

**ANALYSIS OF THE EFFECT OF NPL, DER AND ASSET GROWTH ON
BANKING PROFITABILITY BEFORE & DURING COVID-19 LISTED ON
IDX**

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ARTICLE INFO

Accepted : 25-08-2023

Revised : 17-09-2023

Approved : 25-09-2023

Keywords: non-performing loan; debt to equity ratio; asset growth; profitability roa; covid-19.

ABSTRACT

The COVID-19 virus threatens the safety of the public so the government takes the policy of PSBB or the policy of Large Scale Social Restriction that suppresses the Indonesian economy. Indonesia's economic growth at the time of the COVID-19 pandemic underwent contractions that led to economic growth of only 2.07% from the average before COVID-19 above 5.00%. The performance of the Nasional Banking sector which is the pillar of the economy in Indonesia also affected the covid-19 pandemic. The general bank's profitability statistics-ROA statistics released by the financial service authority during the COVID-19 pandemic experienced a significant decline, The average profitability of ROA before the COVID-19 pandemic of 2.5% down to 1.5% during the COVID-19 pandemic. Researchers compared the performance of national banking in this case the public bank over several independent variables against dependent variables before and during the covid-19 pandemic. The purpose of the research is: 1. To find out the influence of Non-Performing Loan (NPL) on profitability on national banking before and during the COVID-19 pandemic, 2. To find out the influence of Debt To Equity Ratio (DER) on the profitability of national banking before and during the COVID-19 pandemic, 3. To find out the influence of asset growth on profitability in national banking before and during the COVID-19 pandemic, 4. To find out the influence of Non-Performing Loan (NPL), Debt-to debt-equity ratio (DER), and asset growth simultaneously on profitability in national banking before and during the COVID-19 pandemic. The method used in this study is quantitative with secondary data sources.

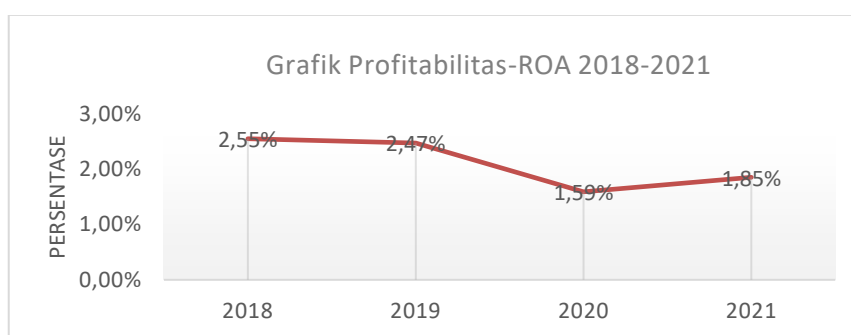


Introduction

In the period 2020-2021, the world faced the COVID-19 virus pandemic throughout the world, including Indonesia. Covid-19 is caused by a coronavirus that was first detected in Wuhan City-China at the end of 2019 (Ikmal & Noor, 2021). The first case of the COVID-19 virus in Indonesia was in early March 2020 and according to information on the Website of the Ministry of Finance of the Republic of Indonesia WHO designated COVID-19 as a global pandemic in early March 2020. The government issued several policies to overcome the COVID-19 pandemic, one of which was restrictions on public travel both domestically and abroad so that economic activity decreased which suppressed the Indonesian economy (Farid, 2020). Indonesia's economy for the period 2018 to 2021 according to data released by the Central Statistics Agency (BPS) was a downward trend during the pandemic period, In 2018 it grew 5.17% higher than in 2017

which was recorded at 5.07%. Economic growth in 2019 was 5.02%, while in 2020 experienced a contraction which caused economic growth of only 2.07%, which showed a decrease in economic growth compared to 2019. Meanwhile, in 2021 there was a growth of 3.69% higher than in 2020 to 5.02%. 2021 is a period of economic recovery even though the COVID-19 pandemic is still hitting Indonesia, so economic growth has increased (Budiasa, Purbawangsa, & Rahyuda, 2016).

Especially in the banking sector, the Covid-19 pandemic has also had an impact on the performance of national commercial banks (Notalin, Afrianty, & Asnaini, 2021). According to data released by the Financial Services Authority, profitability (ROA) has decreased significantly, before the pandemic profitability in the range of 2.5% fell to 1.5% during Covid-19 as illustrated in the following graph:



Graph 1: Profitability-ROA for 2018-2021 – Financial Services Authority (OJK) Data

Some of the conditions faced by National Banking during the Covid-19 pandemic are the potential for non-performing loans (NPL), Debt to debt-to-equity ratio (DER), and Asset Growth which affect the profitability of national banks (Utama, 2018).

Law No. 10/1998 defines banking as everything related to banks, consisting of institutions, business activities, and ways and processes in their business activities. Furthermore, in the same Law, it is stated that the types of banks are in the form of Commercial Banks and Rural Banks (Thalib, 2016). Commercial banks are defined as banks that conduct business conventionally and/or based on Sharia principles by providing payment traffic services. Meanwhile, rural banks are defined as banks conducting business operations in a conventional or Sharia principle but do not provide payment traffic services (Umam, 2010). The Sharia principle referred to by the Law is an agreement implemented based on Islamic law between a bank and other parties, both financing products and deposits consisting of financing with the principle of profit sharing or the principle of capital participation (musharakah), the principle of buying and selling goods-murabahah, or financing capital goods based on the principle of pure rent without choice, or the option of transferring ownership from the bank by another party called *ijarah wa Latina*. According to (Zaharman, Darmawi, Rosiana, & Triaryati, 2020), Banking is everything that concerns banks, both institutional and operational activities. It was further conveyed that a bank is a financial business entity in its business to collect public funds in the form of deposits and then channel it back to the community in the

form of loans or credits (Ma'arif, 2018). National Banking is everything related to banks, whether related to institutions, management, ownership, and operational activities in one State territory in this case the Republic of Indonesia (Simatupang, 2019). The main function of Indonesian Banking is to collect and distribute funds from the public to increase national development for economic growth and provide welfare for the community, thus banking leaders must be based on the principle of prudence in managing banks so that the objectives of establishing banks can be achieved (Utama, 2018).

The COVID-19 pandemic is a global pandemic condition in the world caused by a virus that attacks public health, causing death (Nursofwa, Sukur, & Kurniadi, 2020). The Ministry of Health of the Republic of Indonesia published the General Guidebook for Dealing with the Covid-19 Pandemic for Local Governments-Prevention, Control, Diagnosis, and Management (2020) on the official website of infeksiemerging.kemkes.go.id said that on December 31, 2019, the WHO China Country Office reported a case of pneumonia of unknown etiology in Wuhan City, China. Over time, the spread of this coronavirus case outside China has even reported several deaths in other countries. On January 30, 2020, WHO designated the Covid-pandemic as a Public Health Emergency of International Concern (PHEIC) also called the Public Health Emergency That Disturbs the World (KKMMD), and gave the official designation Coronavirus Disease (Covid-19). The increase in the number of cases is quite fast, based on data from the Directorate General and Disease Control of the Ministry of Health submitted on the databooks.metadata.co.id website that in the 2020 period there were 743,198 people confirmed with Covid-19, of which 22,138 people died with a ratio of people who died compared to those confirmed at 2.98% (Supeno & Hendarsih, 2020). The Ministry of Finance on pen.kemenkeu.go.id official website said that one of the impacts of the COVID-19 pandemic was the disruption of economic activities from upstream to downstream, both from the production sector to the service sector. The economic crisis in 1998 and 2008 was caused by financial problems in Asia and globally, while the economic crisis in 2020 was caused by the COVID-19 pandemic which threatened the safety of the community, the government adopted a policy of Large-Scale Social Restrictions abbreviated as suppressing the Indonesian economy.

Research Methods

1. Research Approach

The author researched to determine the influence between variables to be studied with quantitative research methods. Researchers collect data on national banking financial statements, in this case commercial banks which are secondary data listed on the IDX, also called the Indonesia Stock Exchange (IDX), which is secondary data.

2. Place and Time of Research

Research conducted by the author on national banks listed on the IDX for the period 2018 to 2021. Researchers obtained data from the IDX or IDX website which is a combination of the Jakarta Stock Exchange (JSX) and the Surabaya Stock Exchange

(BES), the merger of the two offices was carried out in 2007 by Article 7 paragraph (1) of Law No. 8 of 1995 concerning Capital Market.

3. Sampling Methodology

The sampling method of this study is purposive sampling with data collection carried out based on predetermined limits. The number of national banks listed on the IDX is 47 banks according to data on the www.idx.co.id website, Researchers will use data from 36 banks from 47 banks listed on the IDX. The national banks sampled in this study have the following criteria:

- a. Commercial banks that are still listed on the IDX for the period 2018 to 2021.
- b. Issue financial statements as needed variable data for analysis in the period 2018 to 2021.

4. Data Collection Techniques

Data collection techniques carry out documentation by collecting data, recording, and analyzing the data to be obtained. The data collected was also carried out through literature studies, namely reading literature, books, and journals from previous studies related to this research.

5. Data Type and Source

The research was conducted using secondary data in the form of data in finished form containing financial statements from national banks that have been registered or listed and published by the IDX. The data collection period starts from 2018 to 2021 through IDX's official website.

6. Data Analysis Techniques

The research data analysis method uses quantitative analysis, while the data analysis technique used is quantitative analysis, namely by using multiple linear regression analysis to determine the relationship between independent variables and dependent variables and using paired sample t-test differences to explain data differences before and during the COVID-19 pandemic.

A. Normality Test

The purpose of using the normality test, determine the distribution of data in certain groups of data or variables that are normally distributed or vice versa abnormal. According to (Arifin, 2017), the normality test is to understand whether the residual value tested is normal or abnormal. The normality test can use the SPSS application, The interpretation of the normality test using SPSS by looking at significant values, namely:

- a. Significant value less than 0.05 or (< 0.05): the data is considered not normally distributed.
- b. Significant value greater than 0.05 or (> 0.05): The data is considered normally distributed.

B. Multiple Linear Regression Analysis

Multiple linear regression analysis in question is the development of simple linear analysis, namely by using more than one independent data. According to Ghozali (2018), multiple linear regression analysis is to determine the direction and how much influence the independent variable has on the dependent variable.

C. Paired Test Sample T-Test

The paired sample t-test is a difference test of 2 (two) paired samples, This difference test analyzes the research model before and after. Widiyanto (2013) said that a paired sample t-test is a testing method to assess how effective treatment is, characterized by the difference in average before and average after treatment. The test uses a significance of 0.05 ($\alpha = 5\%$) between the independent variable and the dependent variable. Calculation of paired sample t-test using SPSS program, with test criteria as follows:

- a. If $-t_{table} > -t_{count}$ or $t_{count} < t_{table}$ means H_0 is accepted
- b. If $-t_{table} < -t_{count}$ or $t_{count} > t_{table}$ means H_0 is rejected

The basis for deciding to accept or reject H_0 carried out in this test is based on significant value with explanations:

- a. If a significant value > 0.05 , it means that H_0 is accepted or H_a is rejected (the difference is not significant).
- b. If a significant value of < 0.05 means that H_0 is rejected or H_a is accepted (significant difference).

The purpose of this test is whether the results of the analysis before and during the Covid-19 pandemic are different or not.

D. Simultaneous Test (F-Test)

Test F or the simultaneous test is carried out to determine whether there is an influence of independent variables on variables bound together (simultaneously). Calculation of simultaneous test or test f using the SPSS program, with the following test criteria:

- a. If the F value is calculated $> F_{table}$ and the significance value is below 0.05 ($sig < 0.05$), then the hypothesis is accepted.
- b. If the F value is calculated $< F_{table}$ and the significance value is above 0.05 ($sig > 0.05$), then the hypothesis is rejected.

Results and Discussion

The object of research is that national banks have been listed on the IDX from 2018 to 2021 using the purposive sampling method. The number of commercial banks listed on the IDX according to IDX website data is 47 banks and those that meet the criteria for research are 36 banks. The criteria per commercial bank sampled in this study are as follows:

1. 47 banks have been listed on the IDX for the period 2018 to 2021.
2. Banks that publish complete financial statements according to the needs of research variables in the period 2018 to 2021 there are 36 commercial banks.

This study uses four variables, namely NPL, DER, Asset, and ROA variables, while financial statements are processed from 36 commercial banks for the period 2018 to 2021 which are then divided into two conditions, namely before Covid (2018 to 2019) and during Covid (2020 to 2021). The results of the descriptive analysis are presented in the following table:

Table 1
Results of Description of Research Variables Before Covid

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROA	72	-.017	.031	.00855	.011487
NPL	72	.008	.078	.03233	.016780
DER	72	1.527	13.735	5.97089	2.545501
Asset	72	-16.195	18.955	10.36654	10.803116
Valid N (listwise)	72				

Sumber: Data Penelitian Diolah (2023)

The ROA description results obtained an average of 0.008, a standard deviation of 0.011, with the lowest value of -0.017, and a highest value of 0.031, NPL description obtained an average of 0.032, a standard deviation of 0.017, with the lowest value of 0.008 and the highest value of 0.078, DER description obtained an average of 5.971, the standard deviation of 2.545, with the lowest value of 1.527 and the highest value of 13.735, while Asset Growth was obtained on average of 10.366, The standard deviation is 10.803, with a low value of -16.195 and a high of 18.955.

Table 2
Results of Description of Research Variables During Covid

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROA	72	-.026	.033	.00506	.013289
NPL	72	.001	.076	.03226	.016426
DER	72	.358	11.079	5.45056	2.441268
Asset	72	-16.827	19.507	10.58367	11.637992
Valid N (listwise)	72				

Sumber: Data Penelitian Diolah (2023)

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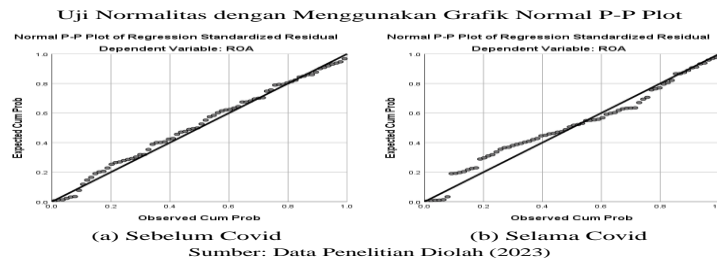
1. Classical Assumption Test

Before testing linear regression analysis, it is necessary to test classical assumptions first. The purpose of this test is to know that the independent variable as an estimator of the bound variable becomes unbiased. The classical assumption tests used in this study are normality tests, heteroscedasticity tests, multicollinearity tests, and autocorrelation tests.

A. Residual Normality Test

A normality test is performed to test whether the regression model, confounding, or residual variables have a normal distribution. This test uses the Normal P-P Plot graph and the Kolmogorov-Smirnov test.

Influences And Antecedents That Influence Home Purchase Decisions Through Sharia Mortgage Financing (Study On Kcp Btn Syariah Kalimas Bekasi Branch Customers)



Graph 1 of the Normality Test – Normal Graph of P-P P-P Plot Before and During Covid

The results of the residual normality test show that the plot points are close to the diagonal line thus the residual follows the normal distribution, which means that the normality assumption is met.

The following are the results of the normality test using the Kolmogorov-Smirnov test before and during covid-19.

Table 3
Normality Test Results by Using
Kolmogorov-Smirnov Test Before and During Covid

			Unstandardized Residual	
			Sebelum Covid	Selama Covid
N			72	72
Normal Parameter ab	Mean		.0000000	.0000000
	Std. Deviation		.00771866	.01118082
Most Extreme Diff	Absolute		.054	.104
	Positive		.052	.084
	Negative		-.054	-.104
Test Statistic			.054	.104
Asymp.Sig.(2-tailed)			.200cd	.054c

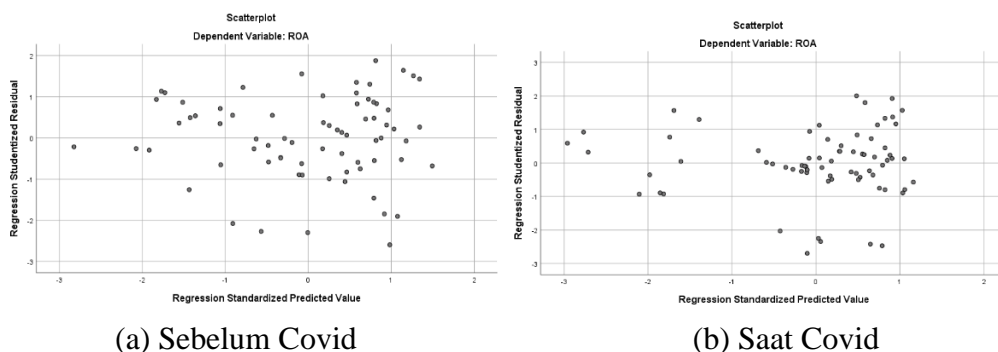
- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

The residual normality test result before COVID-19 obtained a significance value of 0.200 which means that the residual follows the normal distribution and the normality assumption is met.

The residual normality test result during COVID-19 obtained a significance value of 0.054 which means that the residual follows the normal distribution and the normality assumption is met.

a. Heteroscedasticity Test

This heteroskedasticity test is used to test whether the regression model has variance inequality, namely from the residual of one observation to another. The test used a Scatterplot graph between Regression Standardized Predicted Value (ZPRED) and Regression Studentized Residual (SRESID).



Graph 2 Heteroscedasticity Test

The results of the heteroscedasticity test show that the plot points are scattered randomly and there is no particular pattern shape, thus the assumption of heteroscedasticity has been fulfilled.

b. Multicollinearity Test

The results of the multicollinearity test before and during COVID-19 found no multicollinearity problem in the model thus the multicollinearity assumption was met.

c. Autocorrelation Test

The results of the autocorrelation test using the Durbin-Watson (DW) test before and during COVID-19 found no autocorrelation problems thus the autocorrelation assumption was met.

2. Multiple Linear Regression

Linear regression analysis obtains an overview of the influence between independent variables on bound variables both as a whole (simultaneous) and individually (partial).

**Table 4
Multiple Linear Regression Results Before Covid-19**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.025	.003		7.949	.000

NPL	-	.058	-.508	-6.010	.000
	.348				
DER	-	.000	-.314	-3.814	.000
	.001				
Asset	.000	.000	.263	3.133	.003
	.3				

a. Dependent Variable: ROA

Multiple linear regression between NPL, DER, and ASSET variables against ROA yields the equation:

$$ROA = 0.025 - 0.348 \text{ NPL} - 0.001 \text{ DER} + 0.0003 \text{ ASSET} + e$$

The test results explain:

- The constant value (a) at 0.025 explains that without the influence of NPL, DER, and ASSET, the ROA value can be predicted to be 0.025 units.
- The effect of NPL on ROA is negative and significant which means that the higher the NPL value will have a significant effect on decreasing the ROA value.
- The effect of DER on ROA is shown by a regression coefficient of -0.001 with a statistical t-value of 3.814 and a significance value of 0.000. These results show a negative and significant influence, meaning that the higher DER value will have a significant effect on decreasing the ROA value.
- The effect of ASSET on ROA is shown by a regression coefficient of 0.0003 a statistical t-value of 3.133 and a significance value of 0.003. These values indicate a positive and significant influence.

Table 5
Hasil Regresi Linier Berganda Saat Covid Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.008	.004		1.873	.065
NPL	-.223	.090	-.275	-2.487	.015
DER	.000	.001	-.023	-.221	.826
Asset	.000	.000	.377	3.476	.001

a. Dependent Variable: ROA

The results of the multiple linear regression equation between the NPL, DER, and ASSET variables against ROA are presented as follows.

$$ROA = 0.008 - 0.223 \text{ NPL} - 0.0001 \text{ DER} + 0.0004 \text{ ASSETS} + e$$

This equation can be described as follows:

- The constant value (a) at 0.008 explains that without the influence of NPL, DER, and ASSET, the ROA value can be predicted - 0.008 units.

- b. The effect of NPL on ROA is negative and significant, meaning that the higher the NPL value will have a significant effect on decreasing the ROA value.
- c. The effect of DER on ROA is shown by a regression coefficient of -0.0001 with a statistical t-value of 0.221 and a significance value of 0.826. These results show a negative but not significant influence.
- d. The effect of ASSET on ROA is shown by a regression coefficient of 0.0004 with a statistical t-value of 3.476 and a significance value of 0.001. These values indicate a positive and significant influence.

3. Significance Test

Significance testing using multiple linear regression analysis. To test the influence of NPL, DER, and ASSET independent variables on ROA variables which are dependent. Significance testing is described using simultaneous tests (F test), coefficient of determination (R²), and partial test (t-test).

a. Simultaneous Test (F-Test)

The F test or simultaneous test describes whether or not there is an influence between the independent variables on the bound variables together (simultaneously).

The results of simultaneous testing before COVID-19 obtained a calculated F value of 27.531 with a significance value of 0.000. The results show that the calculated F value is more than the table F value and the significance value is less than 0.05 thus it can be conveyed that there is a significant influence between NPL, DER, and ASSET on ROA simultaneously.

The results of simultaneous testing during COVID-19 using the F test obtained a calculated F value of 9.352 with a significance value of 0.000. The result shows the F value calculated > F table and the significance value is less than 0.05 (sig < 0.05) thus it can be stated that there is a significant influence between NPL, DER, and ASSET on ROA simultaneously.

b. Coefficient of Determination (R²)

The coefficient of determination is how much the ability of the independent variable in the study to explain the variation of the dependent variable.

The result of the coefficient of determination before COVID-19 obtained an R Square value of 0.548, meaning that the influence on the ROA variables explained by NPL, DER, and ASSET variables was 54.8 percent, while the rest was explained by other factors.

The result of the coefficient of determination during COVID-19 obtained an R Square value of 0.292 meaning that the magnitude of the influence on the ROA variables explained by NPL, DER, and ASSET variables was 29.2 percent, while the rest was explained by other factors.

c. Partial Test (t-Test)

The t-test or simultaneous test explains whether there is an influence between the independent variable and the dependent variable individually (partial) as follows:

a. Partial Test (t-Test) Before COVID

Partial test of NPL independent variable on ROA obtained a calculated t value of 6.010 with a significance value of 0.000 thus it was concluded that there was a significant influence between NPL and ROA partially.

- b. Partial test of the DER variable against ROA obtained a calculated t value of 3.814 with a significance value of 0.000. The result shows that the calculated t value is more than the table t value ($t_{hit} > t_{table}$) and the significance value is less than 0.05 so it is stated that there is a significant effect between DER on ROA partially.
- c. Partial test between the ASSET variable and the ROA variable obtained a calculated t value of 3.133 with a significance value of 0.003. so it is stated that there is a significant influence between ASSET and ROA partially.

4. Partial Test (t-Test) During Covid

- a. Partial test between NPL independent variable to ROA which is the dependent variable. obtained a calculated t value of 2.487 with a significance value of 0.015, thus it can be concluded that there is a significant influence between NPL and ROA partially.
- b. Partial test between DER on ROA obtained a calculated t value of 0.221 with a significance value of 0.826, so it was stated that there was no significant effect between DER on ROA partially.
- c. Partial test of the independent variable ASSET on the ROA variable obtained a calculated t value of 3.476 and a significance value of 0.001 thus it can be concluded that there is a significant influence between ASSET on ROA partially.

5. Comparison of Linear Regression Test Results Before and During Covid

The results of the linear regression test between the independent variables NPL, DER, and Asset on the dependent variable ROA before Covid showed a significant influence, NPL had a negative effect with a coefficient of -0.348, DER had a negative effect with a coefficient of -0.001, and Asset had a positive effect with a coefficient of 0.0003. The amount of influence described from NPL, DER, and Asset on ROA is 54.8 percent.

The results of the linear regression test of independent variables NPL, DER, and Asset on the dependent variable ROA during Covid showed a significant influence, NPL had a negative effect with a coefficient of -0.223, and Asset had a positive effect with a coefficient of 0.0004. The amount of influence described from NPL, DER, and Asset on ROA is 29.2 percent.

Conclusion

The results of research and analysis using linear regression tests show that Non-Performing Loans (NPL) have a negative and significant influence on Return On Assets (ROA) both before and during COVID-19. High NPLs indicate larger non-performing financing, resulting in smaller interest or margin payments and decreased ROA. Conversely, lower NPLs result in smaller non-performing financing, larger interest or margin payments, and increased ROA. Debt Equity Ratio (DER) had a negative and significant influence on Return On Assets (ROA) before COVID-19. This is due to a

higher DER resulting in greater interest costs on loans or debts, resulting in a lower ROA. Conversely, a lower DER results in smaller interest costs and higher ROA. During COVID-19, although DER still hurt ROA, the effect was not significant due to relaxation programs of financing restructuring implemented by the government, including relief or postponement of debt interest payments.

Asset growth had a positive and significant influence on ROA both before and during COVID-19. An increase in assets, including financing, increases income from margin or interest, which ultimately contributes to an increase in ROA. Together, Non-Performing Loans (NPL), Debt To Equity (DER), and Asset Growth significantly affected Return On Assets (ROA) both before and during COVID-19.

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