THE EFFECT OF CREDIT RISK, COMPANY SIZE, AND PROFITABILITY ON CAPITAL ADEQUACY RATIO OF BANKS LISTED ON THE INDONESIA STOCK EXCHANGE IN INDONESIA

AIDA YULIA
Economics and Business Faculty, Universitas Syiah Kuala
aidayulia@yahoo.com
TARVI AL MUGHNI AKBAR
Economics and Business Faculty, Universitas Syiah Kuala
Tarviakbar98@gmail.com
RULFAH M. DAUD
Economics and Business Faculty, Universitas Syiah Kuala
rulfahdaud@yahoo.com

Abstract

This study aims to determine the effect of Non Performing Loans, Size, Net Interest Margin, and Return on Assets on the capital adequacy ratio of banks listed on the Indonesia Stock Exchange. This study uses panel data, the sample in this study amounted to 17 banks with an observation period from 2015-2019. The analytical method used in this research is multiple linear regression. The results of the study partially show that non-performing does not have a significant effect on capital adequacy ratio, size does not have a significant effect on capital adequacy ratio, net interest margin has a significant effect on capital adequacy ratio, and return on assets has a significant effect on the capital adequacy ratio. Simultaneous test results show that the Non Performing Loan, Size, Net Interest Margin, and Return on Assets have a significant effect on the capital adequacy ratio.

Keywords: capital adequacy ratio, net interest margin, non performing loas, return on assets, size.

JEL classification: G21, E5.

1. INTRODUCTION

Many government and private institutions predict that the Indonesian economy will develop quite rapidly in the future. In 2019 Standard Chartered Plc published research results related to 10 countries with the largest economies in the world in 2030. Based on these research results, Indonesia is projected to be ranked 4th, the country with the largest economy in the world. The indicator used in these

research is nominal gross domestic product (GDP) based on purchasing power parity (PPP). Indonesia will have a GDP of 10.1 Trillion USD (Standard Chartered Plc, 2019).

One of the industries that have an important role in economic growth is the banking industry, economic growth is strongly influenced by the sector where they become a liaison for the real sector and investment in the provision of capital (Inggrid, 2006). In carrying out its operations, banks must be able to manage risk well otherwise, the implications for the entire economic system will be dire because banks are a tool for the government to stabilize monetarily and encourage national economic growth (Iskandar, 2013).

As a driver of the economy, banks must pay attention to building and maintaining a healthy business in a rapidly changing market and environment (Iskandar, 2013: 18). Even though conventional banks currently have the largest market share and assets, they may be free from significant risks such as the 1998 monetary crisis, where it is predicted that our economy will continue to grow steadily. However, who would have thought that Indonesia was hit by a crisis that no one seemed to have predicted would happen a year later.

The World Bank revealed that one of the causes of the crisis was the weakness of the national banking system (Arifin, 2008). The assessment of a weak banking system based on reasonably poor supervision of the financial industry is one of the things that should be detectable if Indonesia has a robust banking system. The World Bank recommends restructuring and strengthening the national banking system to have a healthy banking industry.

Bank health is a condition where the bank can comply with applicable regulations and fulfill the obligations that have been set (Budisantoso and Triandaru, 2014: 51). In complying with regulations and fulfilling their obligations, banks must comply with regulations set by the regulator where the bank is established. In Indonesia, banks must comply with the rules and regulations set by Bank Indonesia as the central bank and the Otoritas Jasa Keuangan (OJK) as the supervisor of the financial industry.

OJK issued Financial Services Authority Regulation Number 11 /POJK.03/2016, this regulation contains an obligation for banks to provide minimum capital according to their respective risk profiles. The minimum capital requirement is measured using the Minimum Capital Adequacy Ratio or Capital Adequacy Ratio (CAR). The Capital Adequacy Ratio compares capital and risk-weighted assets (RWA) (Kasmir, 2015:57). CAR is a ratio to see how much bank capital can cover risk-weighted assets. CAR is a critical topic for the banking sector in assessing banks' health. It is a special obligation for banks to comply with these obligations as stated in the Financial Services Authority Regulation Number 11/POJK.03/2016.

Various kinds of financial ratios can be used as indicators to see their ability to influence CAR. These financial ratios will only be affected if there is a direct correlation with the bank's risk-weighted capital and assets. In this study, business risk is represented by the ratio of Non-Performing Loans (NPL), company size or

SIZE, and profitability represented by Net Interest Margin (NIM) and Return on Assets (ROA) will be involved.

NPL is a non-performing loan that causes the bank to bear the losses incurred with the capital owned, the higher the NPL will erode the bank's capital, it can affect the capital adequacy ratio. The SIZE will represent the size of the company based on the number of assets that influence the rise and fall of risk-weighted assets. The majority of bank assets will be placed into productive assets in this case, the largest part will be in the form of loan loans. The larger the loan credit will increase the bank's RWA, which will result in a decrease in the bank's CAR. NIM represents risk-weighted asset management (Koch and Scott, 2015:124), the primary income of conventional banks is the interest earned.

In the 2015-2019 period, the factors mentioned above show an unusual phenomenon related to the capital adequacy ratio, as happened in the NPL in 2016, which increased but was not followed by a decrease in CAR value, even though the increase in the NPL ratio indicated an increase in losses. Banks that will cause a decrease in the capital so that it affects CAR like the research of Azizah and Taswan (2019), whose research results show a negative relationship between NPL and CAR. A similar phenomenon also occurs with company size. From 2015-2019 there was an increase in company size in terms of total assets, not followed by a decrease in CAR. As we know, most of bank assets will be placed in productive assets that contain risks such as lending, investing, and others. The occurrence of an increase in the number of assets should affect the risk-weighted assets which are a factor in reducing the CAR as research by Andhika and Suprayogi (2017) shows a negative relationship between Size and CAR.

The same thing also happened with NIM, between 2016-2019 there was a decrease in NIM (Net Interest Margin) but between the same period, the bank's CAR increased annually although there was a slight decrease in 2018. Research by Dewi and Yadnya (2018) shows similar results. said that NIM has a positive relationship with CAR because an increase in net interest margin will increase bank profits and capital. In 2016 and 2019 there was a decline in banking ROA but this was not followed by a decrease in CAR, ROA should have a positive relationship with CAR such as Minh and Nga's research (2018) which shows there is a positive relationship between ROA and CAR because ROA shows profitability so the increase will increase capital and CAR.

Based on these phenomena, the researcher wants to know how Non-Performing Loans which in this study represent credit risk, Company Size/Size, and Net Interest Margin and Return on Assets affect the Capital Adequacy Ratio of banks listed on the Indonesia Stock Exchange.

2. LITERATURE REVIEW

2.1. BANK CAPITAL

In general, capital for banks has two functions, firstly being a buffer in protecting credit risks and inappropriate investments. Secondly, providing

confidence for depositors or other creditors that the bank is in good condition and will be able to carry out its obligations in the event of a disaster or lousy period (Puspopranoto, 2004). Based on chapter II article 9, Financial Services Authority Regulation Number 11/POJK.03/2016, capital for banks with head offices in Indonesia consists of:

a) Core Capital (Tier 1)
b) Supplementary Capital (Tier 2)

Based on Financial Services Authority Regulation Number 11/POJK.03/2016, core capital (Tier 1) is divided into two parts, namely Common Equity Tier 1 and additional core capital. The Common Equity Tier 1 consists of paid-in capital and additional capital reserves (Disclosed Reserve). Supplementary capital (Tier 2) consists of:

a) Capital instruments in the form of shares or in other forms that meet the requirements as supplementary capital.
b) Agio or disagio originating from the issuance of capital instruments classified as supplementary capital.
c) General Reserves for Allowance for Asset Losses (PPA) for productive assets that must be calculated with a maximum amount of 1.25% (one point twenty five percent) of RWA for Credit Risk.
d) Reserve goals.

2.2. CAPITAL ADEQUACY RATIO

Capital Adequacy Ratio (CAR) is a ratio that shows how many assets that contain an element of risk can be protected by the bank's capital (Frida 2020:268). The financial industry, including banking, is an industry that has significant risks, such as assets owned. Banking assets that have significant risk are loans or loans given to third parties because loans given by banks come from bank capital and customer deposits or other products from the bank.

Banks must maintain capital adequacy within safe limits because banks must obey rules related to capital adequacy. In Indonesia, OJK or Otoritas Jasa Keuangan as bank supervisors through Financial Services Authority Regulation Number 11 / POJK.03/2016 requires commercial banks to provide minimum capital. The Minimum Capital Adequacy Ratio can calculate the minimum capital requirement. Minimum Capital Adequacy Ratio (CAR) is a ratio that compares bank capital with Risk-Weighted Assets (RWA). RWA is the total combined assets multiplied by the risk weight of each Sinungan (1997:169).

The minimum capital provision is different for each bank depending on the risk profile set by the OJK. OJK has set the lowest CAR ratio level that banks must provide. The level of this ratio is regulated in the Financial Services Authority Regulation Number 11 / POJK.03/2016. The risk profile referred to in the Financial Services Authority Regulation Number 11/POJK.03/2016, which is divided into several ratings, is a bank rating based on an assessment of eight types of risk assessed by the bank. The types of risks assessed include credit risk, market risk, liquidity

risk, operational risk, legal risk, reputation risk, strategic risk, and compliance risk. Each bank will report quarterly to the OJK regarding its risk profile, which includes an assessment of its risk profile rating.

The capital adequacy ratio or CAR can be influenced by various factors as long as these factors directly affect the bank's risk-weighted capital and assets. This is because these two factors construct the CAR value. According to Satria (2009:110), to control the capital adequacy ratio, banks will hold the ratio of Non-Performing Loans or non-performing loans from increasing so that banks do not have to bear losses on the loans they have given. Bank losses on non-performing loans will be borne by the capital owned, and reduced capital caused by bad loans will affect the bank's CAR. Another factor that affects CAR is an increase in the size proxied by total assets, an increase in bank assets is always followed by an increase in investment made (Siringoringo, 2012), the increase in investment will increase the risk owned by the bank, so that it becomes a driver of fluctuating capital adequacy ratios (Rahayu, 2013). Profit is another factor affecting the CAR because the profit will go directly to the bank's capital. Bank capital is one of the factors that shape the CAR value. Net Interest Margin (NIM) and Return on Assets (ROA) represent bank profits so that they have a direct correlation to CAR.

2.3. CREDIT RISK

Credit risk arises due to the failure of a party, both individuals and institutions, to fulfill their obligations to the bank (Al Human and Sitohang, 2019). Credit risk can be in the form of failure of parties, either individuals or groups, to repay loans to banks, failure of one party to fulfill derivative contract agreements, failure of one party to pay (settlement risk) such as foreign exchange sale and purchase agreements (Indonesian Bankers Association 2015; POJK No 18 /POJK.03 2016). Quantitatively, credit risk can be described using indicators from the ratio of Non-Performing Loans (NPL) and Non-Performing Earning Assets (APB). If NPL compares total non-performing loans with total loans extended by banks, then the APB ratio is a ratio that compares non-performing productive assets with total earning assets.

2.4. NON-PERFORMING LOAN

NPL is a non-performing loan that reflects credit management by banking management, the greater the value of this ratio indicates poor management by bank management and will cause losses to be borne by banks (Kasmir, 2013:155). The NPL value can be obtained by comparing the total non-performing loans and the total loans granted (Riyadi, 2006). If non-performing loans are not appropriately controlled, this will continue to reduce the bank's capital. It can cause a capital imbalance that can disrupt the bank's business in its operations because the regulator requires the fulfillment of minimum capital. The Financial Services Authority Regulation Number 15 /POJK.03/2017 indicates that banks must maintain the NPL ratio below 5%, if the bank's NPL ratio is above 5%, the OJK will determine the

status of the bank as a bank under intensive supervision status, this is done as an effort to heal the bank.

An NPL ratio that is too high will cause the erosion of bank capital because when providing credit, banks do not only use their own capital but banks also use funds belonging to customers. When the credit given is in trouble, the bank must bear the loss with its own capital while the customer's funds remain the rights of the customer and their rights at the time of the agreement. Therefore, it can be said that NPL and CAR have a negative relationship. Research by Dewi and Yadnya (2018), Andhika and Suprayogi (2017), Olerawaju and Akande (2016), El-Hansary and Hafez (2015), as well as research conducted by Abusharba et al. (2013) supports this negative relationship.

2.5. COMPANY SIZE/SIZE

Firm Size or company size is an indicator that groups companies into three groups, namely small companies, medium companies, and large companies (Arfan and Wahyuni, 2010). The grouping of companies into these three groups can be based on total assets, total sales, and total capital (Basyaib, 2007:122). In this study, the size of the bank company will be assessed based on total assets because total assets have a more representative nature to show the company's scale (Adnan et al, 2016).

Banks can continue to maximize their business by having significant assets (Kosmidou et al., 2008). According to Murhadi (2013), the company's assets have a number that is too large so that the total assets need to be transformed into the form of a natural logarithm, this is done to reduce data that is too large and will facilitate the data interpretation process so that the information generated will facilitate both researchers and readers.

An increase in total bank assets will reduce the capital adequacy ratio because banks will place most of their assets into productive assets. On average, 60-70% of the bank's total assets are productive assets full of risk.

The greater the value of a bank's assets, of course, this is related to the amount of credit disbursement, with an increase in total credit, an increase in the bank's RWA will be followed. An increase in the RWA will decrease the CAR because the RWA is the denominator in the formula for determining the CAR. If an increase does not follow the increase in RWA in bank capital, banks' CAR will decrease. Therefore, Size and CAR have a negative relationship. The negative relationship between Size and CAR is supported by research conducted by Mursal et al. (2019), Dewi and Yadnya (2018), Andhika and Suprayogi (2017), Olerawaju and Akande (2016), and Bateni et al. (2014).

2.6. PROFITABILITY

Profitability is a term to describe performance in terms of the company's ability to generate profits in connection with its operations (Arifin and Syukri, 2006:143). According to Kasmir (2016: 196), profitability can be used as an

indicator to assess the effectiveness of company management by management. In the banking sector, profitability assessment is quite critical so that banks continue to grow and can have a significant impact on the economy. Quantitatively, banking profitability consists of several ratios that can assess bank performance. According to Arifin and Syukri (2006:144), these ratios are:

a) Gross Profit Margin (GPM) is a ratio that measures how much operating profit the company earns compared to its operating expenses.
b) Net Profit Margin (NPM) is a ratio that compares a company's perish profit with its total revenue.
c) Return on Assets (ROA) describes how much the company's profit is compared to total assets.
d) Return on Equity (ROE) is a ratio that shows the company's ability to generate profits compared to its equity.
e) Net Interest Margin (NIM) is a ratio that describes net interest income compared to its total earning assets.
f) Rate of Return on Loan is a ratio compares the bank's interest rate to the total loans granted.

2.7. NET INTEREST MARGIN

Net Interest Margin (NIM) is the percentage ratio of net interest to interest-earning assets (Brock and Suarez, 2000). According to Taswan (2010:167), NIM is the ratio of net interest income to the average productive assets owned. Net interest income comes from deducting interest income from interest expenses (Riyadi, 2006). Earning assets is the placement of bank assets into assets with higher risk characteristics such as loans, investments in shares, bonds, and others (Achmad and Kusuno, 2003). Besides being able to be used as material in assessing the ability of banks to manage interest rate risk (Koch and Scott, 2015:159), NIM can also be used as a benchmark for assessing bank management in managing their productive assets (Almilia and Herdiningtyas, 2005).

A high NIM indicates good management of productive assets by bank management and reduces bank risk in dealing with problematic conditions (Dendawijaya, 2009:122). Based on the things that have been stated above, NIM can be formulated as a percentage comparison between net interest income compared to the bank's total productive assets. A high NIM will increase interest receipts which can increase the amount of profit earned because the mainline in the bank's business is lending that generates interest income for the bank. Capital is one of the factors in determining the capital adequacy ratio, high profits will increase capital thus, CAR will also increase. It shows that if the NIM increases, the CAR will also increase, or it can be said that the NIM has a positive relationship with the CAR. Research by Mursal et al. (2019), Kasmadi et al. (2017), and research by Dewi and Yadnya (2018) show the same indications where NIM has a positive effect on CAR.

2.8. RETURN ON ASSET

Return on Assets (ROA) is an instrument that can see how the company's asset utilization in generating profits is carried out by management (Kasmir, 2016:236). According to Rose (2002), ROA compares profit before tax and total assets. ROA can assess the effectiveness of the use of assets by management because it shows how much profit is obtained compared to the assets owned. According to Robianti (2008) in Kurniasih and Sari (2010), ROA is the best ratio in assessing profitability compared to other ratios because it is more effective in assessing company operations.

In this study, ROA is used as a ratio representing profitability due to its effectiveness in assessing banking performance. Using other indicators such as Return on Equity is not ideal for assessing bank profitability because banks have high liabilities compared to other industries. ROA is an instrument that can be used to see how the company's assets are used to generate profits by management (Kasmir, 2016:236). ROA is formulated by dividing the company's profit by the total assets owned by the company, in this case banking therefore this ratio is described as a measure of how the company's assets are managed.

The greater the profit earned, the higher the ROA ratio. A significant profit will affect the bank's capital because the profit will be allocated to the company's capital. If the bank suffers a loss in one period, this will make the bank's capital decrease, and vice versa if the bank records a profit in one period, then this will make the capital increase. We can conclude that the higher the ROA, the higher the CAR, reflecting the capital compared to the RWA (Azizah and Taswan 2016). Research by Minh and Nga (2018), Olarewaju and Akande (2016), Asma and Khadidja (2015), Bateni et al. (2014), and Abusharba et al. (2013) supports that ROA has a positive relationship to CAR.

Based on the explanation regarding the relationship between the Capital Adequacy Ratio or CAR with NPL, company size, NIM, and ROA, the model of the framework can be seen in figure 1.

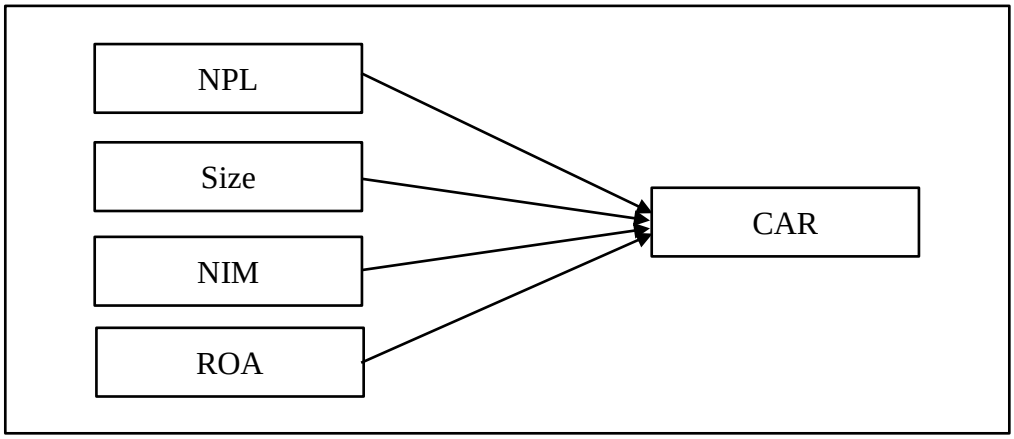

Figure 1. *Theoretical Framework*

3. RESEARCH METHODS

3.1. RESEARCH DESIGN

This research is hypothesis testing, the causality study was applied in this study because the researcher wanted to explain the influence of the variables studied. The level of intervention of researchers was minimal because this study only tested the influence between variables. Therefore, researchers could not intervene in the variables in it. The unit of analysis used in this study is a bank that has met the population/sample criteria and is listed on the Indonesia Stock Exchange. The time horizon in research has a combined nature of cross-sectional and longitudinal studies (time series) or panel data, or pooled data (Sekaran and Bougie, 2010:120). The bank's annual report in this study is an annual report for 2015 to 2019.

3.2. POPULATION AND SAMPLE

The population in this study are all banks registered on the Indonesia Stock Exchange from 2015-to 2019. Until the end of 2019, 44 banks have been registered on the Indonesia Stock Exchange. This study uses purposive sampling in the selection of samples. The criteria used in this study are banks registered on the Indonesia Stock Exchange from 2015-to 2019, publishing annual reports consecutively from 2015-to 2019 on the Indonesia Stock Exchange, and having a core capital of 5 trillion or more in 2019 or categorized as book 3 or book 4 banks. Based on predetermined criteria, 17 banks were obtained that could be sampled in this study.

3.3. ANALYSIS METHOD

This research uses a multiple linear regression method using Statistical Product and Service Solution (SPSS) software version 25. The multiple linear regression model that will be used to test the hypothesis in this study is as follows:

$$Y = \mathrm{a} + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e \qquad (1)$$

Where:

Y	: Capital adequacy ratio
A	: Constant
b1, b2, b3, b4	: Regression coefficient
X1	: Non-performing loan
X2	: Size
X3	: Net interest margin
X4	: Return on assets
e	: Error term

4. RESULTS AND DISCUSSION

4.1. DESCRIPTIVE STATISTICS TESTING

Descriptive analysis is intended to see the characteristics and general statistical description of the data from the research variables. Descriptive analysis related to variable data in this study can be seen in table 1.

Table 1. *Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
CAR	85	10,52	26,21	19,4564	3,48696
NPL	85	0,70	8,54	2,9194	1,46856
SIZE	85	10,24	14,16	12,1388	1,03743
NIM	85	2,08	12,00	5,9865	1,87725
ROA	85	0,09	4,19	2,1329	1,02757
Valid N (listwise)	85				

Source: Output SPSS (2020)

Based on table 1, it can be seen that the statistical description of the variables involved in this study can be seen. From 2015-to 2019, banks have an average CAR value of 19.4564%, a relatively good average value for the banking industry because, according to OJK regulations, banks must provide a minimum CAR of 8%. The minimum and maximum CAR values are 10.52% and 26.21%, which Bank Bukopin and Bank Mega own.

The NPL variable has a maximum value of 8.54%, which Bukopin obtained in 2017, and BCA obtained a minimum value of 0.70 in 2015. The average NPL value in the 2015-2019 period was around 2.9194%, with a standard deviation of 1.46856. With an average value of 2.9194%, it indicates fairly good management of non-performing loans by most banks because it is still far from the 5%, which is the NPL limit requirement by Financial Services Authority Regulation Number 15 /POJK.03/2017.

In the 2015-2019 period, a company with the most significant size based on total assets was found by BRI in 2019 with a value of Ln 14.16 and the minimum value owned by Bank Sinarmas in 2015 with a value of Ln 10.24. The standard deviation of Size is 1.03743, and the mean is 12.1388. In the banking industry, the larger the size, in this case, the total assets, the greater the bank's strength because the bank can penetrate the credit market by obtaining cheap funds from its total assets.

The maximum and minimum NIM values for the 2015-2019 period were 12.00% and 2.08%. These figures were owned by Bank BTPN 2016 in 2016 and Bank Bukopin in 2019. The average NIM value obtained in 2015- 2019 by these banks was 5.9865%. In the Indonesian banking industry, there is no specific regulation on how the regulator requires many banking NIMs. However, ideally, banks must have a positive NIM value to make a profit.

The average ROA value of the banks sampled ranges from 2.1329%. There is no special regulation from the regulator regarding how much ROA a bank must-have. Ideally, the bank should have a positive ROA value which indicates the bank can make a profit. The standard deviation of the ROA in this study was 1.02757. The maximum and minimum values of ROA in the same period resulted in figures of 4.19% and 0.09%, respectively. The maximum and minimum values were obtained by BRI in 2015 and Bank Bukopin in 2017.

4.2. MULTIPLE LINEAR REGRESSION ANALYSIS RESULTS

The results of the linear regression between NPL, SIZE, NIM, and ROA and the value of the regression coefficient for each independent variable for the dependent variable can be seen in table 2.

Tabel 2. *Linear Regression and t Statistical Test Results*

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13,365	3,841		3,480	0,001
	NPL	-0,014	0,220	-0,006	-0,064	0,949
	SIZE	-0,139	0,299	-0,041	-0,466	0,642
	NIM	0,638	0,165	0,343	3,876	0,000
	ROA	1,879	0,391	0,554	4,800	0,000
a. Dependent Variable: CAR						

Source: Output SPSS (2020)

Based on table 2, the multiple linear regression equation for the Capital Adequacy Ratio (CAR) is obtained as follows:

$$CAR = 13{,}365 - 0{,}014X_1 - 0{,}139X_2 + 0{,}638X_3 + 1{,}879X_4 + e$$

Constant (a) of 13.365 means that if the variables NPL, SIZE, NIM, and ROA are 0 or do not increase/decrease (constant) in the 2015-2019 period, the CAR of banks listed on the Indonesia Stock Exchange for the 2015-2019 period is 13.365%. The NPL regression coefficient is -0.014. From this regression coefficient, we can see that the direction of the influence of the NPL in this study is negative, so that it can be interpreted if the NPL increases/increases/increases 100% or 1, then the CAR of the banks listed on the Indonesia Stock Exchange for the period 2015-2019 will be reduced by 0.014%.

The SIZE regression coefficient is -0.139. From this regression coefficient, we can see the direction of the SIZE effect in this study is negative, so it can be interpreted if SIZE increases/increases/increases 100% or 1, then the CAR of banks listed on the Indonesia Stock Exchange for the period 2015-2019 will decrease by 0.139%.

The NIM regression coefficient is 0.638. From this regression coefficient, we can see the direction of the influence of the NIM in this study is positive, so it can be interpreted that if the NIM increases/increases/increases by 100% or 1, then the CAR of banks listed on the Indonesia Stock Exchange for the 2015-2019 period will be increased by 0.139%. The ROA regression coefficient is 1.879. From this regression coefficient, we can see the direction of the influence of ROA in this study is positive, so it can be interpreted that if ROA increases/increases/increases by 100% or 1, then the CAR of banks listed on the Indonesia Stock Exchange for the 2015-2019 period will be increased by 1.879%.

4.3. THE EFFECT OF NPL ON CAR

The NPL variable (X1) has a significance value of 0.949, greater than a significance level of 0.05. This shows that NPL has no significant effect on CAR. Therefore (H1), which states that NPL negatively affects CAR, is rejected. The non-significant effect of NPL, which represents credit risk in this study, is due to the minimal addition of non-performing loans in the last 5 years, the average being at 2.9. The non-influence of NPL on CAR is also supported by the performance of bank profits which are quite large and make banks have a fairly good capital cushion. They can cover losses from non-performing loans and improve the CAR position.

On average in the 2015-2019 period, the net interest margin received by banks was 5.9. The results of this study are in line with the results of research obtained by Anjani and Purnawati (2014), which revealed that NPL does not have a significant effect on CAR. However, this result is not in line with the research results conducted by Dewi and Yadnya (2018), where NLP has a negative and significant effect on CAR.

4.4. THE EFFECT OF COMAPANY SIZE ON CAR

The SIZE variable (X2) has a significance value of 0.642, greater than a significance level of 0.05. This shows that SIZE has no significant effect on CAR. Therefore (H2), which states that SIZE negatively affects CAR, is rejected. SIZE does not significantly affect CAR in the 2015-2019 period but can be influenced by the excellent management of productive assets by bank management in that period.

Banking companies tend to place the majority of their assets in lending to third parties or related parties, thereby increasing the total risk-weighted assets. However, due to the provision of credit during that period, the management was quite good, and its performance could be seen from the high profitability so the increase in total bank assets did not have a significant effect on the CAR position because banks had a large enough capital cushion, so the increase in RWA could be reduced by increasing capital. This is in line with the research conducted by Asma and Khadidja (2015) where the results of their research stated that SIZE did not have a significant effect on CAR.

4.5. THE EFFECT OF NIM ON CAR

The NIM variable (X3) has a significance value of 0.000 which is smaller than the 0.05 significance level. This shows that NIM has a significant effect on

CAR. Therefore (H3), which states that NIM has a positive effect on CAR, is accepted. In 2019 60% of conventional bank income comes from interest. The NIM, which indicates net interest margin, influences CAR because the higher the NIM obtained, the greater the profit obtained later. In the end, the high profit will increase the bank's capital in the form of retained earnings and improve the CAR's position. The results obtained in this study are in line with the research conducted by Mursal et al. (2019), which found that NIM has a significant influence on the capital adequacy ratio or CAR.

4.6. THE EFFECT OF ROA ON CAR

The ROA variable (X3) has a significance value of 0.000, smaller than the 0.05 significance level. This shows that ROA has a significant effect on CAR. Therefore (H4), which states that ROA positively affects CAR, is accepted. The influence of ROA on CAR is because ROA is an indicator that compares profit with total assets owned. Therefore, an increase in ROA indicates the company's ability to generate profits compared to the total assets owned. The resulting profit will affect bank capital and affect banking CAR because one of the factors forming CAR is capital. With the capital increase, banks will be able to balance the value of their risk-weighted assets to produce an ideal CAR position. The results of this study are in line with research conducted by Minh and Nga (2018) and Bateni et al. (2014).

4.7. SIMULTANEOUS SIGNIFICANCE TEST (F STATISTICAL TEST)

The F statistical test was carried out to see the independent variables' effect on the dependent variable, meaning that the F statistical test saw whether the independent variables simultaneously or jointly affected the dependent variable (Ghozali, 2013). The results of the F statistical test in this study can be seen in table 3.

Table 3. F Statistics Test Results

ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	612,423	4	153,106	29,953	.000[b]
	Residual	408,922	80	5,112		
	Total	1021,345	84			
a. Dependent Variable: CAR						
b. Predictors: (Constant), ROA, NIM, SIZE, NPL						

Source: Output SPSS (2020)

Based on the tests conducted, NPL, SIZE, NIM, and ROA have a mutual influence on CAR. These results are obtained on the basis where the significance level of NPL, SIZE, NIM, and ROA is at 0.000, less than the standard for determining significance at the 0.05 level, it can be said that the independent variables proxied by NPL, SIZE, NIM, and ROA simultaneously have a significant

effect on CAR. Therefore, the first hypothesis, which states that NPL, SIZE, NIM, and ROA have a simultaneous effect on CAR, is accepted. Although, when tested partially, there are independent variables that do not have a significant effect on the dependent variable, simultaneously they affect the dependent variable.

5. CONCLUSION, LIMITATIONS, AND SUGGESTIONS

5.1. CONCLUSION

This study aims to determine the effect of Non-Performing Loans, which represent Credit Risk, SIZE (Company Size), Net Interest Margin, and Return on Assets which represent Profitability on the Capital Adequacy Ratio (CAR). Based on the results of the study, it can be concluded that:

a) Non-Performing Loans (NPLs) representing credit risk in this study have no significant effect on the Capital Adequacy Ratio (CAR) of banks listed on the Indonesia Stock Exchange for the 2015-2019 period.
b) Company Size (SIZE) does not significantly affect the Capital Adequacy Ratio (CAR) of banks listed on the Indonesia Stock Exchange for the 2015-2019 period.
c) Net Interest Margin (NIM), representing the profitability ratio in this study, has a significant effect on the Capital Adequacy Ratio (CAR) of banks listed on the Indonesia Stock Exchange for the 2015-2019 period.
d) Return on Assets (ROA), representing the profitability ratio in this study, has a significant effect on the Capital Adequacy Ratio (CAR) of banks listed on the Indonesia Stock Exchange for the 2015-2019 period.
e) Non-Performing Loans (NPL), Company Size (SIZE), Net Interest Margin (NIM), and Return on Assets (ROA) together have a significant effect on the Capital Adequacy Ratio (CAR) of banks listed in the Indonesia Stock Exchange 2015-2019 Period.

5.2. LIMITATIONS

The researcher realizes that this research still has limitations that other researchers can explore to produce better research. These limitations include:

a) This study only examines banks listed on the Indonesia Stock Exchange, so it cannot be generalized to all banks in Indonesia, where there are also regional development banks or Bank Pembangunan Daerah (BPD), rural credit banks or Bank Perkreditan Rakyat (BPR), and other banks. These banks are local government-owned banks.
b) The research observation period is only until 2019 from 2015. It is deeply regretted because in 2020 and maybe the following year, the data that can be produced may be better in explaining CAR because many banks restructured loans in that period, thus disrupting the company's profitability. This is due to the COVID-19 pandemic that has hit Indonesia and the rest of the world.

5.3. SUGGESTIONS

Based on the limitations of this research, the following suggestions can be given to academics and practitioners:

a) Further research on the same topic can add other types of banks to the study, such as BPD, BPR, Foreign Exchange, and others, to more comprehensively explain the influence of these variables.
b) The momentum of the COVID-19 pandemic can be used as a better period for obtaining data, and further research may increase the observation period for a more extended period.
c) Further research can also add other independent variables that might explain the dependent variable. There are many other financial ratios that are characteristic of banking performance assessments, such as Operating Income Operating Expenses (BOPO), Loan to Deposit Ratio (LDR), or can also add the inflation factor in the study.
d) For practitioners, research results explain that NPL, SIZE, NIM, and ROA have a common effect on CAR and can also be seen from the coefficient of determination at 60%. It is advisable to pay attention to these ratios to maintain the CAR position required by OJK or even better than that.

REFERENCES

Abusharba, M.T., Triyuwono, I., Ismail, M., & Rahman, A. F. (2013). Determinants of capital adequacy ratio (CAR) in Indonesian Islamic commercial banks. Global review of accounting and finance, vol. 4, no. 1: 139-170.

Achmad, T., & W.K Kusuno. (2003). Analisis Rasio-Rasio Keuangan sebagai Indikator dalam Memprediksi Potensi Kondisi bermasalah Perbankan di Indonesia (Analysis of Financial Ratios as an Indicator in Predicting Potential Troubled Banking Conditions in Indonesia). *Media Ekonomi & Bisnis*, 15(1), 54-75.

Adnan, Ridwan, Fildzah. (2015). Pengaruh Ukuran Bank, Dana Pihak Ketiga, Capital Adequacy Ratio, dan Loan To Deposit Ratio Terhadap Penyaluran Kredit Pada Perusahaan Perbankan yang Terdaftar Di Bursa Efek Indonesia Tahun 2011-2015 (The Effect of Bank Size, Third Party Funds, Capital Adequacy Ratio, and Loan To Deposit Ratio on Credit Distribution at Banking Companies Listed on the Indonesia Stock Exchange in 2011-2015). *Jurnal Dinamika Akuntansi dan Bisnis*, 3(2), 49-64.

Al Human, A.Y., & E.T Sihotang. (2019). Risiko Usaha terhadap Rasio Kecukupan Modal Bank Umum Swasta Nasional Devisa Go Public (Business Risk on the Capital Adequacy Ratio of National Private Commercial Banks Foreign Exchange Go Public.). *Journal of Business and Banking*, 8(2), 255-270.

Almilia & Herdiningtyas. (2005). *Analisis Rasio CAMEL terhadap Prediksi Kondisi Bermasalah Pada Lembaga Perbankan* (CAMEL Ratio Analysis of Prediction

of Problematic Conditions in Banking Institutions). Surabaya: STIE PERBANAS.

Andhika, Y.D., & N. Suprayogi. (2017). Faktor-Faktor Yang Mempengaruhi Capital Adequacy Ratio (CAR) Bank Umum Syariah Di Indonesia (Factors Affecting the Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia). *Jurnal Ekonomi Syariah Teori dan Terapan*, 4(4), 312-323.

Anjani, D. A., & N. K. Purnawati. (2014). Pengaruh Non Performing Loan (NPL), Likuiditas, dan Rentabilitas terhadap Rasio Kecukupan Modal (The Influence of Non Performing Loans (NPL), Liquidity, and Profitability on the Capital Adequacy Ratio). *E-Jurnal Manajemen*, 3(4), 1140-1155.

Arfan, M., D. Wahyuni. (2010). Pengaruh Firm Size, Winner / Loser Stock, dan Debt to Equity Ratio terhadap Perataan Laba (Studi pada Perusahaan Manufaktur yang terdaftar di Bursa Efek Indonesia) (The Effect of Firm Size, Winner/Loser Stock, and Debt to Equity Ratio on Profit Smoothing (Studies on Manufacturing Companies Listed on the Indonesia Stock Exchange)). *Jurnal Telaah & Riset Akuntansi*, 3(1), 52-65.

Arifin, J., & M. Syukri. (2006). *Aplikasi Excel dalam Bisnis Perbankan Terapan* (Excel Application in Applied Banking Business). Jakarta: Elex Media Komputindo.

Arifin, Samsul. (2008). *Bangkitnya Perekonomian Asia Timur: Satu Dekade Setelah Krisis* (The Rise of East Asian Economies: A Decade After the Crisis.). Jakarta: Elex Media Komputindo.

Asma, T., & K. Khadidja. (2015). Determinants of Capital Adequacy Ratio in Malaysia Islamic Banks (A Panel Data Analysis). International Research Journal of Finance and Economics, vol. 129: 55-63.

Azizah, D.I., & Taswan. (2016). Faktor-Faktor Yang Mempengaruhi Kecukupan Modal (Studi Pada Bank Umum Yang Terdaftar Di BEI Periode Tahun 2010 - 2014) (Factors Affecting Capital Adequacy (Study of Commercial Banks Registered on the IDX for the 2010 - 2014 Period)). *Journal of Economics and Management*, 5(2), 586-598

Basyaib, Fachmi. (2007). *Keuangan Perusahaan Pemodelan Menggunakan Microsoft Excel* (Modeling Corporate Finance Using Microsoft Excel). Jakarta: Kencana Perdana Media Group.

Bateni, L., H. Vakilifard, & F. Asghari. (2014). The Influential Factors on Capital Adequacy Ratio in Iranian Banks. *International Journal of Economics and Finance*, 6(11), 108-116.

Bougie, Roger dan Uma Sekaran, (2010). *Research Methods For Business. 5th Edition*. NY: John Wiley and Sons Ltd.

Brock, P.L., & L.R Suarez. (2000). Understanding the Behavior of Bank Spreads in Latin Amerika. *Journal of Development Economics*, 63, 113-134.

Budisantoso, Totok & Sigit Triandaru. (2014). Bank dan Lembaga Keuangan Lain. Edisi 3 (Banks and Other Financial Institutions. 3rd Edition). Jakarta: Salemba Empat.

Dendawijaya, Lukman. (2009). Manajemen Perbankan. Edisi Kedua (Banking Management. Second Edition). Jakarta: Ghalia Indonesia.

Dewi, A.R., & I.P Yadnya. (2018). Pengaruh Size, Likuiditas, Risiko Kredit Dan Rentabilitas Terhadap Rasio Kecukupan Modal (The Influence of Size, Liquidity, Credit Risk and Earnings on the Capital Adequacy Ratio). *E-Jurnal Manajemen Unud*, 7(7), 3502-3531.

El-Ansary, O., & H. Hafez. (2015). Determinants of Capital Adequacy Ratio: An Empirical Study on Egyptian Banks. *Corporate Ownership & Control*, 13(1), 806-816.

Frida, C., V., Okta. (2020). *Manajemen Perbankan* (Banking Management.). Jakarta: Garudhawaca.

Ghozali, Imam. (2013). *Aplikasi Analisis Multivariat dengan Program IBM SPSS. Edisi Kelima* (Multivariate Analysis Application with IBM SPSS Program. Fifth Edition). Semarang: Universitas Diponegoro.

Ikatan Bankir Indonesia, (2015). *Manajemen Risiko 1: Mengidentifikasi Risiko Pasar, Operasional, Dan Kredit Bank* (Risk Management 1: Identify Market Risk, Operations, and Bank Credit). Jakarta: PT Gramedia Pustaka Utama.

Inggrid. (2006). Sektor Keuangan dan Pertumbuhan Ekonomi di Indonesia: Pendekatan Kausalitas dalam Multivariate Vector Error Correction Model (VECM) (The Financial Sector and Economic Growth in Indonesia: A Causality Approach in the Multivariate Vector Error Correction Model (VECM)). *Jurnal Manajemen dan Kewirausahaan Fakultas Ekonomi UK Petra*, 8, 40-50.

Iskandar, Syamsu. (2013). *Bank dan Lembaga Keuangan Lainnya* (Banks and Other Financial Institutions). Jakarta: In Media.

Kasmadi, K.A., L. Lambey, & J.R. Tumiwa. (2017). Analisis Faktor-Faktor Yang Mempengaruhi Rasio Kecukupan Modal Antara Bank Syariah Dan Bank Konvensional Studi Kasus - Mandiri Syariah Dan Mandiri (2009-2016) (Analysis of the Factors Influencing the Capital Adequacy Ratio Between Islamic Banks and Conventional Banks Case Study - Mandiri Syariah and Mandiri (2009-2016)). *Jurnal Riset Ekonomi, Manajemen,* Bisnis Dan Akuntansi, 5(3), 3794-3803.

Kasmir. (2013). *Manajemen Perbankan* (Banking Management). Jakarta: PT Raja Grafindo Persada.

Kasmir. (2015). *Bank dan Lembaga Keuangan Lainnya* (Banks and Other Financial Institutions). Jakarta: PT Raja Grafindo Persada.

Kasmir. (2016). *Analisis Laporan Keuangan* (Financial Statement Analysis). Jakarta: Raja Grafindo Persada.

Koch, Timothy W & S.McD. Scott. (2000). Bank Management. Orlando: Harcourt Inc

Koch, Timothy W & S.McD. Scott. (2015). Bank Management. Orlando: Harcourt Inc

Kosmidou, Kyriaki., & C. Zopounidis. (2008). Measurement Of Bank Performance In Greece. South-Eastern Europe Journal of Economics, vol. 1, no. 1: 79-95.

Kurniasih, T., & M.M.R Sari. (2013). Pengaruh Return On Assets, Leverage, Corporate Governance, Ukuran Perusahaan, dan Kompensasi Rugi Fiskal pada Tax Avoidance (Effect of Return on Assets, Leverage, Corporate Governance, Firm Size, and Fiscal Loss Compensation on Tax Avoidance). *Buletin Studi Ekonomi*, 18(1), 58-65.

Minh, T.D., & L.P Nga. (2018). Factors Affecting the Capital Adequacy Ratio (CAR) of the Commercial Banks Listed on the Vietnam Stock Market. Journal of Business Management and Economics, vol. 6, no. 4: 19-23.

Murhadi, Werner R. (2013). *Analisis Laporan Keuangan Proyeksi dan Valuasi Saham* (Analysis of Projected Financial Statements and Stock Valuation). Jakarta: Salemba Empat.

Mursal, Darwanis, & R. Ibrahim. (2019). What Influences Capital Adequacy Ratio in Islamic Commercial Banks? Evidence from Indonesia. *Journal of Accounting Research, Organization and Economics*, 2(1), 1-10.

Olarewaju, O.M & J.O Akande. (2016). An Empirical Analysis of Capital Adequacy Determinants in Nigerian Banking Sector. *International Journal of Economics and Finance*, 8(12), 132-141.

Puspopranoto, Sawaldjo. (2004). *Keuangan Perbankan dan Pasar Keuangan* (Banking Finance and Financial Markets). Jakarta: Pustaka LP3ES Indonesia.

Rahayu, S. (2013). Pengaruh Return on Asset, BOPO, Suku Bunga dan Capital Adequacy Ratio Terhadap Tingkat Bagi Hasil Deposito Mudharabah pada Perbankan Syariah (Effect of Return on Assets, BOPO, Interest Rates and Capital Adequacy Ratio on Profit Sharing Rates of Mudharabah Deposits in Islamic Banking). *Jurnal Ilmiah Mahasiswa S1 Akuntansi Universitas Pandanaran*, 1(1), 1–16.

Republik Indonesia. Peraturan Otoritas Jasa Keuangan No.11 Tahun 2016 Tentang Kewajiban Penyediaan Modal Minimum Bank Umum (Financial Services Authority Regulation No. 11 of 2016 concerning Minimum Capital Adequacy Requirements for Commercial Banks).

Republik Indonesia. Peraturan Otoritas Jasa Keuangan No.15 Tahun 2017 Tentang Penetapan Status dan Tindak Lanjut Pengawasan Bank Umum (Financial Services Authority Regulation No. 15 of 2017 concerning the Determination of Status and Follow-Up Supervision of Commercial Banks).

Republik Indonesia. Peraturan Otoritas Jasa Keuangan No.18 Tahun 2016 Tentang Penerapan Manajemen Risiko Bagi Bank Umum (Financial Services Authority Regulation No. 18 of 2016 concerning the Implementation of Risk Management for Commercial Banks).

Riyadi, Slamet. (2006). *Banking Assets and Liability Management*. Edisi Ketiga. Jakarta: Fakultas Ekonomi Universitas Indonesia.

Rose, P. (2002). *Commercial Bank Management*. U.S: McGraw-Hill International Editions.

Satria, Dias. (2009). *Ekonomi Uang dan Bank* (Economics of Money and Banks). Malang: UB Press.

Sinungan, Muchdarsyah. (1997). *Manajemen Dana Bank* (Bank Fund Management). Jakarta: PT Rineka Cipta.

Siringoringo, R. (2012). Karakteristik dan Fungsi Intermediasi Perbankan di Indonesia (Characteristics and Functions of Banking Intermediation in Indonesia). *Buletin Ekonomi Moneter dan Perbankan*, 15(1).