ANALYSIS OF DIFFERENCES IN PERFORMANCE BANK BEFORE AND DURING THE COVID-19 PANDEMIC

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ARTICLE INFO	*ABSTRACT*

The Corona Virus Disease 2019 pandemic (known as COVID-19) has hit all sectors and human life, including banking activities in Indonesia. The risk of banking as a company collecting public funds is also increasing due to the restrictions on community activities and the low level of the Indonesian economy after being hit by COVID-19. Bank Indonesia did not predict that such a condition would occur. Therefore, this study is aimed to examine the differences in Capital Adequacy Ratio (CAR), Operating Costs to Operating Income (BOPO), Non Performing Loans (NPL), Loan to Deposit Ratio (LDR) in the go public banking sector in Indonesia before and after COVID-19. This study uses a quantitative approach using a non-parametric statistical test, the wilcoxon signed-rank test. This test is applied because the small number of samples and the data are not normally distributed. There are only 19 banks taken as samples and all are listed on the Indonesia Stock Exchange. The data is collected based on the financial statements of 2019 (conditions before COVID-19 occurred in Indonesia) and 2020. It can be concluded from the results of the analysis that CAR and BOPO do not show significant differences before and after COVID-19. However, NPL and LDR prove significant differences before and after COVID-19.

Keywords: Capital Adequacy Ratio, Operating Costs, Operating Income, Non-Performing Loans, and Loan to Deposit Ratio.

Abstrak

Pandemi Corona Virus Disease 2019 (atau yang dikenal dengan nama COVID-19) melanda seluruh sektor dan kehidupan manusia, termasuk aktivitas perbankan di Indonesia. Risiko perbankan sebagai perusahaan penghimpun dana masyarakat pun, semakin meningkat dengan adanya pembatasan aktivitas masyarakat dan rendahnya perekonomian Indonesia setelah dilanda COVID-19. Bank Indonesia pun tidak memprediksi kondisi seperti ini akan terjadi. Oleh karena itu, penelitian ini bertujuan untuk menguji perbedaan *Capital Adequacy Ratio* (CAR), Biaya Operasional terhadap Pendapatan Operasional (BOPO), *Non Performing Loan* (NPL), *Loan to Deposit Ratio* (LDR) pada sektor perbankan *go public* di Indonesia sebelum dan setelah

terjadinya COVID-19. Penelitian ini menggunakan pendekatan kuantitatif dengan menggunakan uji statistik secara non-parametrik, wilcoxon signed-rank test. Uji ini digunakan karena jumlah sampel yang sedikit yaitu 19 bank yang terdaftar di Bursa Efek Indonesia dan data yang tidak terdistribusi secara normal. Data dikumpulkan dari laporan keuangan tahun 2019 (kondisi sebelum COVID-19 terjadi di Indonesia) dan tahun 2020. Hasil analisis menyimpulkan bahwa CAR dan BOPO tidak menunjukkan perbedaan yang signifikan sebelum dan setelah COVID-19, namun NPL dan LDR memberikan hasil perbedaan yang signifikan sebelum dan setelah COVID-19.
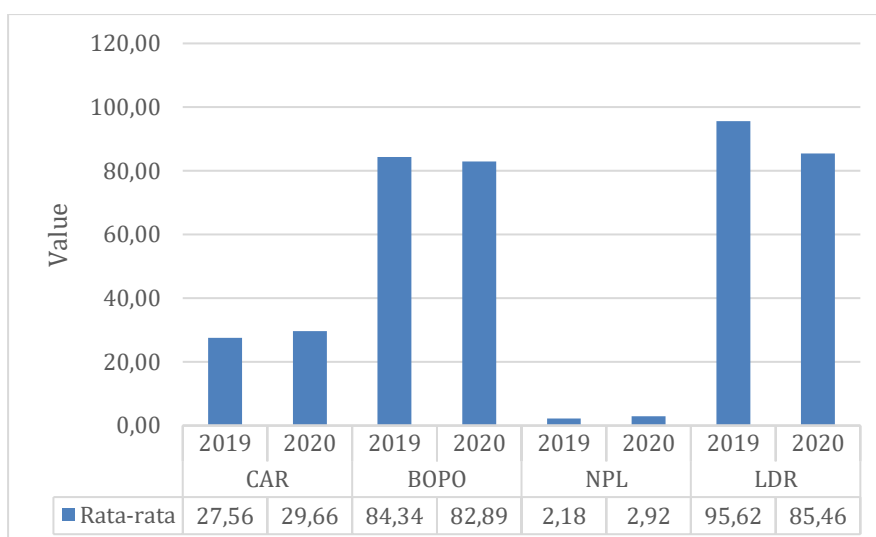
Kata Kunci: *Capital Adequacy Ratio*, Biaya Operasional Pendapatan Operasional, *Non-Performing Loan*, dan *Loan to Deposit Ratio*.

1.   INTRODUCTION

The rapid global spread of Corona Virus Disease 2019 (hereinafter abbreviated as COVID-19) has reached pandemic stage and prompted a series of emergency measures, such as interest rate cuts, liquidity support, tax deferrals, travel bans, business closures, and meeting restrictions. The aim is to prevent the spread, to reduce disruption to economic activity, and to prevent dislocations in financial markets. While the easing of "lockdown" has gradually begun at the household level, companies, especially Micro, Small and Medium Enterprises (MSMEs), is faced with declining income, disruptions in supply chains, tighter credit conditions, and a liquidity crisis; along with causing negative impacts such as delaying deliveries and payments and leading to job losses and eventual closure of companies and bankruptcy (World Bank Group, 2020).

COVID-19 is an extraordinary event that occurs in all countries in the world. The impacts are different for different sectors. For example, the occurrence of COVID-19 leads to an increase in the technology and communication industry because of the needs of the community during the pandemic for working, studying and other activities done from home. However, the banking and hotel sectors as well as other services have had negative impacts. This is due to restriction to human movement and activity outside (Colyer et al., 2020; Dadoukis et al., 2021; Elnahass et al., 2021; Larasati & Kelen, 2021).

This research focuses on the banking industry in Indonesia. The impact on the banking sector is getting worse due to the effects of restrictions on people's movement and the weakness of the Indonesian economy. According to Purwanto (2021) the banking sector in Indonesia recorded an increase in Third Party Funds (DPK), which shows the "alertness" of the public. Data shows that in November 2020 TPF grew by 11.55%. A number of risk indicators for banks, such as Non-Performing Loans (NPL) and Capital Adequacy Ratio (CAR) remained stable. In addition, data on Operational Income Operational Costs (BOPO) and Loan to Deposit Ratio (LDR) show relatively stable conditions. More details can be seen in Figure 1.1.

Rata-rata	CAR 2019	CAR 2020	BOPO 2019	BOPO 2020	NPL 2019	NPL 2020	LDR 2019	LDR 2020
	27,56	29,66	84,34	82,89	2,18	2,92	95,62	85,46

Source: Processed Data, 2021.

Figure 1.
Average CAR, BOPO, NPL and LDR of Banks Listed on the Indonesia Stock Exchange (IDX)

On the other hand, regulations related to risk management are demanded by the government of Indonesia, in this case the by Otoritas Jasa Keuangan (OJK), the financial services authority, through Surat Edaran Otoritas Jasa Keuangan Tentang Penerapan Manajemen Risiko Dan Pengukuran Risiko Pendekatan Standar Untuk Risiko Suku Bunga Dalam Banking Book (Interest Rate Risk in The Banking Book) Bagi Bank Umum. Commercial banks are required to manage market risks such as exchange rate risk, interest rate risk, commodity risk, and equity risk. The COVID-19 impact has caused a high market risk to the banking industry in Indonesia. Researchers also see that there are still few studies that analyze ratios in assessing bank performance (CAR, BOPO, NPL and LDR) before and during COVID-19.

Based on this problem, the author is interested in researching topics related to the banking sector in Indonesia corresponding to the happening of COVID-19. The author wants to prove whether or not there is a difference in bank risk in Indonesia as measured by CAR, BOPO, NPL and LDR before and during COVID-19 pandemic. The objectives of this study are as follows: 1) To test the difference in CAR of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic. 2) To test the difference in BOPO of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic. 3) To test the difference in NPLs of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic. 4) To test the difference in LDR of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic.

2.   THEORY AND HIPOTESIS

According to Pinasti & Mustikawati (2018) Capital Adequacy Ratio (CAR) is a banking ratio related to capital, where this ratio assesses the capital adequacy of a bank and its efficiency in carrying out its activities. While the ratio of operating expenses to operating income is a ratio to determine the condition of bank operations related to the bank's main business, and has been carried out in the right way (according to the expectations of management and shareholders). In other words, the BOPO ratio shows the bank is using all its production factors effectively.

The next ratio in assessing risk in a bank is Non-Performing Loan (NPL). Pinasti & Mustikawati (2018) stated that NPL is the ratio between non-performing loans to the total credit provided by banks to debtors. The greater the NPL value, the greater the non-performing loan, so that the risk of a bank is also greater. The last ratio is the Loan to Deposits Ratio (LDR) to assess a bank's ability to pay its debts and repay its depositors. This ratio can also describe the fulfillment of credit requests submitted by debtors to banks. The proportions of this ratio, big or small, will ultimately determine the profits obtained by a bank.

The Proponents of Resource Dependence theory explains that for a company to be able to withstand the crisis and difficult conditions, it takes resources from the external environment, because a company cannot fully rely on itself in an operational capacity, as well as the necessary resources to increase value for the firm (Pfeffer, 1972; Elnahass et al., 2021). When COVID-19 hit Indonesia in March 2020, it was difficult for banks to access external market sources. Meanwhile, many central banks and public authorities responded proactively to these difficult conditions to support the resilience of the banking industry (Elnahass et al., 2021).

Researchers suspect that the COVID-19 pandemic situation will cause bank risks to become even higher. This is due to the fact that individuals and businesses that make loans to banks have difficulty paying. This difficulty arose as a result of the restriction on community activities during the COVID-19 era. The further impact is that the capital adequacy of banks is disrupted, bank operations are becoming more limited, and bad loans are getting bigger and it leads to differences in risk measurement ratios at banks in Indonesia.

The principle of "prudence" from banks in Indonesia in distributing credit to the public has become an absolute thing during the COVID-19 pandemic. Future cash flow projections are a key factor that banks can survive in the COVID-19 situation (Colyer et al., 2020). The provisional predictions constructed by the researchers are as follows:

Hypothesis 1: Banking CAR is lower before than during COVID-19 pandemic.
Hypothesis 2: Banking BOPO is lower before than during COVID-19 pandemic.
Hypothesis 3: Banking NPLs are lower before than during COVID-19 pandemic.
Hypothesis 4: Banking LDR is lower before than during COVID-19 pandemic.

3.   METODOLOGI PENELITIAN
3.1.   Population, Sample, and Sampling Techniques

According to Suliyanto (2018), population is all the components whose characteristics are to be estimated. Parts of the population, whose characteristics to be studied, are called the sample. Populations can be inanimate objects and not only in the form of animate objects such as people and other living things. Apart from the size of the subject or component being studied, the population also includes the characteristics, as well as the nature of the subject. The research which studies a part of the population is called a sample study, whereas if the research is conducted on all parts of the available population, it is called a population or census study.

The population used in this study are 46 public banks listed on the Indonesia Stock Exchange (IDX). The sample taken in this study are 19 public banks listed on the Indonesia Stock Exchange (IDX) which have complete reports on financial statements for the period 2019 to 2020.

The sampling technique used in this study is non-probability sampling. Non-Probability sampling is a technique that does not provide equal opportunities for each component of the population to be sampled. In this data collection technique, the selection of samples is carried out on items of the population who are able to provide complete and easily obtained information (Suliyanto, 2018). The criteria in this study are banks listed on the Indonesia Stock Exchange that publish financial statements in 2019 and 2020.

3.2.   Types of Data and Techniques of Data Collection

Viewed according to its nature, the type of data used in this study is quantitative data. Quantitative data is data that is displayed in the form of numbers. The type of data used in this study is secondary data. Secondary data is data that is not directly obtained from the research subject. Secondary data is collected and presented by other parties, either with beneficial or unfavorable purposes (Suliyanto, 2018). The data collection technique in this research is a documentation study to collect secondary data that is obtained through the Indonesia Stock Exchange website.

3.3.   Research and Measurement Variables

According to Suliyanto (2018) research variables are methods that vary between individuals and objects. The variables in this study are Capital Adequacy Ratio (CAR), Operating Costs to Operating Income (BOPO), Non-Performing Loans (NPL), and Loan to Deposits Ratio (LDR).

3.4.   Data Analysis Techniques

The data analysis technique used in this study is the Wilcoxon Signed-Rank test which is included in the non-parametric statistical test. Non-parametric statistics or distribution-independent tests usually focus on the sign or rank of the data rather than the exact numerical value of the variable, not determining the shape of the parent population, can be used in smaller samples, and can be used for ordinal data (Doane & Seward, 2016). This test uses SPPS to process data.

4.   HASIL DAN PEMBAHASAN
4.1.   Data Description

The data used in this research is secondary data which includes capital adequacy ratio (CAR), operating costs per operating income (ROA), non-performing loans (NPLs) and loan to deposit ratio (LDR) of the financial statements taken from the official website of the Indonesia Stock Exchange (IDX) which is accessed through www.idx.co.id. The population used in this study are all Indonesian public banks listed on the Indonesia Stock Exchange (IDX). The sample used is the financial reports of 2020 of all public banks listed on the Indonesia Stock Exchange (IDX). This is based on the sampling criteria that have been described in the sampling technique. From 46 banks, there are only 19 banks that comply with the criteria and thus taken as research samples.

The first results and analysis are described on descriptive statistics. This explanation is in the form of mean, median (a measure of data centering), standard deviation, maximum value and minimum value (a measure of data spread).

Table 1.
Research Descriptive Statistics

VARIABLES	CAR		BOPO		NPL		LDR	
	2019	2020	2019	2020	2019	2020	2019	2020
Average	27.56	29.66	84.34	82.89	2.18	2.92	95.62	85.46
Median	23.55	25.60	82.70	88.90	1.30	2.94	91.50	82.91
Standard deviation	11.40	11.91	17.23	17.82	2.27	1.64	24.76	28.21
Maximum	55.64	53.98	119.43	111.70	10.16	6.93	163.10	162.29
Name of Maximum Company	Bank Amar Indonesia	Bank Dinar Indonesia	Bank Sinarmas	Bank Sinarmas	Bank Harda Internasional	Bank Amar Indonesia	Bank Tabungan Pensiunan Nasional	Bank Woori Saudara
Minimum	16.2	16.8	58.1	28.3	0.26	0.70	62.94	41.26
Name of Minimum Company	Bank Harda Internasional	Bank Negara Indonesia	Bank BTPN Syariah	Bank Negara Indonesia	Bank BTPN Syariah	Bank Central Asia	Bank Ina Perdana	Bank Ina Perdana
n (total sample)	19	19	19	19	19	19	19	19

Source: Data processed, 2021.

From the descriptive statistical calculations in the table above, it can be seen that in 2019 the average Capital Adequacy Ratio (CAR) was 27.56 and in 2020 the average Capital Adequacy Ratio (CAR) was 29.66. In 2019, there were 5 banks that had a Capital Adequacy Ratio (CAR) value above the average and 14 banks that had a Capital Adequacy Ratio (CAR) value below the average, while in 2020 there were 7 banks that had a Capital Adequacy Ratio (CAR) above the average and 12 banks that have a Capital Adequacy Ratio (CAR) value below the average.

In 2019, operating costs per operating income (BOPO) had an average value of 84.34 and there were 9 banks that had an operating cost value to operating income (BOPO) above the average and the rest had an operating cost to operating income (BOPO) value below average. Whereas in 2020 the average value of operating costs to operating income (BOPO) had decreased so that the BOPO value became 82.89 and there were 10 banks that have an operating cost value to operating income (BOPO) above the average and the rest had an operating cost value to operating income (BOPO) below the average.

The average value for Non-Performing Loans (NPL) in 2019 was 2.18 and there were 6 banks that had a Non-Performing Loan (NPL) value above the average while 13 banks had a Non-Performing Loan (NPL) value below average. In 2020, the average value of Non-Performing Loans (NPL) was 2.92. There were 10 banks that had a Non-Performing Loan (NPL) value above the average while 9 other banks had a Non-Performing Loan (NPL) value below the average.

In 2019, the Loan to Deposits Ratio average (LDR) was 95.62 and in 2020 the LDR was 85.46. There were 7 banks that had value loan to deposits ratio (LDR) above the average in 2019 and 12 banks that had values loan to deposits ratio (LDR) below the average. Meanwhile, in 2020 there were 6 banks that had a Loan to Deposits Ratio (LDR) value above the average and the remaining 13 banks had a Loan to Deposits Ratio (LDR) value below the average.

The median value for the Capital Adequacy Ratio (CAR) in 2019 was 23.55 for Bank Bumi Arta, Tbk (BNBA), while in 2020 the median value for the Capital Adequacy Ratio (CAR) was 25.60 for Bank Tabungan Pensiunan Nasional, Tbk (BTPN). For Bank Danamon Indonesia, Tbk (BDMN), in 2019, the median value for operating costs to operating income (BOPO) was 82.70 and in 2020 was 88.90. In 2019 the median non-performing loan (NPL) was 1.30 for Bank Central Asia, Tbk (BBCA) and Bank CIMB Niaga, Tbk (BNGA). Meanwhile, in 2020 the median value of Non-Performing Loan (NPL) is 2.94 for Bank Rakyat Indonesia (Persero), Tbk (BBRI) and Bank China Construction Bank Indonesia, Tbk (MCOR). The median value for the Loan to Deposits Ratio (LDR) in 2019 was 91.50 for Bank Negara Indonesia (Persero), Tbk (BBNI). While the median value of Loan to Deposits Ratio (LDR) in 2020 was 82.91 for Bank CIMB Niaga, Tbk (BNGA). The median value describes the value that is in the middle position of the data set, and can provide the middle value for each ratio for bank performance.

In 2019 the deviation value of the Capital Adequacy Ratio (CAR) was 11.40, then in 2020 the deviation value of the Capital Adequacy Ratio (CAR) rose to 11.91. In 2019, operating costs to operating income (BOPO)

had a standard deviation of 17.23. Meanwhile, in 2020, the standard deviation of operating costs to operating income (BOPO) was 17.82. The standard deviation value for Non-Performing Loans (NPL) in 2019 was 2.27 and in 2020 the standard deviation of Non-Performing Loans (NPL) was 1.64. In 2019 the value of the Loan to Deposits Ratio (LDR) had a standard deviation of 24.76 and in 2020 was 28.21. The deviation value of the bank's performance ratio increased for CAR, BOPO and LDR, while the NPL showed a decrease in deviation. The maximum value for the Capital Adequacy Ratio (CAR) in 2019 was 55.64 for Bank Amar Indonesia, Tbk (AMAR) while in 2020 the maximum value for the Capital Adequacy Ratio (CAR) was 53.98 at Bank Dinar Indonesia, Tbk (DNAR). In 2019, the maximum value for operating costs to operating income (BOPO) was at Bank Sinarmas, Tbk (BSIM) with a value of 119.43 and in 2020 the maximum value for operating costs to operating income (BOPO) was 111.70 at Bank Sinarmas, Tbk (BSIM). In 2019, the maximum Non-Performing Loan (NPL) was 10.16 for Bank Harda Internasional, Tbk (BBHA). While in 2020, the maximum value of Non-Performing Loan (NPL) was 6.93 for Bank Amar Indonesia, Tbk (AMAR). The maximum value for the Loan to Deposits Ratio (LDR) in 2019 was 163.10 for the National Pension Savings Bank, Tbk (BTPN), while the maximum value of Loan to Deposits Ratio (LDR) in 2020 was 162.29 for Bank Woori Saudara, Tbk (SDRA).

The minimum value for the Capital Adequacy Ratio (CAR) in 2019 was 16.2 for Bank Harda Internasional, Tbk (BBHI) while in 2020 the minimum value for the Capital Adequacy Ratio (CAR) was 16.8 for Bank Negara Indonesia, Tbk (BBNI). In 2019, the minimum value for operating costs to operating income (BOPO) for Bank BTPN Syariah (BTPS) was 58.1, while in 2020 the minimum value for operating costs to operating income (BOPO) was 28.3 for Bank Negara Indonesia (BBNI). In 2019, the minimum Non-Performing Loan (NPL) was 0.26 for Bank BTPN Syariah, Tbk (BTPS). Meanwhile, in 2020 the minimum Non-Performing Loan (NPL) was 0.70 for Bank Central Asia, Tbk (BBCA). The minimum value for the Loan to Deposits Ratio (LDR) in 2019 was 62.94 for Bank Ina Perdana, Tbk (BINA), while the minimum value of Loan to Deposits Ratio (LDR) in 2020 was 41.26 for Bank Ina Perdana, Tbk (BINA).

4.2.   Analysis and Discussion

The first finding is related to data ranks. The results can be seen in Table 2.

Table 2.
Descriptive Results of Wilcoxon Signed-Rank Difference Test

		n	Mean Rank	Sum of Ranks
CAR20 - CAR19	Negative Ranks	8	7,5	60
	Positive Ranks	11	11,82	130
	Ties	0		
	Total	19		
BOPO20 - BOPO19	Negative Ranks	8	10,25	82
	Positive Ranks	11	9,82	108
	Ties	0		
	Total	19		
NPL20 - NPL19	Negative Ranks	4	9	36
	Positive Ranks	15	10,27	154
	Ties	0		
	Total	19		
LDR20 - LDR19	Negative Ranks	15	10,87	163
	Positive Ranks	4	6,75	27
	Ties	0		
	Total	19		

Source: Processed Data, 2021.

Following is the elaboration of the results presented on Table 2. The first is negative rank or the difference of CAR for 2019 and 2020 is 8, meaning that there is a decrease in CAR of 8 companies from 2019 to 2020. The average amount of decline is 7.5. The positive rank or difference of CAR for 2019 and 2020 are 11, meaning that there is an increase in CAR of 11 companies from 2019 to 2020. The average increase is 11.8. Furthermore, the negative rank or difference of BOPO for 2019 and 2020 is 8 equals to the amount in CAR, meaning that there is a decrease in BOPO in 8 banks from 2019 to 2020. The average amount of decline is

10.25. Meanwhile, positive rank or difference of BOPO for 2019 and 2020 is 11, meaning that there is an increase in BOPO of 11 banks from 2019 to 2020. The average amount of increase is 9.82.

The negative rank or difference of NPL for 2019 and 2020 is 4, meaning that there is a decrease in NPL of 4 banks from 2019 to 2020. The average amount of decline is 9. While the positive rank or difference NPL for 2019 and 2020 is 15, meaning that there is an increase in the NPL of 15 banks from 2019 to 2020. The average increase is 10.27.

The negative rank or difference LDR for 2019 and 2020 is 15, meaning that there is a decrease in the LDR of 15 banks from 2019 to 2020. The average size of the decline is 10.87. While the positive rank or difference LDR for 2019 and 2020 is 4, meaning that there is an increase in the LDR of 4 banks from 2019 to 2020. The average amount of increase is 6.75.

The four bank performance ratios (CAR, ROA, LDR, and NPL) did not show any ties, meaning there is no company that has the same value in 2019 compared to 2020. After describing the rank for Wilcoxon Signed-Rank test, then the elaboration of the results is significant with respect to the differences can be seen in Table 3.

Table 3.
Significant Difference Results of Wilcoxon Signed-Rank

Difference Test	CAR	BOPO	NPL	LDR
Z	-1,408	-0,523	-2,375	-2,737
Probability	0,159	0,601	0,018**	0,006***

*** = significant at 1% level
** = significant at 5% level
* = significant at 10% level
Source: Processed Data, 2021

In general, Table 3. showed that only NPL and LDR had significantly different values before and during COVID-19. Meanwhile, CAR and BOPO did not show a significant difference before and during COVID-19. CAR and BOPO are not significantly different before and during the COVID-19 pandemic and this is due to capital adequacy and bank operational activities guaranteed by the government of Indonesia through Bank Indonesia. For example: the policy taken by Bank Indonesia to lower the BI benchmark interest rate (Bank Indonesia, 2020).

But on the other hand, problems related to non-performing loans as reflected in NPL and credit fulfillment from the LDR ratio showed significant differences before and during COVID-19. This condition is supported by the fact that businesses and individuals have difficulty paying their debts and resulting in non-performing loans. It leads to the difficulty for banks to get profits which ultimately banks also have difficulty fulfilling their credits. According to Mentari & Putri (2020) banks are also required to study the conditions of the COVID-19 pandemic in order to reduce risks. Conditions like this can happen again in the future. Therefore, regulation is needed to reduce risks (such as increasing NPL and LDR).

5.   KESIMPULAN DAN SARAN
5.1.   Conclusion

Based on the results of the analysis and discussion, it can be concluded that: 1) There is no significant difference of CAR of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic. 2) There is no significant difference in BOPO of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic. 3) There is a significant difference in NPLs of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic. 4) There is a significant difference in LDR of the public banks in Indonesia Stock Exchange before and during COVID-19 pandemic.

5.2.   Suggestion

Banks, with main task in maintaining monetary stability in Indonesia, need to be careful in managing the provision of credit to customers, especially the credit can cause credit problems. A more selective process is one way to reduce the impact of future losses.

For further research, it is possible to examine in the context of an influence test using parametric statistical tests, to see the impact of bank risk on performance and to see how big the impact of COVID-19 on bank risk, bank performance, and other bank performance indicators.

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