MULTIDI SCIENCE
Journal of Multidisciplinary Science
Vol. 2 No. 1, January 2025, Pages. 141-152
P-ISSN: 3046-692X, E-ISSN: 3046-6911
Doi: 10.59631/multidiscience.v2i1.274

Analysis of the Effect of BOPO, CAR, DPK, LDR, and NPL on the Financial Performance of Banking Companies on the IDX 2021-2023

Vinsensius Agus Rakadewa[1], Sri Dwi Ari Ambarwati[1], Khoirul Hikmah[1]

[1]*Universitas Pembangunan Nasional "Veteran" Yogyakarta, Indonesia*

**Corresponding Email: khoirul.hikmah@upnyk.ac.id*

Abstract
This study examines the impact of financial ratios—Operating Expenses to Operating Income (BOPO), Capital Adequacy Ratio (CAR), Third Party Funds (DPK), Loan to Deposit Ratio (LDR), and Non-Performing Loans (NPL)—on the financial performance of banking companies listed on the Indonesian Stock Exchange (IDX) during the post-COVID-19 recovery period (2021–2023). The research adopts a quantitative descriptive approach, utilizing multiple linear regression analysis on data collected from banks meeting specific criteria within the study period. The findings reveal that BOPO significantly and negatively affects Return on Assets (ROA), highlighting operational inefficiencies that erode profitability. CAR also exhibits a negative impact, suggesting that the emphasis on regulatory compliance and capital adequacy post-pandemic may hinder credit expansion and productive investment. Conversely, DPK and NPL show no significant influence on ROA, attributed to idle funds and effective credit risk mitigation measures. While indicative of efficient fund distribution, LDR negatively affects ROA due to heightened credit risk and operational costs during the economic recovery. This study contributes to the understanding of banking sector dynamics in Indonesia during a critical recovery phase, providing insights into optimizing financial performance through improved operational efficiency and strategic fund allocation. The results highlight the importance of balancing regulatory compliance, risk management, and profitability in the evolving economic landscape.

Keywords: Capital adequacy ratio, financial performance, loan to deposit ratio, non-performing loan, third party funds.

1. Introduction

The banking sector plays an important role in supporting economic growth through its financial intermediation function. However, the COVID-19 pandemic in 2019-2020 caused a great pressure on the sector, including a slowdown in credit growth and an increase in the risk of non-performing loans (NPLs). Capital Adequacy Ratio (CAR), Third Party Funds (DPK), as well as the operational efficiency measured by Operating Expenses to Operating Income (BOPO) also experienced significant fluctuations during the period.

At the end of 2019 until the end of 2020, credit growth in the banking sector slowed to a range of 4-6 percent on a year-on-year (yoy) basis. At the same time, the number of bank lending also experienced a slowdown because the bank's capital adequacy ratio became very limited due to the credit restructuring policy from the government due to the Corona outbreak which hit various sectors at that time. The sectors that suffered the most losses were manufacturing and banking. The banks' Capital Adequacy Ratio (CAR) was also limited and depressed by credit relaxation (Agustin, 2022).

According to Bank Indonesia data (2020), entering April the number of public deposits in banks was observed to fall 1.60 percent to IDR 5,883.43 trillion consisting of deposits in the form of current accounts worth IDR 1,393.37 trillion, savings of IDR 1,948.99 trillion, and deposits of IDR 2,541.06 trillion. Then, in November 2020 deposits in banks slowed down further, the total public deposits in banks reached IDR 6,692 trillion, decreased from the previous month's position which reached IDR 6,721 trillion. This amount still grew 11.45% compared to the same period last year. The increase in deposits also occurred amidst declining interest rates. Based on Bank Indonesia data, the average deposit interest rate fell from 5.18% to 4.93% in October 2020 (Agustin, 2022).

According to the Central Bureau of Statistics, the economic growth in Indonesia in 2020 contracted by 2.07% compared to the previous year. In the first quarter, the economic growth of Indonesia was still recorded at a positive 2.97% (yoy), but this growth slowed down from the first quarter of 2019 which amounted to 5.07% (yoy), the second quarter was recorded at -5.32% (yoy) down from the second quarter of 2019 which amounted to 5,05% (yoy), the third quarter recorded -3.49% (yoy) down compared to the third quarter of 2019 which amounted to positive 5.02% (yoy), and the fourth quarter recorded -2.19% down compared to the fourth quarter of 2019 which amounted to positive 4.97% (yoy) (Sugiantari, Padnyawati, & Pramuki, 2024).

Meanwhile, in 2021 the economic growth of Indonesia in the first quarter was recorded at - 0.74% (yoy), the second quarter was positive 7.07% (yoy), and the third quarter was positive 3.51% (yoy) so it can be said that the economic growth from the first quarter of 2021 to the third quarter of 2021 began to improve compared to 2020, According to the Central Statistics Agency (BPS) report, the economy in the second quarter of 2023 grew 5.17% on an annual basis (year-on-year/yoy), higher than the achievement in the first quarter of 2023 which grew 5.04% (Asriany, 2021).

Amidst an expected global economic slowdown and declining trends in the leading export commodities, the economic growth of Indonesia grew a solid 5.17% on an annualized basis. On a quarterly basis, in the second quarter of 2023 it grew 3.86% compared to the previous quarter (quarter-on-quarter/qoq). It is better than the first quarter of 2023 which fell 0.91% (qoq). "This is in line with the pattern in previous years, where the growth in the second quarter was higher than the first quarter.

Despite mitigation policies from the government and the Financial Services Authority (OJK), such as credit relaxation, the impact on the financial performance of the banking sector is still evident in Return on Assets (ROA), one of the main indicators of bank profitability. Therefore, further research is needed to understand how factors such as BOPO, CAR, DPK, Loan to Deposit Ratio (LDR), and NPL affect the financial performance of the banking sector in Indonesia, in order to recover after the COVID-19 pandemic (Hidayat, Lubis, & Salim, 2022).

The main benefit of ROA is that it provides an overview of the company's operational efficiency. ROA provides a view of the company's ability to generate profits from its total assets (Brigham & Ehrhardt, 2024). The ROA ratio shows the ratio between profit before tax and total bank assets. This ratio shows the level of efficiency of asset management carried out by the bank concerned (Alarussi, 2021), Return on Assets is calculated by comparing profit before tax with total assets (Nurhasanah & Maryono, 2021).

In previous studies such as the one conducted by Ashari (2024), BOPO has a significant negative effect on ROA, while research Martini (2022) showed that BOPO has a positive and significant effect. Some studies, such as Aprianti (2021) research, show a significant positive effect of CAR, whileNovryandi (2023) states that there is no significant effect. Jarwani (2023) and Rembet et al., (2020) finds that NPL is not significant, but other studies such as by Martini (2022) reports a significant positive effect. This study tries to answer the inconsistency of previous research results by using the latest data (2021-2023) on the banking sector in Indonesia during the economic recovery period after the Covid-19 pandemic.

2. Method

This research is a quantitative study with a descriptive approach. The research population includes all banking companies listed on the Indonesian Stock Exchange (IDX) during 2021- 2023. The sampling technique uses a census or saturated sample, by selecting companies that meet certain criteria, such as having complete financial statement data during the study period (Sugiyono, 2018).

Research Variables consist of Dependent Variables, namely Return on Assets (ROA) and independent variables consisting of 1) BOPO (Operating Expenses to Operating Income); 2) CAR (Capital Adequacy Ratio); 3) DPK (Third Party Funds); 4) LDR (Loan to Deposit Ratio); and 5) NPL (Non-Performing Loan).

The data is analyzed using multiple linear regression with the statistical software SPSS program. The F test is used to test the joint influence of the independent variables on the dependent variable, while the t test is for the partial influence. The classical assumption test consists of normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

3. Results and Discussion

This study uses data from 40 banking companies listed on the Indonesian Stock Exchange (IDX) during 2021-2023. The following are descriptive statistics for the variables used:

3.1 Descriptive statistics

Tabel 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Company performance	98	-6.72	4.31	1.2798	1.57750
BPOP	98	23.69	202.74	83.3562	23.62742
CAR	98	10.78	283.88	40.4700	41.22339
DPK	98	24.33	34.73	29.2037	2.00091
LDR	98	12.35	527.91	93.2362	60.36589
NPL	98	.00	4.95	1.5297	1.23272
Valid N (listwise)	98				

Company Performance: This variable has an average value of 1.28, with a range of values from -6.72 to 4.31, indicating that there are companies with negative to positive performance. The spread of the data is quite high with a standard deviation of 1.58, indicating variations in performance between companies.

Cost of Operating Income (BPOP): The average operating cost is 83.36. The variation in costs is considerable (standard deviation 23.63) with a minimum value of 23.69 and a maximum of 202.74, reflecting significant differences in operating efficiency between entities.

Capital Adequacy Ratio (CAR): The average CAR is 40.47 with a very high dispersion (standard deviation 41.22). The range of CAR values from 10.78 to 283.88 shows the large difference in capital capability between entities.

Third Party Funds (DPK): The average of third-party funds is 29.20 with a relatively narrow range of values from 24.33 to 34.73. The standard deviation of 2.00 shows little variation indicating relative consistency between entities in attracting third-party funds.

Loan to Deposit Ratio (LDR): The average LDR is 93.24, but with a sizable standard deviation (60.37) and a wide range of values (minimum 12.35, maximum 527.91), there are large differences in the use of deposits for loans.

Non-Performing Loan (NPL): The average NPL is 1.53 with a minimum value of 0.00 to a maximum of 4.95. The standard deviation of 1.23 indicates moderate variation in the level of non-performing loans between entities.

3.2 Classical Assumption Test

3.2.1 Normality Test

The normality test results obtained a P-value of 0.110 shows a value> 0.05, so the data distribution is declared normal.

3.2.2 Multicollinearity Test

Tabel 2. Result Multicollinearity

Coefficients[a]			
Model		**Collinearity Tolerance**	**Statistics VIF**
1	BPOP	.751	1.332
	CAR	.557	1.794
	DPK	.920	1.087
	LDR	.493	2.028
	NPL	.832	1.202
a. Dependent Variable: Company Perfomance			

The results show VIF values < 10 and Tolerance > 0.1. for all independent variables which means there is no multicollinearity between variables.

3.2.3 Heteroscedasticity Test

The normality test results obtained a P-value of 0.110 shows a value> 0.05, so the data distribution is declared normal.

Tabel 3. Result Heteroscedasticity

Coefficients[a]						
Model		**Unstandardized B**	**Coefficients Std. Error**	**Standardized Coefficients Beta**	**T**	**Sig.**
1	Constant	.523	.420		1.246	.216
	BPOP	-.003	.001	-.219	-1.927	.057
	CAR	.001	.001	.223	1.689	.095
	DPK	.002	.014	.017	.170	.865
	LDR	.001	.001	-.190	-1.353	.179
	NPL	-.029	.024	-.133	-1.235	.220
a. Dependent variable: absres						

The results of the heteroscedasticity test state that all independent variables have the same variance (homoscedastic) which is shown by the significant value of the Gletsjer test > 0.05 so that the data is declared free from heteroscedasticity.

3.2.4 Autocorrelation Test

The Durbin-Watson (DW) test shows a value of 1.89 which is between the dL and dU limits, so there is no autocorrelation in the data.

3.3 Multiple Linear Regression Analysis

3.3.1 Results Regression Equation

$$Y = 7.902 - 0.067\ X1 + -0.005\ X2 - 0.019\ X3 - 0.003\ X4 - 0.016\ X5$$

Description:

Y= Company performance

X1 = Cost of operating income (BPOP)

X2 = Capital adiquancy ratio (CAR)

X3 = Third party funds (DPK)

X4 = Loan to deposit ratio (LDR)

X5 = Non-performing loan (NPL)

3.3.2 Goodness of Fit Test Results (F-Test)

The F test results obtains a sig value of 0.000. The sig value of 0.000 <0.05 indicates that the cost of operating income (BPOP), capital adiquancy ratio (CAR), third party funds (DPK), loan to deposit ratio (LDR) and non-performing loans (NPL) simultaneously or together have a negative effect on financial performance (ROA) of companies in the banking sector listed on the Indonesia Stock Exchange (IDX). Thus, the first hypothesis is accepted.

3.3.3 Result (t-test)

Tabel 4. Result (t-test)

Variables	Coefficient	t	Sig	Conclusion
BOPO	-0.067	-31.397	<0.001	Negatively Significant (H2 accepted)
CAR	-0.005	-3.236	0.002	Negatively Significant (H3 rejected))
DPK	-0.019	-0.853	0.396	Not Significant (H4 rejected)
LDR	-0.003	-2.724	0.008	Negatively Significant (H5 rejected))
NPL	-0.016	-0.420	0.675	Not Significant (H6 rejected)

3.4 Discussion

3.4.1 BOPO to ROA

The findings obtained through the above analysis find that BOPO has a significant negative effect on ROA. The high BOPO reflects the bank's operational inefficiency, which directly reduces the company's profit. This is in line with research by (Ashari, 2024) which reveals that BOPO has a significant negative effect on ROA. The high

BOPO ratio indicates operational inefficiency which has an impact on reducing bank profitability.

3.4.2 CAR to ROA

The findings obtained through the analysis above find that CAR has a negative effect on performance. This is in accordance with research from (Novryandi, 2023), which states that CAR has no significant effect on ROA and can show a negative effect if a large capital is not utilized productively, such as lending.

There are several logical reasons that can explain this result, especially in the context of the banking sector in Indonesia in 2021-2023 which is the recovery period after the COVID-19 pandemic.

Regulatory Compliance and Focus on Stability: After the pandemic, many banks in Indonesia have focused more on increasing CAR to maintain financial stability and comply with regulations set by the Financial Services Authority (OJK). This focus is often at the expense of credit expansion or productive investments that can generate higher income. Although banks have sufficient capital, if it is not optimally utilized, this can reduce bank performance (Rahmi, Herlina, & Novitasary, 2022).

Over-Capitalization: A CAR that is too high may indicate that the bank is being too cautious in taking risks. In this case, the large capital is not effectively utilized to generate sufficient revenue which could lead to inefficiency and lower bank profitability. This result supports the argument that too much capital can have a negative impact on performance (Iqbal, Indrayono, & Herdiyana, 2023; Sudarmawanti & Pramono, 2017).

Post-Pandemic Operating Expenses: After the pandemic, many banks are facing high operating expenses, such as loan restructuring, increased loss reserves, and investments in digitalization. While high CARs provide the capacity to withstand risks, high operating expenses remain a significant pressure on bank performance.

Thus, while high CAR is important for maintaining financial stability, in the post-pandemic economic recovery period, it is not always directly related to better performance. Banks need to strike a balance between maintaining strong capital and optimizing its use for business expansion.

3.4.3 DPK to ROA

The findings obtained through the analysis above find that the third-party funds (DPK) have no significant effect on performance. This is in accordance with research Lukitasari (2015) which states that DPK has no significant effect on ROA. Unemployed funds or high cost of funds are often the cause of the low contribution of DPK to bank profitability The phenomenon can also be explained through several relevant factors, especially in the context of post-COVID-19 economic recovery in the 2021-2023 period.

Large deposits do not guarantee optimization in the distribution of funds to the productive sector. As stated by Christiano, Tommy, & Saerang (2014) banks that are not able to allocate credit effectively will experience performance stagnation despite having a large DPK base.

Some deposits are often idle funds or used for liquidity reserves. As stated by Dewi (2015), funds that are not allocated to generate income will reduce their contribution to the company's profitability.

Low demand for credit during the economic recovery period also affected the banks' ability to channel deposits optimally. Situation of economic uncertainty, the public and the business sector tend to refrain from utilizing credit facilities, which ultimately limits the growth of bank income (Iqbal et al., 2023).

In recovery situations, banks often prioritize liquidity stability over business expansion. Large deposits reflect banks' ability to meet liquidity obligations rather than supporting performance growth (Rahmi et al., 2022).

Thus, the study shows that DPK is not a significant direct factor in driving the performance of banking companies during 2021-2023. It reflects that non-optimal management of deposits, high cost of funds, and limited credit demand are the main factors that limit its impact on performance.

3.4.4 LDR to LOA

The findings obtained through the analysis above find that (LDR) has a negative effect on performance. This is in accordance with research conducted by Yudiartini (2016) showing that LDR has a negative effect on ROA, especially when credit quality is low, or bank liquidity is disrupted due to non-optimal distribution of funds.

Loan to Deposit Ratio (LDR) is an indicator that measures how much the third-party funds (DPK) collected by banks can be channeled in the form of credit. Although this ratio is generally considered a measure of the efficiency of fund distribution, a high LDR has a negative effect on bank performance in 2021-2023. This phenomenon can be explained as follows:

A high LDR is often accompanied by an increased risk of non-performing loans (NPLs). As stated by Dewi, Herawati, & Sulindawati (2015), low credit quality results in increased provision expenses which directly suppresses bank profitability. During the economic recovery period, many business sectors face difficulties, so non-performing loans tend to increase.

Lending requires administrative costs, risk evaluation, and management. Iqbal et al., (2023) note that increasing operating expenses without sufficient revenue can erode banks' profit margins, resulting in declining financial performance.

In unstable economic conditions, banks are more cautious and choose to maintain high liquidity reserves. According to (Rahmi et al., 2022), the priority on liquidity reduces the effectiveness of LDR in improving performance, because the loans extended are not fully able to generate significant profits.

Lending to sectors that are still vulnerable to risks during economic recovery reduces the quality of banks' portfolios. A poor loan portfolio will negatively impact Return on Assets (ROA), even if the LDR ratio increases (Christiano et al., 2014).

Thus, the findings show that a high LDR during the 2021-2023 period has a negative impact on bank performance. This is due to the high risk of non-performing loans, large operating costs, and focus on liquidity rather than productive expansion. Thus, more prudent LDR management is needed to face the challenges in an economic condition that has not fully recovered.

3.4.5 NPL to ROA

The findings obtained through the analysis above find that (NPL) has no significant effect on performance. NPL does not show a significant effect on ROA during the study period, mainly due to risk mitigation policies such as credit restructuring during the pandemic (Jarwani, 2023). Non-Performing Loan (NPL) is often considered a leading indicator that reflects the risk of non-performing loans. However, during the COVID-19 pandemic period, research results show that NPLs have no significant influence on banking performance, as proxied by Return on Assets (ROA). This phenomenon can be explained by the following factors: The Financial Services Authority (OJK) through POJK Number 11/POJK.03/2020 provides leeway for banks to restructure loans without classifying them as NPLs. This policy includes measures such as maturity extension and interest reduction to maintain financial sector stability. This policy reduces the direct impact of NPLs on bank profitability.

Other research results show that loan restructuring moderates the negative effect of NPLs on profitability. With restructuring, banks can delay the recognition of non-performing loan losses which helps maintain ROA stability during the pandemic (Dewi et al., 2015). Banks increased reserves for non-performing loan risk, which helped reduce the direct impact of NPLs on financial performance. This approach reflects the prudent risk management practices during the economic recovery period (Widyaningsih & Sampurno, 2022).

Economic stimulus from the government, such as additional liquidity and support for the MSME sector, help maintain the stability of the banking sector. It contributes to an overall decrease in credit risk, although NPLs remained (Dewi et al., 2015). Thus, while NPLs are often considered a major factor affecting bank profitability, the results show that over the period of 2021-2023, the impact becomes insignificant due to effective risk mitigation and credit restructuring policies.

4. Conclusion

This study analyzes the effect of several financial ratios on banks' Return on Assets (ROA) in Indonesia for the period 2021-2023, the recovery period after the COVID-19 pandemic. The results of the study show that BOPO has a significant negative effect on ROA. The high BOPO reflects banks' operational inefficiency, which directly impacts decreasing profits. This is consistent with studies showing a negative relationship between BOPO and profitability. Meanwhile, CAR also showed a negative impact on ROA. Although high CAR is essential for financial stability, the focus on increasing CAR and regulatory compliance can hinder credit expansion and productive investment in the post-pandemic economic recovery period. Over-capitalization conditions and high operating costs post-pandemic also contributed to the decline in profitability. The results of the study also show that Third Party Funds (DPK) do not have a significant effect on ROA. Idle funds, high cost of funds, and low demand for credit during the economic recovery period are the main factors that limit the contribution of DPK to profitability. Although banks have large DPK, optimizing the distribution of funds to the productive sector is the key to improving performance.

Loan to Deposit Ratio (LDR) also negatively impacts ROA. High LDR, although indicating efficient fund distribution, increases the risk of non-performing loans (NPL) amidst economic conditions that have not fully recovered. Increased operational costs and a focus on liquidity also suppress bank profitability. Lastly, non-performing loans (NPL) did not significantly impact ROA during the study period. This is due to effective risk mitigation and credit restructuring policies during the pandemic and economic stimulus from the government. Credit restructuring and increased loss reserves helped maintain ROA stability even though NPL remained.

References

Agustin, L. (2022). Pengaruh Kebijakan Restrukturisasi Kredit terhadap Kinerja Perbankan di Indonesia selama Pandemi COVID-19. *Jurnal Ekonomi Dan Keuangan Indonesia*, *9*(2), 135–147.

Alarussi, A. S. A. (2021). Financial ratios and efficiency in Malaysian listed companies. *Asian Journal of Economics and Banking*, *5*(2), 116–135. https://doi.org/10.1108/AJEB-06-2020-0014

Aprianti, N. (2021). Capital Adequacy Ratio dan Pengaruhnya terhadap Profitabilitas Perbankan. *Jurnal Manajemen Keuangan*, *10*(3), 245–258.

Ashari, M. (2024). Efisiensi Operasional Bank dan Dampaknya pada Kinerja Keuangan: Studi pada Bank Umum Nasional. *Jurnal Bisnis Dan Ekonomi Indonesia*, *12*(1), 50–63.

Asriany, A. (2021). Pengaruh Capital Adequacy Ratio dan Non-Performing Loan terhadap Profitabilitas Perusahaan Perbankan. *Jesya (Jurnal Ekonomi & Ekonomi Syariah)*, *4*(2), 1165–1170. https://doi.org/10.36778/jesya.v4i2.462

Brigham, E. F. , & Ehrhardt, M. C. (2024). *Financial Management: Theory and Practice*. South-Western Cengage Learning.

Christiano, M., Tommy, P., & Saerang, I. (2014). Analisis Terhadap Rasio-Rasio Keuangan Untuk Mengukur Profitabilitas Pada Bank-Bank Swasta Yang Go Public Di Bursa Efek Indonesia. *Jurnal EMBA : Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *2*(4), 817–830. https://doi.org/10.35794/EMBA.2.4.2014.6490

Dewi, L. E., Herawati, N. T., & Sulindawati, N. L. G. E. (2015). Analisis Pengaruh Nim, Bopo, Ldr, Dan Npl Terhadap Profitabilitas (Studi Kasus Pada Bank Umum Swasta Nasional Yang Terdaftar Pada Bursa Efek Indonesia Periode 2009-2013). *JIMAT (Jurnal Ilmiah Mahasiswa Akuntansi) Undiksha*, *3*(1). https://doi.org/10.23887/JIMAT.V3I1.4752

Hidayat, R., Lubis, F. R. A., & Salim, A. (2022). Analisis Rasio NIM, BOPO, NPL dan LDR terhadap ROA Bank Rakyat Indonesia Tahun 2009-2020. *Jurnal Simki Economic*, *5*(1), 39–49. https://doi.org/10.29407/jse.v5i1.130

Iqbal, M., Indrayono, Y., & Herdiyana, H. (2023). Analysis Of The Effect Of Npl, Bopo And Ldr On Car With Roa As An Intervening Variable In Banking (Case Study: Conventional Commercial Banks on the Indonesia Stock Exchange (IDX) for the 2016-2021 Period). *Journal of Social Studies Arts and Humanities (JSSAH)*, *3*(1), 066–070. https://doi.org/10.33751/JSSAH.V3I1.7456

Jarwani, F. (2023). Analisis BOPO, LDR, dan NPL terhadap ROA Perbankan di BEI. *Jurnal Manajemen Bisnis*, *11*(2), 95–110.

Lukitasari, D. (2015). Pengaruh Loan to Deposit Ratio terhadap Kinerja Keuangan Bank. *Jurnal Ekonomi Indonesia*, *7*(2), 125–138.

Martini, I. (2022). Efisiensi Operasional dan Dampaknya pada Profitabilitas Perbankan. *Jurnal Keuangan Dan Perbankan Indonesia*, *12*(1), 35–48.

Novryandi, H. (2023). Pengaruh Capital Adequacy Ratio dan Non-Performing Loan terhadap Profitabilitas Bank. *Jurnal Akuntansi Dan Keuangan Indonesia*, *14*(3), 150–165.

Nurhasanah, R. , & Maryono, S. (2021). Analisis Rasio Keuangan dalam Menilai Kinerja Perbankan. . *Jurnal Ekonomi Dan Bisnis*, *12*(4), 345–356.

Rahmi, P. P., Herlina, L., & Novitasary, S. (2022). Effect Of Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), And Loan To Deposits Ratio (LDR) On Return On Asset (ROA) IN PT Bank Negara Indonesia Persero TBK Period Of 2011-2021. *Journal of Business and Management Inaba*, *1*(1), 45–63. https://doi.org/10.56956/jbmi.v1i1.36

Rembet, W. E. C., & Baramuli, D. N. (2020). Pengaruh CAR, NPL, NIM, BOPO, LDR Terhadap Return On Asset (ROA) (Studi Pada Bank Umum Swasta Nasional Devisa

Yang Terdaftar Di BEI). *Jurnal EMBA : Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *8*(3). https://doi.org/10.35794/EMBA.V8I3.30085

Sudarmawanti, E., & Pramono, J. (2017). Pengaruh CAR, NPL, BOPO, NIM Dan LDR Terhadap ROA (Studi kasus pada Bank Perkreditan Rakyat di Salatiga yang terdaftar di Otoritas Jasa Keuangan Tahun 2011-2015). *Among Makarti*, *10*(1). https://doi.org/10.52353/ama.v10i1.143

Sugiantari, N. K. A. M., Padnyawati, K. D., & Pramuki, N. M. W. A. (2024). Pengaruh Kebijakan Retrukturisasi Kredit Terhadap Kinerja Keuangan Perbankan Di Indonesia. *Hita Akuntansi Dan Keuangan*, *5*(2), 40–49. https://doi.org/10.32795/hak.v5i2.4402

Sugiyono. (2018). *Metode Penelitian Kuantitatif, Kualitatif, R&D*. Bandung: Alfabeta.

Widyaningsih, N., & Sampurno, R. D. (2022). Analisis Pengaruh CAR, NIM, BOPO, NPL Dan LDR Terhadap Kinerja Keuangan Perbankan Selama Pandemi COVID-19 (Studi Pada Bank Umum yang terdaftar di Bursa Efek Indonesia Periode 2019-2021). *Diponegoro Journal of Management*, *11*(5), 343–354. https://doi.org/10.2/JQUERY.MIN.JS

Yudiartini, D. A. S. (2016). Pengaruh Non-Performing Loan dan Loan to Deposit Ratio terhadap Profitabilitas Bank Umum. . *Jurnal Akuntansi Indonesia*, *7*(2), 210–225.