

IS THERE A SIGNIFICANT IMPACT ON THE BANK PERFORMANCES DURING AND BEFORE COVID 19

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ABSTRACT

The Covid-19 pandemic has led to a decline in financial performance in Indonesia. The weakening of a country's economy has an impact on the banking sector because of the function of banks as financial intermediary institutions. This study aims to analyze and identify the impact of COVID-19 on the financial performance of 47 banks listed on the Indonesian stock exchange, both conventional commercial banks and Islamic banks. Bank financial performance in this study, namely Capital (CAR), Assets (NPL), Profitability (NIM, ROE, ROA, & BOPO) and Liquidity (LOR). Using panel data with grouping before covid-19 (2017-2019) and during covid -19 (2020-2022). Included in non-parametric research using the Wilcoxon Signed Rank Test. The test results showed that there were significant differences between before and during Covid-19 for several financial performance variables including the Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Return On Assets (ROA), and Loan to Deposit Ratio (LOR) with a prob value of z statistics less than significance level of 5% and 10%. While Non Performing Loans (NPL), Return On Equity (ROE), and Operating Expenses to Operating Income (BOPO) with a prob value of z statistics greater than significance level at 5% and 10%, which can be concluded that there is no significant difference between before and during Covid-19. From the result can conclude Covid-19 has a negative impact on several banking financial performance indicators especially on the performance of banks with indicators Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Return On Assets (ROA), and Loan to Deposit Ratio (LOR). In other words, covid-19 has had a considerable and significant impact on capital performance, capital performance (CAR), profitability performance (NIM and ROA), and liquidity performance (LOR). Covid-19 has significantly impacted the increase in Capital Adequacy Ratio (CAR). Covid-19 had a significant impact on the decrease in Net Interest Margin (NIM). Covid-19 has had a significant impact on the decline in Return on assets (ROA). The last covid-19 had a significant impact on the decline Loan to Deposit Ratio (LOR).

Keywords: Covid-19 Pandemic, Banking Performance, Wilcoxon Signed Rank Test, Financial Performance, Z-Statistic

INTRODUCTION

In 2019 until the covid-19 pandemic has hit all countries in the world, one of which is Indonesia. The government implemented a social distancing and lockdown policy to break the chain of covid-19 spread in Indonesia (Herdiana, 2020). In addition, the policy is an effort to minimize the various impacts that will arise due to covid-19. However, covid-19 indirectly puts pressure on the economy in Indonesia. In addition to economic growth in Indonesia which experienced a minus due to covid-19, the monetary economic sector, especially in the banking sector, also received the impact. Banking is one of the financial sub sectors that has an important role in economic activities (Maulidia & Wulandari, 2021). This happens because the bank has a function as a financial intermediary (financial intermediary institution) or collect funds from parties who have excess funds while channeling funds to parties who lack funds. The purpose of the bank is to encourage an increase in the equitable distribution of economic growth and maintain national stability so that there is an increase in the welfare of many people. However, covid-19 caused banks to experience a decrease in output due to low productivity (Abidin, 2021). Financial performance is an analysis carried out to see the extent to which a banking company has carried out its activities in accordance with the rules of good and correct financial implementation. Banks in their daily lives need to show their work

performance so that users of bank services can see whether or not a bank is good and can increase the interest of bank users both creditors, the public, entrepreneurs, or people who use bank services (Milyati & Nasyaroeka, 2017).

Financial performance in banking can be seen from the level of credit risk. If the level of credit risk or commonly referred to as Non-Performing Loan (NPL) at the bank shows a high number, there is an increase in the cost of productive asset reserves. This will have an impact on the decline in financial performance in the banking sector (Bidari, et al., 2020). In addition, the indicators used to interpret performance in the field of banking in this study are Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Return on Equity (ROE), Return on assets (ROA), Operating Expenses to Operating Income (BOPO), and Loan to Deposit Ratio (LOR). The increase in the number of Non-Performing loans (NPLs) is caused by debtors who are unable to repay loans sourced from bank credit at the time of loan maturity. Inability to repay the loan as a result of economic slowdown. Rising unemployment and declining incomes are examples of indicators of the causes of economic slowdown (Tanaskovic & Jandric, 2015). The high Non-Performing Loan (NPL) figure is one of the images that the bank's operational performance is in poor condition (Ahmed & Abedin, 2021). Banking during covid-19 has experienced a multifaceted crisis, most of which has resulted in an increase in the default rate (Barua & Barua, 2021). One picture of the impact of the covid-19 pandemic is shown in Figure 1 below.

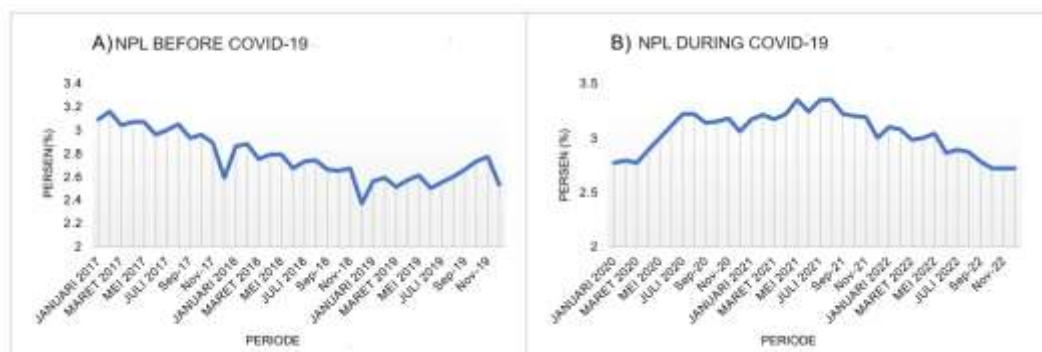


Figure 1. Development of Commercial Bank Non-Performing Loans in Indonesia (2017-2022)

Source: Financial Services Authority (OJK) (2023)

One of the impacts of covid-19 is shown by Figure 1. The figure shows Non-Performing Loan (NPL) data that has increased since covid-19 cases occurred in Indonesia, namely in 2020. It then showed a decline in mid-2021. Comparison of non-data Performing loans (NPLs) before and during covid-19 are very significant for the banking world in Indonesia. Non-Performing Loan (NPL) Data before covid-19 averaged below 3 percent while during covid - 19 it averaged above 3 percent. The highest Non-Performing Loan (NPL) figure in the two figures occurred in May 2021 at 3.35 percent with an increase of 0.13 percent from the previous bulan. The figure according to the assessment criteria of regulation BI 9/1/PBI / 2007 is categorized in good condition because the amount is between 2 percent to 5 percent. However, covid-19 continues to have a negative impact on Non-Performing loans (NPLs) in the form of an increase.

One of the government's efforts in anticipating the decline in financial performance of banks is packaged in the form of anticipation of increased credit risk in Indonesia. It is written in the regulation of the Financial Services Authority (POJK) number 11/POJK.03/2020 on national economic stimulus as a countercyclical policy on the impact of the spread of covid-19 on banks and POJK number 14/POJK.03/2020 on countercyclical policy the impact of the spread of covid-19 on the non-bank financial sector. The OJK has made policies in the form of credit restructuring relaxation to create adequate liquidity space for banking and non-banking needs in order to form additional

reserves for bad credit losses due to the covid-19 pandemic or anticipate an increase in the number of Non-Performing loans (NPL) (Pileonnis, 2020). Great et al., (2021) conducted research on the impact of the covid-19 pandemic on the financial performance of the banking sector in Indonesia. The methods used in the study were paired sample t test and Wilcoxon test during the period 2019-2020. The results of the study showed that there was no difference between the financial performance of the banking sector for capital aspects before and during the covid-19 pandemic. The same result occurs in the aspect of asset quality and liquidity aspects. Differences in results occurred in the aspect of profitability found that there is a significant difference between profitability before and during the covid-19 pandemic. Maulidia & Wulandari (2021) conducted research on the analysis of bank financial performance during the covid-19 pandemic at state-owned banks listed on the Indonesia Stock Exchange. The purpose of the study was to obtain empirical evidence related to bank finance in terms of camel analysis and to add insights and understanding related to the strategies implemented by banks in order to maintain their financial performance during the covid-19 pandemic.

The method used in the research is the documentation method or also called the archive method (achieved research) during the period 2020-2021. The results of the research showed that financial performance in terms of capital analysis, asset quality, management, profitability, and liquidity at state-owned banks during the covid-19 pandemic was included in the category of quite healthy. Sukendri (2021) conducted research on the liquidity and capital of government-owned banks before and during the covid-19 pandemic. The purpose of the study was to describe and analyze the liquidity and capital of government-owned banks before and during the covid-19 pandemic in terms of liquidity and capital. The method used in the study was paired t test analysis before conducting the test, a prerequisite test of the research instrument was carried out using Kolmogorov Smirnov during the period 2019-2020. The results of the study explained that there were differences before and during the covid-19 pandemic in terms of banking liquidity and in terms of capital adequacy of state-owned banks.

Based on the description of the results of previous studies on the impact of covid-19 on the financial performance of banks in Indonesia, this study uses the period range before and during covid-19 as a comparison, namely 2017-2019 (before covid-19) and 2020-2022 (during covid-19). In addition, it not only uses Capital Adequacy Ratio (CAR), capital aspect, Non-Performing Loan (NPL), asset quality aspect, Return on Equity (ROE), Return on Asset (ROA), Operating Expenses to operating Income (BOPO) profitability aspect, and Loan to Deposit Ratio (LOR) liquidity aspect as an indicator of banking financial performance. However, adding the Net Interest Margin (NIM) indicator as a measurement of profitability aspects. This study used 47 sample banks listed on the Indonesia Stock Exchange.

The purpose of the study was to determine the impact received by banking financial performance due to covid-19 and act as a reflection of investor confidence in financial stability. This is done because there are differences in characteristics and flexibility in carrying out operations (Ristanto, 2021). The results of this study can be used as material to map the risks that are indicated to arise due to covid-19. The mapping can be used as material to formulate strategies for anticipating and further handling the impact of covid-19 on the upcoming banking sector.

LITERATURE REVIEW

Signal Theory

Signal theory proposed by Spence (1973) in his research entitled: "The Market for Lemons" is a theory by providing pieces of relevant information that can be utilized by the receiving party. The basis of this signal theory contains the reduction of information gaps that occur between companies and prospective employees. However, today the theory has been adapted to many fields such as economics, human resource management,

business and financial markets. Explanation of signal theory (signaling theory) found by Akerlof (1970) is a theory about explaining the company's signaling to internal or external parties who have an interest in information about the company's prospects. Information provided by the company is generally a record or description of the state and survival of the company both in the past, current, and conditions in the future. The receiving party will then adjust its behavior according to its understanding of the signal. The relationship of signaling theory with the financial performance of banking companies in this study is that the analysis of bank financial performance during covid-19 can be a signal for banking companies both for internal parties or external parties of companies with interests in banking companies such as bank service users, investors, and creditors in decision making. For internal banking parties, signal theory can be used as a warning in maintaining the continuity of banking business processes, including when facing environmental changes due to certain conditions such as covid-19 and can be used to anticipate a decline in banking performance if the same thing as covid-19 occurs again and for external parties, signal theory can be used as a consideration in decision making. If the results show that the banking company is able to maintain or improve its performance, it can give a good signal, while if the results show that the banking company is unable to maintain or even a decline in its performance, it can give a bad signal. In financial performance research, there are several indicators used to determine whether a company has committed well (Camerinelli, 2016). Indicators used to assess the financial performance of banks such as, the level of bank health from the capital aspect is measured or measured using the Capital Adequacy Ratio (CAR); quality of non-performing loan assets (NPL); profitability aspects of Net Interest Margin (NIM), Return on Equity (ROE), Return on assets (ROA), and operating expenses to operating income (BOPO).

Literature Study

According to Kasmir (2014) Capital Adequacy Ratio is a comparison between the ratio of capital to assets weighted according to risk and according to government regulations. Capital creates the ability to serve customers well and protect banks from unexpected losses in the future (Hasan & Pareek, 2022). The decline in credit quality will have an impact on ROA, ROE, BOPO and CAR. Research conducted by (Barua & Barua, 2021), the pandemic has an impact on increasing NPLs and decreasing interest and CAR income. Islamic banks, covid-19 does not have a significant impact on CAR as researched by Surya & Asiyah (2020). In line with Almonifi (2021) findings that ROE, ROA, LA/TA and CAR ratios have been significantly reduced during the crisis. Problem loans can come from internal and external banks (Alexandri & Santoso, 2017). External factors include natural disaster factors, such as the covid-19 pandemic. The findings of Barua & Barua (2021) also confirm the increase in NPLs during the Covid-19 pandemic, as a result of declining revenue and impact on CAR. NIM received a statistically significant negative impact due to the covid-19 pandemic. Another study showed that bank size or asset size, as well as interest rates, had a significant positive effect on the profitability of Indonesian banks listed on the Indonesia Stock Exchange (Fauzi et al., 2022). Return on equity (ROE) is a profitability ratio that measures a company's ability to generate profits based on the company's share capital, the higher the ROE the better, increases the value of the company, and is generally highly regarded by investors (Chowdhury & Nehal, 2020). If ROA decreases, ROE also decreases, considering that the ROA and ROE formulas are the same in the numerator. In the ROA Formula, net income is divided by assets consisting of debt and capital, while the ROE formula is net income divided by Capital/Equity. Given that equity is smaller than assets, the ROE ratio is larger than ROA. Related to covid-19, Sutrisno et al., (2020) confirmed a decline in ROE before and during the pandemic.

Fauzi et al., (2022) & Hasan & Pareek (2022) who stated that there were significant differences in ROA before and during the covid-19 or covid-19 pandemic had a negative effect on ROA. However, there are differences in the results of research conducted by Sutrisno et al., (2020) ROA did not have a significant effect due to the covid-19 study on

Islamic banks in Indonesia. Operating Expenses to Operating Income (BOPO) is an indicator of the size of the bank's efficiency, the higher the BoPo the lower the profitability (Sutrisno et al., 2020). Putera (2020) revealed that the BoPo ratio is a representation of the bank's ability to manage assets and handle risks. Surya & Asiyah (2020) confirmed that there are significant differences in BOPO to state-owned sharia banks, thus there is indeed an influence of the Covid-19 pandemic. Loan of Deposit Ratio (LOR) is generally to measure the liquidity of a bank but Lelissa (2020) also views the need to measure the ability of banks to carry out their intermediary functions. Pandemic effect on LOR decline confirmed by findings of Ilhami & Thamrin (2020) & Sutrisno et al., (2020) showed no significant distinct differences between before and during the covid-19 pandemic.

HYPOTHESIS

Looking at the theoretical basis, previous research and existing framework, a hypothesis can be formulated. This study uses a different test analysis technique, namely the Wilcoxon signed rank test, to evaluate the impact of covid-19 on the performance of banks listed on the Indonesia stock exchange so that temporary conjectures arise in this study which can be seen in the following hypothesis:

H1: it is suspected that there are differences in the impact of capital performance (CAR) of banks listed on the Indonesia stock exchange before and during covid-19.

H2: it is suspected that there are differences in the impact of asset quality performance (NPL) of banks listed on the Indonesia stock exchange before and during covid-19.

H3: it is suspected that there are differences in the impact of profitability performance (NIM, ROE, ROA, and BOPO) of banks listed on the Indonesia stock exchange before and during covid-19.

H4: it is suspected that there are differences in the impact of liquidity performance (LOR) of banks listed on the Indonesia stock exchange before and during covid-19..

RESEARCH METHODS

The type of data used in this study is secondary data in the form of panel data. Cross section data from all banking companies listed on the Indonesia Stock Exchange as of June 2023, totaling 47 banking companies. While the period levels used in this study are 2017 to 2019 (before covid-19) and 2020 to 2022 (during covid-19). Banking financial performance indicators or variables used in the study are Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Net Interest Margin (NIM), Return On Equity (ROE), Return On Asset (ROA), Operating Expenses to Operating Income (BOPO), and Loan to Deposit Ratio (LOR). The methodology used in this study is a t-test. The difference test on banking financial performance before and during covid-19 in this study will use the paired t test or Wilcoxon signed rank test. The test is used because of the suitability of the classification of the existing data. The choice between the two tests depends on the normality test on the existing data. Before conducting the Wilcoxon signed rank test, the following steps were taken:

A. Normality test

The normality test aims to test whether in a regression model, the dependent variable, independent variable, or both are normally distributed or not. The normality test used in this study is the skewness-kurtosis test. The test was introduced by D'Agostino and Belanger in 1990. A test that is more reliable than others. If a normality test is carried out on paired groups and it turns out that the results of the data are normally distributed both, then the data analysis tool used for the difference test in this study is the paired t test or dependent t test, but if a normality test is carried out on paired groups and the results of the data are not normally distributed one or both, then the different test analysis tool used in this study is the Wilcoxon signed rank test.

B. Paired Sample t-test Test

The paired t test is used to test the average difference between two independent samples

that are paired, as for what is meant by paired is that the data in the second sample is the difference from the first sample data or in other words a sample with the same subject but experiencing two treatments. Paired sample t-test is used for different tests if the data is normally distributed. So the requirement for this paired t test is that the difference in data group data is normally distributed. So this research must first do a normality test, if the research is not normally distributed, it can use the Wilcoxon signed rank test analysis tool. Hypothesis: for the test is

H₀: There is no difference in banking financial performance variables between before and during covid-19.

H₁ : There are differences in banking financial performance variables between before and during covid-19.

Decision-making basis:

- If the probability of t statistic (sig value) < 0.05 then H₀ is rejected and H_a is accepted.

There is a significant difference in banking financial performance variables before and during covid-19.

- If the probability of t statistic (Sig value) > 0.05 then H₀ is accepted and H_a is rejected.

There is no significant difference in banking financial performance variables before and during covid-19.

C. Wilcoxon signed rank test

The Wilcoxon signed rank test was developed by Frank Wilcoxon in 1945. The Wilcoxon signed rank test is a test that is grouped into nonparametric statistical tests where this test is a refinement of the sign test. The results of this test are stronger than the sign test because it uses the magnitude of the difference or there is a ranking process in the test instead of just looking for differences from two paired groups. The Wilcoxon signed rank test is used when the data in the study is not normally distributed. The purpose of this test is to test the average of one population or test the population average of two paired data groups or to test the significance of the comparative hypothesis of two correlated groups. This test is different from the Wilcoxon rank sum test, which compares two unpaired groups and is equivalent to a parametric unpaired t-test. This statistic differs from the sign test because it considers the magnitude of the difference while the sign test does not.

This study uses data on financial performance indicators, namely CAR, NPL, NIM, ROE, ROA, BOPO and LOR. Furthermore, this test is applied to the same indicators but at different times, first on financial performance indicators before covid-19 (2017-2019) and second on financial performance indicators during covid-19 (2020-2022).

(CAR_{pre}, CAR_{post}), (NPL_{pre}, NPL_{post}), (NIM_{pre}, NIM_{post}), (ROE_{pre}, ROE_{post}),
(ROA_{pre}, ROA_{post}), (BOPO_{pre}, BOPO_{post}), (LDR_{pre}, LDR_{post}) 1)

This method contains a solution by looking at the change in the average percentage level (mean) of each financial performance indicator. It can be analyzed that this method is to determine the net impact by reducing the average percentage change of each financial performance indicator before covid-19 and financial performance during covid-19. The first step taken in testing using the Wilcoxon signed rank test is to calculate the difference between paired data groups.

$DIFF = CAR_{pre} - CAR_{post}$ 2)

Description:

DIF F = Difference in CAR before covid-19 and during covid-19

CAR_{pre} = CAR before covid-19

CAR_{post} = CAR during covid-19

The result of the difference between the paired data groups is then ranked from 1 to n observations based on the absolute value difference from smallest to largest. If any of the absolute value differences have the same value, the rank for the same value is the average of the ranks that would have been given if the values were different. Next, sum the positive and negative difference rankings and choose the minimum sum as the test

statistic or J . Because based on the results of the calculation of the sum rank positive is smaller than the negative rank, then in the testing process using the sum rank positive as J . The following is the formula for finding the average rank in the Wilcoxon signed rank test:

$$\mu J = \frac{n(n+1)}{4} \quad 3)$$

The following is the formula for finding the standard deviation in the Wilcoxon signed rank test:

$$\sigma J = \sqrt{\frac{n(n+1)(2n+1)}{24}} \quad 4)$$

The following is a model of this research:

$$Z = \frac{J - \mu J}{\sigma J} = \frac{J - \frac{n(n+1)}{4}}{\sqrt{\frac{n(n+1)(2n+1)}{24}}} \quad 5)$$

Description:

Z = Normal test count (the amount of data that changes after being given a different treatment)

J = Statistical testing

μJ = Mean rank (to find the mean of the sample distribution)

σJ = Standard deviation of rank (standard deviation of sample distribution)

n = Number of pairs/samples that are not equal in value

Hypothesis of Wilcoxon Signed Rank Test:

H_0 : There is no difference in the financial performance variables of banks between before and during covid-19.

banking financial performance variables between before and during covid-19.

H_a : There are differences in banking financial performance variables between before and during covid-19

The basis for decision making in the Wilcoxon signed rank test is:

- If the probability of Z statistics (sig value) < 0.05 then H_0 is rejected and H_a is accepted.

There is a significant difference in banking financial performance variables before and during covid-19.

banking financial performance variables before and during covid-19.

- If the probability of Z statistics (sig value) > 0.05 then H_0 is accepted and H_a is rejected.

There is no significant difference in banking financial performance variables between before and during covid-19.

performance variables between before and during covid-19

RESULTS

Normality Test

The normality test is the initial stage to determine whether the data is normally distributed or not in the t-test. This test is carried out to determine which t-test will be used in this study.

Based on the results of the normality test in table 1, it can be seen that normally distributed data occurs in two data, namely NPL Pre and ROA_Post or Non-Performing Loan (NPL) before covid-19 with a χ^2 probability value of 0.9123 and Return On Asset (ROA) during Covid-19 with a χ^2 probability value of 0.0778. Both variables are

included in normally distributed data because the χ^2 probability value is greater than the 5 percent or 0.05 significance level. So the hypothesis of the two variables, namely Non-Performing Loan (NPL) data before covid-19, is normally distributed or does not reject H_0 and Return On Asset (ROA) data during covid-19 is normally distributed or does not reject H_0 . Capital Adequacy Ratio (CAR) before and during covid-19 the probability value of χ^2 is the same at 0.0000. The value is smaller than the significance level of 5 percent or 0.05, then the data is declared not normally distributed or reject H_0 . Non-Performing Loan (NPL) during covid-19 the probability value of χ^2 is 0.0000 the value is smaller than the significance level of 5 percent or 0.05, then the data is declared not normally distributed or rejects H_0 . Net Interest Margin (NIM) before and during covid-19 χ^2 probability values of 0.0000 and 0.0036 these values are smaller than the significance level of 5 percent or 0.05, then the data can be declared not normally distributed or reject H_0 .

Table 1. Normality Test Results

Variable	Obs	Skewness	Kurtosis	Adj Chi2	Prob>chi2
CAR_Pre	47	0.0000	0.0000	70.80	0.0000*
CAR_Post	47	0.0000	0.0000	58.15	0.0000*
NPL Pre	47	0.0704	0.8763	3.30	0.19230
NPL Post	47	0.0000	0.0000	44.48	0.0000*
NIM Pre	47	0.0000	0.0000	62.06	0.0000*
NIM Post	47	0.7798	0.0008	11.24	0.0036*
ROE_Pre	47	0.0011	0.0095	17.45	0.0002*
ROE_Post	47	0.0000	0.0021	26.71	0.0000*
ROA_Pre	47	0.0030	0.0000	25.74	0.0000*
ROA_Post	47	0.9364	0.0239	5.11	0.0778
BOPO_Pre	47	0.0026	0.0223	14.32	0.0008*
BOPO_Post	47	0.0000	0.0000	47.24	0.0000*
LOR Pre	47	0.0000	0.0000	91.37	0.0000*
LOR Post	47	0.0000	0.0002	35.97	0.0000*

Note: (*) significant at 5% significance level

Source: Stata MP 14 output, Data processed (2024)

Return on Equity (ROE) before and during covid-19 χ^2 probability values are 0.0002 and 0.0000. The value is smaller than the significance level of 5 percent or 0.05, then the data can be declared data is not normally distributed or reject H_0 . Return on Asset (ROA) before the χ^2 probability value of 0.0000. The value is smaller than the significance level of 5 percent or 0.05, then the data can be declared data is not normally distributed or reject H_0 . Operating Expenses to Operating Income (BOPO) before and during covid-19 have probability values of 0.0008 and 0.0000. The value is smaller than the significance level of 5 percent or 0.05 so the data can be declared data not normally distributed or reject H_0 . Loan to Deposit Ratio (LOR) before and during covid-19 has a probability value of χ^2 which is worth 0.0000. The value is smaller than the significance level of 5 percent or 0.05 so the data can be declared normally undistributed

or reject H₀. Based on these results, there is evidence that the results of the normality test on the data of this study there is no data that is distributed normally simultaneously. The next test used is the Wilcoxon signed rank test.

Wilcoxon Signed Rank Test

Based on the results of data normality test found that the majority of research data is not normally distributed. The next step is the Wilcoxon Signed Rank Test. The Wilcoxon Signed Rank Test.

Table 2. Result Estimation Wilcoxon Signed Rank Test

Variable	Rank			Mean Rank		Sum Rank		Z	Prob z
	Positive rank	Negative rank	Ties	Positive	Negative	Positive	Negative		
CAR	36	11	0	26.79	14.86	964.5	163.5	4.238	0.0000*
NPL	22	24	1	21.95	26.83	483	644	-0.852	0.3943
NIM	12	35	0	21.16	24.97	254	874	-3.280	0.0010*
ROE	18	29	0	23.25	24.47	418.5	709.5	-1.540	0.1236
ROA	14	33	0	24.43	23.82	342	786	-2.349	0.0188*
BOPO	24	23	0	22.92	25.13	550	578	-0.148	0.8822
LOR	16	31	0	24.88	23.55	398	730	-1.757	0.0790**

Note: (*) significant at 5% significance level, () significant at 10% significance level**

Source: Stata MP 14 output, Data processed (2024)

Based on the results of the Wilcoxon signed rank test, it can be seen that the objects used in this study are 47 banks or all banks listed on the Indonesia Stock Exchange as of June 2023. In this test there is a term rank which means a rank given to the results of data differences before and during covid-19 regardless of the sign. Rank grouping or ranking is divided into three groups, namely positive rank, negative rank, and ties. Each rank has its own meaning. Positive rank in the Wilcoxon signed rank test is the number of samples that have a value during covid-19 higher than the value before covid-19 or an increase in value. Then the negative rank is the number of samples that have a value before covid-19 higher than the value during covid-19 or a decrease in value. As for ties, it is a value before covid-19 and during covid-19 there is no difference or the same amount. Based on the test results in Table 2, it is known that Capital Adequacy Ratio (CAR) with prob value of Z statistic 0.0000, Net Interest Margin (NIM) with prob value of Z statistic 0.0010, Return on Asset (ROA) with prob value of Z statistic 0.0188, probability value of Z statistic obtained by these three variables is smaller than the significance level of 5 percent or 0.05; from a significance level of 10 percent. This result provides evidence that the Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Return on assets (ROA), and Loan to Deposit Ratio (LOR) reject H₀ and H_a are not rejected. The conclusion obtained is that there are proven differences in bank performance significantly before covid-19 and during covid-19. These results provide evidence that covid-19 has an impact on the financial performance of banks in Indonesia, especially the Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Return on assets (ROA), and Loan to Deposit Ratio (LOR).

In addition to these four variables, three other variables in this study obtained a probability value of statistical Z greater than the significance level of 5 percent or 0.05, namely Non-Performing Loan (NPL) with a prob value of statistical Z 0.3943, Return on Equity (ROE) with a prob value of statistical Z 0.1236, Operating Expenses to Operating Income (BOPO) with a prob value of statistical Z 0.8822, and then it can be concluded that Non-Performing Loan (NPL), Return on Equity (ROE), and Operating Expenses to Operating Income (BOPO), do not reject H₀ and reject H_a. This result provides a conclusion that NPL, ROE, and BOPO did not significantly differ before covid-19 and during covid-19 on the financial performance of banks in Indonesia.

Impact of Covid-19 on company performance (CAR) before and during the pandemic

The previous test results showed that the positive or negative positive ratings (previously) amounted to 36 data, which means that the 36 banks targeted by the study increased the Capital Adequacy Ratio (CAR) from before covid-19 to during covid-19 with a positive or positive mean rank of 26.79 percent while for the current average positive rating or number of positive ratings of 964.5 percent. Furthermore, negative or positive negative ratings (previously > during) amounted to 11 data, which means that there were eleven banks targeted by the study investigating the measurement of Capital Adequacy Ratio (CAR) from before covid-19 to during covid-19 with a negative or average mean rank of 14.86 percent set for an average negative calculation or negative rank of 163.5 percent. Covid-19 has an impact on the Capital Adequacy Ratio (CAR) in the form of an increase from before covid-19 to during covid-19. This is shown from the results of a higher number of positive ranks compared to negative ranks in the Capital Adequacy Ratio (CAR) before covid-19 and during covid - 19 (36 vs. 11). In addition, it can be seen from the results of the mean rank positive and mean rank negative (26.79 vs. 14.86) which shows a significant difference. This means that the increase in Capital Adequacy Ratio (CAR) is higher (occurred in 36 banks with an average increase of 26.79 percent) than the decrease in Capital Adequacy Ratio (CAR) (occurred in 11 banks with an average decrease of 14.86 percent).

The increase in Capital Adequacy Ratio (CAR) is a form of the government's successful efforts to maintain national banking capital stability, including through the regulation of the Minister of Finance (PMK) No. 70/PMK.05/2020 by setting funds worth Rp 30 trillion in commercial banks. This policy greatly helps the banking sector in maintaining capital performance during covid-19 (Agung et al., 2021). The government said that the bank's Capital Adequacy Ratio (CAR) was still maintained at a fairly high level in August 2020 (Warta Ekonomi, 2020). The Capital Adequacy Ratio (CAR) remains healthy despite a decline in some banks. It is proven that the Capital Adequacy Ratio (CAR) before covid-19 and during covid-19 according to the assessment criteria of regulation BI 9/1/PBI/2007 is still in a healthy or stable condition because the amount of Capital Adequacy Ratio (CAR) is more than 8 percent. OJK Banking Supervision Chief Executive Heru Kristiyana said the decrease in Capital Adequacy Ratio (CAR) or capital adequacy was caused by banks providing credit relaxation or relief to customers affected by covid-19. This refers to government policy (CNN Indonesia, 2020).

This study refers to the signal theory which states that information about the condition of the Capital Adequacy Ratio (CAR) provides a signal for internal and external banking parties because with the Capital Adequacy Ratio (CAR) which shows a high value, it can be concluded that banks are able to maintain capital in a safe condition despite covid-19. Then external parties will be more confident in using bank services or buying shares by looking at the condition of the Capital Adequacy Ratio (CAR). The results of this study are in accordance with those conducted by Susanti et al., (2023) which states that the capital Adequacy Ratio (CAR) performance in the period during covid-19 showed an increase large enough to be in a healthy condition. In addition, Yusuf (2023) stated in his research the magnitude of the role of the Central Bank of Egypt in limiting the impact of covid-19 on the risks and indicators of Egyptian banks. This encouraged an increase in capital performance in banking in Egypt despite significant differences, however, these differences indicate an increase in Capital Adequacy Ratio (CAR). The increase in Capital Adequacy Ratio (CAR) is caused by differences in the weighting of risks carried out by banks and the additional capital deposits made so that they are able to maintain the Capital Adequacy Ratio (CAR) at a good level (Sullivan & Widodoatmodjo, 2021). The greater the value of Capital Adequacy Ratio (CAR) the healthier the capital quality of a bank.

Impact Of Covid-19 On Asset Quality (NPL) Performance Before & During The Pandemic

The test results in the table above show that the positive rank or positive difference (before < during) amounts to 22 data, which means that 22 banks that are the object of research have increased Non-Performing loans (NPLs) from before covid-19 to during covid-19 with a mean rank positive or an average increase of 21.95 percent while the average number of positive ranks or sum rank positive is 483 percent. Furthermore, the negative rank or negative difference (before > during) amounted to 24 data which means that there are 24 banks that are the object of research have decreased Non-Performing loans (NPLs) from before covid-19 to during covid-19 with a mean rank negative or an average decrease of 26.83 percent while the average negative rank or sum rank negative is 644 percent. Then ties or the absence of differences in Non-Performing loans (NPL) from before covid-19 to during covid-19 amounted to 1 data, which means that there are 1 banks that are the object of research that have the same Non-Performing loans (NPL) before covid-19 and during covid-19.

Covid-19 has an impact on Non-Performing loans (NPLs) in the form of a decrease from before covid-19 to during covid-19. This is shown from the results of the lower number of positive ranks compared to negative ranks on Non-Performing loans (NPLs) before and during covid-19 (22 vs 24). In addition, it can be seen from the results of the mean rank positive and mean rank negative (21.95 vs. 26.83) which shows the difference. The decrease in Non-Performing loans (NPLs) was higher (occurred in 24 banks with an average increase of 26.89 percent) compared to the increase (occurred in 22 banks with an average increase of 21.95 percent). An increase in Non-Performing loans (NPLs) during covid-19 occurred in several banks. However, despite the increase in Non-Performing loans (NPL) before covid-19 and during covid-19 in this study, according to the assessment criteria of regulation BI 9/1/PBI/2007, it is still in good condition because the value of Non-Performing loans (NPL) is between 2 to 5 percent. This happens because banks continue to set strategies in distributing credit and continue to accumulate reserve costs (kontan Keuangan, 2020). Non-Performing Loan (NPL) information will be a means of internal or external assessment of the quality of assets (credit) in a bank. It is a form of signal theory. Based on the results of the Non-Performing Loan (NPL) test, it shows that there is no difference before and during covid-19 in the banking sector due to government policies in maintaining credit quality. The Bank is able to maintain the quality of fixed assets in a safe position along with the efforts given by the government in the form of credit restructuring. The government's efforts in the form of credit restructuring have been carried out since March 2020. OJK Public Relations Director Darmansyah revealed that even until 2023, there is a decision that the Financial Services Authority (OJK) will extend the relaxation of credit restructuring until March 2024 (financial Kontan, 2023).

The results of this study are in line with those conducted by Srinadi & Putri (2022), Susanti et al., (2023), and Ilhami & Thamrin (2020) who stated that Non-Performing loans (NPLs) in the period during covid-19 showed an insignificant increase which was indicated due to the stimulus provided by the government to minimize the impact of covid-19 by issuing Financial Services Authority Regulation No.11 of 2020. The regulation contains orders to banks to provide relaxation of waivers to debtors. This allows the debtor to restructure the credit in the form of a decrease in interest, reduction of arrears in both principal and interest and apply for an extension of the maturity period. This relaxation is only for debtors who have received the impact of covid-19. The lower the value of Non-Performing Loan (NPL) the healthier the quality of productive assets of a bank.

Impact of Covid-19 On Net Interest Margin (NIM) Before & During The Pandemic

The profitability performance test (NIM) showed that the positive rank or positive difference (before < during) amounted to 12 data, which means that 12 banks that are the object of research have increased Net Interest Margin (NIM) from before covid-19 to

during covid-19 with a mean rank positive or an average increase of 21.16 percent while the average number of positive ranks or sum rank positive is 254 percent. Furthermore, the negative rank or negative difference (before > during) amounted to 35 data, which means that there are 35 banks that are the object of research have decreased Net Interest Margin (NIM) from before covid-19 to during covid-19 with a mean rank negative or an average decrease of 24.97 percent while the average number of negative ranks or sum rank negative is 874 percent.

Covid-19 has an impact on Net Interest Margin (NIM) in the form of a decrease from before covid-19 to during covid-19. This is shown from the results of the number of positive rank during covid-19 is lower than the negative rank (12 vs. 35). In addition, it can be seen from the results of the mean rank positive and mean rank negative (21, 16 vs. 24.97) which shows the difference. This means that the increase in Net Interest Margin (NIM) is lower (occurred in 12 banks with an average increase of 21, 16 percent) than the decrease in Net Interest Margin (NIM) (occurred in 35 banks with an average decrease of 24.97 percent). The decrease in Net Interest Margin (NIM) was in line with the increase in bank loans. OCBC Bank director NICP said during the covid-19 period, banks were burdened with high credit restructuring. This will automatically make bank interest income decrease (Kontan Keuangan, 2020).

However, judging from the assessment criteria of regulation BL 9/1/PBI/2007 with an average decrease in Net Interest Margin (NIM) is still classified in a very healthy condition because the amount of Net Interest Margin (NIM) more than 3 percent. Despite being faced with the challenges of the covid-19 pandemic, the achievement of Net Interest Margin (NIM) also continued to increase (Kontan Keuangan, 2023). So the impact of covid-19 on Net Interest Margin (NIM) is still within normal limits although there is still an impact received. This study refers to the signal theory that states the information will be the condition of the Net Interest Margin (NIM) provides a signal for internal and external parties to make decisions. The results of this study are in line with those carried out by Hasan & Pareek (2022) and Puspita (2022) which state that Net Interest Margin (NIM) has been significantly affected during covid-19. This can happen due to the impact of regulatory changes during covid-19.

Impact of Covid-19 On Return On Equity (ROE) Before & During The Pandemic

Positive rank or positive difference (before < during) in ROE amounted to 18 data, which means that 18 banks that are the object of research have increased Return on Equity (ROE) from before covid-19 to during covid-19 with a mean rank positive or an average increase of 23.25 percent while the average number of positive ranks or sum rank positive is 418.5 percent. Furthermore, the negative rank or negative difference (before > during) amounted to 29 data, which means that there are 29 banks that are the object of research experiencing a decrease in Return on Equity (ROE) from before covid-19 to during covid-19 with a mean rank negative or an average decrease of 24.47 percent while the average number of negative ranks or sum rank negative is 709.5 percent. Covid-19 has an impact on Return on Equity (ROE) in the form of a decrease from before covid-19 to during covid-19. This is shown from the results of the number of positive rank is lower than negative (18 vs. 29). In addition, it can be seen from the results of the mean rank positive and mean rank negative (23.25 vs. 24.47) show differences. This means that the increase in Return on Equity (ROE) is lower (occurred in 18 banks with an average increase of 23.25 percent) than the decrease in Return on Equity (ROE) (occurred in 29 banks with an average decrease of 24.47 percent). A decrease in Return on Equity (ROE) indicates that the ability to manage capital against profit is less efficient (CNBC Indonesia, 2023). However, the data on the decrease or increase in the value of Return on Equity (ROE) before covid-19 and during covid-19 according to the assessment criteria in regulation BL 9/1/PBI/2007 is still in a healthy condition because the value is more than 1.22 percent.

Based on the results of the Return on Equity (ROE) test, it shows that there is no difference before and during covid-19 in the banking sector due to banks still being able to increase the return on capital investment that has been given by shareholders even during covid-19. This increase in net profit is inseparable from the bank's ability to disburse loans, especially on consumer loans to generate revenue. Information on Return on Equity (ROE) will be considered by internal parties in making decisions for the future or designing the right strategy in the event of an economic crisis such as that caused by covid-19. This reflects the signal theory in the form of Banking Financial Performance information that will give a good or bad signal depending on the banking conditions. The results of this study are in line with those conducted by dan Almonifi & Rehman (2021) who stated that Return on Equity (ROE) has been significantly reduced during covid-19. This is indicated to be a factor that causes Return on Equity (ROE) in this study there is no significant difference. Similarly, research conducted by (Rahman et al., 2021). The greater the value of Return on Equity (ROE) the healthier the quality of profitability of a bank.

Impact of Covid-19 On Return On Asset (ROA) Before & During The Pandemic

Return on assets shows a positive rank or positive difference (before < during) of 14 data which means that 14 banks that are the object of research have increased Return on assets (ROA) from before covid-19 to during covid-19 with a mean rank positive or an average increase of 24.43 percent while the average number of positive ranks or sum rank positive is 342 percent. Furthermore, the negative rank or negative difference (before > during) amounted to 33 data, which means that there are 33 banks that are the object of research have decreased Return on assets (ROA) from before covid-19 to during covid-19 with a mean rank negative or an average decrease of 23.82 percent while the average number of negative ranks or sum rank negative is 786 percent. Covid-19 has an impact on Return on assets (ROA) in the form of a decrease from before covid-19 to during covid-19. This is shown from the results of the number of positive rank lower than the rank negative Return on assets (ROA) before covid-19 and during covid-19 (14 vs. 33). In addition, it can be seen from the results of the mean rank positive and mean rank negative (24.43 vs. 23.82) show differences.

This means that the increase in Return on assets (ROA) is lower (occurred in 14 banks with an average increase of 24.43 percent) than the decrease in Return on assets (ROA) (occurred in 33 banks with an average decrease of 23.82 percent). The decrease in Return on assets (ROA) occurred because the ability of banks to manage assets against profits was less efficient (CNBC Indonesia, 2023). Return on assets (ROA) during covid-19 experienced in unfavorable conditions. As evidenced by The Return on assets (ROA) value during covid-19 according to the assessment criteria in regulation BL 9/1/PBI/2007, it is still in an unhealthy condition because the amount of Return on assets (ROA) is less than 0 percent. The results of this study are in line with those conducted by Fitriani (2020), Yusuf, (2023) and Susanti et al., (2023) which states that the performance of profitability or Return on assets (ROA) in the period during covid-19 showed a decrease large enough to be in an unhealthy condition. An unstable economy during covid-19 is one of the causes of Return on assets (ROA) to decrease. The greater the value of Return on assets (ROA) the healthier the quality of profitability of a bank.

Impact of Covid-19 On Operating Expenses to Operating Income (BOPO) Before & During The Pandemic

For the performance of Operating Expenses to Operating Income (BOPO), the positive rank or positive difference (before < during) amounted to 24 data, which means that 24 banks that are the object of research have increased Operating Expenses to Operating Income (BOPO) from before covid-19 to during covid-19 with a mean rank positive or an average increase of 22.92 percent while the average number of positive ranks or sum rank positive is 550 percent. Furthermore, rank negative or negative difference (before > during) amounted to 23 data which means there are 23 banks targeted by the study to identify a decrease in operating expenses to operating income (BOPO) from before

covid-19 to during covid - 19 with a mean rank negative or an average decrease of 25.13 percent while the average number of negative or negative ratings is 578 percent.

Covid-19 has an impact on operating expenses to operating income (BOPO) on income from before covid-19 to during covid-19. This is shown from the results of the number of positive rank is higher than the negative rank (24 vs. 23). In addition, the difference of the results of the positive mean rank and negative mean rank (22.92 vs. 25.13) showed a difference. This means that the increase in operating expenses to operating income (BOPO) is higher (to 24 banks with an average increase of 22.92 percent) than the decrease in operating expenses to operating income (BOPO) (to 23 banks with an average increase of 25.13 percent). Operating expenses to operating income (BOPO) have increased and decreased the assessment criteria in regulation BL 9/1/PBI/2007 are in an unhealthy condition because the amount of operating expenses to operating income (BOPO) is more than 95.92 percent for some sample banks. The greater the value of operating expenses to operating income (BOPO) the more unhealthy the quality of a company's profits.

Based on the test results, it shows that there is no significant difference in Operating Expenses to Operating Income (BOPO) before and during covid-19 in the banking sector due to a decrease in operating costs due to restrictions on economic activities, the existence of the national non-cash movement (GNNT) and banking activities directly decreased. Meanwhile, the increase in Operating Expenses to Operating Income (BOPO) that occurs is not a very drastic increase and can cause banks to experience serious problems. This indicates that banks continue to experience an increase in financing for their operating activities. Research conducted by Yuniarsih et al., (2022) in line with this study. The results of the study stated that Operating Expenses to Operating Income (BOPO) did not make any difference either before or after Covid-19.

Impact Of Covid-19 On Liquidity Performance (LOR) Before & During The Pandemic

The previous results showed that the positive rank or positive difference (before < during) amounted to 16 data, which means that 16 banks that are the object of research have increased Loan of Deposit Ratio (LOR) from before covid-19 to during covid-19 with a mean rank positive or an average increase of 24.88 percent while the average number of positive ranks or sum rank positive is 398 percent. Furthermore, negative rank or negative difference (before > during) amounted to 31 data, which means that there are 31 banks that are the object of research have decreased Loan of Deposit Ratio (LOR) from before covid-19 to during covid-19 with a mean rank negative or an average decrease of 23.55 percent while the average number of negative ranks or sum rank negative is 730 percent.

Covid-19 has had an impact on the Loan to Deposit Ratio (LOR) in the form of a decrease from before covid-19 to during covid-19. This is shown from the results of the number of positive rank is lower than the negative rank (16 vs. 31). In addition, it can be seen from the results of the mean rank positive and mean rank negative (24.88 vs. 23.55) show differences. This means that the increase in Loan of Deposit Ratio (LOR) is lower (occurred in 16 banks with an average increase of 24.88 percent) than the decrease in Loan of Deposit Ratio (LOR) (occurred in 31 banks with an average decrease of 23.55 percent). The decrease in the Loan to Deposit Ratio (LOR) indicates that more depositors choose not to spend unnecessarily, this indicates that banking liquidity can be maintained during covid-19. The increase in the Loan to Deposit Ratio (LOR) occurs due to the impact of weak global economic growth domestically (Finance Cash, 2023). However, the Loan of Deposit Ratio (LOR) during covid-19 despite an increase or decrease according to the assessment criteria in regulation BL 9/1/PBI/2007 is in a healthy condition because the amount of Loan of Deposit Ratio (LOR) is smaller than 102.25 percent.

The results of this study in line with those conducted by Agung et al., (2021), Almonifi & Rehman, (2021) and Srinadi & Putri, (2022) which stated that the performance of liquidity

or Loan to Deposit Ratio (LOR) in the period during covid-19 showed no difference. The absence of differences in liquidity performance before and during covid-19 in the banking sector as well as capital is due to government policies in maintaining banking liquidity, a policy that contributes greatly to maintaining banking liquidity performance during covid-19 is Government Regulation Number 33 of 2020 where the government through the Deposit Insurance Agency (LPS) places funds in troubled banks with a maximum fund value of 30% of LPS assets with a tenor of 1 month with an extension of 5 times. The placement of LPS assets has an impact on increasing liquidity so that the liquidity performance of banks is maintained during covid-19.

CONCLUSION

Capital Adequacy Ratio (CAR) there is a significant difference between before covid-19 and during covid-19. This can be interpreted that covid-19 has a significant impact on increasing the Capital Adequacy Ratio (CAR). 47 banks listed on the Indonesian Stock Exchange were able to maintain the Capital Adequacy Ratio (CAR) in a stable and even increasing position. Non-Performing loans (NPL) are not significantly different between before covid-19 and during covid-19. This can mean that covid-19 does not have a significant impact on the increase in Non-Performing loans (NPL). 47 banks listed on the Indonesian Stock Exchange were able to keep Non-Performing loans (NPL) in a stable and even declining position. The government's efforts are able to reduce the number of non-Performing loans (NPL) of banks listed on the Indonesia Stock Exchange. Net Interest Margin (NIM) there is a significant difference between before covid-19 and during covid-19. This can mean that covid-19 has had a significant impact on the decrease in Net Interest Margin (NIM). 47 banks listed on the Indonesian Stock Exchange were able to maintain Net Interest Margin (NIM) in a stable and even declining position. Return on Equity (ROE) there is no significant difference between before covid-19 and during covid-19. This could mean that covid-19 does not have a significant impact on the decrease in Return on Equity (ROE). 47 banks listed on the Indonesian Stock Exchange were able to maintain Return on Equity (ROE) in a stable and even increasing position. Return on assets (ROA) there is a significant difference between before covid-19 and during covid-19. This can mean that covid-19 has a significant impact on the decrease in Return on assets (ROA). 47 banks listed on the Indonesian Stock Exchange were unable to maintain Return on assets (ROA) in a stable position and even increased during the covid-19 period. Operating Expenses to operating Income (BOPO) there is no significant difference between before covid-19 and during covid-19. This can mean that covid-19 does not have a significant impact on the decrease in Operating Expenses to operating Income (BOPO). 47 banks listed on the Indonesian Stock Exchange were able to maintain Operating Expenses to operating Income (BOPO) in a stable and even declining position. Loan to Deposit Ratio (LOR) there is significant difference between before covid-19 and during covid-19. This could mean that covid-19 covid-19 had a significant impact on the decline of Loan to Deposit Ratio (LOR). The limitation of this study lies in the financial performance variables that need to be completed and the year of research that needs to be added. Thus, it can show a more comprehensive banking performance and be able to show differences before and after the occurrence of covid-19. There needs to be an update on the research methodology by using an impact analysis that is an experimental study that can be used and prove the real state of the impact of covid-19 on the banking sector

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