

Article Type: Research Paper

## Determinants of Banking Profitability: The Case of State-Owned Banks Listed on the Indonesia Stock Exchange

Imam Muhtadin<sup>1\*</sup>, Faris Rahman Zain<sup>1</sup>, Edi Purwanto<sup>2</sup>, and Tiyas Puji Utami<sup>3</sup>



### AFFILIATION:

<sup>1</sup> Department of Management, Faculty of Economics and Business, Universitas Muhammadiyah Jakarta, Jakarta Capital Special Region, Indonesia

<sup>2</sup> Universitas Terbuka, South Tangerang, Banten, Indonesia

<sup>3</sup> Department of Accounting, Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta, Special Region of Yogyakarta, Indonesia

### \*CORRESPONDENCE:

imammuhtadin@umj.ac.id

DOI:10.18196/jai.v23i3.15246

### CITATION:

Muhtadin, I., Zain, F. R., Purwanto, E., & Utami, T. P. (2022). Determinants of Banking Profitability: The Case of State-Owned Banks Listed on the Indonesia Stock Exchange. *Journal of Accounting and Investment*, 23(3), 576-587.

### ARTICLE HISTORY

#### Received:

28 Jun 2022

#### Revised:

25 Jul 2022

#### Accepted:

16 Sep 2022



This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License

### JAI Website:



### Abstract

**Research aims:** This study examined the determinants of profitability of state-owned banking companies on the Indonesia Stock Exchange, including Adequacy Ratio (CAR), Operating Costs and Operating Income (OCOI), Loan to Deposit Ratio (LDR), and Non-Performing Loan (NPL).

**Design/Methodology/Approach:** This study is quantitative research with a type of exploratory. The population in this study was all state-owned banks listed on the Indonesia Stock Exchange for the period 2012-2018 and used the saturated sample technique, or the entire population was taken as a sample. The data analysis method employed in this study was a panel data regression model (a combination of time series and cross section) utilizing the EVIEWS 9.

**Research findings:** The results in this study revealed that the CAR and OCOI had a negative effect on bank profitability as proxied by ROA. Meanwhile, LDR and NPL did not affect the profitability of state-owned banks.

**Theoretical contribution/Originality:** The research contributes to the literature and practice. Practically, these results can be used for management to maintain the banking system's internal condition in pursuing profitability.

**Keywords:** Capital Adequacy Ratio; Operating Costs and Operating Income; Loan to Deposit Ratio; Non-performing Loan; Profitability

## Introduction

Banking is one of the main pillars of the Indonesian economy and plays a vital role as a financial intermediary (Sari, 2015). The relationship between the profitability of the banking sector and economic growth is also significantly meaningful (Pamularsih, 2015; Rajan & Zingales, 1998). Banks with excellent financial performance and high competitiveness can actively channel commercial loans to businesses, significantly contributing to economic growth and a rapid business environment. Hence, the determinants of bank profitability are essential not only for bank managers but also for other stakeholders, such as Bank Indonesia, the Financial Services Authority, bankers' associations, and the government. These determinants are helpful for managers and relevant authorities to formulate future strategies and policies to increase the banking sector's profitability in Indonesia (Pamularsih, 2015).

In addition, the role of banks is huge in encouraging the economic growth of a country in today's modern world. Almost all business sectors, including industry, trade, agriculture, plantations, services, and housing, need banks as partners in conducting financial transactions (Ismail, 2018). Thus, the existence of a modern economy as a banking intermediary institution must have good performance because, with good performance, banks will more easily gain customers' trust.

As stated in Bank Indonesia Regulation Number 3/1/2011, Bank Indonesia stipulates the soundness of commercial banks, which can be assessed from the bank's inherent risk profile and the quality of application of credit risk management applications. Therefore, Return on Assets (ROA) is considered necessary in measuring the effectiveness of banks in generating profits by utilizing their assets. The greater the ROA, the better the bank's performance because the rate of return is getting bigger (Husnan, 2009).

Banks, as financial institutions, also supply credit from those who have excess funds to those who need funds; from this, the bank can generate profits based on the difference in interest with the loans taken (Hafiz et al., 2019). Yet, not all disbursed loans are risk-free due to the risk of improper payments and loss of credit (Pamularsih, 2015). Financial ratios that generally affect ROA are NPL (representing credit risk), capital adequacy ratio (CAR), representing capital, and LDR (representing liquidity risk) (Hafiz et al., 2019).

Research related to the determinants of bank profitability has been carried out by several previous researchers, but there are still inconsistencies in the research results. As done by Soedarmono et al. (2013), Soares and Yunanto (2018), and Apriani and Mansoni (2019), CAR did not affect bank profitability, while the results of Juwita et al. (2018) and Bernardin (2016) stated that CAR had a positive effect on bank profitability. Furthermore, LDR positively impacted bank profitability (Prasanjaya & Ramantha, 2013; Soares & Yunanto, 2018). This result contradicts the results of Rohimah (2021), Aprilia and Handayani (2018), and Hutagalung et al. (2013). Likewise, NPL had a positive and significant effect on profitability (Hutagalung et al., 2013; Praja & Hartono, 2018; Soares & Yunanto, 2018). Meanwhile, this finding disagrees with the statement that NPL did not affect ROA (Aini, 2013; Aprilia & Handayani, 2018; Vernanda & Widyarti, 2016). In addition, related studies on the case of state-owned banks are still relatively limited, especially in the Indonesian context.

Moreover, it was found that from 2012 to 2018, the average ROA decreased in state-owned banks (Hafiz et al., 2019). It is the reason for analyzing the internal factors of state-owned banks listed on the Indonesia Stock Exchange (IDX). This research, therefore, proposed a novelty by adding other internal factors, i.e., Operational Costs and Operating Income (OCOI), to measure the level of efficiency and ability of banks to carry out their operational activities. This study also contributes to the literature, especially regarding the influence of internal factors on banking profitability as proxied using ROA. Furthermore, this research provides a practical contribution to management and stakeholders, such as Bank Indonesia, the Financial Services Authority, or even investors, in decision-making.

## Literature Review and Hypotheses Development

### Profitability

The profitability ratio is an analysis of profit, and various elements that constitute profit are essential because a company's survival and success depend on its ability to generate profits (Hafiz et al., 2019). Company profitability analysis is also the central part of financial statement analysis. All financial statements can be used for profitability analysis, but the most important is the income statement. In this study, ROA was used as a proxy for profitability since ROA can take into account the ability of bank management to obtain overall profits. If ROA increases, the company's profitability will also increase (Husnan & Pudjastuti, 2004).

### Capital Adequacy Ratio (CAR)

The capital adequacy ratio (CAR) is a ratio that measures capital adequacy to risk from bank assets. According to Soedarmono et al. (2013), CAR compares the ratio of capital to risk-weighted assets according to the government. CAR is also a ratio that shows how far all bank assets containing risks (credit, investment, securities, and claims on other banks) are financed from the bank's capital funds in addition to obtaining funds from other sources. Besides, CAR indicates a bank's ability to cover a decrease in its assets because of bank losses caused by risky assets, such as loans (Hafiz et al., 2019).

Based on Bank Indonesia Regulations, bank capital consists of core capital and supplementary capital, while RWA (Risk Weighted Assets) is calculated based on the value of each asset item on the balance sheet multiplied by its respective risk weight. The higher the CAR, the better the condition of a bank. Based on Bank Indonesia Regulation Number 15/12/PBI/2013 concerning the minimum capital adequacy requirement for commercial banks, the minimum CAR for commercial banks in Indonesia is 8%.

Further, capital assessment is intended to assess the adequacy of bank capital in securing position risk exposure and anticipating risk exposures that will arise. Quantitative assessment of the capital factor is carried out by evaluating the components of adequacy, projections (forward trends) of capital, the ability of capital to cope with risks, the ability to maintain the need for additional capital from profits, capital plans to support business growth, access to sources of capital, and financial performance of shareholders. In this study, capital adequacy was measured by CAR. CAR is also a guideline for banks to expand in the credit sector.

In this regard, the role of capital is crucial because, apart from being used for expansion purposes, it is also used as a "buffer" to absorb losses from business activities. In this case, the bank must comply with the minimum capital adequacy requirement (KMMM) applicable to capital increase (SE. Internal BI, 2004). Technically, analysis of capital is also known as solvency analysis or capital adequacy analysis, which aims to understand whether the existing bank capital is sufficient to support bank activities carried out

efficiently and whether the bank's capital will be able to absorb unavoidable losses, and whether the bank's wealth (shareholder's wealth) will get bigger or smaller. In addition, subordinated loans include all forms of obligations that contain interest to be paid in a fixed amount in the future. Meanwhile, preferred shares are those whose dividends and asset claims can be subordinated to depositors and all creditors of commercial banks. At the same time, common equity is the total of common shares, retained earnings, and reserve shares. Thus, it can be concluded that the greater the CAR, the greater the ROA. In this case, the bank's financial performance is increasing or improving (Bernardin, 2016; Juwita et al., 2018). From this explanation, a hypothesis could be formulated:

*H<sub>1</sub>: Capital Adequacy Ratio (CAR) has a positive effect on profitability (ROA).*

### **Loan Deposit Ratio (LDR)**

According to Bank Indonesia (SE. Intern BI, 2004), the assessment of the liquidity aspect reflects the bank's ability to manage an adequate level of liquidity to meet its obligations promptly and to meet other needs. In addition, banks must also be able to ensure that activities are managed efficiently in the sense that banks can reduce high liquidity management costs and, at any time, the bank can liquidate their assets quickly with minimal losses. If the measurement results are far above the target and limit, the bank is likely to experience liquidity difficulties, which in turn will cause pressure on bank income.

The standard used by Bank Indonesia for the LDR ratio is 80% to 110% (Purwoko & Sudiyatno, 2013). If the LDR ratio of a bank is below 80% (e.g., 60%), it can be concluded that the bank can only distribute 60% of the total funds raised. Because the primary function of a bank is to function as an intermediary between parties who have excess funds and those who lack funds, the LDR ratio of 60% means that 40% of all funds raised are not channeled to parties in need, so it can be said that the bank does not perform its function properly. Then, if the bank's LDR ratio reaches more than 110%, it means that the total credit provided by the bank exceeds the funds raised (Suryani, 2011).

The higher the LDR, the riskier the bank's liquidity conditions; conversely, the lower the LDR indicates the bank's lack of effectiveness in lending. If a bank's LDR ratio is at the standard set by Bank Indonesia, the profit earned will increase (assuming the bank can channel its credit effectively). With growing profits, ROA will also increase because profit is a component of ROA. It is in line with research conducted by Prasanjaya and Ramantha (2013), Susilowati and Tiningrum (2019), and Soares and Yunanto (2018), which stated that the level of liquidity (LDR) had a positive and significant effect on profitability (ROA).

Furthermore, the more optimal the bank's liquidity level, the greater the third-party funds are disbursed in the form of credit. The greater the amount of credit given, the greater the profit to be obtained. Thus, the bank's financial performance will increase. From this explanation, the hypothesis was formulated:

*H<sub>2</sub>: Loan to Deposit Ratio (LDR) has a positive effect on profitability (ROA).*

### **Non-Performing Loan (NPL)**

The NPL reflects the magnitude of the credit risk faced by the bank; the smaller the NPL, the smaller the credit risk borne by the bank (Hafiz et al., 2019). Here, banks providing credit must analyze the debtor's ability to repay their obligations. After the credit is granted, the bank is required to monitor the use of credit and the knowledge and compliance of the debtor in fulfilling obligations. Thus, if a bank has a high NPL, it will increase both the cost of reserves for productive assets and other costs, thus affecting the bank's performance. Credit risk proxied by non-performing loans (NPL) has a negative effect on bank financial performance as proxied by return on assets (ROA) (Hafiz et al., 2019; Winarso & Salim, 2017). Thus, if the NPL is higher, it will decrease ROA, which also means a decline in the bank's financial performance. Vice versa, if the NPL falls, the ROA will increase so that the bank's financial performance can be said to be getting better.

*H<sub>3</sub>: Non-Performing Loan (NPL) has a negative effect on profitability (ROA).*

### **Operating Costs per Operating Income (OCOI)**

In this study, OCOI was used as an independent variable affecting ROA based on its relationship with the level of bank risk, leading to bank profitability (ROA). According to Rivai and Arifin (2010), the OCOI ratio compares operational costs in measuring efficiency and the bank's ability to carry out its operations. In this case, it should be noted that the main business of banks is to collect funds from the public and then channel them back to the community in the form of credit so that interest expense and interest yields are the most significant portions for banks. Operational efficiency can be achieved through careful planning, activity, setting measurable revenue targets, and limiting expenses.

Based on Bank Indonesia Regulations, the normal OCOI ranges from 94%-96%. Here, operational costs are used to measure the level of efficiency and the bank's ability to carry out its operational activities. Banks also incur operational costs to conduct their core business activities (such as interest, labor, marketing, and other operating costs).

Meanwhile, operating income is the bank's primary income, namely interest income obtained from the placement of funds in credit and other operating income. In reducing their operational costs, efficient banks can reduce losses due to bank inefficiency in managing their business so that the profits obtained will also increase.

According to Bank Indonesia, operating efficiency is measured by comparing total operating costs with total operating income, often called OCOI. This OCOI ratio measures the ability to operate income to cover operational costs. The increasing ratio

reflects the bank's lack of ability to reduce operational costs and increase its operating income, which can cause losses because banks are less efficient in managing their business (SE. Intern BI, 2004). Bank Indonesia sets the best figure for the OCOI ratio below 90% because if the OCOI ratio exceeds 90% to close to 100%, the bank can be categorized as inefficient in carrying out its operations. It aligns with research conducted by Harun (2016), (Hutagalung et al., 2013), and Alfian and Pratiwi (2021), stating that operating costs per operating income (OCOI) had a negative effect on profitability (ROA).

**H<sub>4</sub>:** *Operating Costs per Operating Income (OCOI) have a negative effect on profitability (ROA).*

Based on the developed hypothesis, this study formulated a research model presented in Figure 1.

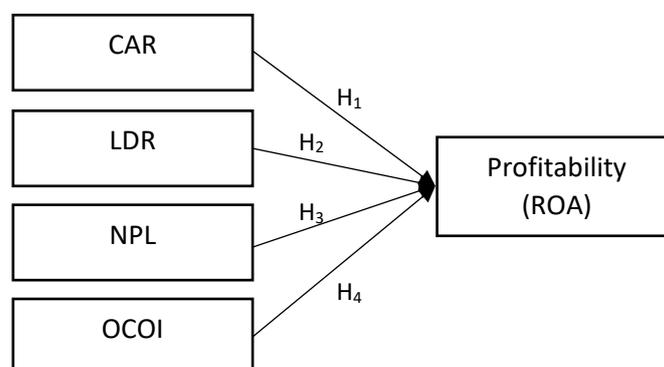


Figure 1 Research Model

## Research Method

This quantitative study used secondary data from historical financial ratios of banking companies listed on the IDX obtained from the financial reports published by Bank Indonesia in the Indonesian Banking Directory for 2012-2018. The period was considered sufficient to follow the development of the bank's performance because it used time series data and covered the latest period of published financial statements issued by Bank Indonesia. The banks that became the research population were Bank Mandiri, BRI, BNI, and BTN. The sampling technique used was a saturated sample, where all the research population was drawn into the research sample.

The research variables consisted of the independent variables, namely CAR, LDR, OCOI, and NPL, and the dependent variable, i.e., profitability, proxied by ROA. In this study, the ratio used to measure profitability was ROA because ROA can consider the ability of bank management to earn overall profits. If ROA increases, the company's profitability will also increase (Husnan & Pudjiastuti, 2004). Then, CAR was used to measure bank capital, LDR

to measure credit or third-party funds, OCOI for operational costs, and NPL for credit problems. The detailed measurement of variables is presented in Table 1.

**Table 1** Variable Measurements

Variable	Formula	Source
Adequacy Ratio (CAR)	(Tier 1 Capital + Tier 2 Capital): Risk-Weighted Assets	Harmono (2015) and Hafiz et al. (2019)
Operating Costs and Operating Income (OCOI)	(Operating Expenses: Net sales) x 100%	Hutagalung et al. (2013)
Loan to Deposit Ratio (LDR)	Total Loans: Total Deposit	Bank Indonesia through Bank Indonesia Circular Letter No. 6/23/DPNP May 31, 2004
Non-Performing Loan (NPL)	(Non-performing Loan: Total Loans) x 100%	Hafiz et al. (2019)
Return on Asset	Operating Income: Total Assets	Hafiz et al. (2019); Brigham and Houston (2011)

The data analysis method used a panel data regression model (a combination of time series and cross section) using the chow-test, Hausman test, and Lagrange multiplier test utilizing the statistical application program EViews 9.0. Then, a panel data test was used to select the best data test for the research model. The following analytical model used in this study to determine the effect of the factors of ownership structure, capital structure, and liquidity on the value of companies listed on the IDX was panel data regression; the equation used is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it} \dots\dots\dots (1)$$

Where:  $Y_{it}$  = ROA (Return of Asset);  $X_{1it}$  = CAR (Capital Adequacy Ratio);  $X_{2it}$  = LDR (Loan to Deposit Ratio);  $X_{3it}$  = OCOI (Operating Costs per Operational Income);  $X_{4it}$  = NPL (Non-Performing Loan);  $\beta_0$  = Constant;  $\beta_1 \dots \beta_4$  = Regression coefficient (slope);  $\epsilon_{it}$  = Error.

## Result and Discussion

### Panel Data Regression Test

This study used panel data from banking for the 2012-2018 period. To examine the relationship between bank profitability (ROA) and CAR, LDR, OCOI, and NPL, a panel data regression model was estimated using the common effect model, fixed effect model, and random effect model.

**Table 2** Panel Data Regression Test Results

Testing	Probability	Testing	Conclusion
Uji Chow-Test Result		Common Effect vs. Fixed Effect	Fixed Effect
F-test	0.0000		
Chi-square	0.0000		
Lagrange Multiplier	0.0026	Common Effect vs. Random Effect	Random Effect
Hausman Test	0.0000	Fixed Effect vs. Random effect	Fixed Effect

Table 2 presents the results of the panel data regression test with three tests to select the best data test for this research model. From the Chow test results, the probability results of the F and chi-square tests were 0.000 or less than 0.05. It indicates that the estimation model approach followed the fixed effect model. In other words, the fixed effect model was better than the common effect model in this study. In addition, the probability value of the Breusch-Pagan Lagrange Multiplier Test of 0.0000 was smaller than the 0.05 alpha. It denotes that the estimation model approach followed the random effects model. In other words, the random effect model was better than the common effect model in this study. Then, based on the Hausman test results, it can be seen that the probability value in the random test period was 0.0026, less than 0.05, so it can be concluded that the fixed method effect model was better than the random effect model in this study.

Moreover, the model selection was made using the Chow test, Langrange Multiplier, and Hausman test. From the Chow test results, it can be concluded that the fixed effect model was better than the common effect model. The Langrange Multiplier test concluded the random model, and from the Hausman test, it is supposed that the fixed effect model was better than the random effect model. Therefore, the more dominant panel model was the fixed effect model.

**Hypothesis Testing Results**

The first and fourth hypothesis tests were based on the t-test, showing that the p-value results were less than 0.05, namely 0.0248 and 0.0000 (Table 3). Thus, it can be concluded that CAR and OCOI affected ROA in state-owned banks listed on the IDX with a negative coefficient value. Meanwhile, for the second and third hypotheses, the p-value was more than 0.05, 0.8238, and 0.7069. Hence, it can be concluded that LDR and NPL did not affect ROA for 2012-2018. Thus, CAR had a negative impact on profitability, while LDR and NPL did not affect bank profitability.

**Table 3** Hypothesis Test Results

Variables	Hypothesis	Coefficient	t-value	p-value	Conclusion
CAR	H1	-0.038608	-2.427011	0.0248	Not supported
LDR	H2	-0.001916	-0.225555	0.8238	Not supported
NPL	H3	0.024191	0.381384	0.7069	Not supported
OCOI	H4	-0.092803	-0.225555	0.0000	Supported
Adjusted R <sup>2</sup>		0.982697			

Dependent variable: Profitability (ROA)

In addition, the R<sup>2</sup> test was used to determine the relationship’s suitability between the independent and the dependent variables in a regression equation. The coefficient of determination described the influence of the variables CAR, LDR, OCOI, and NPL on ROA or examined the degree of closeness of the relationship between variables. Based on the data processing results, the R-Squared value was 0.982697. It signifies that the independent variables in this study, namely CAR, LDR, NPL, and OCOI, together could explain the dependent variable, i.e., the return on assets of 98.26%. Meanwhile, the remaining 0.74% was explained by other variables outside the research model.

Based on the results obtained, the first hypothesis was not supported. CAR had a negative effect on the profitability of state-owned banks listed on the IDX. It might be due to the CAR being owned by large banks, and banks were reluctant to expand the market, causing lower income and resulting in lower profits. It is also supported by Pinasti et al. (2018) that a good CAR ratio must be above the minimum requirement of 8%. However, conditions in which the CAR ratio is too high are also not good for banks. It is because if the CAR is too high, for example, 100%, it indicates that the bank does not circulate funds from other parties. Banks that do not channel their funds will then experience losses. In addition, too high CAR means that the capital owned by the bank is too large, reflecting that the bank is less efficient in channeling its funds. Thus, it is input for Bank Indonesia to review the latest regulations related to CAR so that banks have a reference for the ideal highest point for the CAR ratio (Hafiz et al., 2019; Pinasti et al., 2018). However, this result contradicts the findings by Bernardin (2016) and Juwita et al. (2018).

Hypothesis 2 regarding the positive effect of LDR on profitability was not supported. The results of this study do not reinforce the research conducted by Prasanjaya and Ramantha (2013), Susilowati and Tiningrum (2019), and Soares and Yunanto (2018), which stated that LDR had a positive effect on ROA. In this case, LDR is the ratio between loans given to customers compared to funds that come in from the public (Pinasti et al., 2018). Bank Indonesia has determined that the lower limit for the LDR is 78%, and the upper limit that can be tolerated is 92%. Thus, in addition to collecting funds, the bank must always maintain the bank LDR ratio or increase the amount of credit extended by the public. When banks cannot maintain credit stability to the public, it will disrupt profit or profitability (Soares & Yunanto, 2018). In addition, disbursing substantial amounts of credit can potentially increase the number of bad loans, which can impact decreasing profits; besides, if credit can be channeled effectively, it will bring profits to banks (Pinasti et al., 2018). The results of this study are in line with research conducted by Hutagalung et al. (2013), Pinasti et al. (2018), and Hafiz et al. (2019).

Furthermore, hypothesis 3 was not supported; the results obtained are that NPL did not affect profitability as proxied by ROA. These results are consistent with the findings of Hutagalung et al. (2013), Aini (2013), Aprilia and Handayani (2018), and Vernanda and Widyarti (2016). It might be due to the high capital adequacy level (CAR), but banks had not optimally utilized their capital. Here, the bank intermediation function has not been maximized as indicated by the suboptimal lending (LDR) (Hutagalung et al., 2013). Even though income is obtained not solely from lending, LDR is not significant to ROA. Banks in Indonesia can improve their performance by carrying out operational activities through various innovative banking strategies to control OCOI, earn asset quality (NPL), and optimize the bank intermediation function (LDR).

Meanwhile, hypothesis 4 was supported. OCOI had a negative effect on bank profitability as proxied by ROA. These results corroborate research from Hutagalung et al. (2013), Harun (2016), (Pinasti et al., 2018), and Alfian and Pratiwi (2021). In this regard, achieving a high level of efficiency is the hope of each bank because achieving efficiency means that management has successfully utilized its resources efficiently.

On the other hand, the high OCOI ratio indicates that the bank has not been able to use its resources or has not been able to run its operational activities efficiently, which will result in a decrease in profitability (Pinasti et al., 2018). Meanwhile, the smaller the OCOI ratio, the more efficient the bank is in conducting its business activities, so the opportunity to earn higher profits will be higher. Then, the more efficient a bank is, the better its performance. Improved bank performance will further increase public confidence in banks. Consequently, increasing public trust can enhance the number of third-party funds (DPK) collected by a bank. Besides, people are encouraged to use bank services and products, such as loans or credit. The high DPK and public contribution to bank products are expected to increase profitability (Hutagalung et al., 2013).

This research contributes to banks maintaining the OCOI ratio in accordance with the provisions of Bank Indonesia, which is below 85%. If the OCOI ratio exceeds 85% to 100%, the bank can be categorized as inefficient in its operations. Besides OCOI, banks must also consider other internal factors to maintain management stability and deal with market problems. This research also contributes to stakeholders in decision-making, such as Bank Indonesia, the Financial Services Authority, and investors.

## Conclusion

This research attempts to determine bank profitability using CAR, OCOI, LDR, and NPL variables. The study was conducted on state-owned banks listed on the IDX using data from 2012-2018. The results showed that CAR had a negative effect on the profitability of state-owned banks on the IDX. It might be because banks were reluctant to expand the market, which caused lower income, resulting in lower profits. In a similar vein, OCOI negatively affected the profitability of state-owned banks. It indicates that the bank had a high-efficiency level in utilizing existing resources. Furthermore, LDR and NPL did not affect profitability as proxied by ROA.

This study contributes to the literature on internal factors affecting bank profitability. This research also contributes to bank management's attention to ratios, such as CAR, LDR, NPL, and OCOI. Nevertheless, this study has a limitation, i.e., using a short period. Thus, it is recommended for further research to add the period and the number of samples. Furthermore, the study was limited to the internal factors of CAR, LDR, NPL, and OCOI. Hence, further research can examine other internal factors, such as NIM, Financing to Deposit Ratio (FDR), Third Party Funds (DPK), and Loan to Funding Ratio (LFR).

## References

- Aini, N. (2013). Pengaruh CAR, NIM, LDR, NPL, BOPO, dan Kualitas Aktiva Produktif terhadap Perubahan Laba (Studi Empiris Pada Perusahaan Perbankan yang terdaftar di BEI) Tahun 2009–2011. *Dinamika Akuntansi Kenangan dan Perbankan*, 2(1), 14-25. Retrieved from <https://www.unisbank.ac.id/ojs/index.php/fe9/article/view/2104>
- Alfian, M., & Pratiwi, A. (2021). Pengaruh CAR, BOPO, NPL dan LDR terhadap ROA pada PT Bank Rakyat Indonesia (Persero) Tbk. *Jurnal Ekonomi dan Bisnis Dharma Andalas*,

- 23(2), 299-307. Retrieved from <https://jurnal.unidha.ac.id/index.php/JEBD/article/view/234>
- 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. <https://doi.org/10.32897/jemper.v1i2.227>
- Aprilia, J., & Handayani, S. R. (2018). Pengaruh Capital Adequacy Ratio, Biaya Operasional Per Pendapatan Operasional, Non-Performing Loan, dan Loan To Deposit Ratio Terhadap Return On Asset dan Return On Equity (Studi pada Bank Umum Swasta Nasional Devisa Tahun 2012–2016). *Jurnal Administrasi Bisnis*, 61(3). Retrieved from <http://administrasibisnis.studentjournal.ub.ac.id/index.php/jab/article/view/2611>
- Bernardin, D. E. Y. (2016). Pengaruh CAR dan LDR terhadap Return on Assets. *Jurnal Ecodemica Jurnal Ekonomi Manajemen dan Bisnis*, 4(2), 232-241.
- Brigham, E. F., & Houston, J. F. (2006). *Dasar-dasar manajemen keuangan*. Jakarta: Salemba Empat.
- Hafiz, M. S., Radiman, Sari, M., & Jufrizen. (2019). Analisis Faktor Determinan Return on Asset pada Bank BUMN yang Terdaftar di Bursa Efek Indonesia. *Jurnal Manajemen dan Keuangan*, 8(2), 107-122. <https://doi.org/10.33059/jmk.v8i2.1681>
- Harmono, M. K. B. B. S. (2014). *Pendekatan Teori. Kasus, dan Riset Bisnis*. Jakarta: PT Bumi Aksara.
- Harun, U. (2016). Pengaruh Ratio-ratio Keuangan Car, Ldr, Nim, BOPO, Npl Terhadap Roa. *Jurnal Riset Bisnis dan Manajemen*, 4(1), 67-82. Retrieved from <https://ejournal.unsrat.ac.id/index.php/jrbm/article/view/12352>
- Husnan, S. (2009). *Teori Portofolio dan Analisis Sekuritas*. 4<sup>th</sup> Ed. Yogyakarta: UPP STIM YKPN.
- Husnan, S., & Pudjiastuti, E. (2004). *Dasar-dasar manajemen keuangan*. Yogyakarta: UPP AMP YKPN.
- Hutagalung, E., Djumahir, D., & Ratnawati, K. (2013). Analisa Rasio Keuangan terhadap Kinerja Bank Umum di Indonesia. *Jurnal Aplikasi Manajemen*, 11(1), 122-130. Retrieved from <https://jurnaljam.ub.ac.id/index.php/jam/article/view/502>
- Ismail, M. (2018). *Manajemen Perbankan: Dari Teori Menuju Aplikasi*. Jakarta: Kencana.
- Juwita, S., Raga, P. D. J., Prasetyo, F. I., & Rimawan, E. (2018). Effect of CAR (capital adequacy ratio), OCOI (operational costs on operational revenues) and LDR (loan to deposit ratio) to ROA (return on assets) PD Bank Pasar Bogor City. *International Journal of Innovative Science and Research Technology*, 3(6), 305-309. Retrieved from <https://ijisrt.com/effect-of-car-capital-adequacy-ratio-bopo-operational-costs-on-operational-revenues-and-ldr-loan-to-deposit-ratio-to-roa-return-on-assets-pd-bank-pasar-bogor-city>
- Pamularsih, D. (2015). Pengaruh LDR, NPL, NIM, BOPO, CAR dan SUKUBUNGA terhadap profitabilitas pada sektor perbankan yang terdaftar di Bursa Efek Indonesia Periode tahun 2009-2013. *Jurusan Akuntansi Fakultas Ekonomi Universitas Pandanaran Semarang*, 1(1), 1-20.
- Pinasti, W. F., & Mustikawati, RR. I. (2018). Pengaruh CAR, BOPO, NPL, NIM dan LDR terhadap profitabilitas bank umum periode 2011-2015. *Nominal, Barometer Riset Akuntansi dan Manajemen*, 7(1), 126-142. <https://doi.org/10.21831/nominal.v7i1.19365>
- Praja, N. B. A., & Hartono, U. (2018). Pengaruh Ukuran Perusahaan, Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR), Non Performing Loan (NPL) Terhadap Profitabilitas Pada Bank Umum Swasta Nasional Devisa Yang Terdaftar di Indonesia Periode 2012-2016. *Jurnal Ilmu Manajemen*, 7(1), 1-12.

- Prasanjaya, A., & Ramantha, I. (2013). Analisis pengaruh rasio CAR, BOPO, LDR dan ukuran perusahaan terhadap profitabilitas bank yang terdaftar di BEI. *E-Jurnal Akuntansi*, 4(1), 230-245. Retrieved from <https://ojs.unud.ac.id/index.php/akuntansi/article/view/5912>
- Purwoko, D., & Sudiyatno, B. (2013). Faktor-faktor yang mempengaruhi kinerja bank (Studi empirik pada industri perbankan di Bursa Efek Indonesia). *Jurnal Bisnis dan Ekonomi*, 20(1), 25-39.
- Rajan, R. G., & Zingales, L. (1998). Financial Dependence and Growth. *The American Economic Review*, 88(3), 559–586. <http://www.jstor.org/stable/116849>
- Rivai, V., & Arifin, A. (2010). *Islamic Banking Sebuah Teori, Konsep, dan Aplikasi*. Jakarta; Bumi Aksara.
- Rohimah, E. (2021). Analisis Pengaruh BOPO, CAR, Dan NPL Terhadap ROA Pada Bank BUMN Tahun 2012-2019 (Studi pada Bank BUMN yang Go Public di Bursa Efek Indonesia). *Jurnal Ilmiah Mahasiswa Akuntansi*, 1(2), 133-145. Retrieved from <https://jom.universitassuryadarma.ac.id/index.php/jima/article/view/39>
- Sari, D. I. (2015). Analisis terhadap Peranan dan Strategi Bank Indonesia serta Pemerintah dalam Menjaga Stabilitas Sistem Keuangan di Indonesia. *Moneter-Jurnal Akuntansi dan Keuangan*, 2(1), 29-36. Retrieved from <https://ejournal.bsi.ac.id/ejurnal/index.php/moneter/article/view/957>
- Soares, P., & Yunanto, M. (2018). The Effect Of NPL, CAR, LDR, OER and NIM to Banking Return On Asset. *International Journal of Economics, Commerce and Management*, 6(3), 40-55.
- Soedarmono, W., Machrouh, F., & Tarazi, A. (2013). Bank competition, crisis and risk taking: Evidence from emerging markets in Asia. *Journal of International Financial Markets, Institutions and Money*, 23(1), 196–221. <https://doi.org/10.1016/j.intfin.2012.09.009>
- Suryani, S. (2011). Analisis pengaruh Financing to Deposit Ratio (FDR) terhadap profitabilitas perbankan syariah di Indonesia. *Walisongo: Jurnal Penelitian Sosial Keagamaan*, 19(1), 47-74. <https://doi.org/10.21580/ws.19.1.212>
- Susilowati, E. M., & Tiningrum, E. (2019). Tata Kelola Perbankan Ditinjau dari Kinerja Keuangan Dilihat dari Profitabilitas Perbankan. *ProBank*, 4(1), 9–14. <https://doi.org/10.36587/probank.v4i1.420>
- 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). *Diponegoro Journal of Management*, 5(3), 1040-1052. Retrieved from <https://ejournal3.undip.ac.id/index.php/djom/article/view/14879>
- Winarso, E., & Salim, I. A. (2017). The Influence of Risk Management to the Return on Asset (ROA) Banking Sector (Case Study of Bank in Indonesia Listed in Indonesia Stock Exchange). *Advances in Economics and Business*, 5(7), 382–393. <https://doi.org/10.13189/aeb.2017.050702>