

How Big The Role of Credit Risk, Liquidity Risk and Capital Have an Effect On The Profitability of The 10 Largest Bank in Indonesia

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Abstract.

The purpose of this research is to analyze how the effect of credit risk, liquidity risk, bank capital, on profitability. The ratio used to measure credit risk using the Non Performing Loan (NPL), liquidity risk using the Loan to Funding Ratio (LFR) and bank capital using the Capital Adequacy Ratio (CAR). The sample in this study were the 10 largest banks in Indonesia based on total assets. The analysis technique used in this research is panel data regression with fixed effects. The data processing tool used in this study is the Eviews 10 program. The partial test results show that the variables of credit risk and bank capital have an effect on profitability as measured by Return on Assets (ROA). Credit risk shows a negative and significant effect on profitability. And bank capital has a positive and significant effect on profitability. Meanwhile, liquidity risk has no significant effect on profitability. Simultaneously, the variables of credit risk, liquidity risk and capital have an effect of 90.17% on profitability. The remaining 9.83% was influenced by other factors not examined in this study

Keywords: Credit Risk, Liquidity Risk, Bank Capital, NPL, LFR, CAR, ROA

1.INTRODUCTION

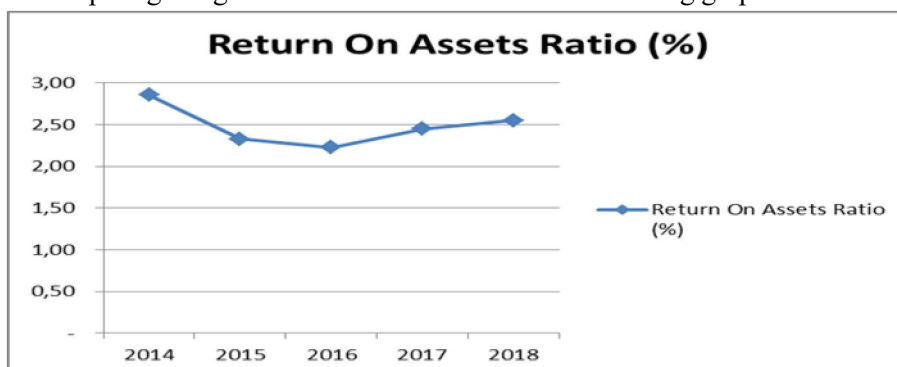
In the economy of a country, an intermediary institution or intermediary that bridges economic activities in a country is needed. One of the intermediary institutions that has an important role is the Bank. A bank is a business entity that collects funds from the public in the form of savings, current accounts and deposits, and distributes them back to the public in the form of credit or other forms in order to improve the standard of living of the people at large.

The banking sector has a very vital role, among others, as a regulator of the veins of the national economy. Therefore, it is important that a sound and strong banking sector be the final target of banking sector policy. As a financial intermediary, banks must be able to maintain their stability and health. This is in accordance with law No. 10 of 1998 concerning amendments to law No. 7 of 1992 concerning banking, bank guidance and supervision, namely that banks are required to maintain the soundness level of banks in accordance with the provisions of capital adequacy, asset quality, management quality, liquidity, profitability, solvency, and other aspects

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related to bank business and must conduct business activities in accordance with the precautionary principle.

Bank profitability is an indicator of stability and a factor that contributes to the trust of customers. Financial profitability can help predict financial crises because banks that have good profitability will reduce the negative impact. The profitability of Conventional Commercial Banks in Indonesia in the last five years can be said to have experienced quite good growth. This is reflected in the following graph:



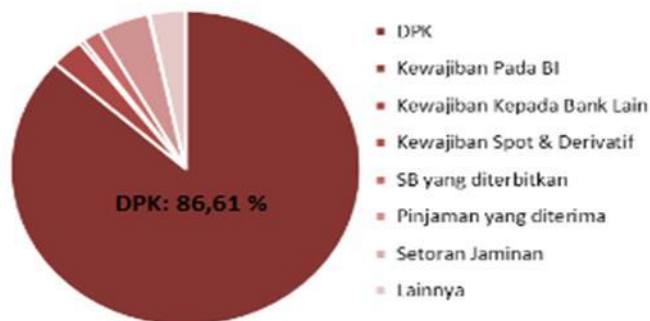
Source: Indonesian Banking Statistics File December 2018
(Performance of Conventional Commercial Banks)

Fig 1. Graph of 2014-2018 Conventional Commercial Bank Profitability Growth

Banking performance has shown a significant increase, as evidenced by increasing capital and profitability. Because the banking business is a business of trust, bank performance is very important. Banks must show their credibility so that it has an impact on public confidence to put their funds in the bank, through increasing profitability. To carry out their activities, banks need a source of funds. Sources of funds are bank business activities to obtain funds in order to finance their operational activities. Sources of funds are divided into funds from bank capital, sources of funds from the public and sources of funds from other institutions.

Capital is a fund that supports bank activities, especially when the bank is experiencing a crisis. The capital aspect of the bank is based on the bank's minimum capital requirement (Kasmir, 2015). The expanding economy requires bank capital that is able to increase competitiveness in business activities. A healthy banking system can be produced by banks that have profit and sufficient capital. Profitability is an indicator that shows a bank's competitive position in the banking market, indicating the quality of management. Capital and profitability are closely related because sustainable bank profitability can maintain and increase capital resources.

Meanwhile, sources of funds originating from the public or hereinafter referred to as third party sources of funds (DPK) are collected through the sale of savings products, current accounts and deposits. This is known from the average proportion of third party funds up to December 2018, which is almost 90% of all bank fund sources as seen in Figure 2 below:



Source: Indonesian Banking Statistics December 2018

Fig 2. Graph of Proportion of Bank Fund Sources

According to Indonesian banking statistics, the total funds raised by banks annually have increased by about 10% - 20%. So that many banks have started to choose to go public to get large capital with one of the targets being foreign investors who will provide funds or capital that will be used to optimize banking operations and distribute their funds to the public. Furthermore, the funds collected by the bank from the public are then distributed back to the community in the form of credit. According to the Banking Law Number 10 of 1998.

The success and failure of banks in managing credit will greatly affect economic activities and development. In carrying out its business activities, banks have various risks that must be mitigated so that the bank's business activities can run well. The banking industry is an industry that is full of risks, especially because it involves managing public money and rotating it in the form of various investments, such as providing credit, purchasing securities and investing other funds.

According to Hanggraeni (2010), risk is an event or event that has the potential to occur and can cause losses. Bank Indonesia Regulation Number 11/25 / PBI / 2009 concerning Implementation of Risk Management for Commercial Banks mentions several risks in banks, namely, Credit Risk, Market Risk, Liquidity Risk, Operational Risk, Legal Risk, Reputation Risk, Strategic Risk and Risk. Credit risk is the risk that occurs due to the failure of the debtor to fulfill his obligations. In other words, the risk that occurs is that the bank is unable to meet its short-term obligations. Credit risk is a major bank risk that cannot be avoided. Banks must be able to manage credit well so that credit risk, namely default, can be minimized so that they can maintain the stability of the bank.

Funds used by banks to provide credit come from third parties. Third party funds are public funds which are customers of a bank who deposit an amount of money they have with the motive of security and convenience in conducting both transactions and in maintaining the physical assets they have. Because DPK is a public fund that can be withdrawn by the owner of the funds at any time, the bank must consider the liquidity of the funds to manage liquidity risks that may arise if the bank is unable to maintain the liquidity of the funds.

Credit Risk and Liquidity Risk are important risks because these two risks can be directly linked to explain what a bank does and why a bank can fail in running its business. The financial intermediary approach to banks and the organizational model of the banking industry show that liquidity risk (the liabilities side of the bank) and credit risk (the asset side of the bank) have a close relationship. Loans given by banks will increase liquidity risk due to decreased cash inflows. This shows that liquidity risk and credit risk are positively correlated.

The ups and downs of profitability in each bank are caused by several factors, including credit risk and liquidity risk. In running its business, the role of the bank in providing low risk credit will generally result in large profitability. On the other hand, the role of banks in providing high-risk credit means that the opportunities for banks to gain profitability are getting smaller because banks have to bear losses. This shows that the bank is not in running its business not only paying attention to the benefits for the bank but also by paying attention to the risks that may occur such as credit risk, liquidity risk and still driving economic growth.

From the results of previous studies, there are several variables that affect profitability, but the results are not consistent. According to Nusantara (2009), in his research, he said that non-performing loans (NPLs) had a significant positive effect on Return on Assets (ROA) in the go public bank research, while in the research on non-go public banks, non-performing loans (NPL) had no significant effect on ROA. . This is almost in line with research conducted by Berrios (2013) and Petria, Capraru, & Ilnatov (2015) that non-performing loans (NPL) have a positive effect on Return on Assets (ROA). Meanwhile, according to research by Ramadanti and Meiranto (2015), Albulescu (2015) and Rahman and Deannes (2019) who say that Non-Performing Loans (NPL) have a significant negative effect on Return on Assets (ROA). Another case in research conducted by Lestari (2014) which states that Non-Performing Loans (NPL) have a positive but not significant effect on Return on Assets (ROA).

According to Nusantara (2009), his research stated that LDR has a significant positive effect on Return on Assets (ROA). This is in line with research conducted by Albulescu (2015), Petria, Capraru, & Ilnatov (2015) and Rahman and Deannes (2019) who say that the Loan to Deposit Ratio (LDR) has a positive effect on Return on Assets (ROA). However, Prasnanugraha's research (2007) states that the Loan to Deposit Ratio (LDR) has no significant effect on Return on Assets (ROA).

And according to Nusantara (2009), in his research, he said that the Capital Adequacy Ratio (CAR) had a significant positive effect on Return on Assets (ROA) in the go public bank research, while in the study of non go public banks CAR did not have a significant effect on Return on Assets (ROA).). This is in line with Albulescu's (2015) research, which states that the Capital Adequacy Ratio (CAR) has a positive effect on Return on Assets (ROA). Unlike the case with research conducted by Lestari (2014) and Rahman and Deannes (2019), said the Capital Adequacy Ratio (CAR) has a negative and insignificant effect on Return on Assets (ROA).

II. METHODS

The research model in this study is as follows:

$$Y_{i,t} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it}$$

In explaining the relationship between the dependent variable and the independent variable, this study uses a regressive panel data research method with a fixed effect model. This study uses a sample of 10 banks that have met the sample selection criteria, with a research period of 4 years so that this study has 40 observation points. The criteria for banking companies used as samples in this study are as follows:

Number of Samples

No.	criteria	Total
1	Conventional general banking group of companies listed on the Indonesia Stock Exchange (IDX)	42
2	Banking companies that publish their financial reports for the period 2015 - 2018	42
3	The 10 largest banking companies in Indonesia in 2015 - 2018	10
Total Number Samples		10

The dependent variable in this study is profitability which is denoted by ROA. The independent variables in this study are Credit Risk, Liquidity Risk and Bank Capital. Credit Risk is denoted by NPL, Liquidity Risk denoted by LFR, and Bank Capital denoted by CAR.

$$ROA = \frac{\text{Earning Before Tax}}{\text{total Asstes}} \times 100\%$$

$$NPL = \frac{\text{Bad credit}}{\text{Total Credit}} \times 100\%$$

$$LFR = \frac{\text{DPK+Securities issued}}{\text{Bank Capital}} \times 100\%$$

$$CAR = \frac{\text{Risk Weighted Assets}}{\text{Bank Capital}} \times 100\%$$

Source : Riyadi (2017)

Framework

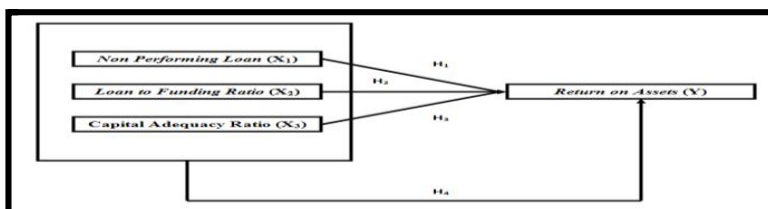


Fig 3. Framework

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Hypothesis 1 (H1): Credit Risk (NPL) has a significant negative effect on Profitability (ROA).

Hypothesis 2 (H2): Liquidity Risk (LFR) has a significant positive effect on profitability (ROA).

Hypothesis 3 (H3) :Bank capital (CAR) has a significant positive effect on profitability (ROA).

Hypothesis 4 (H4) : Credit Risk (NPL), Liquidity Risk (LFR), and Bank Capital (CAR) have a significant effect on the feasibility of the model for Return On Assets (ROA).

List of Banking Companies Samples

No	Company name	Stock code	Total Assets (In Million Rupiah)
1	PT. Bank Rakyat Indonesia (Persero), Tbk (BRI)	BBRI	1.234.200.039
2	PT. Bank Mandiri (Persero), Tbk (MANDIRI)	BMRI	1.037.077.806
3	PT. Bank Central Asia, Tbk (BCA)	BBCA	808.648.119
4	PT. Bank Negara Indonesia (Persero), Tbk (BNI)	BBNI	754.575.210
5	PT. Bank Tabungan Negara (Persero), Tbk (BTN)	BBTN	306.436.194
6	PT. Bank Cimb Niaga, Tbk (CIMB NIAGA)	BNGA	265.273.866
7	PT. Pan Indonesia Bank, Tbk (PANIN)	PNBN	188.898.490
8	PT. Bank Oebs Nisp, Tbk (OCBC NISP)	NISP	173.582.894
9	PT. Bank Maybank Indonesia, Tbk (MAYBANK)	BNII	163.236.041
10	PT. Bank Danamon Indonesia, Tbk (DANAMON)	BDMN	159.589.094

Source: www.idx.co.id (Data Q4 2018)

III. RESULT AND DISCUSSION

The following are the results of the descriptive analysis of the four internal factors:

Descriptive Analysis Results Table

	ROA	NPL	LFR	CAR
Mean	2.377250	2.591250	91.39675	19.75525
Median	2.030000	2.745000	90.23500	19.58000
Maximum	4.190000	3.960000	108.7800	23.40000
Minimum	0.470000	0.700000	77.10000	15.17000
Std. Dev.	0.979971	0.786284	7.073108	2.134562
Observations	40	40	40	40

Source : Results of Data Processing with Eviews Ver.10

Selection of Panel Data regression models :

Based on the results of the two tests, namely the Chow test with the Fixed Effect (FE) model, the Hausman test with the Fixed Effect (FE) model. Because the results of the Chow and Hausman tests have provided consistent results, there is no need for the Lagrange Multiplier test. So it can be concluded that the estimation model used in this study is the Fixed Effect (FE) model.

Regression Analysis

In regression analysis is used to determine whether there is an influence between independent variables, namely Net Performing Loan (NPL), Loan to Funding Ratio (LFR), Capital Adequacy Ratio (CAR), with the dependent variable, namely Return On Assets (ROA). Regression analysis using the Random Effect estimation model is as follows:

Table of Panel Data Regression Testing Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.360946	1.592326	-0.854691	0.4002
NPL	-0.424572	0.145361	-2.920801	0.0070
LFR	0.028643	0.016936	1.691223	0.1023
CAR	0.112401	0.043501	2.583872	0.0155

Results of Data Processing with Eviews Ver.10

From the table above, the regression equation is obtained as follows:

$$ROA = -1,360946 - 0,424572_{NPL} + 0,028643_{LFR} + 0,112401_{CAR}$$

In panel data regression analysis, the t test is used to partially test the effect of the independent variable on the dependent variable. The influence of the independent variables, namely Net Performing Loan (NPL), Loan to Funding Ratio (LFR), and Capital Adequacy Ratio (CAR) on the dependent variable, namely Return On Assets (ROA).

The Result Indicate ;

(1) From the table above, the tcount is -2.920801 with the probability value of the effect of Non Performing Loans (NPL) on Return on Assets (ROA) of 0.0070 with the regression coefficient is negative. Because the probability value obtained is <0.05 and the regression coefficient is negative, H1 is accepted and it is concluded that the Non-Performing Loan (NPL) has a negative and significant effect on the company's Return on Assets (ROA).

The results of this study indicate that the higher the credit risk, the lower the company's profitability. This is in accordance with the theory put forward by Ismail (2013) that the impact of non-performing loans is a decrease in profits. A decrease in profit will have an impact on reducing Return On Assets (ROA). This indicates that

the high level of NPL indicates that the risk of bad credit being faced is also high, thereby reducing the profitability that will be achieved by the bank. Conversely, if the NPL level is low, it indicates that the quality of the bank credit is in good condition so that the profitability to be achieved is also high. The higher the NPL ratio, the worse the quality of bank credit, which causes the number of problem loans to increase, and therefore the bank must bear losses in its operational activities and the bank loses the opportunity to earn income from credit, thereby reducing profitability and adversely affecting bank profitability.

The results of this study are also in accordance with the results of research conducted by Rahman and Deannes (2019), Nusantara (2009) and Ramadanti and Meiranto (2015) which state that Non-Performing Loans (NPL) have a negative and significant effect on profitability (ROA). And the results of this study contradict the results of research conducted by Berrios (2013) and Petria, Capraru, & Ihnatov (2013), that NPL has a positive effect on ROA.

(2) From the table above, the tcount is 1.691223, with the probability value of the effect of the Loan to Funding Ratio (LFR) on Return on Assets (ROA) of 0.1023 with the regression coefficient is positive. Because the probability value obtained is > 0.05 and the regression coefficient is positive, H2 is rejected and it is concluded that the Loan to Funding Ratio (LFR) has no and significant effect on company profitability. It can be concluded that there is no effect of the LFR variable partially on ROA. This can happen because the credit extended by the bank does not contribute much to the profit because there is a high gap between banks that operate in providing credit. For example, in 2016 the LFR of Bank BCA was only 77.1%, which is very different from the LFR of Bank BTN which was 101.66% in the same year. So there are banks that do not optimize third party funds, on the other hand there are banks that are excessive in providing credit.

This is not in accordance with the theory according to According to Kasmir (2015), namely, the success of a bank can be influenced by the amount of credit given. This may imply that the higher the credit extended, the higher the profit earned. So that it can be ascertained that if the LFR increases or is high, the bank's income will certainly increase, meaning that it has a positive effect, as long as the lending has been carried out prudently and complies with existing regulations so as not to cause non-performing loans.

The results of this study are in accordance with research conducted by Prasnanugraha (2007), in his research that LDR has no significant effect on ROA. And this is in contrast to research conducted by Albulescu (2015), Petria, Capraru, & Ihnatov (2013) and Rahman and Deannes (2019) who said that LDR has a positive effect on ROA. (3) From the table above, it is obtained tcount of 2.583872 with the probability value of the effect of Capital Adequacy Ratio (CAR) on Return on Assets (ROA) of 0.0155 with a regression coefficient that is positive. Therefore, the probability value obtained is < 0.05 and the regression coefficient is positive, H3 is

accepted and it is concluded that the Capital Adequacy Ratio (CAR) has a significant effect on the company's Return on Assets (ROA).

A positive value on the regression coefficient of the Capital Adequacy Ratio (CAR) variable shows that if the higher the Capital Adequacy Ratio (CAR), it can affect the high Return on Assets (ROA). In accordance with the theory put forward by (Rivai and Arviyan, 2010), the higher the CAR, the better the Bank's performance. This indicates that the bank has good capital to support its needs, so that an increase in the CAR ratio will be followed by a better income income because the increase in CAR makes the bank more flexible in developing its business and is better at accommodating the possibility of risk of loss. This can occur because the greater the capital of a bank can make it more flexible for the bank to expand its business with the available bank capital, thereby increasing the bank's own income. This is in line with the research conducted by Nusantara (2009), in which his research states that CAR has a significant positive effect on ROA in research on go public banks, and is supported by research conducted by Albulescu (2015), that CAR has a positive effect on ROA.

The results of this study indicate that the Capital Adequacy Ratio (CAR) has a positive and significant effect on the company's Return on Assets (ROA). And this is in contrast to research conducted by Lestari (2014) and Rahman and Deannes (2019), saying that CAR has a negative and insignificant effect on ROA.

(4) The coefficient of determination in the panel regression analysis is used to determine the contribution of the independent variable to the dependent variable.

Determination Coefficient Test Table

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.931956	Mean dependent var	2.377250
Adjusted R-squared	0.901714	S.D. dependent var	0.979971
S.E. of regression	0.307227	Akaike info criterion	0.734498
Sum squared resid	2.548489	Schwarz criterion	1.283384
Log likelihood	-1.689969	Hannan-Quinn criter.	0.932958
F-statistic	30.81670	Durbin-Watson stat	1.801204
Prob(F-statistic)	0.000000		

Source : Results of Data Processing with Eviews Ver.10

The results of panel regression analysis in the table above show that the probability value of the model feasibility test results obtained is 0.000000. Because the significant value obtained <0.05 , H_0 is rejected and it is concluded H_4 that the independent variable Non Performing Loan (NPL), Loan to Funding Ratio (LFR) and

Capital Adequacy Ratio (CAR) is feasible to explain the dependent variable Return On Assets (ROA). in this research.

The results of the panel regression analysis in the table show that the adjusted R-Square value of the panel regression model obtained is 0.901714, this indicates that the contribution made by the independent variable Non Performing Loan (NPL), Loan to Funding Ratio (LFR), and Capital Adequacy Ratio (CAR) to the company's Return On Assets (ROA) amounted to 90.17%. This means that there is still 9.83% variance of profitability or Return On Assets (ROA) of banking companies which is influenced by other factors outside of Non-Performing Loans (NPL), Loan to Funding Ratio (LFR), and Capital Adequacy Ratio (CAR).

IV. CONCLUSION

The conclusions of this study are:

- (1) Non Performing Loans (NPL) have a negative and significant effect on the company's Return on Assets (ROA). This shows that the higher the credit risk, the lower the company's profitability.
- (2) Loan to Funding Ratio (LFR) has no and significant effect on the company's Return on Assets (ROA). This shows that loans extended by banks do not contribute much to profits.
- (3) Capital Adequacy Ratio (CAR) has a positive and significant effect on the company's Return on Assets (ROA). This shows that if the higher the bank's capital, it can affect the high profitability.
- (4) It can be concluded from the model feasibility test that the independent variable credit risk (NPL), liquidity risk (LFR) and capital (CAR) is appropriate to explain the dependent variable profitability (ROA) in this study.

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