JOGHRM

International Journal of Economics, Management and Accounting

E-ISSN .: 3046-9376
P-ISSN .: 3048-0396

Research Article

The Key Determination Factors of Profitability for Banking Sector Companies

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Abstract, This study aims to analyze the factors influencing the profitability of banking companies in Indonesia, using banking ratios as independent variables. The study identifies three main variables believed to significantly impact profitability, measured by Return on Assets (ROA). The banking sector in Indonesia has been through many changes over the years. The author intends to assess the factors influencing profitability using several banking ratios. Although all three variables of banking ratios does significantly influence the rate of ROA, two of them gave negative influence to the ROA. It suggests that profitability rate is something that tend to influenced by financial ratios either positive or negative. That profitabilities influenced by influenced by the financial activity itself. The study uses regression analysis to examine the relationship between these variables and profitability. These findings provide valuable insights for bank managers and regulators to understand the factors that should be considered in efforts to improve the financial performance of banks in Indonesia. In addition, the results of this study are expected to serve as a reference for policy decisions that support the stability and growth of the banking sector in the country.

Keywords: Banking Companies,CAR,LDR,NPL,Profitability,ROA

Received: February, 14th 2025
Revised: February, 28th 2025
Accepted: March,05th 2025
Online Available: March, 07th 2025
Curr. Ver.: March, 07th 2025

1. INTRODUCTION

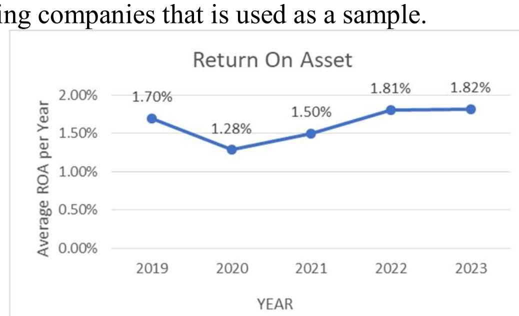
There are a lot of banking companies nowadays in Indonesia, both the conventional and the one that use Islamic rules to operate which is called as Syariah banks.. According to a 2019 article, banks are business entities that gather funds from the public through deposits and distribute them to the public in the form of credit or other means to enhance the standard of living of individuals. The Law Number 10 Year 1998 of Banking defines banking as all aspects of banks, including their operations, methods and processes for carrying out business activities, and the functions of institutions. Meanwhile according to other source, banks are defined as financial institutions whose main activities are raising funds from the public and other bank services (Firnando, et.al, 2019).

The state of the banking world in Indonesia has has experienced numerous changes from time to time. These changes are not only driven by developments outside the banking world, but also the real sector in the economic, political, social, legal, defense and security areas (Juwita, et al, 2018). These changes factors apparently also influence the profitabilities rate of banking companies in Indonesia. Because however, social dynamics in public are sensitive to banking operational activities since public is exactly the consumer of banking services itself. And because banking operations are part of the financial activities themselves, banking financial performances would be determined by their financial ratios.

According to a research done by (Sasono & Mawarto, 2020), a financial ratio is an index that relates two accounting figures by dividing one by the other. Financial ratios are utilized to assess the company’s financial condition and performance. The outcomes of these financial ratios will indicate the company's overall health.

However, a bank's own financial performance cannot necessarily be defined generally by external factors only or only internal factors since both would keep related and influence each other in one way or another. Although banks possess a type of financial ratio that differs significantly from the evaluation of financial ratios for corporations and services, the significance of banking financial ratios continues to serve as a valid assessment tool for evaluating the performance of the bank itself. For example, according to (Keprameni, et. al 2022) who examined the detrimental effects of liquidity and solvency risk on the performance metrics of return on assets (ROA) and return on equity (ROE) for 23 rural credit banks in Denpasar City from 2018 to 2020, banks with a high capital level do not have a significant impact on the bank's financial performance. In addition, the higher a bank's liquidity, the greater the credit it can extend. A high or low loan-to-deposit ratio did not impact financial performance. This may occur when credit is disbursed below the maximum limit, while high funds collected could result in losses.

Nevertheless, there are still other certain banking financial ratios that are not considered to asses banking financial performance including their profitability, and how they maintain their existence in the midst of competition with other banks. This study aims to examine the influence spesifically of three bank financial ratios consisting of Capital Adequacy Ratios, Non-Performing Loan, and Loan Deposit Ratios towards the Return on Assets. Yet, there a lot of banking companies that exist in Indonesia with each their own unique dynamics of financial performances through the years. Hence why, author herself, would only be using banking companies that is listed in IDX (Indonesia Stocks Exchange) from 2021 until 2023. And that would be exactly 47 banks in total. But in this research, there are only 28 banking companies that is used as a sample.



Picture 1. ROA graph 2019-2023

Based on the trend above, the banking companies experienced a declined of profitability from year 2019 to 2020 but then crawled back up and getting better. Hence, it is interesting for the author to dig more about what happened and why was it happened. Not to mention, back at late 2019 up to around 2022 the world suffer from world pandemic called COVID-19. Upon this sorrowfull event, a lot of people struggled with their daily life including their own financial problem. While most of the individuals struggle with financial, a lot of companies also struggled during the time. This ofcourse, also effect the financial performance of banking companies in Indonesia itself.

2. LITERATURE REVIEW

The banking landscape in Indonesia has experienced significant transformations over time. These changes are also influenced by developments outside the banking sector, including the real economy, politics, social issues, law, defense, and security (Juwita, et.al, 2018). And yet according to (Abdallah & Bahloul, 2024), banks must excel and innovate across all areas to maintain their competitive edge. And one of the way banks can maintain their competitiveness is to make sure their financial performances are strong and sustain. Those banking financial ratios that will be use on this study to analyze the banking financial performances is ; Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and Loan Deposit Ratio (LDR). Then, the ratio that will be analyzed wether or not it is got influenced by those three above is Return On Assets (ROA).

Signaling Theory

Signaling theory is associated with the idea that firms may use certain financial choices, such as dividend distribution or amount of debt, to communicate signals to investors regarding anticipated profitability and quality, regardless of the information asymmetry between management and investors, thereby transmitting favorable information about the firm to increase market value; essentially, strong firms will utilize these signals to differentiate themselves from weaker firms by voluntarily disclosing positive information to the market (Ross, 1977).

Signaling theory are related to this research point regarding their connectivity between profitability and investor general decision making and firms financial choices of the amount of debt and their cash flow. In this research, the profitability are the Y variable, being symbolized with ROA, are the object that is working on to determine what may influence their rate changes. Meanwhile, the debt amount and distribution are being symbolized with NPL and LDR.

Capital Adequacy Ratio

The Capital Adequacy Ratio (CAR) is a financial metric that reflects a bank's capacity to supply capital to address potential loss risks. This ratio is crucial because maintaining the Capital Adequacy Ratio (CAR) at a safe level (a minimum of 8%) ensures the protection of customers and the overall stability of the financial system. The efficacy of bank capital can be assessed through the Capital Adequacy Ratio (Alaziz, 2020). A higher CAR value indicates an improved capacity for banks to manage potential loss risks.

CAR = (Tier 1 Capital + Tier 2 Capital) / Risk Weighted Asset.

Non-Performing Loan

Within the realm of lending, financial institutions encounter credit risk during the loan origination process, specifically stemming from borrower defaults that result in a rise in non-performing loans. The extent of problematic loans can be gauged through the Non-Performing Loan (NPL) Ratio (Nikmah, et.al, 2023).

NPL = (Substandard, doubtful, and non-performing loans / Loans provided) x 100%

Loan to Deposit Ratio

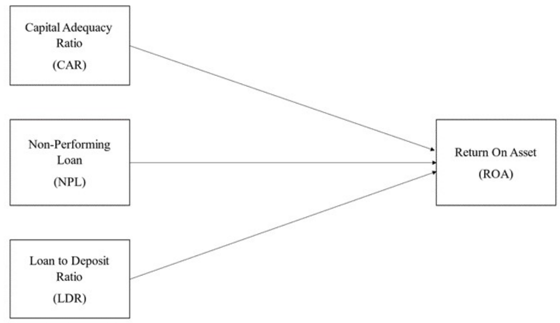
Lending activities may significantly influence a bank's use of funds, impacting its operations, assessment of financial health, customer confidence, and profitability (Juwita, et.al, 2018). Loan on Deposit Ratio (LDR) is utilized in assessing a bank's liquidity through a comparison of total loans to total deposits within a specified period. LDR is typically represented as a percentage. Should the ratio exceed a certain threshold, the bank could potentially face a shortfall in liquidity, hindering its ability to address unforeseen funding requirements. On the other hand, if the ratio is insufficiently low, the bank may be experiencing a decrease in its revenue generation (Murphy, 2024).

LDR = (Total Loans / Total Deposit) x 100%

Return On Asset

According to Bank Indonesia, Return on Assets (ROA) is the ratio of profit before tax to the average total assets over a specific period. This ratio can serve as an indicator of financial health. This ratio is crucial, as the profits generated from asset utilization can indicate the level of a bank's operational efficiency. Within the bank's health assessment framework, BI will assign a maximum score of 100 (indicating a healthy status) if the bank's ROA exceeds 1. 5% (Juwita, et,al, 2018).

ROA = Net Income / Total Asset



Picture 2. Conceptual Framework

Hypothesis

The higher the Return on Assets (ROA) of a bank are, the greater the level of profit is indeed achieved by the bank and the better the bank's position in terms of asset use. And then, according to a research to spesifically one bank in Indonesia, PD Bank Pasar Bogor City that has been done back at 2018, there is positive impacts between Capital Adequacy Ratio (CAR) to Return on Assets (ROA). And althought the strength level of it is into a category of moderate, the relationship between both is significant. Furthermore, the percentage of the CAR contribution to ROA is 23.3% by using coeffisient of determinism technique (Juwita, et.al, 2018).

On the other side, another research also showed a positive impact of CAR towards the ROA. (Rahman, et.al, 2022), CAR does partially impacts the ROA along with certain other ratio. The higher the CAR, the greater the ROA achieved by the bank. This is because CAR is a ratio that shows the adequacy of bank capital, which will be used in its production activities to generate profits and reduce the potential risk of loss in its business activities.

H1 : The Capital Adequacy Ratio would give positive influence significantly to the rate of Return On Assets

There is this previous research that assesing the relevance between the NPL to ROA upon banking companies in Indonesia from year 2016 to 2020. This research stated that the impact upon the NPL towards the ROA are negative and significant (Anggraeni & Citarayani, 2022). It means, a decreased level of Non-Performing Loans (NPL) suggests a relatively low risk associated with lending to the bank, thereby enabling the bank to achieve profitability (higher rate of ROA).

That statement goes along with the statement from (Sasono & Mawarto, 2020), whom also stated that NPL does gives spesific yet negative impact to ROA. NPL indicates credit risk; specifically, a lower NPL signifies reduced risk for the bank regarding the loans it has disbursed.

H2 : The Non-Performing Loan of Ratio does significantly gives positive impacts to the profitabilities of the banking companies in terms of Return On Asset ratio.

A research has done by (Pandey & Budhtoki, 2020) that sought to analyze the impact of liquidity on ROA of 27 banks in Nepal from 2008-2009 to 2017-2018. Using a regression model, the results of this study show a negative relationship between liquidity and ROA, which means that the higher the liquidity, the lower the ROA. But, there are several banking ratios for the liquidity. Therefore, the author wanted to use spesifically one liquidity ratios to analyze it’s impact to ROA.

On the other hand, according to (Yunanto & Suhariadi, 2019), LDR gave positive and significant impact to ROA. LDR also shows the bank's ability to carry out its intermediary role (its duty) in channeling third party funds to credit. This obligation is represented as call money that must be met in the event of a clearing obligation, which is fulfilled using current assets. This duty is represented as call money that must be met when a clearing obligation occurs, the fulfillment of which is done from current assets owned by the

company. It means, the company may gathered up more profit from the interest from the loan or debt that is given by the company to the borrower.
H3 : The liquidity ratio of Loan-Deposit Ratio gave negative significant impact toward the ROA.

3. METHODS

This research using qualitative methods, where the author collect her data from each and every annual reports from 43 conventional bank companies that is listed on IDX from year 2019 to 2023. Therefore, this data that the Author used is a secondary type of data. First, the list of the conventional banking companies are found from the IDX report and sourced from their website. Then, the data proceeded using Eviews 12 and Microsoft Excels.

Table 1. Population and Samplings

	Total Sample
Conventional Bank listed in IDX 2019-2023	43
Conventional Bank listed in IDX but did not give complete finance report 2019-2023	2
Conventional Bank listed in IDX but has minus ROA from 2019-2023	13
Total Sample	28
Total Sample n x periode	140

The qualification itself first and foremost is those that listed in Indonesia Stock Exchange from year 2019 – 2023. And then, for the data sample that is used there are two requirements that the banking companies must fulfill so that the data can be processed. First is that their annual financial report must be complete and detailed. This including stated their financial banking ratios and its data, especially ratios that is needed in this research. Then the second is that their profitability rate must be hinger than zero or is not minus. It's because this research aim to determined what influnced the profitability in banking companies amomg three other ratios. So if the the companies are not even profit then it can be concluded that the banking companies did not fit the criteria. The data that is used here are all gathered from IDX and then each and every annual financial reports from each banking companies.

4. RESULTS

Descriptive Statistic

Date: 02/27/25 Time: 15:55
Sample: 2019 2023

	CAR	NPL	LDR	ROA
Mean	0.318615	0.013644	0.897883	0.016220
Median	0.242550	0.009550	0.826400	0.014300
Maximum	2.838800	0.054900	5.279100	0.043100
Minimum	0.107800	0.001800	0.296700	0.000400
Std. Dev.	0.314132	0.010427	0.526243	0.010940
Skewness	5.516416	1.366590	5.375069	0.592432
Kurtosis	38.55593	4.641250	40.44863	2.494516
Jarque-Bera	8084.693	59.28987	8854.798	9.679937
Probability	0.000000	0.000000	0.000000	0.007907
Sum	44.60610	1.910100	125.7036	2.270800
Sum Sq. Dev.	13.71640	0.015112	38.49354	0.016635
Observations	140	140	140	140

Picture 3. Descriptive Analysis

The result above show the data disitribution the Author got for the research. CAR as the first variable has average mean equal to 0.318615 with minimum value of 0.107800 that is belong to Bank Mayapada Internasiomal Tbk in 2023. While, the maximum is 2.8388 that is belong to Bank Bisnis Internasional on 2022. Then according to the Indonesian Bank, the healthy rate of CAR for the banking companies is 8% which is equal 0.08. Therefore, the average rate CAR of these banking companies from year 2019-2023 can be considered healthy since it was equal to 31.8%. It shows that most of the banking companies able to bear the risk from the loan and credit they gave to public.

Second, the NPL average mean value is 0.013644 with the minimum value 0.0018 that is belong to Bank Nationalnobu Tbk. in 2020. The, the maximum value is 0.0549 and belong to Bank Ganesha Tbk back in 2020. The healthy rate of NPL according to the Indonesian Bank is 5% or equal to 0.05. To which when it comes to the average rate for 5 years (according to the data), the rate of the NPL considered unhealthy and too far from the standard since it's only 1.3%.

Lastly, the variable LDR average mean value is 0.897883. The minimum value of this variable is 0.2967 and belong to Bank Ina Perdana Tbk. on 2021. Meanwhile, the maximum is belong to the Bank Bisnis International Tbk. on 2023 with value of 5.2791. Now, when it comes to the LDR healthy rate, Indonesia Bank stated the healthy rate is 78% to 92%. Which to this case, the average rate for the whole 5 years still considerably healthy as the rate is 89.7%.

Estimate Model Effect

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.498483	3	0.2124

Picture 4. Hausman test
Source : Processed by the Author (2025)

Then, after testing out the data using Chow Test, Hausman Test, and Lagrange Multiplier Test, the result of the best methods to use in this research is REM (Random Effect Methods). This decided because the Hausman Test result is 0.21 which higher (>) than 0.05.

Hypothesis Test

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 02/25/25 Time: 09:26
Sample: 2019 2023
Periods included: 5
Cross-sections included: 28
Total panel (balanced) observations: 140
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016556	0.002159	7.667782	0.0000
CAR	-0.005692	0.002375	-2.396315	0.0179
NPL	-0.221855	0.055669	-3.985265	0.0001
LDR	0.005017	0.001536	3.266465	0.0014

Effects Specification

	S.D.	Rho
Cross-section random	0.009045	0.8051
Idiosyncratic random	0.004451	0.1949

Weighted Statistics

Root MSE	0.004411	R-squared	0.130191
Mean dependent var	0.003486	Adjusted R-squared	0.111004
S.D. dependent var	0.004746	S.E. of regression	0.004475
Sum squared resid	0.002724	F-statistic	6.785366
Durbin-Watson stat	1.572809	Prob(F-statistic)	0.000268

Unweighted Statistics

R-squared	0.144978	Mean dependent var	0.016220
Sum squared resid	0.014223	Durbin-Watson stat	0.301181

Picture 5. T test result (partial)
Source : Processed by the Author (2025)

According to test result from above, it can be written the formula as below
Y (ROA) = 0.016556 – 0.005692 (CAR) – 0.221855 (NPL) + 0.005017 (LDR)
The data above can be interpreted as :
X0 = 0.016556 is a constant value

X1 (CAR) = -0.005692, meaning that if the CAR raised by 1%, the ROA will decreased by 0.6%
X2 (NPL) = -0.221855, meaning that if the NPL raised by 1%, the ROA will decreased by 22%
X3 (LDR) = 0.005017, meaning that if the LDR raised by 1%, the ROA will raised by 0.5%

Table 2. Hypothesis Decision

Model	T-Statistic	Probability	Hypothesis Decision
(Constant)	7.667782	0.000	
CAR	-2.396315	0.0179	H_1 is rejected
NPL	-3.985265	0.0001	H_2 is accepted
LDR	3.266465	0.0014	H_3 is accepted

5. DISCUSSION

The probability of CAR is 0.0179, is lower than 0.05 then it means CAR significantly influence the changes of ROA rate. But, it is a negative significant, meanwhile the Author proposed a positive significant that is why H1 are rejected. This goes along with the result from research that is done by (Sa'adah & Wahyuni, 2023) with result of t-value for CAR 0.0017, although this one research result are indeed positive and significant. But this result are different from the other research that state CAR does not impact the rate of ROA. This other research done by (Anggraeni & Citarayani, 2022) with the t-value for CAR is 0.2401.

The probability for NPL in this research is 0.0001 which obviously far lower than 0.05. So it means that the NPL does significantly impact the ROA. Therefore, H2 are accepted because the result goes along with the hypothesis which is negative and significant. Although this result goes along with the research that is done by (Yuhasril, 2019) with probability value of 0.0047 and negative t-value, the result are againts the result that came from a research done by (Lestari & Setianegara, 2020) with their probability value of 0.161 and positive t-value. Or in short, positive and insignificant.

As suggested by Signaling Theory, financial indicators serve as important signals to investors and stakeholders. High levels of NPLs indicate substandard credit quality and poor risk management practices, which undermine investor confidence. Given that an increase in NPLs adversely affects ROA, this supports the notion that unfavorable financial signals (such as an increase in NPLs) reduce firm profitability and erode investor confidence. Financial institutions that exhibit lower NPLs convey a positive message to the market, reflecting strong financial health and good credit management.

And then last but not least, the profitability for LDR is 0.0014 and lower than 0.05, so that it means LDR gave significant and positive influence toward the ROA. Therefore, the result from this data are goes along with the result from (Yunanto & Suhariadi, 2019) that also stated that LDR gave positive and significant impact to ROA.

An increase in LDR indicates that the bank is effectively utilizing its deposits to generate income through lending, thereby increasing profitability (ROA). In accordance with Signaling Theory, a well-regulated LDR indicates that the bank manages its capital efficiently, thus attracting investor interest and increasing confidence in the institution's earnings prospects. However, an excessively high LDR may indicate liquidity risk, potentially undermining long-term investor confidence.

CONCLUSION

Based on all the data above, we all finally come to a several conclusion about this research topic. First of all, it is true that all the three factors above which consisted of CAR (Capital Adequacy Ratio), NPL (Non-Performing Loan), and LDR (Loan to Deposit Ratio) are indeed significantly influenced the rate of the profitability of banking companies which was represented under ROA (Return On Assets).

Also, as we all know that finance and economy is something that is quite dynamic to say the least. For example, based on the graphic trend of the ROA from 2019 to 2023 it can be seen that things are gone through changes and perhaps adaptation. It can be considered that the economy goes up and hill of conventional banking companies in Indonesia. From struggling, surviving, and back rise up. This ofcourse only manage to show a little of a whole economy and financial performances that happened, which far more complex. y

Then from all the result of the test above, one of ratio that significantly effecting the profitability is the Non-Performing Loan (NPL). Which goes along with the exixted theory where a lower rate of NPL means higher rate of ROA. Although the rest two other of the financial ratio are indeed also significantly influence the rate of ROA, in this research one other that provened goes along with the hypothesis is LDR.

LIMITATION

The Author herself must also say that this result may came out differently if it is done to a non-conventional banking companies, all banking comapnies (both Syariah and Conventional) or in different time lines. Even, this research applied to only conventional banking companies which also create another discrepancy.

Therefore, for the future research other people may use different combination of Independent variables that consisting different banking financial ratios. Either add some more to the combination, or change one of the ratio to another banking financial ratios.

Also, different timelines would absolutely create a different result since all of the banking financial ratios will always gave a different numbers. So perhaps, use certain different timeline as well.

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