

The Influence of Internal Performance and Macroeconomic Conditions on Regional Development Bank Credit Risk in Indonesia Period 2017-2021

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Abstract:

This study aims to identify the effect of internal performance and macroeconomic conditions on the credit risk of Regional Development Banks in Indonesia in the 2017-2021 period. This research is a quantitative research using statistical data. The population used in this research is Regional Development Banks in Indonesia from 2017 to 2021. The sample used in this research is from 24 Regional Development Banks in Indonesia that have been registered with the Financial Services Authority (OJK). The data for this research were obtained from library sources available at the Financial Services Authority, the Central Bureau of Statistics and Bank Indonesia. The research data was processed using the Error Correction Model (ERM) with Microsoft Excel and Eviews 10 software. The results of this study indicate that the Credit Growth Ratio has a positive effect on NPLs both in the long term and in the short term. CKPN receipts have a positive effect on NPL both in the long term and in the short term, BOPO has a negative effect on NPL both in the long term and in the short term, inflation has a positive effect on NPL both in the long term and in the short term, GRDP has a negative effect on NPL both in the long term and short term.

Keywords: Regional Development Bank; Macroeconomics; Credit Risk.

INTRODUCTION

The rate of economic growth in Indonesia is supported by economic activities such as the financial sector, manufacturing industry, agriculture, forestry, fisheries, mining, processing, construction, information technology and services and other sectors, the financial services sector is one sector that contributes to the rate of economic growth. national. The Central Bureau of Statistics (BPS) has released data on economic growth in Indonesia which shows that the financial services sector from 2017 to 2020 quarter I has shown a growth trend that tends to be positive every year (yoy) interpreted only decreased in the 2018 period. Internal performance in the economic activity of a sector, in this case the financial services sector, is very influential on the sustainability of business growth as well as macroeconomic conditions in the area of business operations which play a very important role because macro conditions determine the economic cycle in this case public production and consumption. The increasingly developed business processes of the financial services sector are followed by an increase in the potential risks of the business being carried out. Macroeconomic factors can also influence banking financial performance, including inflation and economic growth in banking operational areas, because banks cannot be separated from macroeconomic policies, conditions and activities.

It is hoped that the banking industry will always achieve credit growth because the biggest source of income for banks is generally supported by income from credit products. So with credit being the biggest source of income for banks, the banking industry is trying to compete in expanding credit. The following table shows the development of bank credit in Indonesia:

Table 1
Development of Banking Credit in Indonesia

Bank Group	2017	2018	2019	2020	2021
Conventional and Sharia Commercial Banks					
state-owned banks	1,963,039	2,239,600	2,430,773	2,445,965	2,623,165
regional development banks	377,525	395,631	397,470	399,213	401,278
National Private Bank	2,194,405	2,188,809	2,209,816	2,229,460	2,237,083
Foreign Bank Branch Office	200,418	244,994	230,266	177,922	167,855
Amount	4,735,387	5,294,882	5,616,987	5,481,560	5,768,585

Source: Financial Services Authority and Central Bureau of Statistics

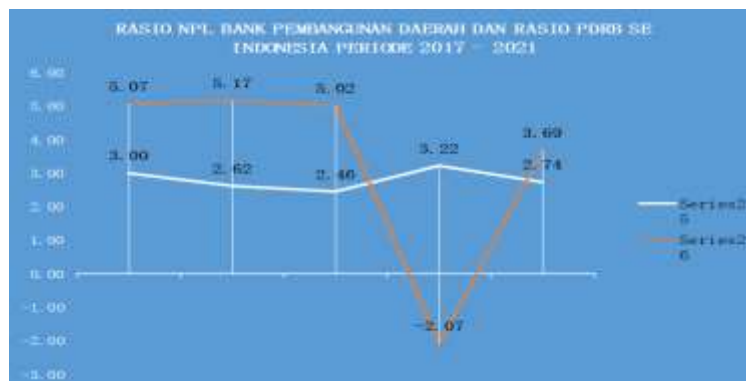
Table 1 shows the growth of credit expansion from the Banking Industry in Indonesia, according to data released, the trend of credit growth tends to dominate from year to year (year on year) starting from 2017 to 2021, but in 2020 Indonesian banking credit as a whole tends to experience decreased compared to credit expansion growth in the previous period, because this was caused by the Covid-19 pandemic, apart from that there were other causes that needed to be conducted research to determine these conditions.

As a result of the macroeconomic slowdown in each region, economic activity has shrunk and inflation levels are less controlled in the region, this has created obstacles for business actors and even large industries operating in an area. This situation, in conclusion, causes the financial sector to be more specifically affected by banking, which faces the threat of reduced ability from the business world to use credit facilities to repay loans which results in the formation of non-performing loans (NPL), namely the risk of lending, where the risk of credit expansion means to controlled in order to always keep the banking system in good health and able to maintain performance in optimizing profitability.

If banks do not pay attention to lending to groups that are considered to have high risk, it can lead to a buildup of loans that have the potential to become Bad Loans or Non Performing Loans (NPL) which is a risk in lending (Utari, et al, 2012). represents the opposite situation, namely the weakening of the economy or the underdevelopment of the business world. In line with this situation, of course the regional government through related stakeholders together with the authorities and the Regional Development Bank ensures/formulates all policies to provide solutions.

The following graph shows the trend of the NPL ratio of Regional Development Banks and GRDP throughout Indonesia for the period (2017-2021):

Figure 1
Trends in the NPL Ratio of Regional Development Banks and GRDP throughout Indonesia for the Period (2017-2021)



Source: Financial Services Authority and Central Bureau of Statistics (data is processed)

Based on Figure 1 which shows that the NPL ratio of Regional Development Banks as a whole in Indonesia has experienced a significant increase in the 2020 period compared to the previous year in 2019 there was an increase of 0.76%, and in the 2020 period displays the very highest NPL ratio throughout the 2017 period - 2021 along with a decline in economic

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development due to the Covid-19 pandemic, this means that in the 2020 period Regional Development Banks in Indonesia as a whole face risks from large lending in the last 5 years.

In line with credit performance which experienced a decline in 2020 as represented by the NPL indicator which increased significantly that year, macroeconomic conditions also experienced a decline as reflected in the Gross Regional Domestic Product (GRDP) indicator so that in 2020 it decreased to - 2.07% for macroeconomic growth, this is in line with the declining macroeconomic condition. This condition indicates that business conditions are also experiencing a decline resulting in a decrease in the ability of business actors, where most of the business actors are debtors from banks, in fulfilling their obligations resulting in The credit performance of debtors, most of these business actors, have decreased to the non-performing credit category.

Regarding the performance of Regional Development Banks, it can be seen from the indicators of credit expansion growth, CKPN/ECL reserve ratios, and operational optimization (BOPO) with regional macroeconomic conditions as seen from the indicators of Gross Regional Domestic Product (GDP) and inflation in each operational area of the Development Bank Regions on credit risk (NPL) in the midst of a situation where there is an interesting new phenomenon to study the effect of, in previous similar studies the impact of economic turmoil has not been studied before the impact of the bubble economy period, namely the Covid-19 pandemic.

In previous research, among others, that tried by Ardana (2019) analyzed using the Error Correction Model (ECM) procedure to share a reflection of the results if there were no short-term ties between the variables of interest rates, GDP, and the change in value to credit risk/NPF (Non Performing Finance).) and there is no long-term bond between inflation and NPF (Non Performing Finance) in Islamic Banks in Indonesia where these variables are macroeconomic markers. After that, the research carried out by Mustafa (2019) used macroeconomic independent variables, namely GDP, and the level of unemployment against NPL in Commercial Bank problems in Malaysia. The analytical tool uses ARDL, which describes the results when macroeconomic markers affect the NPL.

It is necessary to provide in-depth research to identify or analyze variables both from the internal performance of the bank itself and from external aspects that are closely related to bank performance. The other aspect is the macroeconomic aspect, more specifically the macroeconomic conditions in each operational area of the Regional Development Bank, because in previous research it had not been grouped between internal variables and external variables as an influence on bank performance in controlling credit risk where credit is a crucial bank instrument. in supporting bank profitability and in sustaining regional economic development.

Based on the title and setting0back in this study, the focus of problem identification is: (a) Does the performance of Regional Development Banks on the yoy credit growth ratio indicator

affect the risk0credit0 seen in the non-performing loan (NPL) ratio indicator? (b) Does the performance of Regional Development Banks against the CKPN/ECL ratio indicator affect credit risk as seen in the NPL ratio? (c) Does the performance of Regional Development Banks against the BOPO ratio indicator affect the risk credit seen in the non-performing loan (NPL) ratio indicator?

METHODOLOGY

Data Type

The data obtained in this research is from General Banking Statistics through the Financial Services Authority (OJK) Website, Indonesian Banking Statistics (BI) as well as data information from the Central Statistics Agency (BPS) Website, both central and regional, in this case the province. There is also information taken by research to be tested is the dependent variable Non-performing Loan (NPL) loans at Regional Development Banks otherwise the independent variable year on year Credit Development ratio (%), the ratio of CKPN/ECL to productive assets (%), the ratio of Operating Expenses and Operating Income (BOPO%), Inflation (%), the ratio of the development of Gross Regional Domestic Product (GDP) year on year (%). This data was processed using Microsoft Excel and the Error Correction Model (ECM) Analysis Method with Eviews 10 software.

Research Population

The population used in this research is Regional Development Banks in Indonesia from 2017 to 2021.

Research Sample

The sample used in this research is from 24 Regional Development Banks in Indonesia that have been registered with the Financial Services Authority (OJK). The sampling procedure in this research uses a purposive random sampling procedure.

Method of collecting data

This study uses the library research method, namely by collecting materials related to the research topic originating from theses, theses, papers, original documents, and other sources.

RESULT AND DISCUSSION

Descriptive Statistical Analysis

The following is a descriptive analysis of this study:

Table 3
Descriptive Statistical Test Results

	Y	X1	X2	X3	X4	X5
Means	2.808583	9.713333	1.925667	75.16667	2.568083	3.825417
Median	2.280000	8.170000	1.625000	75.50000	2.585000	4.985000
Maximum	22.27000	107.9300	17.43000	164.9000	6.460000	20.60000
Minimum	0.010000	-46.39000	0.010000	0.630000	0.320000	-15.74000
std. Dev.	2.796962	16.95122	1.930166	21.98452	1.043450	4.113804

source: (Researcher Processed, 2022)

Based on Table 3 above, several things can be explained as follows:

1. The amount of data (n) is 120 where researchers take samples from 2017 to 2021.
2. *Means*Y is worth 2.808583, the minimum value is 0.010000, the maximum value is 22.27000, and the standard deviation is 2.796962 with a total of 120 data (n). The mean value of 2.808583 indicates that Y during the observation period averages 2.808583 per year. The standard deviation value is 2.796962 shows that statistically over a period of years 2017-2021 the Y value meets the standard, because the standard deviation value shows a relatively lower value when compared to the average value.
3. *Means*X1 is 9.713333, the minimum value is -46.39000, the maximum value is 107.9300, and the standard deviation is 16.95122 with a total of 120 data (n). The mean value is 9.713333 indicating that X1 during the observation period averaged 9.713333 per year. The standard deviation value is 16.95122 shows that statistically over a period of years 2017-2021 mark X1 does not meet the standard, because the standard deviation value shows a relatively higher value when compared to the average value.
4. *Means*X2 is worth 1.925667, minimum value is 0.010000, maximum value is 17.43000, and standard deviation is 1.930166 with a total of 120 data (n). The mean value of 1.925667 indicates that X2 during the observation period averages 1.925667 per year. The standard deviation value is 1.930166 shows that statistically over a period of years 2017-2021 mark X2 does not meet the

standard, because the standard deviation value shows a relatively higher value when compared to the average value

5. *Means*X3 is worth 75.16667, the minimum value is 0.630000, the maximum value is 164.9000, and the standard deviation is 21.98452 with a total of 120 data (n). The mean value of 75.16667 indicates that X3 during the observation period averages 75.16667 per year. The standard deviation value is 21.98452 shows that statistically over a period of years 2017-2021 the value of X3 already meets the standard, because the standard deviation value shows a relatively lower value when compared to the average value.
6. *Means*X4 has a value of 2.568083, minimum value has a value of 0.320000, maximum value has a value of 6.460000, and standard deviation has a value of 1.043450 with a total of 120 data (n). The mean value of 75.16667 indicates that X3 during the observation period averages 2.568083 per year. The standard deviation value is 1.043450 shows that statistically over a period of years 2017-2021 the value of X4 already meets the standard, because the standard deviation value shows a relatively lower value when compared to the average value.
7. *Means*X5 has a value of 3.825417, minimum value of -15.74000, maximum value of 20.60000, and standard deviation of 4.113804 with a total of 120 data (n). The mean value of 3.825417 indicates that X5 during the observation period averages 3.825417 per year. The standard deviation value is 4.113804 shows that statistically over a period of years 2017-2021 mark X2 does not meet the standard, because the standard deviation value shows a relatively higher value when compared to the average value.
- 8.

Measurement ECM (Error Correction Model)

Stationarity Test

Table 4
Stationarity Test Results

method	Statistics	Prob.**
ADF - Fisher Chi-square	189,246	0.0000
ADF - Choi Z-stat	-11.3352	0.0000

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results UNTITLED

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Series	Prob.	lag	Max Lag	Obs
Y	0.0003	0	12	119
X1	0.0000	0	12	119
X2	0.0000	0	12	119
X3	0.0000	0	12	119
X4	0.0099	4	12	115
X5	0.0125	4	12	115

source: (Researcher Processed, 2022)

Based on Table 4, the results of the Augmented Dickey-Fuller (ADF) Stationarity Test for each variable are seen to be stationary, as seen from the P-Value of each variable below 0.05 so that it can be concluded from the stationarity test results above, regression testing in this study can use ECM method

Cointegration Test

The cointegration test results with the following results:

Table 5
Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized		trace	0.05	
No. of CE(s)	Eigenvalue	Statistics	Critical Values	Prob.**

None *	0.404078	147.1125	95.75366	0.0000
At most 1 *	0.214056	87.58318	69.81889	0.0010
At most 2 *	0.208722	59.88321	47.85613	0.0025
At most 3 *	0.138425	32.96106	29.79707	0.0209
At most 4 *	0.070039	15.82686	15.49471	0.0446
At most 5 *	0.062944	7.476448	3.841466	0.0062

Trace test indicates 6 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

source: (Researcher Processed, 2022)

Based on Table 5, the results of the cointegration test for each variable show that cointegration has occurred. The P-value of each variable is below 0.05, so it can be concluded that from the cointegration test results above, regression testing in this study can use the ECM method, which is the most suitable method. .

HYPOTHESIS TESTING

The following are the results of multiple linear regression testing in Table 6

Table 6
Long Term Multiple Linear Regression Equations

Variable	coefficient	std. Error	t-Statistics	Prob.
C	3.380581	1.429354	2.365111	0.0218
X1	3.717302	0.880400	4.222289	0.0000
X2	1.098858	0.069944	15.71060	0.0000
X3	-0.899170	0.266840	-3.369694	0.0011
X4	3.841487	0.978374	3.926400	0.0002

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X5	-1.373113	0.516072	-2.660701	0.0091
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Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.914523	Mean dependent var	2.808583
Adjusted R-squared	0.888222	SD dependent var	2.796962
SE of regression	0.935115	Akaike info criterion	2.910406
Sum squared residue	79.57396	Schwarz criterion	3.584049
Likelihood logs	-145.6243	Hannan-Quinn criter.	3.183975
F-statistics	34.77178	Durbin-Watson stat	1.988605
Prob(F-statistic)	0.000000		

source: (Researcher Processed, 2022)

The following are the results of multiple linear regression testing

Table 7
Short Term Multiple Linear Regression Equations

Variable	coefficient	std. Error	t-Statistics	Prob.
C	3.717302	0.880400	4.222289	0.0000
X1(-1)	4.642096	1.680238	2.762761	0.0065

X2(-1)	1.161307	0.082644	14.05188	0.0000
X3(-1)	-0.923787	0.335560	-2.752976	0.0067
X4(-1)	0.500322	0.175632	2.848693	0.0051
X5(-1)	-0.348490	0.132550	-2.629109	0.0096

R-squared	0.776886	Mean dependent var	2.824688
Adjusted R-squared	0.764491	SD dependent var	2.843289
SE of regression	1.379827	Akaike info criterion	3.542255
Sum squared residue	171.3531	Schwarz criterion	3.702527
Likelihood logs	-164.0283	Hannan-Quinn criter.	3.607040
F-statistics	62.67635	Durbin-Watson stat	1.945181
Prob(F-statistic)	0.000000		

source: (Researcher Processed, 2022)

Following are the results of the t test:

Tabel 8
Long Term t Test Results

Variable	coefficient	std. Error	t-Statistics	Prob.
C	3.380581	1.429354	2.365111	0.0218
X1	3.717302	0.880400	4.222289	0.0000
X2	1.098858	0.069944	15.71060	0.0000
X3	-0.899170	0.266840	-3.369694	0.0011
X4	3.841487	0.978374	3.926400	0.0002

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X5 -1.373113 0.516072 -2.660701 0.0091

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.914523	Mean dependent var	2.808583
Adjusted R-squared	0.888222	SD dependent var	2.796962
SE of regression	0.935115	Akaike info criterion	2.910406
Sum squared residue	79.57396	Schwarz criterion	3.584049
Likelihood logs	-145.6243	Hannan-Quinn criter.	3.183975
F-statistics	34.77178	Durbin-Watson stat	1.988605
Prob(F-statistic)	0.000000		

source: (Researcher Processed, 2022)

Table 9
Short Term t Test Results

Variable	coefficient	std. Error	t-Statistics	Prob.
C	3.717302	0.880400	4.222289	0.0000
X1(-1)	4.642096	1.680238	2.762761	0.0065
X2(-1)	1.161307	0.082644	14.05188	0.0000

X3(-1)	-0.923787	0.335560	-2.752976	0.0067
X4(-1)	0.500322	0.175632	2.848693	0.0051
X5(-1)	-0.348490	0.132550	-2.629109	0.0096

R-squared	0.776886	Mean dependent var	2.824688
Adjusted R-squared	0.764491	SD dependent var	2.843289
SE of regression	1.379827	Akaike info criterion	3.542255
Sum squared residue	171.3531	Schwarz criterion	3.702527
Likelihood logs	-164.0283	Hannan-Quinn criter.	3.607040
F-statistics	62.67635	Durbin-Watson stat	1.945181
Prob(F-statistic)	0.000000		

source: (Researcher Processed, 2022)

Table 10
Long Term F Test Results

Cross-section fixed (dummy variables)

R-squared	0.914523	Mean dependent var	2.808583
Adjusted R-squared	0.888222	SD dependent var	2.796962
SE of regression	0.935115	Akaike info criterion	2.910406
Sum squared residue	79.57396	Schwarz criterion	3.584049
Likelihood logs	-145.6243	Hannan-Quinn criter.	3.183975
F-statistics	34.77178	Durbin-Watson stat	1.988605
Prob(F-statistic)	0.000000		

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source: (Researcher Processed, 2022)

As seen from table 10, the probability value is $0.0000 < \alpha \text{ level} = 0.05$. Conclusion H_a means that the existing multiple regression function is feasible as a predictor for Y. Significant results support this F test model so that the existing multiple regression function is feasible to be used as a predictor for estimating the magnitude of Y in the long run.

Table 11
Short Term F Test Results

R-squared	0.776886	Mean dependent var	2.824688
Adjusted R-squared	0.764491	SD dependent var	2.843289
SE of regression	1.379827	Akaike info criterion	3.542255
Sum squared residue	171.3531	Schwarz criterion	3.702527
Likelihood logs	-164.0283	Hannan-Quinn criter.	3.607040
F-statistics	62.67635	Durbin-Watson stat	1.945181
Prob(F-statistic)	0.000000		

source: (Researcher Processed, 2022)

As seen from Table 11, the probability value is $0.0000 < \alpha \text{ level} = 0.05$. Conclusion H_a means that the existing multiple regression function is feasible as a predictor for Y. Significant results support this F test model so that the existing multiple regression function is feasible to be used as a predictor for estimating the magnitude of Y in the short run

The following is the result of data processing using the coefficient of determination model to find the Adjusted R Square value.

Table 12
Long Term Adjusted R Square Results

Cross-section fixed (dummy variables)

R-squared	0.914523	Mean dependent var	2.808583
Adjusted R-squared	0.888222	SD dependent var	2.796962

SE of regression	0.935115	Akaike info criterion	2.910406
Sum squared residue	79.57396	Schwarz criterion	3.584049
Likelihood logs	-145.6243	Hannan-Quinn criter.	3.183975
F-statistics	34.77178	Durbin-Watson stat	1.988605
Prob(F-statistic)	0.000000		

source: (Researcher Processed, 2022)

The output of the regression in Table 12 can be described as an Adjusted R Square value of 0.88, meaning that the independent variables, namely X1, X2, X3, X4, and X5, are able to explain 88% of the variance of the dependent variable, namely Y in the long run, and this others are explained by things that are not present in the model. In accordance with the provisions by Hair et al. (2019) that the category coefficient of determination is strong with a percentage of 75% and above so that the prediction of the regression model is sufficient to be used as a reliable prediction medium.

Table 13
Short Term Adjusted R Square Results

R-squared	0.776886	Mean dependent var	2.824688
Adjusted R-squared	0.764491	SD dependent var	2.843289
SE of regression	1.379827	Akaike info criterion	3.542255
Sum squared residue	171.3531	Schwarz criterion	3.702527
Likelihood logs	-164.0283	Hannan-Quinn criter.	3.607040
F-statistics	62.67635	Durbin-Watson stat	1.945181
Prob(F-statistic)	0.000000		

source: (Researcher Processed, 2022)

The output of the regression in Table 13 can be described as an Adjusted R Square value of 0.76, meaning that the independent variables, namely X1, X2, X3, X4, and X5, are able to explain 76% of the variance of the dependent variable, namely Y in the long run, and this others are explained by things that are not present in the model. In accordance with the provisions by Hair et al. (2019) that the category coefficient of determination is strong with a percentage of 75% and above so that the prediction of the regression model is sufficient to be used as a reliable prediction medium.

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