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## The Effect of Key Financial Indicators on Bank Profitability


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Fluctuations in profitability that occurred in 22 companies in the Banking Sub-Sector during the 2019-2023 period listed on IDX illustrate the dynamics influenced by various internal and external variables that affect the financial performance of banks. In 2019-2020, the decline in profitability from 0.017% to 0.012% was caused by external factors, impacting bank income and increasing credit risk. In addition, the COVID-19 pandemic in 2020 was also a factor of instability in the banking sector. However, in 2020-2021, there was an increase in profitability from 0.12% to 0.15%, indicating that the banks started to adapt for the better. A further increase in 2021-2022, from 0.15% to 0.18%, indicates that many banks managed to stabilize their earnings and manage risks more efficiently. In 2022-2023, profitability peaked at 0.21%, showing that the banking sector has effectively navigated economic and market challenges. This study seeks to analyze the effect of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Loan to Deposit Ratio (LDR), and Firm Size (FS) on profitability. A quantitative research method utilizing secondary data is used. The population is 47 companies listed on IDX from 2019 to 2023. The sample was selected through a purposive sampling method, resulting in 20 companies included in the sample. Hypothesis testing using multiple linear regression analysis with the SPSS software. The results indicate that CAR and FS do not impact profitability, whereas NPL and LDR significantly affect profitability.

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## INTRODUCTION

Banks function as important intermediary institutions in the economy, collecting funds from the public and distributing them to those who need them, whether for investment, working capital, or consumption.<sup>1</sup> Along with the development of technology, innovation in banking is increasingly facilitating financial transaction services. Internet banking and mobile banking allow customers to

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<sup>1</sup> I. M. Indriani, T., Wahyudi, C., & Hapsari, "Pengaruh Dana Pihak Ketiga, Capital Adequacy Ratio, Loan To Deposito Ratio, Dan Firm Size Terhadap Profitabilitas.," *Konsentrasi: Jurnal Manajemen Dan Bisnis*, 4, no. 1 (2023), <https://doi.org/10.24905/konsentrasi.v4i1.44>.

access financial services anytime and anywhere through devices such as smartphones or ATMs.<sup>2</sup> This shows that technological developments increase the efficiency of banking services and expand the community's financial access reach.<sup>3</sup> This assessment is based on the risk and performance of the bank, which must be able to carry out its functions well. A bank with healthy financial performance will be more likely to gain the trust of customers and investors.<sup>4</sup> Bank performance is often assessed through various indicators, including the Profitability ratio. Profitability provides an overview of how well a bank manages resources to generate profits. Return on Assets (ROA) is a widely used ratio to evaluate profitability, as it reflects a bank's ability to generate profits from its total assets. A higher ROA indicates that the bank is more efficient in using its assets to generate profits, signifying better financial performance.<sup>5</sup>

The fluctuations in profitability observed in 22 companies within the Banking Sub-Sector from 2019 to 2023 demonstrate the dynamics shaped by various internal and external factors impacting the banks' financial performance. From 2019 to 2020, the decline in profitability from 0.017% to 0.012% could be caused by external factors such as the decline in global and domestic economic conditions, which may impact bank income and increased credit risk. In addition, the COVID-19 pandemic that began to develop in 2020 could also influence instability in the banking sector, with increasing levels of bad debt and declining economic activity.<sup>6</sup>

However, from 2020 to 2021, profitability increased from 0.12% to 0.15%, indicating that banks are starting to adapt to market conditions better, perhaps by implementing more effective risk management strategies or getting support from looser monetary policy. A further increase in 2021 to 2022, from 0.15% to 0.18%, indicates the banking sector's recovery and growth after the pandemic's initial impact, with many banks managing to stabilize revenues and manage risks more efficiently.<sup>7</sup>

From 2022 to 2023, profitability recorded its highest figure at 0.21%, indicating that the banking sector has successfully weathered the existing economic and market challenges and is beginning to reap the rewards of its long-term strategies.<sup>8</sup> However, the fluctuations during the period also show that despite improvements, the banking sector must remain vigilant against emerging risks, such as financial market

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<sup>2</sup> R. F. Oktaviani, "Unpacking The Resistance of Traditional Market to Digital Payment: A Qualitative Approach," *Jurnal Aplikasi Ekonomi, Akuntansi Dan Bisnis* 6, no. 2 (2024), <https://doi.org/10.37641/riset.v6i2.2119>.

<sup>3</sup> R. Oktaviani, R. F., & Meidiyustiani, "Revealing Digital Literacy of Young Entrepreneurial Intentions : A Case of University Students in Indonesia," *Pakistan Journal of Life and Social Sciences* 23, no. 1 (2025), <https://doi.org/Pakistan Journal of Life and Social Sciences>.

<sup>4</sup> H. Fan, W., Wang, F., Zhang, H., Yan, B., Ling, R., & Jiang, "Is Climate Change Fueling Commercial Banks' Non-Performing Loan Ratio? Empirical Evidence from 31 Provinces in China.," *International Review of Economics and Finance* 96, no. PA (2024), <https://doi.org/10.1016/j.iref.2024.103585>.

<sup>5</sup> A. Rismanty, V. A., & Suraya, "Pengaruh Capital Adequacy Ratio (CAR) Dan Loan To Deposit Ratio (LDR) Terhadap Return on Assets (ROA) Pada Pt Bank Mandiri," *SCIENTIFIC JOURNAL OF REFLECTION: Economic, Accounting, Management and Business* 6, no. 2 (2023), <https://doi.org/10.37481/sjr.v6i2.658>.

<sup>6</sup> Y. Riyanto, A., Raspati, G., Rahayu, Y., & Yuniati, "Kinerja Keuangan Entitas Multifinance: Determinasi Non Performing Loan Dan Capital Adequacy Ratio Terhadap Profitabilitas," *Moneter - Jurnal Akuntansi Dan Keuangan*, 8, no. 2 (2021), <https://doi.org/10.31294/moneter.v8i2.10934>.

<sup>7</sup> N. H. Pratika, I., & Primasari, "Analisis Pengaruh Capital Adequacy Ratio, Biaya Operasional Dan Pendapatan Operasional, Loan to Deposit Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Studi Empiris Pada Bank Umum Swasta Nasional Devisa Yang Terdaftar Di Bursa Efek Indonesia Peri," *Jurnal Akuntansi Dan Keuangan* 9, no. 2 (2020).

<sup>8</sup> I. M. Paramita, P. K., & Dana, "Pengaruh Capital Adequacy Ratio, Non Performing Loan, Dan Loan To Deposit Ratio Terhadap Profitabilitas," *E-Jurnal Manajemen Universitas Udayana* 8, no. 2 (2019), <https://doi.org/10.24843/ejmunud.2019.v08.i02.p04>.

fluctuations, government policies, and global economic changes that could affect the stability and profitability of banks in the future.<sup>9</sup>

Despite improvements in recent years, the decline and fluctuations in profitability indicate the importance of good risk management and appropriate internal policies in maintaining the sustainability of the bank's financial performance. Banks also need to consider external factors that affect market conditions when planning their strategies and managing their assets and liabilities.<sup>10</sup>

However, profitability is not only influenced by internal bank factors but also by external conditions that can affect the bank's financial performance. External factors such as financial market fluctuations, changes in economic conditions, and high credit risk can cause instability in bank profitability.<sup>11</sup> Moreover, banks must consider internal factors that can influence their profitability. One such factor is the Capital Adequacy Ratio (CAR), which evaluates the proportion of bank capital to assets weighted according to their risk levels. A high CAR suggests that a bank has the capacity to absorb risks, such as non-performing loans, and thus maintain stable profitability.<sup>12</sup>

A study by Mustafa & Sulistyowati (2022) demonstrates that CAR positively impacts profitability, as a higher CAR indicates a greater ability for the bank to absorb risks and manage losses.<sup>13</sup> Conversely, research by Pratika & Primasari (2022) reveals that CAR does not significantly affect ROA, meaning that even a high CAR does not always lead to a proportional increase in ROA.<sup>14</sup>

In addition to CAR, another factor that affects profitability is Non-Performing Loans (NPL). NPL measures how much credit given by a bank is problematic, namely credit that cannot be returned by the debtor on schedule. The higher the NPL, the poorer the bank's capacity to handle credit risk, which can subsequently lower its profitability.<sup>15</sup> A study by Setiawan (2022) indicates that NPL negatively affects profitability, as banks with high NPL levels are more likely to experience losses that could harm financial performance.<sup>16</sup> Meanwhile, research by Puspita & Mustanda (2019) shows that NPL

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<sup>9</sup> N. O Amankwaah, E., & Baidoo, "Effect of Firm Size and Corruption on Financial Challenges of Savings and Loans Companies: Evidence from Ghana," *Social Sciences and Humanities Open* 8, no. 1 (2023), <https://doi.org/10.1016/j.ssaho.2023.100552>.

<sup>10</sup> J. O. Madugu, A. H., Ibrahim, M., & Amoah, "Kahfi, M., & Oktaviani, R. F. (2024). Ecodig : Economics And Digital Business Journal Terhadap Struktur Modal (Studi Empiris Pada Perusahaan Subsektor Makanan Dan Minuman Yang Terdaftar Di Bursa Efek Indonesia Periode 2018-2022 ). Ecodig: Economics and Di," *Transnational Corporations Review* 12, no. 1 (2020), <https://doi.org/10.1080/19186444.2019.1704582>.

<sup>11</sup> T. U. S. S. T. Setiawan, "Capital Adequacy Ratio, Loan To Deposit Ratio Dan Non Performing Loan Terhadap Return On Equity Pada Perusahaan Perbankan.," *Inovatif: Jurnal Ekonomi, Manajemen, Akuntansi, Bisnis Digital Dan Kewirausahaan*, 1, no. 1 (2022), <https://journal.sinergicendikia.com/index.php/inov/article/view/6/21>.

<sup>12</sup> R. E. Andersen, H., & Juelsrud, "Optimal Capital Adequacy Ratios for Banks," *Latin American Journal of Central Banking* 5, no. 2 (2024), <https://doi.org/10.1016/j.latcb.2023.100107>.

<sup>13</sup> E. Mustafa, A. N., & Sulistyowati, "Pengaruh Capital Adequacy Ratio, Non Performing Loan, Loan To Deposit Ratio, Dan Firm Size Terhadap Profitabilitas Bumn Sektor Perbankan," *Jurnal Proaksi* 9, no. 1 (2022), <https://doi.org/10.32534/jpk.v9i1.2511>.

<sup>14</sup> Pratika, I., & Primasari, "Analisis Pengaruh Capital Adequacy Ratio, Biaya Operasional Dan Pendapatan Operasional, Loan to Deposit Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Studi Empiris Pada Bank Umum Swasta Nasional Devisa Yang Terdaftar Di Bursa Efek Indonesia Peri."

<sup>15</sup> N. S. M. Rosa, F. W. G., & Murni, "Analysis of the Influence of Size, Capital Adequacy Ratio, Loan to Deposit Ratio, Non Performing Loan on the Profitability of Commercial Banks Registered at OJK," *Enrichment : Journal of Management* 13, no. 1 (2023), <https://doi.org/10.35335/enrichment.v13i1.1167>.

<sup>16</sup> Setiawan, "Capital Adequacy Ratio, Loan To Deposit Ratio Dan Non Performing Loan Terhadap Return On Equity Pada Perusahaan Perbankan."

significantly impacts ROA, highlighting the importance of managing non-performing loans to achieve optimal profitability.<sup>17</sup>

Loan-to-deposit ratio (LDR) is also a factor that affects bank profitability. LDR gauges the degree to which a bank can utilize funds gathered from customers to issue loans. An LDR that is too high may indicate that the bank is taking too much risk by providing a lot of credit, which could potentially increase the risk of loss.<sup>18</sup> On the other hand, a low LDR may indicate that the bank is not using enough customer funds to support its operational activities and growth. Research conducted by Rismanty and Suraya (2023) said LDR has a positive influence on ROA because banks with optimal LDR will be able to increase income through credit distribution.<sup>19</sup> However, research conducted by Pratika & Primasari (2020) showed different results, with a very high LDR having a negative effect on ROA, as it jeopardizes the bank's ability to fulfill its liquidity requirements.<sup>20</sup>

Furthermore, firm size (FS) also plays an important role in influencing bank profitability. Bank size can affect consistency and the ability to manage risk. Larger banks tend to have greater resources to address challenges that arise, including credit risk and market fluctuations.<sup>21</sup> Therefore, banks with larger sizes often can maintain more stable profitability. In this case, analyzing factors affecting internal and external profitability is very important for bank management to maintain financial performance and gain trust from investors and customers. Empirical studies show that FS has a significant effect on profitability. They also show that larger banks have better capacity in managing risks and improving operational efficiency, thus generating more stable profits.<sup>22</sup> This indicates that firm size can contribute to strengthening market competitiveness. In contrast, a study by Wolff et al. (2019) argued that FS does not significantly impact profitability. This shows that even though the bank size is larger, other factors such as risk management, business strategy, and market conditions can be more decisive in influencing the bank's financial performance.<sup>23</sup> Thus, although company size can provide advantages in terms of resources, other factors, such as internal management and market dynamics, continue to be important.

Therefore, understanding the influence of company size on profitability requires considering various other aspects that determine the bank's profitability.<sup>24</sup> Further study is also needed to identify additional

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<sup>17</sup> I. K Puspita, L. D. P., & Mustanda, "Pengaruh Capital Adequacy Ratio, Loan To Deposit Ratio, Dan Non Performing Loan Terhadap Profitabilitas Lpd.," *E-Jurnal Manajemen Universitas Udayana* 8, no. 7 (2019), <https://doi.org/10.24843/ejmunud.2019.v08.i07.p01>.

<sup>18</sup> M. Adhim, C., & Mulyati, "The Influence of Capital Adequacy Ratio ( CAR ), Non-Performing Loan ( NPL ), Loan to Deposit Ratio ( LDR ), and Operational Costs to Operating Income ( BOPO ) on Return on Asset ( ROA ) in Banks Listed on the Indonesia Stock Exchange Management Departeme," *International Journal of Science, Technology & Management* 6, no. 1 (2022).

<sup>19</sup> Rismanty, V. A., & Suraya, "Pengaruh Capital Adequacy Ratio (CAR) Dan Loan To Deposit Ratio (LDR) Terhadap Return on Assets (ROA) Pada Pt Bank Mandiri."

<sup>20</sup> Pratika, I., & Primasari, "Analisis Pengaruh Capital Adequacy Ratio, Biaya Operasional Dan Pendapatan Operasional, Loan to Deposit Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Studi Empiris Pada Bank Umum Swasta Nasional Devisa Yang Terdaftar Di Bursa Efek Indonesia Peri."

<sup>21</sup> M. A. N. Najhah, D., & Amin, "Pengaruh Non Performing Loan, BOPO Dan Firm Size Terhadap Profitabilitas," *Konsentrasi: Jurnal Manajemen Dan Bisnis* 4, no. 2 (2024), <https://doi.org/10.24905/konsentrasi.v4i2.56>.

<sup>22</sup> Amankwaah, E., & Baidoo, "Effect of Firm Size and Corruption on Financial Challenges of Savings and Loans Companies: Evidence from Ghana."

<sup>23</sup> P. Van. Wolff, O. R., Murni, S., & Rate, "Analisis Pengaruh Firm Size, Loan To Deposit Ratio, Capital Adequacy Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Return On Asset) Bank Umum Swasta Nasional Yang Terdaftar Di BEI (2013-2017)," *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi* 7, no. 3 (2019): 3788–97.

<sup>24</sup> M. Wahyuni, E. S., Meidiyustiani, R., Oktaviani, R. F., & Laksmiwati, "Determinan Leverage Dan Intangible Asset Terhadap Profitabilitas Dengan Komite Audit Sebagai Variabel Moderating," *Jurnal*

factors that impact bank financial performance. This is important for bank management in formulating appropriate strategies for managing risk and achieving long-term goals, both in terms of growth and profitability.

### **Hypothesis Development**

Capital Adequacy Ratio (CAR) measures the adequacy of a bank's capital to protect risks arising from its operational activities, such as credit risk and market risk.<sup>25</sup> Higher CAR indicates that banks have larger capital reserves, which gives them a better ability to manage risks and face potential losses. This can contribute to financial stability and increase the level of customer and investor confidence.<sup>26</sup> Thus, it can be inferred that a higher CAR positively influences bank profitability because banks with strong capital reserves are better able to manage risks and expand their operational activities more efficiently.

**Hypothesis 1: Capital Adequacy Ratio has a significant effect on profitability.**

Non-Performing Loan (NPL) is an indicator used to evaluate the quality of loans extended by banks, by describing the proportion of credit that is problematic or cannot be paid.<sup>27</sup> High NPL indicates a greater risk for banks because non-performing loans can reduce interest income and increase the cost of credit loss reserves.<sup>28</sup> Therefore, high NPL can have a negative impact on profitability, because it can cause a decrease in revenue and an increase in costs.

**Hypothesis 2: Non-performing Loan has a significant effect on profitability.**

Loan to Deposit Ratio (LDR) assesses the degree to which a bank can deploy funds gathered from customers (in the form of deposits) to provide loans.<sup>29</sup> A high LDR indicates that the bank has a larger proportion of loans compared to deposits collected, which can increase interest income. Nevertheless, an overly high LDR may lead to liquidity challenges for the bank, as the discrepancy between the loans issued and available funds could impact the fulfillment of its short-term liabilities.<sup>30</sup> Therefore, although a higher LDR may increase profitability in the short term, an LDR that is too high may pose a risk to the bank's stability.

**Hypothesis 3: Loan to Deposit Ratio has a significant effect on profitability.**

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*Akuntansi, Keuangan, Perpajakan Dan Tata Kelola Perusahaan* 1, no. 2 (2023), <https://doi.org/10.59407/jakpt.v1i2.203>.

<sup>25</sup> Andersen, H., & Juelsrud, "Optimal Capital Adequacy Ratios for Banks."

<sup>26</sup> Riyanto, A., Raspati, G., Rahayu, Y., & Yuniati, "Kinerja Keuangan Entitas Multifinance: Determinasi Non Performing Loan Dan Capital Adequacy Ratio Terhadap Profitabilitas."

<sup>27</sup> J. Pancotto, L., ap Gwilym, O., & Williams, "The Evolution and Determinants of the Non-Performing Loan Burden in Italian Banking," *Pacific-Basin Finance Journal* 84 (2024), <https://doi.org/10.1016/j.pacfin.2024.102306>.

<sup>28</sup> M. R. Takahashi, F. L., & Vasconcelos, "Bank Efficiency and Undesirable Output: An Analysis of Non-Performing Loans in the Brazilian Banking Sector," *Finance Research Letters* 59 (2024), <https://doi.org/10.1016/j.frl.2023.104651>.

<sup>29</sup> Indriani, T., Wahyudi, C., & Hapsari, "Pengaruh Dana Pihak Ketiga, Capital Adequacy Ratio, Loan To Deposito Ratio, Dan Firm Size Terhadap Profitabilitas."

<sup>30</sup> Y Abdurrohman, A., Fitrianiingsih, D., Salam, A. F., & Putri, "Pengaruh Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR) Dan Non Performing Loan (NPL) Terhadap Return on Asset (ROA) Pada Sektor Perbankan Di Bursa Efek Indonesia," *Jurnal Revenue: Jurnal Ilmiah Akuntansi*, 1, no. 1 (2020), <https://doi.org/10.46306/rev.v1i1.12>.

Firm size in the banking context is often assessed total assets of bank or market value. Larger banks typically have more resources, more branches, and the capacity to run operations more efficiently.<sup>31</sup> They are also better able to cope with risks and market uncertainty. With greater resources, large banks can generate higher and more stable revenues, which contributes to better profitability.<sup>32</sup> However, in some cases, larger banks may also face challenges in the form of more complex bureaucracy and potentially greater dependence on external policies. Therefore,

**Hypothesis 4: Firm size has a significant effect on profitability.**

## METHOD

This research uses a quantitative approach because the analyzed figures are obtained from financial reports and other measurement results, which are then analyzed using statistical methods.<sup>33</sup> This approach allows testing the relationship between variables that are numerical in nature and can provide a clearer and more objective picture. The population is 47 companies. The banking sub-sector is listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. This particular population was chosen because its characteristics are directly relevant to providing a suitable basis for analyzing the factors influencing bank performance within the specified period, namely companies listed on the IDX and involving publicly accessible financial data. This research employed a purposive sampling method. This approach was selected to ensure that the samples met specific criteria for the research objectives.<sup>34</sup> The criteria include companies that satisfy certain requirements, such as having complete and accessible financial data during the study period and ensuring a representative sample. Based on these criteria, 20 companies were chosen as the sample for analysis.

This study uses secondary data sourced from publicly available materials such as annual financial reports and publications by authorized entities like the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)) and Bank Indonesia ([www.bi.go.id](http://www.bi.go.id)), which provide relevant information about banking companies listed on the IDX.<sup>35</sup> To analyze this data, the study applies multiple linear regression, with data analysis using SPSS, a widely used software for quantitative analysis.<sup>36</sup>

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<sup>31</sup> Wolff, O. R., Murni, S., & Rate, "Analisis Pengaruh Firm Size, Loan To Deposit Ratio, Capital Adequacy Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Return On Asset) Bank Umum Swasta Nasional Yang Terdaftar Di BEI (2013-2017)."

<sup>32</sup> Mustafa, A. N., & Sulistyowati, "Pengaruh Capital Adequacy Ratio, Non Performing Loan, Loan To Deposit Ratio, Dan Firm Size Terhadap Profitabilitas Bumn Sektor Perbankan."

<sup>33</sup> R. F. Prasetyo, R. A., & Oktaviani, "Pengaruh Return on Asset, Current Ratio, Debt To Equity Ratio, Net Profit Margin Terhadap Harga Saham Sub-Sektor Telekomunikasi," *Jurnal Akuntansi, Keuangan, Perpajakan Dan Tata Kelola Perusahaan* 1, no. 2 (2023), <https://doi.org/10.59407/jakpt.v1i2.207>.

<sup>34</sup> R. F. Oktaviani, "Understanding Young Entrepreneurs: Interest in Supporting Business Success.," *EKUITAS (Jurnal Ekonomi Dan Keuangan)* 8, no. 2 (2024), <https://doi.org/10.24034/j25485024.y2024.v8.i2.6324>.

<sup>35</sup> R. F. Rahmawati, R. H., & Oktaviani, "Analisis Kinerja Keuangan Menggunakan Metode Altman Z-Score Terhadap Harga Saham," *Glory : Global Leadership Organizational Research in Management* 2, no. 2 (2024).

<sup>36</sup> R. F. Kahfi, M., & Oktaviani, "Ecodig : Economics And Digital Business Journal Terhadap Struktur Modal (Studi Empiris Pada Perusahaan Subsektor Makanan Dan Minuman Yang Terdaftar Di Bursa Efek Indonesia Periode 2018-2022).," *Ecodig: Economics and Digital Business Journal* 1, no. 1 (2024); & Retno Fuji Oktaviani. Nur Rachmania, "Pengaruh Current Ratio, Total Asset Turnover, Return on Equity Dan Net Profit Margin Terhadap Pertumbuhan Laba," *Jurnal Riset Manajemen* 2, no. 3 (2024), <https://doi.org/10.54066/jurma.v2i3.2275>.

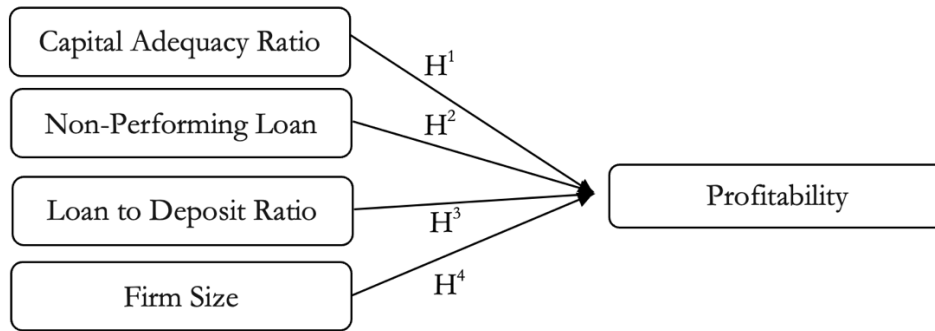


Figure 1: Research Framework  
 (Source: Processed by researchers based on relevant theories and concepts)

## RESULTS

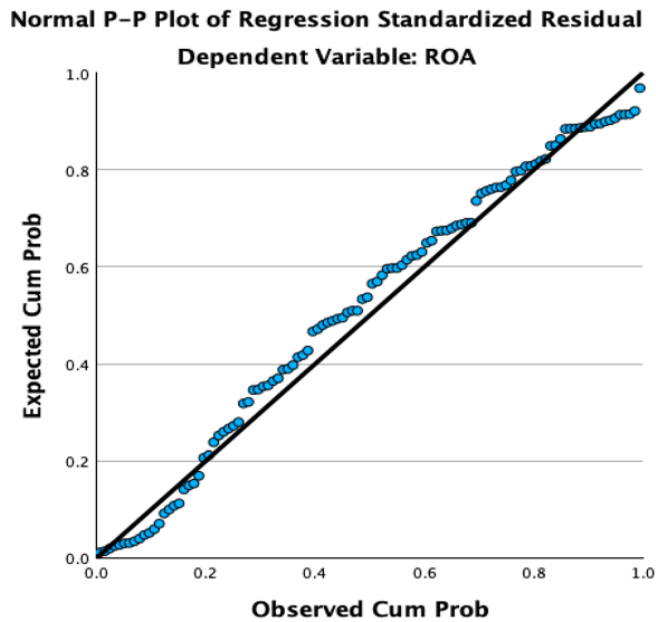
### Normality Test

Table 1: KS Test

One-Sample Kolmogorov-Smirnov Test			Unstandardized Residual
N			110
Normal Parameters <sup>a,b</sup>	Mean		.0000000
	Std. Deviation		.89578088
Most Extreme Differences	Absolute		.075
	Positive		.066
	Negative		-.075
Test Statistics			.075
Asymp. Sig. (2-tailed) <sup>c</sup>			.156
Monte Carlo Sig. (2-tailed) <sup>d</sup>	Sig.		.129
	99% Confidence Interval	Lower Bound	.120
		Upper Bound	.138

(Source: SPSS processed in 2024)

Referring to Table 1, the normality test results show an Asymptotic Significance value of 0.156. Since this value is greater than the 0.05 threshold, it indicates that the data is normally distributed.



**Figure 2: Normal P-Plot**  
 (Source: SPSS processed in 2024)

Based on Figure 2, the normal P-plot graph shows that the data distribution aligns closely with the diagonal line, so it can be concluded that the data is normally distributed.

**Multicollinearity Test**

**Table 2: Multicollinearity Test**

Model		Tolerance	Collinearity Statistics
			VIF
1	CAR	.860	1.163
	NPL	.907	1.103
	LDR	.795	1.258
	FS	.945	1,059

**a. Dependent Variable: ROA**  
 (Source: SPSS processed in 2024)

Based on the calculations in Table 2, the Tolerance values indicate that none of the independent variables have a value below 0.10, suggesting that the independent variables are not highly correlated with each other, with correlations not exceeding 95%. Additionally, the Variance Inflation Factor (VIF) values confirm this, as none of the independent variables have a VIF greater than 10. These results collectively support the conclusion that the regression model in this study does not suffer from multicollinearity issues among the independent variables.



### Heteroscedasticity Test

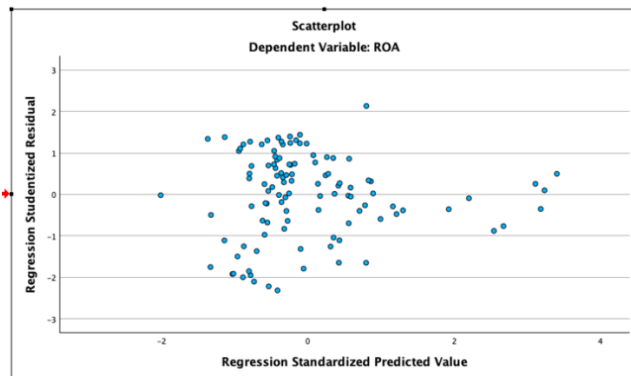


Figure 3: Scatterplot

(Source: SPSS processed in 2024)

Based on Figure 3, the scatterplot with ROA as the dependent variable shows that the points are randomly scattered, both above and below zero on the Y-axis. This suggests that there is no evidence of heteroscedasticity in the regression model.

### Autocorrelation Test

Table 3: Autocorrelation Test

Runs Test	
	Unstandardized Residual
Test Value <sup>a</sup>	.0000000
Cases < Test Value	50
Cases ≥ Test Value	60
Total Cases	110
Number of Runs	22
Z	6,480
Asymp. Sig. (2-tailed)	.061
a. Mean	

(Source: SPSS processed in 2024)

Based on table 4, it can be seen that the significant value in the run test shows  $0.061 > 0.05$  so it can be concluded that the research data does not experience autocorrelation.

### Coefficient of Determination (R<sup>2</sup>)

Table 4: Determination Test

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.559 <sup>a</sup>	.513	.487	,912684	

a. Predictors: (Constant), FS, NPL, CAR, LDR

b. Dependent Variable: ROA

(Source: SPSS processed in 2024)

According to Table 4, the adjusted R<sup>2</sup> value is 0.487, which means that 48.7% of the variation in profitability can be explained by the independent variables, namely CAR, NPL, LDR, and FS, included in the model. The remaining 51.3% of the variation is attributed to other factors that were not examined in this study. This suggests that while the model explains a substantial portion of the profitability, there are additional factors influencing it that are not captured in the current analysis.

Simultaneous Significance Test (f Test)

Table 5: Simultaneous Test

Model		ANOVA			F	Sig.
		Sum of Squares	df	Mean Square		
1	Regression	39,810	4	9.953	11,948	<.001b
	Residual	87,464	105	.833		
	Total	127,275	109			

a. Dependent Variable: ROA

b. Predictors: (Constant), FS, NPL, CAR, LDR

(Source: SPSS processed in 2024)

Referring to the table above, the calculated F value of 11.948 exceeds the F table value of 2.659, and the significance value is 0.001, which is less than the threshold of 0.05. This indicates that, collectively, the independent variables—CAR, NPL, LDR, and FS—have a statistically significant impact on the dependent variable, profitability, as measured by Return on Assets (ROA). Therefore, the results suggest that these independent variables together play a crucial role in influencing the bank's profitability.

Hypothesis Testing

Table 6: Hypothesis Testing

Model		Coefficients <sup>a</sup>				t	Sig.
		Unstandardized Coefficients		Standardized Coefficients			
		B	Std. Error	Beta			
1	(Constant)	-5.182	.831			-6.236	<.001
	CAR	.252	.159	.138		1.583	.116
	NPL	-.331	.119	-.236		-2.779	.006
	LDR	.739	.176	.380		4.193	<.001
	FS	-.013	.024	-.045		-.537	.592

a. Dependent Variable: ROA

(Source: SPSS processed in 2024)

Based on table 6, it is explained that the results of the t-statistic test between the independent variable and the dependent variable are as follows:

1. Capital Adequacy Ratio (CAR)  
The regression coefficient for CAR is 1.583, which is smaller than the t-table value of 1.983, and the significance value is 0.116, which is greater than 0.05. As a result, H1 is rejected, suggesting that CAR does not have a significant effect on profitability, as measured by Return on Assets (ROA).
2. Non-Performing Loan (NPL)  
The regression coefficient for NPL is -2.779, which is lower than the t-table value of -1.983, and the significance value for NPL is 0.006, which is less than 0.05. Therefore, H2 is accepted, meaning NPL significantly impacts profitability, as reflected by ROA.
3. Loan to Deposit Ratio (LDR)  
The regression coefficient for LDR is 4.193, which exceeds the t-table value of 1.983, and the significance value for LDR is 0.001, which is less than 0.05. Hence, H3 is accepted, showing that LDR significantly influences profitability, as measured by ROA.
4. Firm Size (FS)  
The regression coefficient for FS is -0.537, which is greater than the t-table value of -1.983, and the significance value is 0.592, which is greater than 0.05. Thus, H4 is rejected, indicating that FS does not significantly affect profitability, as represented by ROA.

Given these findings, a multiple regression equation can be constructed as follows:

$$\text{Profitabilitas} = -5,182 + 0,252 \text{ CAR} - 0,331 \text{ NPL} + 739 \text{ LDR} - 0,013 \text{ FS}$$

*(Source: SPSS processed in 2024)*

## **DISCUSSION**

### **Hypothesis 1**

Capital Adequacy Ratio does not significantly affect profitability in banking sector companies in 2019-2023. This result is consistent with studies by Pratika & Primasari (2020), who stated that CAR plays a greater role as an indicator of a bank's ability to absorb the risk of loss than a direct indicator of profitability.<sup>37</sup> CAR is indeed designed to measure the financial stability and soundness of banks. While banks with high CAR are equipped to absorb losses, this does not necessarily correlate directly with their ability to generate profits. In other words, it is possible that a bank with a high CAR could have a lot of non-performing or bad assets that could lead to a decline in ROA, showing that CAR is not the only indicator of performance. Although CAR is an important indicator in assessing bank health, many other factors are detected in determining profitability, so the relationship between CAR and ROA is not always significant. During this period, banks focused more on complying with regulations and maintaining capital stability, especially during the COVID-19 pandemic, so its impact on ROA was less significant. However, inconsistencies also emerged from research conducted by Mustafa & Sulistyowati (2022), who stated that CAR could increase profitability if banks utilize adequate capital for profitable business expansion.<sup>38</sup>

### **Hypothesis 2**

Non-Performing Loans are proven to have a significant impact on profitability, indicating that improving credit quality plays an important role in driving profitability. This result aligns with the research conducted by Setiawan (2022) explain that a low NPL ratio is a sign of strong credit risk management and indicates that the bank is effectively managing its loan portfolio, which can increase bank operating income.<sup>39</sup> A low NPL indicates that most of the loans granted by the bank are functioning properly and generating interest income. Stable and high-interest income contributes directly to net profit, which increases ROA. With low NPLs, banks also do not need to allocate as much funds for loan loss reserves. This means that less profit is reduced by the cost of reserves, thus increasing net profit and improving ROA. Low NPLs can also create a positive perception among customers and investors, increasing trust and loyalty. This can encourage more deposits and new loans, contributing to asset growth and profitability. This significant influence in the banking sector from 2019 to 2023 is even more relevant as the high economic pressure during the pandemic requires banks to tighten their non-performing loan management to have lower credit risk. This allows them to maintain a lower cost of capital and enjoy better returns on their investments, contributing to higher ROA. Research results Inconsistencies can be found in several studies conducted by Puspita & Mustanda (2019), indicating that NPL is not significant under certain conditions, especially if the bank has sufficient credit loss reserves.<sup>40</sup>

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<sup>37</sup> Pratika, I., & Primasari, "Analisis Pengaruh Capital Adequacy Ratio, Biaya Operasional Dan Pendapatan Operasional, Loan to Deposit Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Studi Empiris Pada Bank Umum Swasta Nasional Devisa Yang Terdaftar Di Bursa Efek Indonesia Peri."

<sup>38</sup> Mustafa, A. N., & Sulistyowati, "Pengaruh Capital Adequacy Ratio, Non Performing Loan, Loan To Deposit Ratio, Dan Firm Size Terhadap Profitabilitas Bumn Sektor Perbankan."

<sup>39</sup> Setiawan, "Capital Adequacy Ratio, Loan To Deposit Ratio Dan Non Performing Loan Terhadap Return On Equity Pada Perusahaan Perbankan."

<sup>40</sup> Puspita, L. D. P., & Mustanda, "Pengaruh Capital Adequacy Ratio, Loan To Deposit Ratio, Dan Non Performing Loan Terhadap Profitabilitas Lpd."

**Hypothesis 3**

Loan Deposit Ratio significantly influences profitability, indicating that the optimal level of credit distribution contributes to bank profitability. With an optimal level of lending, banks can utilize available funds efficiently. This helps in maintaining healthy liquidity while still generating income through lending. This usually happens in good economic conditions, where there is a high demand for loans, allowing banks to capitalize on growth opportunities and contribute to profitability. This is consistent with the theory of financial intermediation, which states that an increase in LDR indicates efficiency in utilizing third-party funds to generate income. Many studies show a positive relationship between LDR and ROA, one of which is the results of research conducted by Rismanty & Suraya (2023), which stated consistent results that the Loan to Deposit Ratio has a significant influence on profitability, where the banking sector during the 2019-2023 period, managed to maintain a balance between credit distribution and liquidity tended to have better profitability performance.<sup>41</sup> Historical data shows that banks with better LDR tend to have higher profitability performance, which means that good loan and deposit management affects financial performance. However, other studies show inconsistencies carried out by Pratika and Primasari (2020), where an LDR that is too high can increase liquidity risk and negatively impact profitability.<sup>42</sup>

**Hypothesis 4**

Firm size does not significantly affect profitability in banking sector companies in 2019-2023. This result aligns with the research by Wolff et al. (2019), which states that company size does not always reflect operational efficiency or profit-making ability.<sup>43</sup> Large banks may face challenges in managing operational complexity, so they are not always more profitable than small or medium-sized banks. While large banks often have better access to funding sources. However, this access does not necessarily mean they will use these funds efficiently. Smaller banks may be more innovative in their use of capital despite their smaller size. Resource management in large banks is also more complicated. Inefficient allocation of resources may result in wastage, which hurts ROA. Many studies show that firm size does not always have a significant positive relationship with ROA. In some cases, the results show that other factors, such as management, cost structure, and business strategy, have more influence on profitability. However, inconsistencies emerge from research conducted by Amankwaah & Baidoo (2023), which found a significant relationship between firm size and profitability, especially if firm size allows greater access to markets, product diversification, and large-scale cost efficiencies.<sup>44</sup>

**CONCLUSION**

This study shows that the variables that affect profitability in the banking sector, which are proxied by Return on Assets, have different significance levels. Capital Adequacy Ratio and firm size do not significantly affect profitability, indicating that capital stability and firm size are not always the main determinants in generating profits. In contrast, Non-Performing Loan and Loan to Deposit Ratios significantly affect profitability, highlighting the importance of credit risk management and the efficiency of third-party fund distribution in improving bank financial performance. These results

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<sup>41</sup> Rismanty, V. A., & Suraya, "Pengaruh Capital Adequacy Ratio (CAR) Dan Loan To Deposit Ratio (LDR) Terhadap Return on Assets (ROA) Pada Pt Bank Mandiri."

<sup>42</sup> Pratika, I., & Primasari, "Analisis Pengaruh Capital Adequacy Ratio, Biaya Operasional Dan Pendapatan Operasional, Loan to Deposit Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Studi Empiris Pada Bank Umum Swasta Nasional Devisa Yang Terdaftar Di Bursa Efek Indonesia Peri."

<sup>43</sup> Wolff, O. R., Murni, S., & Rate, "Analisis Pengaruh Firm Size, Loan To Deposit Ratio, Capital Adequacy Ratio, Dan Non Performing Loan Terhadap Profitabilitas (Return On Asset) Bank Umum Swasta Nasional Yang Terdaftar Di BEI (2013-2017)."

<sup>44</sup> Amankwaah, E., & Baidoo, "Effect of Firm Size and Corruption on Financial Challenges of Savings and Loans Companies: Evidence from Ghana."

reflect the complexity of the factors that affect bank profitability, which can vary depending on operational conditions, management strategies, and economic environments. These findings provide insight for banking management to focus more on credit risk and operational efficiency to improve profitability.

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