obtain accurate and reliable results. Therefore, further detection is needed, including:

a. Normality Test

The normality test is carried out to evaluate the extent to which the variables in this study follow a near-normal distribution. In this context, normality refers to the distribution of data that follows a normal distribution pattern, where the data have a comparable mean and standard deviation. This normality test uses the normal distribution as a reference, with similar mean and standard deviation parameters, to assess the extent to which the data follows a normal distribution pattern. Its main purpose is to determine whether the data can be considered a sample of a population that has a distribution of norms.

b. Heteroscedasticity Test

The heteroscedasticity test assesses whether there are differences in residual variance between observations in a regression model. If the residual variance is constant, it is called homoscedasticity; conversely, if variance is arbitrary, it is called heteroscedasticity. The discovery of heteroscedasticity can affect the reliability of regression analysis and requires special adjustments.

c. Autocorrelation Test

The autocorrelation test assesses whether there is a correlation between the confounding error in period *t* and the error in the previous period *t-1* in a linear regression model. Autocorrelation arises because of the relationship between sequential observations over time, where errors in one period can correlate with errors in previous periods (Sugiyono, 2016).

d. Multicollinearity Test

The multicollinearity test evaluates whether there is a high or perfect correlation between independent variables in a regression model. The purpose of this test is to detect whether there is a significant correlation between independent variables in the regression model being analyzed (Pratama, 2018).

2.6. Testing the Hypothesis

We used statistical tests including t-test and F-test.

a. T-Statistical Test (Partial)

Statistical testing is a testing procedure used to determine whether each independent variable has an individual influence on the dependent variable (Widarjono, 2015).

b. F-Statistical Test (Simultaneous)

The F-statistical test evaluates the impact of the independent variables together on the dependent variable in a regression model (Widarjono, 2015).

3. Results

3.1. Descriptive Variables

Data processing in this study was performed using the EViews 12 Lite software, which has proven reliable in analyzing the relationship between independent and dependent variables. As explained earlier, the variables involved in the study include CAR as the dependent variable, whereas the independent variables include ROA, NIM, and LDR. The company data used covers the period from 2011 to 2021. Here are the descriptive statistical results of the data that have been selected to present the mean, median, minimum value, maximum value, and so on.

3.1.1. CAR

The mean of the CAR of 14.74773 shows that during the study period, banks averaged a capital adequacy rate of approximately 14.74%. This indicates that the sample banks in the study can provide funds and manage the risk of loss of funds due to operational activities well. The higher the CAR value, the better the condition of the bank. Meanwhile, the smallest value (minimum) and the largest value (maximum) are in the range of 10.30000 and 20.13000.

Figure 2 contains CAR chart data from Bank SulutGo for 2011-2021.

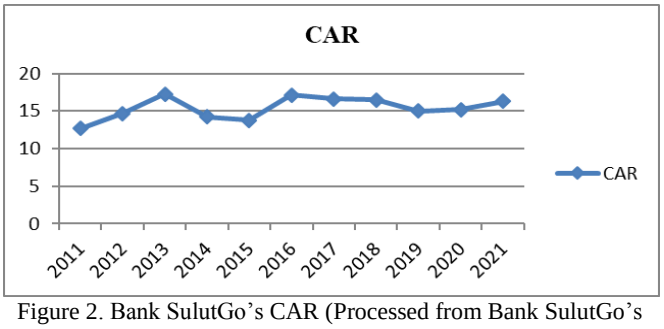

Figure 2. Bank SulutGo's CAR (Processed from Bank SulutGo's annual report)

3.1.2. ROA

ROA is an indicator that measures the extent to which a bank can generate overall profits. Bank SulutGo's ROA shows the smallest (minimum) value of 0.210000, indicating that the lowest profit earned by the bank is around 0.21%. Conversely, the largest value (maximum) of ROA reached 5.200000, indicating that the highest profit achieved by the sample company reached around 5.20%. Bank SulutGo's average ROA during the study period was 2.391354, reflecting the bank's overall ability to earn a profit of around 2.39%. This figure reflects the effectiveness of the bank in managing the invested funds. Furthermore, the standard deviation of ROA of 1.028061, which is smaller than the average value, indicates that the variation in banks' ability to generate profits from the average ROA is relatively small. This indicates stability or consistency in the bank's ability to earn profits during the study period.

The development of Bank SulutGo's ROA, as seen in g2, shows a downward trend. In 2013, the ROA reached 3.48% but decreased to 1.24% in 2021.

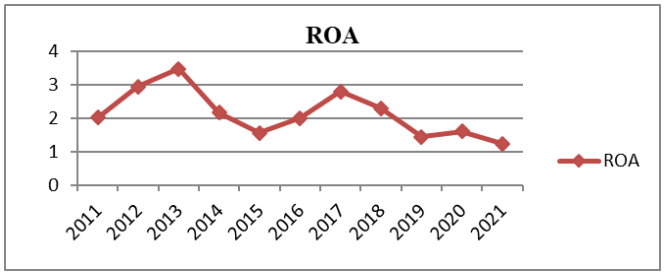

Figure 3. Bank SulutGo's ROA (Processed from Bank SulutGo's annual report)

3.1.3. NIM

NIM is a ratio that assesses the ability of bank management to manage productive assets to generate net interest income. With the smallest (minimum) NIM value of 6.130000, the lowest net interest income reaches 6.13% of the company's total assets. Meanwhile, the largest value (maximum) of 11.49000 shows that the company's highest net interest income reaching 11.49%. The average NIM during the study period was 8.551136, indicating that the average related bank was able to earn a profit of 8.55% of total assets.

Like ROA, Bank SulutGo's NIM development also shows a downward trend. In 2013, it reached 11.17%, but decreased to 7.23% in 2021, as shown in Figure 4.

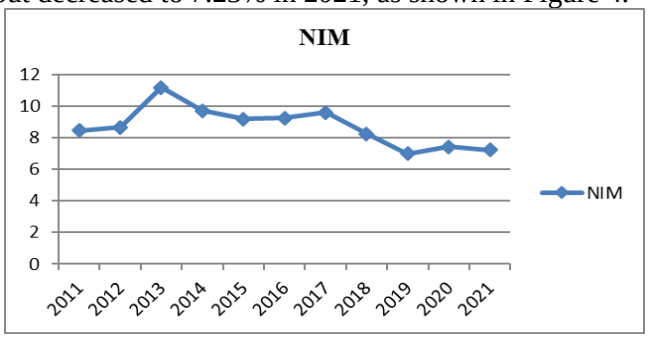

Figure 4. Bank SulutGo's NIM (Processed from Bank SulutGo's annual report)

3.1.4. LDR

The LDR can be calculated by comparing the amount of credit provided by a bank with the funds it receives. In general, the average LDR of companies sampled from 2011 to 2021 was approximately 85.45659. The lowest value (minimum) of LDR is 70.29000, while the highest value (maximum) reaches 112.9400. The development of Bank SulutGo's LDR, as shown in Figure 5, shows fluctuations. In 2013, the LDR peaked at 112.94% but decreased to 83.47% in

2021.

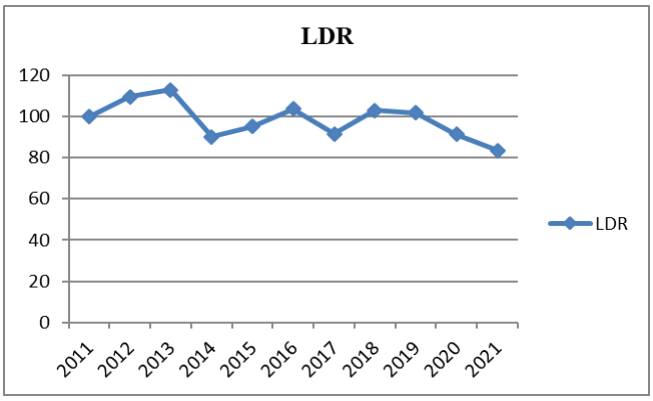

Figure 5. Bank SulutGo's LDR (Processed from Bank SulutGo's annual report)

3.2. Linear Regression Analysis

Multiple linear regression is a statistical model that describes the linear relationship between a dependent variable and two or more independent variables. This study used the ordinary least squares (OLS) method to estimate the model. The model estimation results are as follows.

Table 1. Linear regression results (The authors)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.224	2.637	5.013	0.000
ROA	0.945	0.337	2.802	0.007
NIM	-0.628	0.243	-2.582	0.013
LDR	0.054	0.025	2.109	0.041
R-squared	0.227		Mean dependent var	14.737
Adjusted R-squared	0.169		S.D. dependent var	1.909
S.E. of regression	1.739		The Akaike information criterion	4.032
Residual sum of squares	121.102		The Schwarz criterion	4.194
Log likelihood	-84.707		The Hannan-Quinn information criterion	4.092
F-statistic	3.927		The Durbin-Watson statistic	0.776
Prob (F-statistic)	0.015			

From the regression results processed using EViews 12 Lite, the regression model equation is found as follows:

$$Y = 13.224 + 0.945\ ROA - 0.628\ NIM + 0.054$$

The above model equation implies the direction of influence of each independent variable on the dependent variable. When the regression coefficient has a positive sign, it indicates that the independent variable has a positive effect on the CAR. Conversely, regression coefficients with negative signs indicate the opposite influence on profitability (ROA) (Agustiningrum, 2013).

Based on the multiple linear regression model, it can be explained as follows:

a. The regression coefficient of ROA shows a positive direction, indicating that an increase in ROA will contribute to an increase in the CAR of banking companies.

b. The regression coefficient of NIM shows a negative direction, which means that an increase in NIM will have an impact on decreasing the CAR of banking companies.

c. The regression coefficient of the LDR shows a positive direction, implying that the growth of the LDR will contribute to an increase in the CAR of banking companies.

R2 of 0.227 reveals that 22.7% of Bank SulutGo's CAR variation in 2011-2021 can be contributed to the variation of ROA, NIM, and LDR included in the model. The remaining 77.3% were influenced by other factors not included in this analysis.

3.3. Assumption Test

3.3.1. Normality Test

The normality test in this study uses the Jarque-Bera test by paying attention to the probability value. If the probability value exceeds the significance level of 0.05, it can be concluded that there is no issue of normality; in other words, the data are normally distributed. Conversely, if the probability value is smaller than 0.05, the data are not normally distributed (DATAtab, n.d.).

Through the analysis of the histogram graph, a probability value of 0.226006 was obtained, which is higher than the significance level of 0.05. Thus, it can be concluded that the data in this study have a normal distribution.

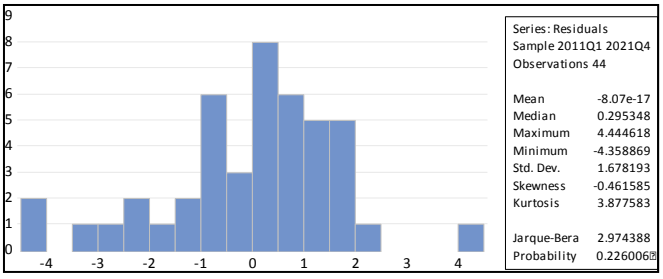

Figure 6. Normality test (Extracted from the report)

3.3.2. Multicollinearity Test

A multicollinearity test is performed to evaluate whether there is a very close or high relationship between independent variables in the regression model. To detect possible multicollinearity problems, the tolerance and variance inflation factor (VIP) methods are used (Pratama, 2018).

The assumption of the VIP can be expressed as follows:

1. If VIP > 10, multicollinearity occurs;
2. If VIP < 10, multicollinearity does not occur (The Investopedia Team, 2023).

The following are the results of the multicollinearity test in this study.

Table 2. Multicollinearity test results (The authors)

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	6.958	101.126	NA
ROA	0.113	11.169	1.708
NIM	0.059	64.657	1.710
LDR	0.000	71.213	1.021

From the VIF calculation above, it can be observed that the VIP for the ROA variable is 1,708, the VIP for the CAR variable is 1,710, and the VIP for the LDR variable is 1,021. All the VIP values of all the three independent variables are below 10, indicating that there is no indication of multicollinearity in this regression model.

3.3.3. Autocorrelation Test

The autocorrelation test evaluates whether there is a correlation between confounding errors in periods *t* and *t-1* in linear regression models. In this study, autocorrelation was tested through the Durbin-Watson (DW) values to determine whether there was autocorrelation in the data.

Table 3. The DW autocorrelation test results (The authors)

F-statistic	10.87844	Prob. F (2.38)	0.000
Obs*R-squared	16.01996	Prob. Chi-Square (2)	0.000
R-squared	0.364	Mean dependent var	-8.07
Adjusted R-squared	0.280	S.D. dependent var	1.678
S.E. of regression	1.423	The Akaike information criterion	3.670
Residual sum of squares	77.010	The Schwarz criterion	3.913
Log likelihood	-74.747	The Hannan-Quinn information criterion	3.760
F-statistic	4.351	The Durbin-Watson statistic	1.898
Prob (F-statistic)	0.003		

Table 3 shows the Durbin-Watson statistic of 1.898. This number lies between the following criteria:

1. If the DW value is below -2, there is an autocorrelation.
2. If the DW value is below -2 to +2, there is no autocorrelation.
3. If the DW value is above +2, there is a negative autocorrelation.

Based on the above criteria, it can be concluded that this model does not contain elements of heteroscedasticity because the DW statistical value is 1.898, which is in the range of -2 to +2.

3.3.4. Heteroscedasticity Test

A heteroscedasticity test is performed to determine whether in the regression model there is a nonuniformity of variance from the residual. A regression model is considered good if the residual is homoscedastic, meaning it has a uniform variance. Here are the results of the heteroscedasticity test conducted in this study:

Table 4. Heteroscedasticity test results (The authors)

F-statistic	0.861	Prob. F (9.34)	0.567
Obs*R-squared	8.170	Prob. Chi-Square (9)	0.517
Scaled explained SS	9.715	Prob. Chi-Square (9)	0.374

To test the heteroscedasticity problem, a white test is used to determine the value of Prob Chi-Square on R-squared. If the value of Prob Chi-Square > 0.05, heteroscedasticity does not occur. Conversely, if the value of Prob Chi-Square < 0.05, the study shows heteroscedasticity (Pratama, 2018).

The coefficient of determination (R2) is 8.170989, with a Prob Chi-Square value above 0.05, which is 0.5170. Therefore, it can be concluded that this model does not contain elements of heteroscedasticity.

3.4. Testing the Hypothesis

After successfully passing a series of feasibility tests as a condition for the next test, a hypothesis test was conducted, involving t-test and F-test. Here are the test results analyzed using the EViews 12 Lite software:

Table 5. T-test (partial) (The authors)

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	13.224	2.637	5.013	0.000
ROA	0.945	0.337	2.802	0.007
NIM	-0.628	0.243	-2.582	0.013
LDR	0.054	0.025	2.109	0.041
R-squared	0.227		Mean dependent var	14.737
Adjusted R-squared	0.169		S.D. dependent var	1.909
S.E. of regression	1.739		The Akaike information criterion	4.032
Residual sum of squares	121.102		The Schwarz criterion	4.194
Log likelihood	-84.707		The Hannan-Quinn information criterion	4.092
F-statistic	3.927		The Durbin-Watson statistic	0.776
Prob (F-statistic)	0.015			

The t-test was performed to assess the partial (individual) effect of the independent variables (ROA, NIM, and LDR) on the dependent variable, namely CAR. To perform the t-test, we examine the probability values in Table 3. If the probability value is less than the significance level of 0.05, the partially independent variable (individually) has a significant influence on the dependent variable.

From the results of the statistical t-test in Table 5, it was found that:

1. ROA has a coefficient of 0.945540 with a probability of 0.0078, indicating that ROA partially has a significant positive influence on CAR.
2. NIM has a coefficient of -0.628511 with a

probability of 0.0136. This means that NIM partially has a significant negative effect on CAR.

3. The LDR has a coefficient of 0.054261 with a probability of 0.0412, indicating that LDR partially has a significant positive effect on CAR.

The F-test was performed to evaluate the joint effect of all the independent variables (ROA, NIM, and LDR) on the dependent variable (CAR). The F-statistic result is 3.927214 with a probability (F-statistic) of 0.015096. Because the probability value is less than 0.05, ROA, NIM, and LDR together have a significant influence on the dependent variable (CAR).

4. Discussion

4.1. ROA-CAR Relationship

Individually, the results of the ROA variable estimation showed a positive and significant relationship with the CAR, which supports the hypothesis. This finding is in accordance with the signal principle (signal theory), where companies with a positive ROA tend to convey positive information to increase trust and value in the eyes of investors. This finding is also in line with results by Hengkeng et al. (2018), Natrion and Zuki (2021), Padanun et al. (2019), Pratama (2018), and Suhendro (2022), who revealed that ROA has a significant effect on CAR. Thus, this study successfully confirms that ROA has a significant positive impact on CAR.

4.2. NIM-CAR Correlation

The NIM variable, which reflects the ratio between net interest income and total loans rendered, shows a significant negative correlation with CAR, supporting the validity of the hypothesis. This result contrasts with signal theory, where an increase in NIM can be considered a negative signal for investors because it can decrease CAR.

These findings indicate that although a high NIM ratio can generate substantial operating profits, it has a negative impact on a bank's capital stability (Mahendra Giri & Purbawangsa, 2022; Santoso & Firdausy, 2021). An increase in NIM can decrease the company's cash because interest income comes from loans to customers. The study also highlights that an increase in NIM can increase a company's risk and result in a decrease in CAR because of the potential for capital withdrawal to meet liquidity needs (Gustika et al., 2022). The results of this study contradict the findings by Hannah et al. (2022), Moorcy (2020), and Yatna and Anugrah (2019), who stated that NIM negatively affects CAR. Therefore, the purpose of this study is achieved by showing that NIM has a significant impact on CAR, with a negative direction of influence.

4.3. LDR-CAR Relationship

In partial analysis, the results of the LDR variable estimation showed a positive and significant relationship to the CAR, consistently supporting the acceptance of the hypothesis. This positive influence reflects the fact that the increase in income from loans received by Bank SulutGo will contribute to the increase in the bank's capital. Credit is becoming the main source of income in banking institutions, and this research shows that banks that are successful in lending can manage liquidity without having to rely heavily on significant capital absorption (CAR) (Damayanti & Simu, 2018; Saputra & Angriani, 2023).

This result agrees with signal theory, where a high value in LDR can be interpreted as a positive signal from management to investors, providing an overview of effective lending and potential capital increase (Suratama & Fitriani, 2020). It is expected that a high LDR value can also increase investor interest in investing in the company's shares, while simultaneously reflecting the company's active efforts in exploring new creditors (Sudarwantoro, 2014). Therefore, this study achieves its goal by showing that the LDR has a significant and positive impact on the variation of the CAR.

5. Conclusions

1. ROA, with a coefficient value of 0.945540 and a probability of 0.0078, has a positive and significant influence on CAR; every increase in ROA of 1% will increase the CAR by 0.945540.

2. NIM, with a coefficient of -0.628511 and a probability of 0.0136, has a negative and significant impact on CAR. An increase in NIM of 1% would decrease CAR by -0.628511.

3. LDR, with a coefficient of 0.054261 and a probability of 0.0412, has a positive and significant impact on CAR. Thus, every increase in LDR of 1% will increase the CAR by 0.054261.

4. Simultaneously, ROA, NIM, and LDR significantly influence CAR, as indicated by an F-statistic value of 3.927214 with a probability of 0.015095. Overall, a 1% increase in ROA, NIM, and LDR would increase CAR by 3.927214.

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