

Drivers of Bank Profitability: A Study of ROA Determinants at the Yogyakarta Regional Development Bank

Bambang Jatmiko

Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia
bambang.jatmiko@umy.ac.id

ABSTRACT

This study aims to examine the impact of operational efficiency (BOPO), net interest margin (NIM), non-performing loans (NPL), statutory reserve requirements (GWM), and capital adequacy ratio (KPMM) on return on assets (ROA) at the Regional Development Bank of the Special Region of Yogyakarta. The analysis is based on monthly data spanning from January 2017 to December 2024. A multiple linear regression model is employed to assess the relationship between the selected financial ratios and ROA. The empirical findings reveal that BOPO, GWM, and KPMM have a statistically significant negative effect on ROA, while NIM exerts a positive influence. Conversely, NPL is found to have no significant effect on ROA. The results suggest that bank management should prioritize enhancing operational efficiency and capital structure, while also optimizing interest margin policies, to improve overall profitability.

Keywords: ROA, BOPO, NIM, GWM, KPMM

INTRODUCTION

Banking financial performance has a very vital role in supporting the stability and economic growth of a region (Dangnga & Haeruddin, 2018), especially for regional development banks (BPDs) that have a mandate to encourage local economic development. One of the main indicators in measuring a bank's financial performance is the Return on Assets (Rohmandika, et al., 2023), which reflects the bank's ability to generate profits from the assets it owns. ROA not only describes the efficiency of asset management by bank management but also becomes the main benchmark in assessing the profitability and competitiveness of financial institutions during increasingly complex banking sector dynamics.

However, the optimal achievement of ROA is influenced by various internal factors of the bank, including operational efficiency, credit risk management, capital structure, and strategies for managing funds and productive assets. Several financial indicators such as Operating Costs to Operating Income (BOPO), Net Interest Margin (NIM), Non-Performing Loans (NPL), Minimum Mandatory Current Accounts (GWM), and Minimum Capital Provision Obligations (KPMM) are important variables that are theoretically and empirically believed to have a significant relationship with ROA performance (Haryanto & Widyarti, 2017).

BOPO is often used as a measure of a bank's operational efficiency, where the higher the BOPO value reflects inefficiencies that can reduce profitability. On the other hand, NIM indicates how much profit margin is obtained from intermediation activities. Meanwhile, NPLs reflect asset quality and credit risk exposure, which, if not managed properly, will reduce income and increase reserve expenses. On the other hand, the reserve requirement and KPMM, which are mandatory regulations from the banking authority, also determine the

bank's ability to maintain liquidity and capital resilience, which ultimately has an impact on overall profitability.

This study is relevant in the context of the Yogyakarta Special Region Regional Development Bank, given its strategic role in supporting local economic growth through real sector financing and local government programs. During the period 2017 to 2024, regional economic dynamics, banking regulations, and changes in financial market structures have posed their own challenges to bank performance. Therefore, an in-depth empirical study is needed to understand how each of these internal factors affects ROA in the context of regional development banks.

The results of this study are expected to make a real contribution to managerial and regulatory policymaking, as well as become an academic reference in enriching the literature on the determinants of banking profitability at the regional level.

This study aims to analyse the influence of internal variables of banks, namely Operating Costs on Operating Income (BOPO), Net Interest Margin (NIM), Non-Performing Loans (NPL), Minimum Mandatory Current Account (Reserve Requirement), and Minimum Capital Provision Obligations (KPMM) on Return on Assets (ROA) at the Yogyakarta Special Region Development Bank.

This study specifically examines the Regional Development Bank of the Special Region of Yogyakarta, which has not been the focus of much in previous empirical studies, especially in the context of long-term analysis for eight years. This local focus provides a more contextual understanding of regional banking dynamics. And by using a multiple linear regression approach to five major independent variables, the study presents a more integrative empirical model that reflects the complexity of the relationship between financial indicators and profitability.

The findings of this study are not only theoretical but also provide an important practical contribution for bank management and regulators to formulate strategies to improve efficiency, risk management, and more optimal capital planning.

LITERATURE REVIEW

The theoretical framework in this study is prepared based on previous concepts and findings related to factors that affect bank profitability, especially in the context of Return on Assets (ROA). ROA is one of the main indicators of financial performance that reflects how efficient a financial institution is in managing its assets to generate profits.

1. Operational Efficiency Theory

This theory states that efficiency in the use of operational resources will increase the profitability of the company. In the context of banking, this efficiency is measured through the ratio of Operating Costs to Operating Income (BOPO). The higher the BOPO indicates inefficiency which can ultimately reduce ROA. Previous research (Ali & Puah, 2019; Sufian & Habibullah, 2010; Putra & Syaichu, 2021) found that BOPO had a significant negative relationship with ROA.

2. Financial Intermediation Theory

According to this theory, banks act as intermediaries between the parties who have the funds and the parties who need the funds. The success of this intermediation function is measured through Net Interest Margin (NIM), which is the difference between interest income and interest expense relative to productive assets. The higher the NIM indicates the bank's ability to manage interest income efficiently, which has a positive impact on

ROA (Demirgüç-Kunt & Huizinga, 1999; Kusuma & Haryanto, 2016; Vernanda & Widyarti, 2016).

3. Credit Risk Theory

This theory explains that increased credit risk will reduce bank revenues due to increased reserve burdens and losses from non-performing loans. Credit risk is represented by Non-Performing Loans (NPLs). Previous research (Athanasoglou et al., 2008; Manuarsa & Affandy, 2024; Korompis, et al., 2020.) concluded that an increase in NPLs significantly lowered the bank's profitability.

4. Liquidity Preference Theory

This theory states that banks need to maintain an adequate level of liquidity to meet short-term obligations. The Minimum Mandatory Current Account (GWM), as a regulatory instrument, can affect the allocation of bank assets. The obligation to hold funds in the central bank can reduce the ability of banks to invest funds in more productive assets, thus negatively impacting ROA (Iqbal & Molyneux, 2016; Ramadanti & Meiranto, 2015; Novita & Sofie, 2015.).

5. Capital Adequacy Theory

According to this theory, sufficient capital is a buffer against risk and supports the financial stability of banks. The Minimum Capital Provision Obligation (KPMM) reflects the bank's capital adequacy ratio. Although theoretically strong capital increases public confidence and bank resilience, in practice excess capital that is not optimized for use can reduce ROA (Prasetyo & Darmayanti, 2015; Oktavionita, et al., 2022).

RESEARCH METHODOLOGY

1. Types and Approaches to Research

This study is quantitative research with a descriptive and associative approach, which aims to analyse the relationship between independent variables consisting of BOPO, NIM, NPL, GWM, and KPMM to the dependent variable, namely Return on Assets (ROA). The analysis was carried out through a multiple linear regression approach to determine the simultaneous and partial influence of each variable.

2. Population and Sample

The population in this study is all quarterly financial statements of the Yogyakarta Special Region Regional Development Bank during the period March 2017 to December 2024. With the time series approach, the data used amounted to 32 observations (8 years x 4 quarters). Because the data used covers the entire population, this study uses the census method.

3. Data Types and Sources

The type of data used in this study is secondary data obtained from:

- a. Financial statements of the Yogyakarta Regional Development Bank quarters officially published.
- b. Banking statistical data from the Financial Services Authority (OJK).
- c. Annual reports and other relevant financial documents.

Research Variables and Operational Definitions

● Variable Dependent:

ROA (Return on Assets): The ratio of net profit to total assets, reflecting the efficiency of the use of assets in generating profits.

● Independent Variables:

- 1) BOPO (Operating Costs to Operating Income): Measures the operational efficiency of banks.
- 2) NIM (Net Interest Margin): The difference between interest income and interest expense relative to total productive assets.
- 3) NPL (Non-Performing Loan): The ratio of non-performing loans to total loans granted.
- 4) Reserve Requirement (Minimum Required Current Account): The ratio of liquidity liabilities to be held at Bank Indonesia.
- 5) KPMM (Minimum Capital Provision Obligation): The ratio of a bank's capital adequacy to risk-weighted assets.

4. Data Analysis Techniques

a. Classic Assumption Test

To ensure the validity of the multiple linear regression model, a test was carried out on (Basuki and Prawoto, 2019):

- 1) Multicollinearity
- 2) Heteroscedasticity
- 3) Autocorrelations

b. Multiple Linear Regression Analysis

It is used to measure the influence of each independent variable on ROA simultaneously and partially, with a general equation:

$$ROA = \beta_0 + \beta_1 BOPO + \beta_2 NIM + \beta_3 NPL + \beta_4 GWM + \beta_5 KPMM + \varepsilon$$

Where:

1. β_0 = constant
2. β_1 s.d. β_5 = regression coefficients
3. ε = error term

c. Statistical Significance Test (Gujarati, 2002).

- 1) T-test (partial): Assesses the individual influence of each independent variable on ROA.
- 2) F test (simultaneous): Assesses the effect of independent variables on ROA.
- 3) Coefficient of Determination (R^2): Assesses how much variation the ROA can explain by the model.

RESULTS AND DISCUSSION

1. Regression Estimation Results

Based on the results of the multiple linear regression shown in Table 1, the following model equations are obtained:

$$ROA = 5.26322 - 0.05409 \cdot BOPO + 0.30055 \cdot NIM + 0.04572 \cdot NPL - 0.02202 \cdot GWM - 0.03322 \cdot KPMM$$

Table 1. Multiple Linear Regression Results

Dependent Variable: ROA & Sample: 2017Q1 2024Q4				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
BOPO	-0.05409	0.00708	-7.63742	0.00000
NIM	0.30055	0.04514	6.65753	0.00000
NPL	0.04572	0.04834	0.94595	0.35290
GWM	-0.02202	0.01096	-2.00988	0.05490
KPMM	-0.03322	0.00319	-10.42140	0.00000
C	5.26322	0.50761	10.36873	0.00000
R-squared	0.96871	Breusch-Godfrey Serial Correlation LM Test:		
Adjusted R-squared	0.96270	Obs*R-squared	0.95600	
S.E. of regression	0.08337	Prob. Chi-Square (2)	0.62000	
Sum squared resid	0.18073	Heteroskedasticity Test: Harvey		
F-statistic	161.00930	Obs*R-squared	3.798344	
Prob(F-statistic)	0.00000	Prob. Chi-Square (5)	0.57880	

Source: Data processed 2025

The interpretation of these results can be explained as follows:

1. BOPO (Operating Costs to Operating Income): The regression coefficient of -0.05409 and the *p-value* of 0.00000 show that BOPO has a negative and significant effect on ROA at a significance level of 1%. This shows that the higher the operating costs relative to revenue, the profitability (ROA) will decrease significantly. These findings support the theory of operational efficiency.
2. NIM (Net Interest Margin): A coefficient of 0.30055 with a *p-value* of 0.00000 shows a significant positive influence on ROA. This means that an increase in net interest margin directly drives an increase in the bank's profitability. These findings are consistent with the theory of financial intermediation
3. NPL (Non-Performing Loan): A coefficient of 0.04572 with a *p-value* of 0.35290 indicates that NPLs have no significant effect on ROA. These results are interesting because they contradict the general literature, where NPLs typically have a negative impact. This insignificance may reflect the effectiveness of credit risk management at the bank or the low fluctuations of NPLs during the study period.
4. Reserve Requirement (Minimum Required Current Account): A coefficient of -0.02202 with a *p-value* of 0.05490 indicates a negative effect on ROA, but the significance is only close to the threshold of 5% (*marginally significant*). This shows that minimum reserve liabilities tend to reduce banks' ability to manage productive assets optimally.
5. KPMM (Minimum Capital Provision Obligation): A coefficient of -0.03322 with a *p-value* of 0.00000 indicates that KPMM has a negative and significant effect on ROA. Although capital is important for stability, excessive capital accumulation without optimal utilization can suppress profitability.

2. Model Significance Test

- a. F-statistic = 161.00930 with Prob(F-statistic) = 0.00000, indicating that the regression model is simultaneously significant. This means that all independent variables together have a significant influence on ROA.
- b. R-squared = 0.96871 and Adjusted R-squared = 0.96270 indicate that approximately 96.27% of ROA variations can be explained by the BOPO, NIM, NPL, GWM, and KPMM variables. This indicates that the model has excellent explanatory power.

3. Classic Assumption Test

- a. Autocorrelation Test (Breusch-Godfrey Test): Prob value. Chi-Square = 0.62000 > 0.05, indicating that there is no autocorrelation in the regression model.
- b. Harvey Test: Prob. Chi-Square = 0.57880 > 0.05, indicating that heteroscedasticity does not occur in the model. That is, the residual variance is constant.

The results of the regression analysis showed that BOPO, NIM, and KPMM were variables that significantly affected ROA, while NPLs and reserve requirements did not have a significant effect on the 5% confidence level. In general, operational efficiency and interest margin management are proven to be the main determinants of a bank's profitability. Meanwhile, the capital structure and reserve liabilities must be optimized so as not to hinder profitability.

Table 2. Multicollinearity Test

Variance Inflation Factors			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
BOPO	5.02E-05	1156.566	1.604035
NIM	0.002038	403.3170	3.183020
NPL	0.002336	107.3161	3.877419
GWM	0.000120	17.12842	1.687597
KPMM	1.02E-05	36.58487	2.060879
C	0.257662	1186.165	NA

Source: Data processed 2025

Multicollinearity is a condition in multiple linear regression when there is a high correlation between independent variables. The existence of multicollinearity can cause the estimation of the coefficient to be unstable and the interpretation of the influence of each variable to be biased. To detect this symptom, the Variance Inflation Factor (VIF) value is used. In general:

1. VIF < 5 shows no indication of multicollinearity.
2. VIF between 5 and 10 indicates indications of moderate multicollinearity.
3. VIF > 10 indicates high multicollinearity and needs to be watched out.

Based on the Centered VIF value, no serious symptoms of multicollinearity were found in the regression model. All VIF values are below the critical limit of 5. Thus, all independent variables can be used in the model without worrying about distortion due to the high correlation between variables.

The relationship between BOPO (Operating Costs to Operating Income) and ROA (Return on Assets) is negative and significant, as reflected in the regression results which

show a coefficient of -0.05409 and a *p-value* of 0.00000. This means that statistically there is a very strong relationship between these two variables (Ali, 2017; Alfanti, et al., 2024).

Conceptually, BOPO is an indicator of banking operational efficiency. The higher the value of BOPO, the greater the operational costs incurred compared to the operating income obtained. This condition indicates that the bank is working less efficiently, because the revenue generated is not proportional to the costs incurred for operations. On the other hand, ROA measures the bank's ability to generate profits from the total assets it owns, so it is an important indicator of profitability.

When BOPO increases, it means that costs become even greater, which will ultimately reduce net profit. Because net profit is the main component in the calculation of ROA ($ROA = \text{Net Profit} / \text{Total Assets}$), ROA will automatically decrease. That is why the BOPO regression coefficient is negative.

This negative relationship shows that operational efficiency is an important key to increasing bank profitability. By reducing BOPO through cost control, banks can automatically increase profits, which then has a positive impact on ROA. Therefore, banking management needs to prioritize operational efficiency strategies to improve overall financial performance.

Net Interest Margin (NIM) has a positive and significant relationship with Return on Assets (ROA), as seen in the regression results with a coefficient of 0.30055 and a *p-value* of 0.00000. This shows that every one unit increase in NIM will increase the ROA by 0.30055 units, with a statistically strong influence (Indrawan & Dewi, 2020; VMS, et al., 2020).

Conceptually, NIM measures the difference between the interest income earned by the bank from the distribution of credit and the interest cost paid to the saver customer or fund owner, expressed as a percentage of productive assets. NIM reflects the bank's efficiency in generating revenue from the main activities of financial intermediation.

The higher the NIM, the higher the bank, the more able it is to maximize net interest income from its assets. An increase in net interest income will directly increase the bank's net profit, which in turn will increase the ROA (because $ROA = \text{Net Profit} / \text{Total Assets}$). In other words, a high NIM reflects the bank's ability to manage assets productively and profitably, as well as efficiency in managing interest expenses.

This positive relationship indicates that the NIM increase strategy is crucial for banks to optimize their financial performance. For this reason, banks must be able to distribute credit with favorable interest rates, while keeping the cost of funds low. In addition, credit risk management and fund management must be done carefully to maintain stability and profitability.

Non-Performing Loans (NPLs) are an important indicator in assessing the quality of a bank's credit assets. NPLs describe the percentage of non-performing or non-performing loans to the total loans disbursed. The relationship to Return on Assets (ROA), which measures how efficiently a bank makes a profit from its total assets, is theoretically negative—the higher the NPL, the lower the ROA. However, in the regression results given, the NPL coefficient was 0.04572 and *p-value* 0.35290, indicating that this relationship was not statistically significant (Setyarini, 2020; Apriani & Manson, 2019; Lestari & Setianegara, 2020).

This means that, in the context of this data, the increase or decrease in NPLs does not have enough direct effect on ROA, or the effect may have been compensated by other variables such as NIM or BOPO. This can happen if the bank has strong loss reserves, good credit risk management, or high interest income so that the impact of bad loans on net profit is not too felt.

Although the statistical results show an insignificant relationship, theoretically NPLs still need to be controlled, as non-performing loans can trigger losses, lower interest income, and increase reserve costs. In the long run, high NPLs can weigh on the overall financial performance of banks, including lowering ROAs.

As such, NPLs are an important risk factor, and while in the short term they do not show significant influence in this model, they should still be a major concern in asset management and risk management of banks. Banks that can keep NPLs low tend to have better financial stability and profitability.

The Minimum Mandatory Current Account (GWM) is the minimum reserve that banks must keep in Bank Indonesia as a form of monetary control and liquidity management. In the context of the regression shown, the reserve requirement coefficient to Return on Assets (ROA) is -0.02202 with a *p-value* of 0.05490, which means that this relationship is negative and close to statistically significant (Hasibuan, et al., 2023; Lumantow, 2022).

Theoretically, the relationship between the GWM and the ROA is negative. This is because funds placed in the form of reserve requirements cannot be used directly by banks for productive activities such as credit distribution or other investments. The greater the proportion of funds that must be kept as reserve requirements, the smaller the funds that can be used to generate income, so that the potential for profit is reduced, and the ROA tends to decrease.

Reserve requirements play an important role in maintaining the stability of the financial system, but from the perspective of bank profitability, high reserve requirements can be considered as "opportunity costs" because idle funds do not generate returns. Therefore, while it is important to comply with regulations and maintain the trust of the banking system, excessively high reserve requirements can reduce asset utilization efficiency and reduce ROA.

The regression results show that although the effect of the reserve requirement on ROA is not yet fully statistically significant (because the *p-value* is slightly above 0.05), a negative trend is still visible. This strengthens the understanding that liquidity management and compliance with the reserve requirement must be done wisely so as not to sacrifice the bank's profitability.

KPMM (Minimum Capital Provision Obligation) is a ratio that shows how much capital a bank has to cover risks that may arise from its operational activities. In international terms, KPMM is often referred to as the Capital Adequacy Ratio (CAR). Based on the regression results, the KPMM coefficient to Return on Assets (ROA) is -0.03322, with a *p-value* of 0.00000. This means that the relationship between KPMM and ROA is negative and statistically significant (Almunawwaroh & Marliana, 2018; Nugrohowati & Bimo, 2019; Putrianingsih & Yulianto, 2016).

Theoretically, adequate capital is essential to maintain the stability and solvency of banks, but to some extent, the high KPMM can indicate that most of the bank's assets are financed by its own capital, not by third-party funds. While this lowers risk, too high idle or unproductive capital can reduce asset utilization efficiency and suppress profitability. Large capital but not optimally utilized for productive activities, such as credit distribution or investment, will result in a lower return on total assets, which is reflected in a decrease in ROA.

The results of this regression indicate that the increase in KPMM has a negative impact on ROA, because it is possible that banks become too cautious and less aggressive in disbursing credit or taking profitable investment opportunities. It could also reflect a very conservative risk management strategy, which while safe, comes at the expense of profit growth.

Therefore, banks need to keep KPMM within optimal limits—high enough to meet regulations and cover risk, but not so high as to hinder efficiency and profit growth. Finding this balance is key to improving ROA on an ongoing basis.

CONCLUSION

This study aims to analyse the influence of BOPO, NIM, NPL, RESERVE WAG, and KPMM on Return on Assets (ROA) at the Yogyakarta Special Region Regional Development Bank during the period 2017 to 2024. Based on the results of multiple linear regression and classical assumption testing, the following can be concluded:

1. BOPO has a significant negative effect on ROA, which shows that an increase in operating costs relative to revenue will reduce the bank's profitability. Operational efficiency has proven to be an important factor in driving financial performance.
2. NIM has a significant positive influence on ROA, indicating that the larger the net interest margin, the higher the profitability rate. This confirms the role of the bank's intermediation function as the main determinant in the creation of financial added value.
3. NPLs had no significant effect on ROA, suggesting that during the study period, credit risk measured through NPLs was relatively under control or had not reached levels that could significantly affect profits.
4. The reserve requirement shows a negative effect but is only marginally significant, indicating that minimum reserve obligations have the potential to reduce the flexibility of banks' liquidity in managing productive assets.
5. KPMM has a significant negative effect on ROA, which implies that capital accumulation without optimal utilization can reduce profitability.
6. The regression model built has a very strong predictive ability, with an Adjusted R-squared value of 96.27%, and no autocorrelation or heteroscedasticity problems were found. In addition, there were no symptoms of multicollinearity among independent variables.

Based on the findings of the research, some recommendations can be submitted as follows:

1. Improving operational efficiency needs to be the focus of management. Banks can evaluate cost structure, business process efficiency, and digital technology optimization to reduce BOPO and increase profitability.
2. The interest margin management strategy (NIM) must continue to be strengthened, both through interest rate risk management and through the distribution of credit to productive sectors that provide optimal returns.
3. Credit risk management (NPL) still needs to be strictly maintained even though the results of this study show insignificance. Strengthening the principle of prudence in lending and monitoring asset quality remains relevant to maintain long-term stability.
4. Compliance with the reserve requirement should be balanced with a careful liquidity management strategy so that funds are not parked passively and can contribute to profits.
5. There needs to be an efficient capital utilization strategy, so that the available capital is not only a tool for regulatory compliance but also serves as a driver for credit expansion and service innovation.

REFERENCE

- Alfanti, R. N., Herlinawati, E., & Wijaya, F. (2024). Pengaruh Non-Performing Loan (NPL), Biaya Operasional Pendapatan Operasional (BOPO), Net Interest Margin (NIM), Debt to Equity Ratio (DER) terhadap Return on Asset (ROA) pada Bank KB Bukopin periode 2012-2022. *JEMSI (Jurnal Ekonomi, Manajemen, dan Akuntansi)*, 10(1), 445-453.
- Ali, M. (2017). Pengaruh net interest margin (NIM), biaya operasional terhadap pendapatan operasional (BOPO), loan to deposit ratio (LDR) dan nonperforming loan (NPL) terhadap return on assets (ROA). *Jurnal Riset Akuntansi Dan Keuangan*, 5(2), 1377-1392.
- Ali, M., & Puah, C. H. (2019). The internal determinants of bank profitability and stability: An insight from banking sector of Pakistan. *Management research review*, 42(1), 49-67.
- Almunawwaroh, M., & Marlina, R. (2018). Pengaruh CAR, NPF dan FDR terhadap profitabilitas bank syariah di Indonesia. *Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah*, 2(1), 1-17.
- Apriani, S. D., & Mansoni, L. (2019). Pengaruh CAR, LDR dan NPL Terhadap Profitabilitas Pada Bank Yang Terdaftar di Bursa Efek Indonesia (BEI)(Studi Kasus PT. Bank Bukopin Tbk Tahun 2005-2018). *Jurnal Ekonomi Manajemen Perbankan*, 1(2), 86-94.
- Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of international financial Markets, Institutions and Money*, 18(2), 121-136.
- Basuki, A. T., & Prawoto, N. (2019). Analisis Regresi: dalam Penelitian Ekonomi dan Bisni. *Depok: Rajagrafindo Persada*.
- Dangnga, M. T., & Haeruddin, M. (2018). Kinerja keuangan perbankan: Upaya untuk menciptakan sistem perbankan yang sehat.
- Demirgüç-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: some international evidence. *The world bank economic review*, 13(2), 379-408.
- Gujarati, D. N. (2002). *Basic Econometrics* 4th ed.
- Haryanto, S. B., & Widyarti, E. T. (2017). *Analisis Pengaruh NPL, NIM, BOPO, BI Rate dan CAR Terhadap Penyaluran Kredit pada Bank Umum Go Public Periode Tahun 2012-2016* (Doctoral dissertation, Fakultas Ekonomika dan Bisnis).
- Hasibuan, R. A., Nasution, A. I. L., & Tambunan, K. (2023). Pengaruh Fee Based Income Dan Giro Wajib Minimum Terhadap Profitabilitas Bank Syariah Indonesia (BSI). *Jurnal Ekonomi, Bisnis dan Manajemen*, 2(4), 78-93.
- Indrawan, B., & Dewi, R. K. (2020). Pengaruh net interest margin (NIM) terhadap return on asset (ROA) pada pt bank pembangunan daerah jawa barat dan banten tbk periode 2013-2017. *Jurnal E-Bis*, 4(1), 78-87.
- Iqbal, M., & Molyneux, P. (2016). *Thirty years of Islamic banking: History, performance and prospects*. Springer.
- Korompis, R. R., Murni, S., & Untu, V. N. (2020). Pengaruh Risiko Pasar (NIM), Risiko Kredit (NPL), dan Risiko Likuiditas (LDR) terhadap Kinerja Keuangan Perbankan (ROA) pada Bank yang Terdaftar di LQ 45 Periode 2012-2018. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 8(1).
- Kusuma, E. C., & Haryanto, A. M. (2016). Analisis pengaruh variabel kinerja bank (CAR, ROA, BOPO dan LDR), serta pertumbuhan kredit dan kualitas kredit terhadap Non-Performing Loan (NPL). *Diponegoro Journal of Management*, 5(4), 108-120.
- Lestari, W. D., & Setianegara, R. G. (2020). ANALISIS PENGARUH NIM, BOPO, LDR, DAN NPL TERHADAP PROFITABILITAS (Studi Kasus Pada Bank Umum Yang Listed di Bursa Efek Indonesia Periode 2014-2018). *Keunis*, 8(1), 82-92.
- Lumantow, M. M. (2022). Pengaruh Struktur modal, struktur kepemilikan, dan profitabilitas terhadap return saham pada perusahaan manufaktur yang terdaftar di BEI (Studi pada perusahaan LQ45 tahun 2016-2018). *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 10(2), 346-357.
- Manuarsa, I. M. C. D., & Affandy, D. P. (2024). Pengaruh Perputaran Kredit dan Perubahan Tingkat Suku Bunga pada Return on Asset Lembaga Perkreditan Desa Denpasar. *Ekonomis: Journal of Economics and Business*, 8(1), 434-439.

- Novita, B. A., & Sofie, S. (2015). Pengaruh struktur modal dan likuiditas terhadap profitabilitas. *Jurnal Akuntansi Trisakti*, 2(1), 13-28.
- Nugrohowati, R. N. I., & Bimo, S. (2019). Analisis pengaruh faktor internal bank dan eksternal terhadap Non-Performing Financing (NPF) pada Bank Perkreditan Rakyat Syariah di Indonesia. *Jurnal Ekonomi & Keuangan Islam*, 42-49.
- Oktavionita, C. B., Azizah, S. N., Fakhruddin, I., & Wibowo, H. (2022). Ukuran Perusahaan, Kecukupan Modal, Risiko, Dan Stabilitas Keuangan Bank Syariah Di Indonesia. *Jurnal Akademi Akuntansi*, 5(1), 1-15.
- Prasetyo, D. A., & Darmayanti, N. P. A. (2015). Pengaruh risiko kredit, likuiditas, kecukupan modal, dan efisiensi operasional terhadap profitabilitas pada PT BPD Bali. *E-Jurnal Manajemen Unud*, 4(9), 2590-2617.
- Putra, A., & Syaichu, M. (2021). Analisis Pengaruh Bank Size, BOPO, FDR, CAR, dan ROA Terhadap Non-Performing Financing (Studi Kasus Pada Perusahaan Perbankan Syariah yang Terdaftar di Bursa Efek Indonesia (BEI) Tahun 2016–2019). *Diponegoro Journal of Management*, 10(3).
- Putrianingsih, D. I., & Yulianto, A. (2016). Pengaruh non performing loan (NPL) dan capital adequacy ratio (CAR) terhadap profitabilitas (Studi kasus pada perusahaan perbankan yang terdaftar di BEI periode 2010-2013). *Management Analysis Journal*, 5(2).
- Ramadanti, F., & Meiranto, W. (2015). Analisis pengaruh risiko likuiditas terhadap profitabilitas perusahaan perbankan di Indonesia. *Diponegoro Journal of Accounting*, 4(2), 447-456.
- Rohmandika, M. S., Budianto, E. W. H., & Dewi, N. D. T. (2023). Pemetaan Penelitian seputar Variabel Determinan Return on Asset pada Perbankan Syariah: Studi Bibliometrik VOSviewer dan Literature Review. *Eco-Iqtishodi: Jurnal Ilmiah Ekonomi Dan Keuangan Syariah*, 5(1), 1-18.
- Setyarini, A. (2020). Analisis Pengaruh CAR, NPL, NIM, BOPO, LDR Terhadap ROA (Studi Pada Bank Pembangunan Daerah di Indonesia Periode 2015-2018). *Research Fair Unisri*, 4(1).
- Sufian, F., & Habibullah, M. S. (2010). Does economic freedom foster banks' performance? Panel evidence from Malaysia. *Journal of Contemporary Accounting & Economics*, 6(2), 77-91.
- Vernanda, S. D., & Widyarti, E. T. (2016). *Analisis pengaruh CAR, LDR, NPL, BOPO, dan SIZE terhadap ROA (Studi pada bank umum konvensional yang terdaftar di Bursa Efek Indonesia periode 2010-2015)* (Doctoral dissertation, UNDIP: Fakultas Ekonomika Dan Bisnis).
- VMS, D. Y., Maryono, M., & Santosa, A. B. (2020). Pengaruh Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Net Interest Margin (NIM), Biaya Operasional dan Pendapatan Operasional (BOPO) serta Loan To Deposit Ratio (LDR) terhadap Return on Assets (ROA). *Dinamika Akuntansi Keuangan Dan Perbankan*, 9(2), 189-200.