



# Banking Company Profitability Based on the Influence of Non-Performing Loans and Capital Structure

Gede Santanu<sup>1</sup>, Kadek Dian Jatiwardani<sup>2</sup>, and Ni Nyoman Supiatni<sup>3</sup>

<sup>1,2</sup> Administration Department, Politeknik Negeri Bali, Bali, Indonesia

<sup>3</sup> Electrical Engineering Department, Politeknik Negeri Bali, Bali, Indonesia  
santanu@pnb.ac.id

**Abstract.** The banking industry plays a very important role in improving people's welfare and Indonesia's economic growth. The value of Bank KBMI 4's return on assets (ROA) appears to have fluctuated over the last six years. The 2020 COVID-19 pandemic had a significant impact. This research aims to partially and simultaneously analyze the influence of non-performing loans (NPL) and capital structure on the profitability of bank group companies based on Core Capital (KBMI) 4 on the Indonesia Stock Exchange for the 2017–2022 period. We project the company's capital structure using the debt-to-assets ratio (DAR) and debt-to-equity ratio (DER) values, and we project its profitability using the return on assets (ROA) value. This research employed associative quantitative methods. The Indonesian Stock Exchange (BEI) uses the annual report from each banking company as a type of secondary data. The data collection method is documented. This study involved four banking companies listed in the KBMI 4 category on the BEI from 2017 to 2022. We used purposive sampling and included Bank Central Asia (BCA), Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), and Bank Mandiri in the sample. This research uses data analysis techniques such as descriptive statistical analysis, classical assumption tests, and multiple linear regression analysis. We used the IBM SPSS Statistics 25 program to carry out all these techniques. The government can use the research's results as a fundamental guide to set banking policies, and company management, investors, and other interested parties can use them to make investment decisions.

**Keywords:** Debt to Assets Ratio, Debt to Equity Ratio, Non-performing Loan, Return on Assets

## 1 Introduction

Supervision of banking performance is very important for the Financial Services Authority (OJK), so the OJK has changed the rules in grouping banking from Commercial Banks for Business Activities (BUKU) to the Group of Banks Based on Core Capital (KBMI). This latest regulation regulates the gradual increase in capital of commercial banks through the fulfillment of the minimum core capital and minimum Capital Equivalency Maintained Assets (CEMA) of 3 trillion rupiah with a period of no later than December 31, 2022. The larger the core capital, the safer the funds owned by customers in it (Noer Khoeriah & Suria Manda, 2021). The grouping of banking

© The Author(s) 2024

A. A. N. G. Saptaka et al. (eds.), *Proceedings of the International Conference on Sustainable Green Tourism Applied Science - Social Applied Science 2024 (ICoSTAS-SAS 2024)*,

Advances in Economics, Business and Management Research 308,

[https://doi.org/10.2991/978-94-6463-622-2\\_2](https://doi.org/10.2991/978-94-6463-622-2_2)

companies with the highest core capital is in the KBMI 4 category with the highest core capital of more than 70 trillion rupiah. When viewed from Return on Assets (ROA) in the 2017-2022 time frame, KBMI 4 tends to fluctuate. ROA is the most crucial profitability indicator for banking companies (Laan et al., 2022). The tendency of fluctuating ROA can be seen from the lowest decline experienced by Bank BNI of 1.46% in 2019-2020. The ROA value can be influenced by several factors, including non-performing loans and capital structure.

Non-Performing Loans (NPLs) are used to assess the bank's ability to bear the entire risk of overall loan default by the borrower or debtor. Bank Indonesia regulations state that if a bank's NPL value is above 5%, it can be categorized as an unhealthy bank (Trisia & Rofi, 2022). Just like ROA, the NPL value of KBMI 4 tends to fluctuate with the highest increase experienced by Bank BNI of 1.87% in 2019-2020. A bank's high NPL value will increase the cost of reserve productive assets and other costs, which means that this can have a negative impact on the bank's financial performance (Mosey et al., 2018). In line with the research conducted by Utami and Silaen, Rinofah et al found that NPLs had a negative and significant effect on the ROA of conventional banking for the period 2015-2020 (Jatiwardani & Sukartha, 2018). The same result was found by Suryana and Manda, namely NPL had a negative and significant effect on ROA in SOE Banks for the 2017-2019 period (Damar et al., 2021). However, Sahabuddin et al obtained different results, namely NPL had a positive and insignificant effect on ROA in PT Bank Sulselbar for the 2012-2020 period (Utami & Silaen, 2018).

This study examines the influence of NPL, DAR and DER on the ROA of Bank Group Companies based on KBMI 4. The results of this study can provide guidance for financial managers and practitioners in managing credit risk and capital structure of their companies to increase profitability. Investors, creditors, and other stakeholders can use the results of this research as a basis to make better investment or lending decisions. The findings of this study can provide input to policymakers in designing more effective regulations in managing credit risk and encouraging optimal capital structures to increase corporate profitability. The knowledge gained from this research can assist companies in identifying areas where they can improve their profitability through better credit risk management and more efficient management of capital structures.

## 1.1 Signaling Theory

This theory was first put forward in 1973 by Spence in his research known as Job Market Signaling. The company's motivation in sharing information is because there is an information asymmetry between outsiders and management as a result of the company manager having more information about the company and its prospects (Rinofah et al., 2022). The use of signaling theory explains that information in the form of profitability that is proxied with a high ROA will be a good signal, this is because a high ROA can show good financial performance of the company so that it will attract investors to invest in both stocks and other types of investments (Suryana & Manda, 2022).

## 1.2 Non-Performing Loan (NPL)

NPL (Non-Performing Loan) is a financial indicator used to assess a bank's performance in managing problematic loans (Damar et al., 2021). NPL can be used to evaluate the extent to which troubled loans can be covered by the company's productive assets (Laan et al., 2022). When connected to the credit collectibility level, the total amount of problematic loans includes substandard loans (KL), doubtful loans (D), and bad loans. The formula used to measure this ratio is shown in Equation 1.

$$NPL = \frac{\text{Total Non - Performing Loan}}{\text{Total Credits}} \times 100\% \quad (1)$$

## 1.3 Capital Structure

The capital structure is a comparison of funding with the company's obligations, in other words, this obligation in the form of debt is an element of the company's capital structure (Sahabuddin & Amelia Rahman, 2022). According to Efendi and Wibowo, the trade-off theory in capital structure is the idea that companies determine how much debt financing and how much equity funds are used by balancing benefits and costs (Wisaputri & Ramantha, 2021). This theory was first put forward by Modigliani and Miller in 1963. The ratio of the capital structure is divided into five parts, including Debt to Assets Ratio (DAR) and Debt to Equity Ratio (DER) (Hermawan et al., 2021). DAR is a ratio used in assessing the total amount of assets of a company that can be spent using debt (Sumbayak & Manda, 2020). It can be said that the smaller the DAR, the smaller the amount of borrowed capital in investing in assets to earn profits. The formula used to measure this ratio is shown in Equation 2.

$$NAR = \frac{\text{Total Debt}}{\text{Total Assets}} \times 100\% \quad (2)$$

DER is a ratio used to determine how well an organization or company can pay off all its obligations with only the capital it has (Hermawan et al., 2021). The larger the DER, the lower the company's capacity to obtain profitability. The formula for measuring this ratio is shown in Equation 3.

$$DER = \frac{\text{Total Debt}}{\text{Total Equity}} \times 100\% \quad (3)$$

## 1.4 Profitability

According to Rinofah et al, profitability is a company's skill in generating profits (Jatiwardani & Sukartha, 2018). Financial performance in generating profits will decline if the profitability value decreases, and vice versa. Profitability is proxied with Return on Assets (ROA). The higher the ROA value, the higher the company's profitability, which means the company's performance is improving. The formula used to measure this ratio is shown in Equation 4.

$$ROA = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100\% \quad (4)$$

## 2 Methodology

This study uses an associative quantitative research model examining the casual correlation of two or more variables. The total sample to be used is 24 samples, consisting of 4 samples of bank subsector companies listed on the IDX and included in the KBMI 4 category with a span of 6 years. The data analysis used in this study is multiple linear regression analysis. This analysis will show the effect of Non-Performing Loans (NPL), projected capital structures with Debt to Assets Ratio (DAR) and Debt to Equity Ratio (DER) on the bound variable, namely Return on Assets (ROA). The regression equations to be tested is shown in Equation 5.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e \quad (5)$$

Description:

$Y$	= Return on Assets (ROA)
$\alpha$	= Constant
$\beta_{1,2,3}$	= Regression coefficients
$X_1$	= Non-Performing Loan (NPL)
$X_2$	= Capital Structure (DAR)
$X_3$	= Capital Structure (DER)
$e$	= Error term, Estimator error rate in research

## 3 Result and Discussion

### 3.1 Result

**Multiple Linear Regression Analysis.** The results of the multiple linear regression analysis indicate the following conclusions: First, the Non-Performing Loan (NPL) variable has a negative and significant impact on the Return on Assets (ROA) variable, with a coefficient of -0.632. The T-value (Tcount) of 5.234 is greater than the T-table value of 2.08596, with a significance level of 0.000, which is less than the 0.05 threshold. This shows a significant negative relationship between NPL and ROA. Second, the Debt to Assets Ratio (DAR) variable has a positive but insignificant impact on ROA, with a coefficient of 0.179. The T-value (Tcount) of 1.799 is less than the T-table value of 2.08596, and the significance level is 0.087, which is greater than 0.05, indicating that the relationship is not statistically significant. Third, the Debt to Equity Ratio (DER) variable has a negative and significant effect on ROA, as evidenced by a coefficient of -0.395. The T-value (Tcount) of 3.139 is greater than the T-table value of 2.08596, with a significance level of 0.005, which is less than 0.05, confirming a significant negative relationship between DER and ROA. It can be seen in Table 1.

**Table 1.** Coefficients<sup>a</sup>

Model		Coefficients <sup>a</sup>			t	Sig.
		Unstandardized coefficients		Standardized coefficients		
		B	Std. error	Beta		
1	(Constant)	2.557	1.757		1.456	0.161
	NPL	-0.609	0.116	-0.632	-5.234	0.000
	DAR	0.041	0.023	0.179	1.799	0.087
	DER	-0.004	0.001	-0.395	-3.139	0.005

According to the results of multiple linear regression analysis, the regression equation is shown in Equation 6.

$$OA = 2.557 - 0.609X1 + 0.041X2 - 0.004X3 + e \quad (6)$$

**Simultaneous Tests (F Test).** The F test in Table 2, the first step that must be considered is to know the value of the Ftable with  $\alpha = 0.05$ . The degree of freedom 1 (df1) = (k-1), then (4-1) =3, and the degree of freedom 2 (df2) = (n-k), then 24-4=20, and the significant value is 5%. Therefore, the value of Ftable 30.850 is greater than Ftable 3.10 and the significant value is 0.000 lower than 0.05. Therefore, it can be concluded that Non-Performing Loans (NPL), Debt to Assets Ratio (DAR), and Debt to Equity Ratio (DER) simultaneously have a significant effect on Return on Assets (ROA).

**Table 2.** ANOVA<sup>a</sup>

Model	Sum of squares	df	Mean square	F	Sig.
1 Regression	9.466	3	3.155	30.850	0.000 <sup>b</sup>
Residual	2.046	20	0.102		
Total	11.511	23			

<sup>a</sup>Dependent Variable: ROA

<sup>b</sup>Predictors: (Constant), DER, DAR, NPL

### 3.2 Discussion

Signal theory is used to explain the relationship that occurs between banks and investors facing credit problems. The higher the NPL value, the worse the credit quality, which increases the number of non-performing loans, i.e. losses caused by the rate of return on bad loans. In other words, an increase in NPL value indicates an increase in ROA, which means the bank's financial performance is improving. Conversely, if the NPL value increases, the bank's ROA decreases, and the bank's financial performance deteriorates. This increase in the value of NPLs will give a bad signal to investors because it shows that banks will not have the opportunity to get repayment and interest income from the loans given. The level of profitability obtained will be lower when interest income decreases, which means that the bank's financial performance is getting worse.

According to the trade off theory, the use of debt can reduce the tax burden. Companies tend to use the use of debt to reduce the tax burden because they can get incentives in the form of interest expenses that will reduce taxable income. Thus, companies that use debt will get tax savings, further increasing their profits. Therefore, the theoretical relationship of this research is proven. Because KBMI 4 companies tend to be less effective in maximizing debt to invest in profit-generating assets over the past six years, the study found insignificant results between DAR and ROA values. In addition, this situation has been exacerbated by the COVID-19 pandemic in Indonesia. Although policies such as relaxation and credit restructuring have been evaluated to improve credit quality, the pandemic has caused many debtors to fail to pay off their interest and principal payments.

According to the trade-off theory, the use of debt can reduce the tax burden. Companies tend to use the use of debt to reduce the tax burden because they can get incentives in the form of interest expenses that will reduce taxable income. Companies that use debt will get tax savings, further increasing their profits. The study found that the debt-to-equity ratio was greater when the debt-to-equity ratio was lower. Companies with high-profit rates but high debts will need to pay their debts, which in turn will reduce their profitability. Therefore, the swap theory is not proven in this study. Thus, based on signal theory, this increase in the value of DER will give a bad signal to investors because this increase will lead to a decrease in the value of the company's asset ratio (ROA). The decline in ROA value indicates a decline in the company's financial performance.

The results showed that NPL, DAR, and DER affected ROA simultaneously. The adjusted R<sup>2</sup> value obtained at 0.796 shows the percentage of influence of non-performing loans of 79.6% on return on assets, while 20.4% is influenced by other variables outside the study. By looking at the results of the F-test at the same time, the H<sub>0</sub> hypothesis was rejected and the H<sub>a</sub> hypothesis was accepted. The F-value of 30.850 is greater than the F-table 3.10 and the significant value of 0.000 is less than 0.05. Thus, based on Core Capital (KBMI) 4 on the IDX for the 2017-2022 period, it can be concluded that NPLs, DAR, and DER simultaneously affect the ROA of the Bank Group's companies.

## 4 Conclusion

Based on the analysis and discussion of the research results, the following conclusions can be drawn: Non-performing loans (NPLs) have a negative and significant effect on the return on assets (ROA) of bank group companies classified under core capital (KBMI) 4 listed on the IDX for the period from 2017 to 2022. The partial T-test results revealed that the T value was greater than the T-table ( $5.234 > 2.08596$ ) with a significance level of 0.000, which is less than 0.05. The debt to assets ratio (DAR) has a positive but insignificant effect on the return on assets (ROA) of the same group of bank companies during the same period, as indicated by the partial T-test results, where the T value was less than the T-table ( $1.799 < 2.08596$ ) with a significance level of 0.087, which is greater than 0.05. Additionally, the debt-to-equity ratio (DER) has a negative and significant effect on the ROA of these bank group companies. The partial T-test results showed that the T value was greater than the T-table ( $3.139 > 2.08596$ )

with a significance level of 0.005, which is less than 0.05. Furthermore, collectively, non-performing loans, the debt-to-assets ratio, and the debt-to-equity ratio have a significant effect on the return on assets (ROA) of Bank Group companies classified under core capital (KBMI) 4 listed on the IDX for the 2017-2022 period. The simultaneous F-test results indicated that the F value was 30.850, which is greater than the F-table value of 3.10, with a significant value of 0.000, which is less than 0.05.

## References

- Damar, N. D., Kumaat, R. J., & Mandej, D. (2021). analisis tingkat efisiensi bank umum di indonesia periode 2013 : Q1-2018 : Q4. *Jurnal Berkala Ilmiah Efisiensi*, 21(7), 36–47.
- Hermawan, B., Ismail, T., & Ichwanudin, W. (2021). Pengaruh risiko bank terhadap profitabilitas (studi kasus sektor perbankan yang terdaftar di bursa efek indonesia periode 2015-2020). *Jurnal Riset Bisnis Dan Manajemen Tirtayasa*, 5(2), 147–160. <https://doi.org/10.48181/jrbmt.v5i2.13082>
- Jatiwardani, K. D., & Sukartha, I. M. (2018). Effects of earnings management and company size on return on assets by acquisition companies in. *International Journal of Management and Commerce Innovations*, 6(1), 2162–2171.
- Laan, T. I., Ndoen, W. M., & Jati, H. (2022). Pengaruh risiko keuangan terhadap kinerja keuangan pada perbankan indonesia. *Journal of Management Small and Medium Enterprises (SMEs)*, 15(1), 117–135. <https://doi.org/10.35508/jom.v15i1.6356>
- Mosey, A. C., Tommy, P., & Untu, V. (2018). Pengaruh risiko pasar dan risiko kredit terhadap profitabilitas pada bank umum bumh yang terdaftar di BEI periode 2012-2016. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 6(3), 1338–1347.
- Noer Khoeriah, L., & Suria Manda, G. (2021). Pengaruh risiko pasar dan tingkat kecukupan modal terhadap profitabilitas pada bank BNI periode 2013 – 2020. *Jurnal Riset Pendidikan Ekonomi*, 6(2), 15–23. <https://doi.org/10.21067/jrpe.v6i2.5458>
- Rinofah, R., Sari, P. P., & Widyastuti, M. L. (2022). Pengaruh kecukupan modal dan risiko kredit terhadap profitabilitas pada perbankan dengan likuiditas sebagai variabel intervening. *ecobisma (jurnal ekonomi, bisnis dan manajemen)*, 9(1), 102–116. <https://doi.org/10.36987/ecobi.v9i1.2277>
- Sahabuddin, R., & Amelia Rahman, D. (2022). Pengaruh risiko kredit dan efisiensi operasional terhadap kinerja keuangan pada PT. Bank Sulselbar The effect of credit risk and operational efficiency on financial performance at PT. Bank Sulselbar. *Accounting, Accountability and Organization System (AAOS) Journal E-ISSN*, 3(2), 111–123. [https://journal.unifa.ac.id/index.php/aaos\\_](https://journal.unifa.ac.id/index.php/aaos_)
- Sumbayak, E. L., & Manda, G. S. (2020). Pengaruh rasio keuangan terhadap profitabilitas bank (studi kasus pada Bank BUMN Periode 2008-2018). *Jurnal Akuntansi Berkelanjutan Indonesia*, 3(3), 327–341. <http://openjournal.unpam.ac.id/index.php/JABI>
- Suryana, I., & Manda, G. S. (2022). Pengaruh risiko kredit dan risiko likuiditas terhadap profitabilitas (ROA) pada perusahaan perbankan milik negara. *Ekonomi & Bisnis*, 21(1), 1–11. <https://doi.org/10.32722/eb.v21i1.4564>
- Trisia, T. M., & Rofi, M. A. (2022). Pengaruh inflasi, BI 7-Day (Reverse) repo rate, nilai tukar, risk free rate dan BOPO terhadap profitabilitas perbankan pada bank umum konvensional. *Jurnalku*, 2(2), 167–192. <https://doi.org/10.54957/jurnalku.v2i2.215>

- Utami, U., & Silaen, U. (2018). Analisis pengaruh risiko kredit dan risiko operasional terhadap profitabilitas bank. *Jurnal Ilmiah Manajemen Kesatuan*, 6(3), 123–130. <https://doi.org/10.37641/jimkes.v6i3.293>
- Wisaputri, A. A. I. V., & Ramantha, I. W. (2021). Kecukupan modal, risiko kredit, rasio BOPO, dan likuiditas pada profitabilitas bank. *E-Jurnal Akuntansi*, 31(7), 1692. <https://doi.org/10.24843/eja.2021.v31.i07.p07>

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

