

# Does the Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Net Interest Margin (NIM) Affect the Profitability of Banks? : Case of Indonesia

<sup>1</sup>\* Shendy Amalia, <sup>2</sup>Darwis Agustriyana, <sup>3</sup>Neneng Susanti

<sup>1</sup>Management / Economy and Business Faculty,  
Widyatama University, Bandung, Indonesia

<sup>2</sup>Management / Economy and Business Faculty,  
Widyatama University, Bandung, Indonesia

<sup>3</sup>Management / Economy and Business Faculty,  
Widyatama University, Bandung, Indonesia

\* Corresponding author: shendy.amalia@widyatama.ac.id

**Abstract.** *This study aims to determine the effect of the variable Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Net Interest Margin (NIM) on bank profitability as proxied by Return on Assets (ROA). The population in this study are all banking companies listed on the Indonesia Stock Exchange in the 2014-2018 period. While the samples in this study were 34 companies using the purposive sampling method. This type of research is quantitative with the analysis technique used is a panel data regression technique to determine whether there is a significant influence of one dependent variable (dependent) and more than one independent variable (independent). Based on the research conducted, we found that the Capital Adequacy Ratio and Net Interest Margin have a significant effect on Return on Assets in a positive direction, while the Non Performing Loan variable also has a significant effect on Return on Assets, but with a negative influence.*

**Keywords:** *Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), Net Interest Margin (NIM), and Return On Assets (ROA).*

## 1. INTRODUCTION

Indonesia's economic growth is at five percent, it even touched 4.79 percent in 2015. The highest economic growth occurred in 2018, amounting to 5.17 percent. The Executive Director of the Institute for Development of Economics and Finance (Indef) assesses that there are at least two main issues that make economic growth stuck at five percent. First, economic policy is not yet in line with agencies. This condition makes investment flow not optimal, and contribution to economic growth is minimal. The second problem comes from slowing export performance, the condition is exacerbated by the increasing entry of imported goods. As a result, the country's foreign exchange was eroded, the trade balance was disrupted, and finally hampered economic growth.

During 2014-2018, Indonesia's cumulative import growth reached 4.56 percent. On the other hand, exports only rose 3.76 percent. Higher import growth from exports could cause the economy to degrade. As a result, the target pursued by the government so far, job creation from new investment, is not in line with expectations. This failure also makes citizens' purchasing power and spending low. As a result, GDP growth from public consumption is also stagnant at around five percent. In fact, the contribution of public consumption to GDP is greater than investment or government consumption.

Vietnam is an example of Indonesia, the ease of investment and applicable regulations do not prevent foreign entrepreneurs from investing in Vietnam. Thus, coordination between agencies must be better in the future, as well as in terms of productivity of human resources. Indonesia is actually still better than Vietnam, especially when it comes to global competitiveness. Currently, Indonesia's

global competitiveness ranks 50<sup>th</sup>, and Vietnam's 67<sup>th</sup>. Although Indonesia's global competitiveness is better, Vietnam is superior when it comes to economic growth. During 2016-2018, Vietnam's average economic growth was around seven percent per year.

The contribution of the financial services sector continues to increase for the economy. During the last three years, namely 2014-2017, the portion of the financial services industry, especially banking and insurance in the economy continues to increase. However, the association of the National Commercial Banks (Perbanas) evaluated the condition of the country's banking system over the past five years. There are at least two major challenges faced in the banking sector, namely the ratio of bad loans and liquidity. The high value of the bad credit ratio has slowed. Furthermore, banks also experienced a slowdown in growth or experienced tight liquidity. This is in line with the condition of the growth of third party funds from the public which also slowed down.

Banks that can always maintain their performance well especially the high level of profitability and are able to distribute dividends well and their business prospects can always develop and can meet the banking regulations. Profitability is an appropriate benchmark in measuring the performance of a bank. The most widely used measure of profitability is Return on Assets (ROA). This is because it is the most important ratio for comparing efficiency and operational performance of banks (Ponce, 2012). Banking profitability is under pressure, one consequence is slowing banking performance. Based on a report released by the Deposit Insurance Corporation (LPS) in early May 2015, credit growth and third party funds (DPK) declined, the trend of bank profit growth was also declining. One of the reasons for the decline in Return on Assets is due to economic conditions that have not improved, in line with world economic conditions and slow credit growth.

Developments in the performance and financial condition of banks can be seen through the financial statements of the banks concerned. Banking financial statements will be very bad with the existence of negative net income and minimum capital adequacy (Capital Adequacy Ratio) obligations that are not fulfilled. Capital is a very important factor for the development and progress of banks while maintaining public confidence. Every asset creation, in addition to potentially generating profits also has the potential to cause risks. The higher the Capital Adequacy Ratio, the stronger the bank's ability to bear the risk of any risky credit / earning assets, the favorable conditions for the bank will make a sizeable contribution to profitability.

In addition to having to pay attention to the adequacy of its capital, so banks do not arbitrarily expand loans only to obtain large profits, also so as not to overly limit loans only to avoid the risk of bad credit as indicated by the Non Performing Loan (NPL) ratio. Non Performing Loans (NPLs) are financial ratios related to credit risk. Banks are said to have a high Non-Performing Loan if the number of problem loans is greater than the amount of credit given to debtors. If a bank has a high Non Performing Loan, it will increase costs, both the cost of providing productive assets and other costs, in other words the higher the Non Performing Loan of a bank, it will interfere with the bank's performance.

Then Net Interest Margin (NIM) reflects the market risk arising from the movement of market variables, which can be detrimental to the bank. Based on Bank Indonesia regulations, one of the proxy of market risk is the interest rate, which is measured by the difference between funding interest rates (funding) and lending rates or in absolute form is the difference between the total cost of funding interest with the total cost of loan interest where in banking terms it is called Net Interest Margin (NIM). Thus the size of the NIM will affect the profit and loss of the Bank which ultimately affect the performance of the bank.

From some previous studies, it can be seen that the results of the research have differences or Research Gap. Research by Simatupang and Franslay (2016) says that the *Capital Adequacy Ratio* has a positive and significant effect on Return on Assets, but the Welta and Lemiyana (2017) study says otherwise. Widowati (2015) in his research found that Non-Performing Loans had a negative and significant effect on Return on Assets, but instead Wibowo and Syaichu (2013) found that Non-Performing Loans had no significant effect on Return on Assets. Suardana, Astawa, and Martini (2018) found that Net Interest Margin had a positive and significant effect on Return on Assets, while Liyana and Indrayani (2020) found that Net Interest Margin had no significant effect on Return on Assets.

Based on the explanation that has been described, there are inconsistencies in the results of the research of several previous researchers, the researchers are interested in conducting research on the effect of financial ratios on the level of profitability (ROA) represented by Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Net Interest Margin (NIM).

## **2. LITERATURE REVIEW**

### **2.1 Signaling Theory**

*Signaling Theory* explains that company managers who have better information about the company will be encouraged to convey this information to prospective investors aiming to increase the company's value through reporting by sending signals through its annual report (Ongore and Kusa, 2013). This theory shows the existence of information asymmetry between the management of the company with interested parties regarding the information. The implications of *ignoring theory* in this study will show information about what managers, especially credit managers, do to convey an independent effect on lending to debtors. This theory sends signals to debtors which indicate that banking companies are able to channel credit through several factors so that credit distribution will be on target. Signaling theory is broadly related to the availability of information, financial statements are information that can be used to make decisions for investors. In addition, this theory also looks at what will happen when the signal is not fully convincing or how much uncertainty can be tolerated before the signal becomes meaningless at all (Obamuyi, 2013).

### **2.2 Return on Assets (ROA)**

Profitability is very important for banks, because it is used as an indicator to measure the efficiency of a company in generating profits by utilizing its assets. Financial performance is the financial condition of a bank in a certain period, where information on financial position and financial performance in the past is often used as a basis for predicting financial position and future performance. Binden, Mziu, and Suhaimi (2014) assessments of bank financial performance can be assessed using the financial ratio analysis approach of all reported financial statements. Performance measurement is used by using company profits in the form of profitability. Return on Assets is a profitability ratio that shows the percentage of profits (net income) obtained by a company in relation to overall resources or average total assets. In other words, Return on Assets is a ratio that measures how efficient a company is in managing its assets to generate profits during a period.

### **2.3 Capital Adequacy Ratio (CAR)**

The strength of this capital aspect is possible to build the condition of banks that are trusted by the public. Bank management must use all operational tools to be able to maintain public trust. One strategic tool in sustaining trust is adequate capital. Capital is one of the important factors in developing a business and accommodating the risk of loss, the amount of capital of a bank will affect whether or not a bank can efficiently run its activities, and can affect the level of public trust. The use of bank capital is also intended to meet all the needs of banks to support bank operations and as a tool for business expansion. One ratio that is often used to measure aspects of capital is the Capital Adequacy Ratio (CAR). According to Pinasti and Mustikawati (2018) CAR is a financial ratio related to Bank capital where the amount of Bank capital will affect whether the bank can carry out its activities efficiently or not. Sudarmawanti and Pramono (2017) revealed that an increase in circulation and a decrease in the capital adequacy ratio (CAR) would indicate a decline in bank assets that could still be covered by available bank equity, the higher the CAR, the better the condition of the Bank. The greater the capital adequacy ratio (CAR), the greater the Bank's profit.

### **2.4 Non Performing Loans (NPLs)**

Interest rates are indeed a source of bank income where if the bank no longer receives installments in accordance with the specified time period, it is feared this will continue to worsen the condition of the bank. Therefore the bank is required to conduct a credit analysis so that they can select clients who are eligible to receive loan funds from the bank. Many factors that often trigger the emergence of this problem include the impact of a multi-dimensional crisis which until now has made many of the bank's debtors unable to solve their bad credit problems. The financial ratio that is often used as a proxy for the value of a credit risk is the Non Performing Loan (NPL).

Non-Performing Loans (NPLs) are indicators to measure how a bank's ability to maintain the level of lending to consumers. Banks are not only required to provide credit, but banks must also conduct a review process in providing Non Performing Loans (NPL) loans, which are ratios that describe the level of loan problems experienced by banks or often referred to as bad loans. Bank Indonesia Regulation 2013 has set a maximum limit of Non Performing Loans (NPLs) of 5%. So, the higher the non-performing loans (NPL), the higher the non-performing loans experienced by the Bank.

### 2.5 Net Interest Margin (NIM)

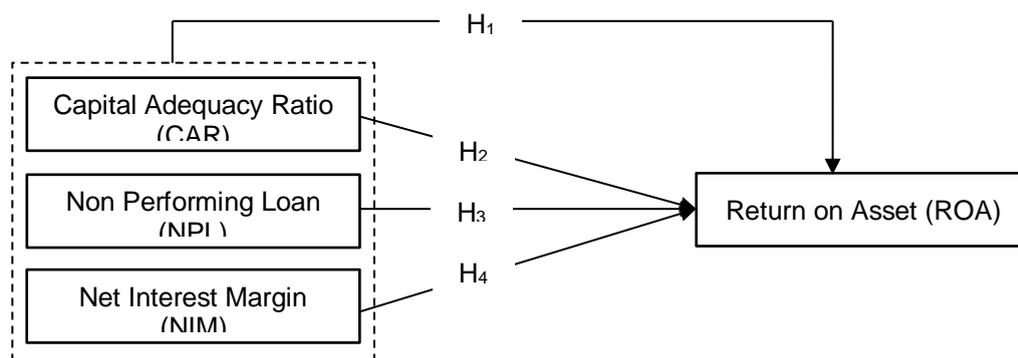
Net Interest Margin (NIM) is a ratio that shows the ability of bank management in managing their productive assets to generate net interest income. Net interest income is derived from interest income less interest expense. Net Interest Margin (NIM) is important to evaluate the ability of banks to manage risks to interest rates. When interest rates change, interest income and bank interest fees will change. According to Rivai, Basir, Sudarto, and Veithzal (2013) Net Interest Margin shows the ability of earning assets to generate net interest income. The Net Interest Margin Ratio is used to measure the ability of bank management to manage their productive assets to generate net interest income. The greater this ratio increases interest income on earning assets managed by banks so that the possibility of banks in problematic conditions is smaller.

## 3. METHODS

This research was conducted on banking companies listed on the Indonesia Stock Exchange. This type of research is quantitative, data in the form of numbers that indicate the number or amount of something, namely the company's financial statements. The data used in this study are secondary data in the form of corporate financial performance data that includes Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), Net Interest Margin (NIM), and Return On Asset (ROA). The data used in this study were obtained from the Indonesia Stock Exchange and the banking website in 2014-2018. The data collection in this study was carried out by means of non-participant observation, namely by reviewing books, journals and papers to get a comprehensive theoretical foundation and exploration of financial statements from banks in the form of balance sheet, profit and loss and productive active quality reports.

The population in this study are all banking companies listed on the Indonesia Stock Exchange in the 2014-2018 period. While the samples in this study were 34 companies using the purposive sampling method. The approach used in this study is a quantitative approach using the Eviws 10 program to facilitate the analysis of research results. While the analysis technique used is panel data regression technique to determine whether there is a significant influence of one dependent variable (dependent) and more than one independent variable (independent). The dependent variable in this study is bank profitability which is proxied by Return On Assets (ROA) and independent variables namely Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Net Interest Margin (NIM).

A framework of thought is a synthesis or extrapolation from a review of theories that reflects the interrelationship between the variables studied and is a demand for solving research problems and formulating hypotheses. The influence of Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Net Interest Margin (NIM) on Return on Assets (ROA) in this study can be described in one model of thought as follows:



**Figure 1: Research Framework**

Hypothesis is a statement about something that is temporarily considered true. According to Uma Sekaran (2014) the hypothesis can be defined as a logically estimated relationship between two or more variables expressed in the form of statements that can be tested. Based on the theoretical basis of previous studies and the framework then the hypothesis used in this study are as follows:

- H<sub>1</sub>: Capital Adequacy Ratio (CAR), Non Performing Loan (NPL) and Net Interest Margin (NIM) significantly affects Return on Asset (ROA) banking companies listed on the Indonesia Stock Exchange in the 2014-2018 period.
- H<sub>2</sub> : Capital Adequacy Ratio (CAR) has a significant positive effect on Return on Assets (ROA) of banking companies listed on the Indonesia Stock Exchange in the 2014-2018 period.
- H<sub>3</sub> : Non Performing Loans (NPL) have a significant negative effect on Return on Assets (ROA) of banking companies listed on the Indonesia Stock Exchange in the 2014-2018 period.
- H<sub>4</sub> : Net Interest Margin (NIM) has a significant positive effect on Return on Assets (ROA) of banking companies listed on the Indonesia Stock Exchange in the 2014-2018 period.

#### 4. RESULT AND DISCUSSION

Instrument test results prove that the indicators on the variable Return on Assets (Y), *Capital Adequacy Ratio (CAR)* (X<sub>1</sub>), *Non Performing Loans (NPL)* (X<sub>2</sub>), and *Net Interest Margin (NIM)* (X<sub>3</sub>) has been declared valid and reliable, so that it can be used as a measurement tool in subsequent tests. Data Return on Assets (Y), *Capital Adequacy Ratio (CAR)* (X<sub>1</sub>), *Non Performing Loans (NPL)* (X<sub>2</sub>), and *Net Interest Margin (NIM)* (X<sub>3</sub>) in this study have also been normally distributed, no heteroscedasticity, no autocorrelation, and no multicollinearity. Based on the model selection that has been done using the Chow Test and the Hausman Test, it is better to use the model *Fixed Effect*. The following are the results of data processing that have been carried out:

**Table 1: Regression Results PanelData**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.301655	0.451707	0.896529	0.0000
CAR	0.021091	0.018719	1.142936	0.0015
NPL	-0.266037	0.070794	-5.011569	0.0000
NIM	0.305523	0.043277	4.217568	0.0000
R-squared	0.564673	Mean dependent var		1.109401
Adjusted R-squared	0.450691	SD dependent var		2.113848
SE of regression	1.362435	Akaike information criterion		3.649079
Sum squared resid	41,31099	Schwarz criterion		4.339892
Log likelihood	-35.62981	Hannan-Quinn criter.		3,929465
F-statistic	19.48884	Durbin-Watson stat		2.656705
Prob (F-statistic)	0.000000			

Hypothesis F test results obtained sig F value of 0.000000 < 0.05, meaning there is a significant influence of *Capital Adequacy Ratio (CAR)*, *Non Performing Loans (NPL)*, and *Net Interest Margin (NIM)* together with Return on Assets (ROA) in banking companies listed on the Indonesia Stock Exchange for the period 2014-2018. Adjusted R-Square value of 0.450691, means *Return on Assets (ROA)* can be explained by *Capital Adequacy Ratio (CAR)*, *Non Performing Loans (NPL)*, and *Net Interest Margin (NIM)* of 45.07%, while the remaining 54.93% is explained by other factors not included in this study. Based on the resulting coefficient values, a path analysis equation can be formed, namely:

$$ROA = 0.021CAR - 0.266NPL + 0.306NIM$$

It is known that partially, the variable *Capital Adequacy Ratio (CAR)* has a significant influence on *Return on Assets (ROA)*, because the Sig t 0.0015 <  $\alpha = 0.05$  with the direction of the positive influence seen from the coefficient value generated. The variable *Non Performing Loan (NPL)* has a significant effect on *Return on Assets (ROA)*, because the value of Sig t 0.0000 <  $\alpha = 0.05$  with the direction of the negative effect seen from the coefficient value generated. The variable *Net Interest Margin (NIM)* has a significant effect on *Return on Assets (ROA)*, because the value of Sig t 0.0000 <  $\alpha = 0.05$  with the direction of the positive effect seen from the coefficient value generated.

## DISCUSSION

Capital Adequacy Ratio (CAR) is also commonly referred to as the capital adequacy ratio, measuring the capital adequacy of banks to support risky assets. Based on the results of tests that have been done, it is known that in this study the Capital Adequacy Ratio variable has a significant effect on Return on Assets with a positive direction. So that the change in the ratio of Capital Adequacy Ratio is proven to be used to predict Return on Assets for banks listed on the Stock Exchange in the 2014-2018 research period. The positive influence shown by the Capital Adequacy Ratio indicates that the higher the Capital Adequacy Ratio achieved by the bank shows that the bank's performance is getting better, so that bank profit income is increasing. The low value of Capital Adequacy Ratio will cause a decrease in public trust, because one of the functions of capital is to maintain public trust. Public trust is very important for the bank because then the bank will be able to raise funds for operational needs. Despite the existence of BI regulations that require banks to maintain Capital Adequacy Ratio with a provision of at least 8%, banks in this study still demonstrate the ability to rotate funds from other parties properly and efficiently in channeling funds. The results of this study are in line with research conducted by Medyawati and Yunanto (2018), Sari, Anshori, and Primasari (2018) and in contrast to Soares and Yunanto (2018); Ariesta, Marlina, and Hidayati (2019) which stated that the Capital Adequacy Ratio had no effect on Return on Assets.

Non Performing Loans are financial ratios that are used as proxies against the rate of return on loans provided by depositors to banks in other words Non Performing Loans are the level of bad loans at the bank. Based on the results of tests that have been done, it is known that in this study the Non Performing Loan variable significantly influences the Return on Assets with a negative direction. So that the change in the ratio of Non Performing Loans is proven to be used to predict Return on Assets in banks listed on the Stock Exchange in the 2014-2018 research period. The negative effect shown by the Non Performing Loan indicates that the higher the non-performing loans in bank credit management, the lower the level of bank income reflected through Return on Assets. If the credit quality is poor, it will increase the risk, especially if the credit is given by not using the principle of prudence and expansion in giving credit that is less controlled, so that the bank will bear greater risks as well. The results of this study are consistent with research conducted by Syarifudin (2019), and contrary to Mismiwati (2016) which states that Non-Performing Loans have no effect on Return on Assets.

Net Interest Margin is a ratio used to measure the ability of bank management to generate income from interest by looking at the bank's performance in disbursing loans, bearing in mind the bank's operating income is highly dependent on the difference in interest from the credit extended. Based on the results of tests that have been done, it is known that in this study the Net Interest Margin variable significantly influences Return on Assets in a positive direction. So that the change in the ratio of Net Interest Margin is proven to be used to predict Return on Assets in banks listed on the Stock Exchange in the 2014-2018 research period. This means that the ability of bank

management to generate net interest affects the level of bank income for total assets. Net interest is one of the components forming profit (income), because profit is a component forming return on assets, then indirectly if net interest income increases, the profit generated by banks also increases, so that it will improve the financial performance of the bank. The results of this study are consistent with the results of research conducted by Soares and Yunanto (2018), and contrary to Liyana and Indrayani (2020) which states that Net Interest Margin has no effect on Return on Assets.

## CONCLUSION

Based on the explanation that has been described during the observation period shows that the data in the study were normally distributed and found no variables that deviate from the classical assumptions, it shows that the available data have fulfilled the requirements to use the multiple linear regression equation model. This study tries to examine how the influence of Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Net Interest Margin (NIM), on Return On Assets (ROA) as a proxy of banking financial performance. Based on the results of multiple linear regression analysis shows that the Capital Adequacy Ratio and Net Interest Margin have a significant effect on Return on Assets in a positive direction, while the Non Performing Loan variable also has a significant effect on Return on Assets, but with a negative influence.

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