DETERMINANT MODEL OF CAPITAL ADEQUACY RATIO WITH INTERVENING VARIABLE NON PERFORMING LOAN

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DETERMINANT MODEL OF CAPITAL ADEQUACY RATIO WITH INTERVENING VARIABLE NON PERFORMING LOAN

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Abstract

This research is intended to analyze and answer the inconsistencies in the results of previous research, as well as the phenomenon of Non-Performing Loans (NPL) which does not answer its effect on the Capital Adequacy Ratio (CAR). This is what prompted the researcher to conduct research again using a different time series and cross-sectional. This type of research is quantitative descriptive with a panel data multiple regression analysis method using a sample of 18 banking companies over five years. This research formula is to maximize the CAR value through NPL as an intervening variable using the research object of banking companies on the Indonesia Stock Exchange. Two research models are integrated into one and each goes through model selection test stages, Chow Test, Hausman Test, and Lagrange Multiplier Test. Results in the first research model; that LDR can explain its effect on NPL with a positive correlation as the applicable theory. Meanwhile, BOPO can explain its effect on NPL with a negative correlation, not as in theory. Results of the second research model; only IO can directly explain its effect on CAR, while other variables, either directly or indirectly, cannot explain its effect on CAR. The use of NPL as an intervening variable does not function to mediate CAR so that this variable cannot be used as a reference for predicting CAR. It is hoped that these results can provide maximum guidance for banking management.

Keywords: Institutional Ownership, Loan to Deposit Ratio, BOPO, Non-Performing Loan, Capital Adequacy Ratio.

INTRODUCTION

Non-Performing Loans (NPL) are loans that are immediately declared default, because the lender no longer receives a return on their investment (Szarowska, 2018). Barseghyan (2010) stated that NPLs are financial pollution and the beginning of a banking crisis, because the increase in NPLs indicates a deterioration in the quality of bank portfolios and credit, which in turn has the potential to cause loan losses in the future and impact the erosion of banking business capital. Therefore, examining the determinants of ex-post credit (NPL) risk is a very important issue for supervisory authorities concerned with financial stability and bank management (Louzis et al., 2012). Ghosh (2015) explains the importance of minimizing NPLs to restore a stronger banking system and promote financial stability.

Several previous studies have proven that the macroeconomic environment plays the most important role as a determinant of credit risk. For example: Lee et al. (2019); Ozili (2018); Szarowska (2018). Staehr & Uusküla (2020) research concludes that higher Gross Domestic Product (GDP) growth, lower inflation, and lower debt are strong leading indicators of a lower non-performing loan ratio in the future.

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The research results of Szarowska (2018) reveal that the macroeconomic variables that can influence the quality of bank credit are the unemployment rate, interest rate and inflation. This research considers three macroeconomic factors, namely GDP growth), unemployment rate and inflation as determinants of the NPL ratio.

With regard to bank-specific factors, several previous studies presented the following results: Ozili's (2018) research using a sample of 48 banks from African countries for the period 1996 to 2015 concluded that bank efficiency and size are significant determinants of the stability of the banking sector in Africa; Research by Koju et al. (2018) on 30 Nepalese commercial banks for the period 2003 to 2015 reported that NPL is positively and significantly related to bank inefficiency and size; Research by Kumar et al. (2018) in the Fiji banking sector for the period 2000 to 2013, concluded that return on equity, capital adequacy requirements and market share based on assets had a negative and significant relationship with the NPL ratio.

Following the available literature, this study considers three bank-specific factors, namely bank size, inefficiency and return on equity. Research by Upadhyaya and Roy (2017) concluded that GDP growth, changes in exchange rates and global volatility had a major influence on the NPL level of the Indian banking sector. Meanwhile, research by Szarowska (2018) found that unemployment as a result of high interest rates as the most important macroeconomic factor for NPLs, had a negative impact on NPLs in the banking sector of Central and Eastern European countries.

The research results of Zhang et al. (2016) in the Chinese banking sector supports the moral hazard hypothesis, namely that an increase in the NPL ratio indicates an increase in risky loans, which has the potential to cause a decline in loan quality and further financial system instability. Research by Kjosevski et al. (2019) in the Turkish banking sector reported that the increase in NPLs was caused more by poor management which led to inefficiency.

They also revealed that ownership structure influences the level of efficiency which has implications for the banking sector in Turkey. Research by Tarchouna et al. (2018) in the US banking sector concluded that banks with smaller sizes have good corporate governance systems that are able to reduce their bad loans.

In contrast, corporate governance failed to protect US mid- and large-sized commercial banks from excessive risk-taking that damaged the quality of their loans and even caused huge losses, especially during the global financial crisis.

Corporate governance was introduced with the intention of making company management more transparent and accountable in every aspect, because management works for maximum utilization of shareholder investments.

Several empirical studies such as Liang et al. (2013); Love & Rachinsky (2015); O'Sullivan et al. (2016); and Tarchouna et al. (2018) proves that bank corporate governance influences loan performance and quality. Weak corporate governance and excessive risk taking cause severe banking instability and large losses, so that effective corporate governance practices in the banking sector are very necessary (Zagorchev & Gao, 2015; Zhang et al., 2016; Tarchouna et

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al.., 2018). Therefore, literature on the effectiveness of corporate governance in financial institutions during the crisis period has been widely developed. Tarchouna et al. (2018) explain that to evaluate the quality of corporate governance you can use two approaches. First, it uses many monitoring and control structures such as board characteristics and share ownership structures. Second, using a single corporate governance measure that evaluates the entire corporate governance system.

In this research, the quality of bank corporate governance is determined through the first alternative, namely using board characteristics and ownership structure. Board characteristics are proxied by the size of the board of directors, the proportion of independent boards, the proportion of female board directors. The share ownership structure is proxied by institutional ownership. Of the various banking sector companies, each will have different policies when managing risk and have different systems for distributing credit, because basically banks implement strategies that are adapted to the conditions of each bank. These differences in conditions mean that the credit risk borne by the bank is not the same, this can be assessed from the operational activities carried out by the bank.

Until now, Bank Indonesia as the central bank has established regulations that bank performance is considered good if the Non-Performing Loan ratio does not exceed 5%. If the Non-Performing Loan exceeds the predetermined limit, the bank is considered to have poor performance, especially in credit management. The rise and fall and high ratio of Non-Performing Loans can be influenced by internal bank factors including institutional ownership, operational performance such as BOPO and loan to deposit ratio (LDR).

In previous studies and data in the field, there are inconsistencies such as in the research of Akwaa-Sekyi (2016), Mensah et al (2015), Rehman et al (2016), Bussoli (2015), Chaibi and Ftiti (2014), Kumar (2015), Rahman and Hossin (2017), Akwaa-sekyi and Gené (2016). Therefore, it is necessary to carry out research again regarding the factors that can influence Non-Performing Loans and Capital Adequacy Ratio (CAR).

LITERATURE REVIEW AND HIPOTESIS

In the research results of Mensah et.al (2015), Nora and Veronica (2008), institutional ownership has a significant effect with a negative correlation on Non-Performing Loans (NPL). However, the results are different in the research results of Shehzad et.al (2010) that institutional ownership has a significant effect with a positive correlation to Non-Performing Loans (NPL).

H_1: There is an influence of Institutional Ownership on Non-Performing Loans (NPL).

Research conducted by Juniarmita A. S., Salam S., (2023), shows that the Loan to Deposit Ratio (LDR) has a significant effect on Non-Performing Loans (NPL). Different research results have been carried out by Dewi and Ramantha (2015), Malik, A. (2020), that the Loan to Deposit Ratio (LDR) has an insignificant effect on Non-Performing Loans (NPL).

H_2: There is an influence of Loan to Deposit Ratio (LDR) on Non-Performing Loans (NPL).

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The results of research conducted by Koju et al. (2018) with the research object of commercial banks in Nepal, that the level of bank efficiency (BOPO) has a significant effect with a positive correlation to NPL, meaning that the more efficient you are in managing banking business (the lower the BOPO level), the NPL ratio will decrease. The same results are also found in Ekanayake and Azeez (2015), Iksan Adisaputra (2012).

H_3: There is an influence of BOPO on Non-Performing Loans (NPL).

In the research results of Delbaniragheb & Zadeh (2015), Institutional Ownership has a significant positive effect on the Capital Adequacy Ratio (CAR). Different research results in Jamil, et al (2015) are that Institutional Ownership has a significant effect with a negative correlation to CAR. Another very different research result is in Shehzad, et al (2010), that Institutional Ownership has no effect on the Capital Adequacy Ratio (CAR).

H_4: There is an influence of Institutional Ownership on the Capital Adequacy Ratio (CAR).

The results of research conducted by Ansary & Hafez (2015) show that the Loan to Deposit Ratio (LDR) has a significant effect and has a positive correlation with the Capital Adequacy Ratio (CAR). The results of the same research in Andini & Yunita (2015), Yokoyama & Mahardika (2019), Rianto & Salim (2020). Very different research results were produced in Putri & Dana (2018) that the Loan to Deposit Ratio (LDR) had an insignificant effect on the Capital Adequacy Ratio (CAR).

H_5: There is an influence of the Loan to Deposit Ratio (LDR) on the Capital Adequacy Ratio (CAR).

Research conducted by Bukian & Sudiartha (2016) resulted that bank efficiency (BOPO) has a significant effect with a negative correlation to CAR. The opposite research results in Chiu et al (2008), Ismaulina et al (2020), show that the level of bank efficiency (BOPO) has a significant effect with a positive correlation to CAR. Apart from the second result above, there are research results in Fitrianto and Mawardi (2006) that bank efficiency (BOPO) has no effect on CAR.

H_6: There is an influence of BOPO on the Capital Adequacy Ratio (CAR).

In Romdhane (2012), Non-Performing Loans (NPL) as an exogenous variable in the second research model, explains the research results that NPL has a significant effect with a positive correlation to the Capital Adequacy Ratio (CAR). Different results in Septiani & Lestari (2016). Another research result with different results in Swandewi & Purnawati (2021) is that NPL has a significant effect with a negative correlation to CAR. Other different research results in Murtiyanti, et al. (2015), Nugroho et al (2021) that NPL has an insignificant effect on CAR.

H_7: There is an influence of Non Performing Loans (NPL) on the Capital Adequacy Ratio (CAR).

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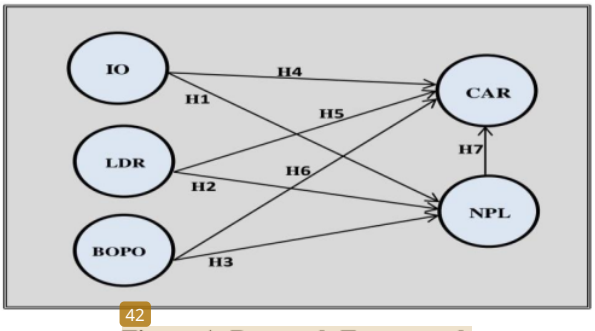

Figure 1: Research Framework

RESEARCH METHODS

In this research, the approach used is descriptive qualitative and quantitative using time series and cross-section data. The analysis method used is panel data regression which uses a combination of time series data for the period 2017 to 2021 or for 5 years and cross-section data of public banking companies on the Indonesia Stock Exchange (IDX) with a population of 47 banking companies. The population size will be taken as a research sample using purposive sampling and the criteria for determining the research sample.

Conceptually, five research variables are used in two research models which are divided into the first model using the endogenous variable Non Performing Loan (NPL) and the second model using the endogenous variable Capital Adequacy Ratio (CAR).

From the population of banking sector companies, 47 companies will use the purposive sampling method as a sampling method based on certain criteria (Sugiyono, 2013) resulting in 18 banking companies as research samples. The criteria intended are:

1) Banking companies listed continuously on the Indonesia Stock Exchange during the 2017-2021 period.
2) Banking companies that have never been delisted by the Indonesian Stock Exchange
3) Banking companies that have complete financial reports for the 2017-2021 period.
4) Conventional banking company, not sharia
5) Banking companies are not owned by local governments

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Table 1: Operational Variables

No	Variables	Notation	Formula
1	Institutional Ownership	IO it	$\frac{\text{Number of Institutional Shares}}{\text{Number of shares outstanding}} x100\%$
2	Loan to Deposit Ratio	LDR it	$\frac{\text{Total Credit Distribution}}{\text{Total Third Party Funds}} x100\%$
3	Bank Efficiency	BOPO it	$\frac{\text{Operating Expenses}}{\text{Operating Income}} x100\%$
4	Non-Performing Loan	NPL it	$\frac{\text{Non Performing Loans}}{\text{Total Portfolio}} x100\%$
5	Capital Adequacy Ratio	CAR it	$\frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Assets}} x100\%$

Panel Data Multiple Regression Estimation

The approach that can be taken in estimating panel data multiple regression which is a combination of time series data and cross section data is to use analysis:

1) Common Effect Model (CEM)
2) Fixed Effect Model (FEM)
3) Random Effect Model (REM)

Model Selection Test

By using three basic analyzes above, you can then carry out three model suitability testing procedures to be used in selecting the best panel data multiple regression model as follows:

Chow Test

This test uses F-statistics to determine the choice between the Common Effect Model (CEM) or the Fixed Effect Model (FEM). Rejection or acceptance of the hypothesis is based on the level $\alpha = 5\%$ in the null hypothesis (H_0) and alternative hypothesis (H_a).

Between these two models, technically it can be determined that if the test results have a probability level of >5% then acceptance can be made of the null hypothesis (H_0) and conversely rejection can be made of the alternative hypothesis (H_a), thus the appropriate model to use is the Common Effect Model (CEM), if the result is the opposite, that the test result has a probability level of <5%, then it will reject the null hypothesis (H_0) and accept the alternative hypothesis (H_a), so that the appropriate model that can be used is the Fixed Effect Model (FEM).

Test Criteria:

Probability level test results >5% = H_0 accepted (CEM)

Probability level test results <5% = H_0 rejected (FEM)

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Hausman Test

Hausman testing will determine the choice between the Fixed Effect Model (FEM) or the Random Effect Model (REM). This Hausman test uses the Chi-Square statistical distribution with k degrees of freedom as the number of exogenous variables. Or use a probability level based on the level $\alpha = 5\%$.

Test the hypothesis using the Hausman test if you accept the null hypothesis (H_0) and reject the alternative hypothesis (H_a) then the fit model that will be used is the Random Effect Model (REM), but if the results are the opposite, reject the null hypothesis (H_0) and accept the alternative hypothesis (H_a) then the fit model that will be used is the Fixed Effect Model (FEM).

Test Criteria:

Probability level test results >5% = H_0 accepted (REM)

Probability level test results <5% = H_0 rejected (FEM)

***Uji Lagrange Multiplier* (LM)**

Testing the Lagrange Multiplier (LM) is intended to determine the fit model between the Common Effect Model (CEM) or Random Effect Model (REM). The basis used in this LM test is the Chi-Squares distribution with a degree of freedom equal to the number of exogenous variables. This test needs to be carried out if the test results between the Chow Test and the Hausman Test produce different decisions.

If the LM statistical value is greater than the critical value of the Chi-Squares statistic, it will reject the null hypothesis (H_0) and accept the alternative hypothesis (H_a) this result means that the fit estimate is using the Random Effect Model. On the other hand, if the LM statistic value is smaller than the critical value of the Chi-Squares statistic, it will accept the null hypothesis (H_0) and reject the alternative hypothesis (H_a), this means that the use of the Common Effect Model is more appropriate. Or use a probability level based on the level $\alpha = 5\%$.

Test Criteria:

Probability level test results >5% = H_0 accepted (CEM)

Probability level test results <5% = H_0 rejected (REM)

Carrying out the model suitability test as explained above can be simplified by looking at Figure 2 below.

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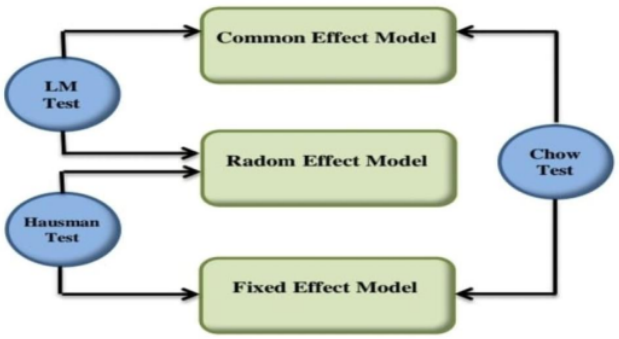

Figure 2 : Model Fit Test

Panel Data Regression Model

First Research Model Structural Equation,

(1) $NPL_{it} = \alpha + \beta_1 IO_{it} + \beta_2 LDR_{it} + \beta_3 BOPO_{it} + \varepsilon_{it}$;

$i = 1,2,\ldots\ldots..., N$; $t = 1,2,\ldots\ldots T$

Second Research Model Structural Equation,

(2) $CAR_{it} = \alpha + \beta_1 IO_{it} + \beta_2 LDR_{it} + \beta_3 BOPO_{it} + NPL_{it} + \varepsilon_{it}$;

$i = 1,2,\ldots\ldots..., N$; $t = 1,2,\ldots\ldots T$

Where:

IO	=	Institutional Ownership		β	=	Slope
LDR	=	Loan to Deposit Ratio		α	=	Intercept
BOPO	=	Bank Efficiency		N	=	Number of Observations
NPL	=	Non-Performing Loan		T	=	Lots of time
CAR	=	Capital Adequacy Ratio		N x T	=	Number of Panel Data
ε	=	Error component				

RESEARCH RESULTS

A. Descriptive Statistics

Table 2: Descriptive Statistics

	CAR	IO	LDR	BOPO	NPL
Mean	0.240467	0.417789	0.039500	0.012400	0.055000
Median	0.211500	0.435000	0.035000	0.010500	0.055000
Maximum	1.203000	0.568000	0.064000	0.031000	0.095000
Minimum	0.132000	0.121000	0.020000	0.000000	0.011000
Std. Dev.	0.130858	0.077172	0.014867	0.007471	0.018207
Observations	90	90	90	90	90

Source: Data processed

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Research Results Model 1 and 2

B. Non-Performing Loan (NPL) and Capital Adequacy Ratio (CAR) as Endogenous Variables in Testing the Suitability of Research Models

Structural Equation 1 and 2 Research Model

Table 3: Chow Test

Research Model 1 Chow Test: Common Effect Vs Fixed Effect Endogenous Variable: NPL				Research Model 2 Chow Test: Common Effect Vs Fixed Effect Endogenous Variable: CAR			
Effects Test	**Statistic**	**d.f.**	**Prob.**	**Effects Test**	**Statistic**	**d.f.**	**Prob.**
Cross-section F	5.911271	(17,69)	0.0000	Cross-section F	5.744120	(17,68)	0.0000
Cross-section Chi-square	80.882718	17	0.0000	Cross-section Chi-square	80.133271	17	0.0000

Source: Data processed

The results of testing the Chow-test in Research Model I and Research Model 2 show that the F test statistics with the chi-square test produce statistical hypotheses: rejecting the null hypothesis (H_0) and accepting the alternative hypothesis (H_a) at the level of $\alpha = 5\%$. This can be interpreted as saying that the **Fixed Effect Model** will be better used than the Common Effect Model. (Table-3)

Table 4: Hausman Test

Research Model 1 Hausman Test: Fixed Effect Vs Random Effect Endogenous Variable: NPL				Research Model 2 Hausman Test: Fixed Effect Vs Random Effect Endogenous Variable: CAR			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**	**Test Summary**	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	6.434639	3	0.0923	Cross-section random	6.297512	4	0.1780

Source: Data processed

The different results in testing the Hausman-test in Research Model I and Research Model 2 are the F test statistics with chi-square test with statistical hypothesis results: accepting the null hypothesis (H_0) and rejecting the alternative hypothesis (H_a) at the level of $\alpha = 5\%$. This means that the test results with different results can be said that the use of the **Random Effect Model** is better than the Fixed Effect Model. (Table-4).

Table 5: Lagrange Multiplier (LM) Tests

Research Model 1 LM Test: Common Effect Vs Random Effect Endogenous Variable: NPL				Research Model 2 LM Test: Common Effect Vs Random Effect Endogenous Variable: CAR			
	Test Hypothesis				**Test Hypothesis**		
	Cross-section	**Time**	**Both**		**Cross-section**	**Time**	**Both**
Breusch-Pagan	34.43169 (0.0000)	1.085756 (0.2974)	35.51745 (0.0000)	Breusch-Pagan	33.04886 (0.0000)	1.258667 (0.2619)	34.30753 (0.0000)

Source: Data processed

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Lagrange Multiplier (LM) test results are needed because the two Chow Test and Hausman Test results produce different results. The LM test results accept the null hypothesis (H_0) and reject the alternative hypothesis (H_a) at the level of $\alpha = 5\%$. This means that the test results with different results can be said to mean that the use of the Random Effect Model is better than the Common Effect Model. (Table-5).

Table 6

Endogenous Variable: Non-Performing Loan (NPL)

Method: Pooled EGLS (Cross-section random effects)

Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.041212	0.010856	3.796181	0.0003
IO	0.021518	0.024541	0.876822	0.3830
LDR	0.292216	0.127818	2.286185	0.0247
DPO	-0.543416	0.248443	-2.187291	0.0314
Adjusted R-squared	0.134316			
F-statistic	5.602952			
Prob(F-statistic)	0.001476			

Source: Data processed

Table 7

Cross-Section Random effects

Endogenous Variable: Non-Performing Loan (NPL)

Total pool (balanced) observations: 90

Trading Code	Coefficient	Trading Code	Coefficient
_BACA--C	-0.008271	_BNGA--C	-0.001938
_BBCA--C	-0.001312	_BNII--C	0.005244
_BBKP--C	0.014191	_BNLI--C	0.009540
_BBNI--C	0.007943	_BTPN--C	-0.031771
_BBRI--C	0.001540	_INPC--C	-0.003287
_BBTN--C	0.015215	_MAYA--C	-0.004326
_BDMN--C	-0.010810	_MEGA--C	-0.003743
_BMRI--C	0.015226	_NISP--C	-0.007832
_BNBA--C	0.004735	_PNBN--C	-0.000347

Source: Data processed

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Table 8

Endogenous Variable: Capital Adequacy Ratio (CAR)

Method: Pooled EGLS (Cross-section random effects)

Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.034858	0.011186	3.116269	0.0025
IO	0.335752	0.097021	3.460625	0.0008
LDR	0.011171	0.012792	0.873299	0.3850
BOPO	-0.101434	0.225429	-0.449962	0.6539
NPL	-0.004952	0.011309	-0.437893	0.6626
Adjusted R-squared	0.127373			
F-statistic	4.247727			
Prob(F-statistic)	0.003498			

Source: Data processed

Table 9

Fixed Effects (Cross)

Endogenous Variable: Capital Adequacy Ratio (CAR)

Total pool (balanced) observations: 90

Trading Code	Coefficient	Trading Code	Coefficient
_BACA--C	-0.008535	_BNGA--C	-0.001565
_BBCA--C	-0.001349	_BNII--C	0.005084
_BBKP--C	0.014543	_BNLI--C	0.009618
_BBNI--C	0.008356	_BTPN--C	-0.031484
_BBRI--C	0.001297	_INPC--C	-0.003490
_BBTN--C	0.015256	_MAYA--C	-0.004529
_BDMN--C	-0.011214	_MEGA--C	-0.003788
_BMRI--C	0.015185	_NISP--C	-0.007931
_BNBA--C	0.005136	_PNBN--C	-0.000591

Source: Data processed

1) The Institutional Ownership (IO) variable has no significant effect on Non-Performing Loans (NPL), these results can be seen in table-6.
2) Variable Loan to Deposit Ratio (LDR) has a significant effect and is positively correlated with Non-Performing Loans (NPL), this result is as shown in table-6
3) The BOPO variable has a significant and negative correlation with Non-Performing Loans (NPL) as shown in table-6.
4) The results of the first research model produce the dominant variable in BOPO as seen in table-6.
5) This research also produces among the cross sectional that the dominant is PT Bank Tabungan Pensiunan Nasional Tbk with the trading code BTPN as shown in table-7.

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6) The first research model is fit to be used at the Prob level. (F-statistic) is significant 0.001476 and at the F-statistic level 5.602952 (table-6).
7) The three exogenous variables in this first research model can explain the endogenous variable, NPL of 13.43% (Adjusted R-squared), as shown in table-6.
8) The Institutional Ownership (IO) variable has a significant effect and is positively correlated with the Capital Adequacy Ratio (CAR). as shown in table-8.
9) Variable Loan to Deposit Ratio (LDR) has an insignificant effect on the Capital Adequacy Ratio (CAR), as shown in table-8.
10) BOPO has an insignificant effect on the Capital Adequacy Ratio (CAR) as shown in table-8.
11) Non-Performing Loans (NPL) have an insignificant effect on the Capital Adequacy Ratio (CAR) as seen in table-8.
12) The second research model is fit to be used at the Prob level. (F-statistic) is significant 0.003498 and at the F-statistic level 4.247727 (table-8).
13) The four exogenous variables in this second research model can explain the endogenous variable, CAR of 12.7373% (Adjusted R-squared), (table-8).
14) The Non Performing Loan (NPL) intervening variable used cannot explain its effect on the Capital Adequacy Ratio (CAR).

DISCUSSION

The large or small amount of Institutional Ownership (IO) in a banking company cannot significantly explain its influence on Non-Performing Loans (NPL), so it can be said that this exogenous variable does not function to control credit risk. This result is different from the research results of Mensah et.al (2015), Nora and Veronica (2008), also by Shehzad et.al (2010).

The results of research testing on the Loan to Deposit Ratio (LDR) variable are able to explain its influence significantly and have a positive correlation with Non-Performing Loans (NPL). This result can be explained that every one percent increase in credit distribution to debtors will face a risk level of 0.29%, but this variable is not the dominant variable in the results of this research. The results of this research are in accordance with those produced by Juniarmita A. S., Salam S., (2023), and are different from the results of research by Dewi and Ramantha (2015), Malik, A. (2020).

The results of research on the level of banking efficiency (BOPO) are that this variable can significantly explain its influence on Non-Performing Loans (NPL) with a negative correlation. These results in relation to the relationship between variables are contrary to theory where the more efficient banking management will reduce the level of risk or Non-Performing Loans (NPL). The results of the relationship between these different variables can be explained that the decrease in NPLs results more from the disbursement of credit collateral at times of high

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risk or high BOPO. This variable is the most dominant in the research results. An increase in the level of credit risk/inefficiency (BOPO) of one percent will have an impact on NPL of 0.54%. These results are different from those produced by Koju et al. (2018), Ekanayake and Azeez (2015), Iksan Adisaputra (2012).

The fourth hypothesis in this research results that Institutional Ownership (IO) can explain significantly and is positively correlated with the Capital Adequacy Ratio (CAR). This exogenous variable can explain a high level of dominance among other variables. Every increase in personal institutional ownership (IO) will result in an increase in capital of 0.34%, or the greater the institutional ownership, the greater the increase in capital compared to the level of risk. The results of this study support the results in Delbaviragheb & Zadeh (2015), but differ from the results in Jamil, et al (2015), Shehzad, et al (2010).

The results of the research on the fifth, sixth and seventh hypotheses are that the exogenous variables Loan to Deposit Ratio (LDR), banking company efficiency level (BOPO), and Non-Performing Loans (NPL) cannot partially explain their influence on the Capital Adequacy Ratio (CAR). These results are in contrast to the results in Ansary & Hafez (2015), Andini & Yunita (2015), Yokoyama & Mahardika (2019), Rianto & Salim (2020), Bukian & Sudiartha (2016), Romdhane (2012). However, these results are in accordance with the results in Putri & Dana (2018), Chiu et al (2008), Ismaulina et al (2020), Fitrianto and Mawardi (2006), Septiani & Lestari (2016), Murtiyanti, et al. (2015), Nugroho et al (2021).

CONCLUSION

Findings: The conclusion of this research is that the exogenous variable Institutional Ownership (IO) directly has a significant effect on the Capital Adequacy Ratio (CAR), while other exogenous variables cannot explain the effect. The results of other research show that all exogenous variables cannot indirectly explain their influence on the Capital Adequacy Ratio (CAR) because the Non-Performing Loan (NPL) variable does not function as an intervening variable, although LDR and BOPO can explain their influence significantly on Non-Performing Loans (NPL).

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