Analysis of Banking Health Before and During Covid 19 Using the RGEC Method

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ABSTRACT

Aims: This study aims to investigate the health condition of the banking sector before and during the Covid-19 pandemic.
Study design: This study uses a quantitative descriptive approach to evaluate the condition of the banking sector by analyzing the annual reports published on each bank's website.
Place and Duration of Study: The author uses data from banking financial reports in Indonesia for the Bank Group Based on Core Capital (KBMI), which consists of one to four banks in the 2018-2021 period.
Methodology: The RGEC model (Risk Profile, Good Corporate Governance, Earning, Capital) was utilized to analyze the data, assessing various aspects including risk profile, corporate governance, profitability, and capital adequacy.
Results: The study's findings indicated that among KBMI 1, 3, and 4 banks, there were significant differences in banking Non-Performing Loans (NPLs) before and during Covid-19, while no significant differences were observed in Good Corporate Governance (GCG), Return on Assets (ROA), and Capital Adequacy Ratio (CAR). In the case of KBMI 2 bank, there were no significant differences observed in NPLs, GCG, ROA, and CAR before and during Covid-19. The NPL ratio, which measures credit risk or financing provided to third parties, showed no significant difference between the average NPL ratio before and during Covid-19.
Conclusion: The advent of the Covid-19 era has resulted in a decline in the stability of banks, suggesting a reduced ability to maintain stability, efficiency, and the quality of credit ratios. However, overall, the banking sector during Covid-19 still remained in the "good" category based on the standards set by Bank Indonesia.

Keywords: [Covid-19, KBMI, Bank Health, and RGEC}

1. INTRODUCTION

Banks are financial institutions that primarily engage in the collection of funds from the public and subsequently channeling these funds back to the public, along with providing various other banking services. When considering the perspective or method of determining prices, both selling and purchasing prices, banks can be classified into two groups: Islamic banks and conventional banks (Putra & Saraswati, 2020). As financial intermediaries, banks serve as intermediaries between individuals or entities with surplus funds and those in need of funds. Fulfilling this role, banks play a vital part in accumulating funds and directing them towards the real sector, thereby promoting economic growth (as agents of development). Additionally, banking acts as an organizing institution and service provider within the realm of finance and payment system traffic (as agents of services).

The Financial Services Authority Regulation Number 4/POJK.03/2016 on the Rating of Commercial Bank Soundness Level explains that by conducting an assessment based on the analysis of a bank's operational activities, the supervisory authority, in this case the OJK,

can effectively determine policies and provide performance evaluations. Choosing a healthy bank is intended to mitigate the risks typically faced by banks. Bank Indonesia, as the Central Bank, plays a crucial role in assessing the soundness of banks in Indonesia. The soundness level of a bank is regulated under Bank Indonesia Regulation Number 6/10/PBI/2004, which outlines the rating system for a bank's soundness level using the CAMELS (Capital, Assets, Management, Earnings, Liquidity, Sensitivity) method. This regulation was later replaced by Bank Indonesia Regulation Number 13/1/PBI/2011, which introduces the RGEC (Risk Profile, Good Corporate Governance, Earnings, and Capital) method as the rating system for bank soundness. The regulation imposes obligations on banks to assess their soundness using a risk-based approach to bank ratings, both on an individual and consolidated basis.

The RGEC method has been effective since January 1, 2012, specifically for assessing the soundness of banks for the period ending on December 31, 2011. Simultaneously, it repealed Bank Indonesia Regulation Number 6/10/PBI/2004 concerning the Soundness Rating System for Commercial Banks and SE BI Number 6/23/DPNP dated May 31, 2004, regarding the Rating System for Commercial Banks using the CAMELS method (Capital, Asset Quality, Management, Earnings, Liquidity, and Sensitivity to Market Risk). This information can be found on the official website of Bank Indonesia, www.bi.go.id. The assessment of the health level using the RGEC method is outlined in Bank Indonesia Regulation Number 13/1/PBI/2011 and SE Number 13/24/DPNP. The assessment factors are categorized into four factors, namely Risk Profile, Good Corporate Governance, Earnings, and Capital.

Banks, being institutions based on trust, are susceptible to the occurrence of simultaneous customer withdrawals. As a result, the recurrence of banking crises can be anticipated (Febrianti & Galuh, 2020). Conversely, the global outbreak of COVID-19 as a pandemic has generated heightened concerns, leading to effects such as panic buying due to anxiety and worry. The emergence of COVID-19 has impacted all sectors, particularly the economy.

According to the World Economic Forum (WEF), the impact of COVID-19 on the global economy is becoming evident. Global economic conditions are expected to experience a significant contraction in the first quarter of 2020, followed by a gradual recovery in the second quarter, parallel to the increasing spread of COVID-19. The Financial Services Authority has assessed that the stability of the financial services sector remained in good condition until March, with positive performance in the intermediation of financial services and controlled risk profiles within the industry, despite the economic downturn caused by the global spread of COVID-19 in various countries. The World Health Organization (WHO) declared the coronavirus outbreak that occurred from 2019 to 2020 as a Public Health Emergency of International Concern (PHEIC) on January 30, 2020, and a pandemic on March 11, 2020 (Eman, 2020). Data as of March 31, 2020, revealed 1,528 confirmed cases and 136 deaths in Indonesia. The COVID-19 mortality rate in Indonesia stands at 8.9%, making it the highest in Southeast Asia.

The coronavirus, commonly known as Covid-19, is a respiratory virus that poses a potential threat to human life. It has spread worldwide, causing numerous fatalities, including in Indonesia. As of August 9, 2021, the data from Covid.go.id indicates a total of 3.69 million positive cases, with 20,709 new cases reported, and 109,000 deaths. The outbreak of Covid-19 has led to various consequences, such as job terminations, resulting in increased unemployment rates and difficulties in finding employment. Additionally, it has led to an increase in the number of people living in poverty. These predictions have materialized as actual facts, highlighting the significant impact of the Covid-19 outbreak on various sectors in Indonesia.

The Covid-19 pandemic has had a significant impact on various sectors, including banking, not just the healthcare sector. Banks face challenges due to the pandemic as it can create issues in the real sector or business world, which can subsequently affect the banking sector. This is because banks act as intermediaries that support the financing needs of businesses and investments (Ilhami & Thamrin, 2021). Banking in Indonesia encounters several challenges amidst the Covid-19 pandemic in order to sustain growth and development. One of the key challenges is maintaining financial performance, which directly influences the overall soundness of banks. Indonesian banks also face potential risks during the ongoing pandemic, including credit risk, market risk, and liquidity risk. These risks ultimately impact the financial performance of banks in Indonesia.

Bank Indonesia Regulation Number 13/1/PBI/2011 pertains to the assessment of soundness for commercial banks. The purpose of evaluating a bank's soundness level is twofold: 1) to determine whether the bank is capable of carrying out its functions effectively, and 2) to classify the bank's condition into categories such as very healthy, healthy, moderately healthy, less healthy, or unhealthy. The assessment process involves determining the bank's soundness rating through a comprehensive and structured analysis, taking into account the materiality and significance of each factor. This rating is based on five composite ratings (PK) as stipulated in Article 3 of Bank Indonesia Regulation Number 13/1/PBI/2011 concerning the Assessment of Commercial Bank Soundness.

The rating of bank soundness is also conducted to uphold public confidence in state-owned commercial banks and the banking industry as a whole. Public trust in banks plays a crucial role in preventing crises that may arise from a lack of trust, leading to simultaneous withdrawals and liquidity risks for banks, ultimately causing damage to the overall financial system. According to Ferdinandus (2020), it can be concluded that Bank Permata's financial condition was not healthy during the COVID-19 pandemic. This is attributed to the bank's management inefficiency in handling funds. Financial reports of Bank Permata indicated a significant increase in operational expenses accompanied by a decline in profits. Furthermore, Febrianti & Galuh (2021) highlighted a decline in factors such as risk profile and earnings, while the factors of Good Corporate Governance (GCG) and capital showed relatively stable results during different periods following the emergence of the COVID-19 pandemic. Hence, the hypothesis was formed suggesting differences in the development of bank soundness levels before and after Covid-19 in the banking sector, as assessed through the RGEC method.

2. MATERIALS AND METHODS

The theory that underlies regulation in the banking sector can be traced back to the moral hazard problem. According to Krugman (2008), moral hazard refers to a situation in which one party makes decisions about risk-taking while another party bears the costs if those decisions result in negative outcomes. In the context of the banking sector, this problem arises due to the presence of deposit insurance in many developed countries. The general consensus in economic theory is that deposit insurance helps stabilize financial markets during a crisis and enables them to withstand shocks resulting from bank failures (Nier & Baumann, 2006).

In their influential article, Diamond and Dybvig (1983) highlight the significance of deposit insurance in addressing the concerns of the banking industry. They emphasize that banks are constantly exposed to the risk of bank runs, which occur when a large number of

customers simultaneously withdraw their savings from the bank. During a bank run, depositors panic and rush to withdraw their funds, potentially forcing the bank to sell assets at a loss (Diamond & Dybvig, 1983). To mitigate this risk, many countries have implemented deposit insurance as a means to assure the public that their money is secure (Keister, 2016). Without deposit insurance, depositors may rush to withdraw their funds due to concerns that the bank may not be able to repay all depositors in full, leading to bank failures. In a subsequent article, Diamond and Dybvig (1986) concluded that deposit insurance is the most effective measure known to prevent bank runs while still allowing banks to provide liquidity.

This study employs both quantitative and qualitative analysis. Quantitative research involves analyzing numerical data that can be measured and calculated, while qualitative research is descriptive in nature and often uses existing theoretical analyses for explanatory purposes. The data utilized in this study are secondary data, specifically time series data. The population under investigation consists of commercial banks categorized as KBMI I to KBMI IV, totaling 52 banks. The variables considered in this study include Risk Profile (NPL), Good Corporate Governance (GCG) measured by the CGPI index, Earnings (ROA), and Capital (CAR). The data used in this research comprise secondary data from two periods: the two years before the occurrence of the Covid-19 pandemic (2018-2019) and the two years during the pandemic (2020-2021). The data sources for this study were obtained from Bank Indonesia and the Financial Services Authority (OJK).

KBMI bank data 4 of themBank BNI, Bank Mandiri, Bank BCA, and Bank BRI. KBMI 3 banks include Bank DKI, Bank Permata, Bank BTN, Maybank, Bank DBS, Bank Mega, HSBC, BTPN, CIMB Niaga, Bank Danamon, OCBC, and Bank Panin. Bank Book 2 including Bank Maluku, Bank India, Bank MNC International, Bank Mega Syariah, Bank Panin Syariah, Bank Maspion, Bank Ina Perdana, Nobu Bank, Oke Bank, JTRUST Bank, Bank Jasa Jakarta, Bank BJB, Bank BTPN Syariah, China Construc Bank Ind, Bank Jago, Bank Jatim, Bank Mayapada, Bank Sinar Mas, and Bank Woori Saudara. KBMI 1 bank data includes Bank Artha Graha Internasional, Bank Bengkulu, Bank Bisnis, Bank BJB Syariah, Bank Capital Indonesia, Bank FAMA, Bank IBK Indonesia, Bank Lampung, Bank Mestika Dharma, Bank QNB Indonesia, Bank Southeast Sulawesi, Bank Victoria International, Bank Yudha Bhakti, BPD Bali, BPD Banten, Bumi Arta, Prima Master Bank.

Table 1. Data Description

No	Variable Name	Units of measurement	Symbol	Period	Data source
1	Non-Performing Loans	Percent	NPLs	Annual	Financial Services Authority
2	Corporate Governance Perception Index	Percent	CGPI	Annual	Financial Services Authority
3	Return on Assets	Percent	ROA	Annual	Financial Services Authority
4	Capital Adequacy Ratio	Percent	CAR	Annual	Financial Services Authority

Source: Processed by Researchers, 2021

The study utilized the different test method as the analytical tool. This method is commonly employed to compare and analyze differences between variables or groups. In addition, the researcher utilized Microsoft Excel 2010 and SPSS analysis tools to assist in the research process. Microsoft Excel is a widely used spreadsheet program that offers various functions

for data management and basic statistical calculations. SPSS, on the other hand, is a comprehensive software package specifically designed for advanced statistical analysis, data manipulation, and modeling. By utilizing these tools, the researcher was able to perform statistical tests and analyze the data effectively.

1. Difference Test

"The t-test of difference, or the difference test of two means, is indeed used to assess whether two independent samples have different mean values. This statistical test involves comparing the difference between the two sample means to the standard error of the mean difference. The main objective of the t-test is to determine whether the means of the two groups being compared are significantly different from each other. By conducting a t-test, researchers can assess whether there is evidence to support the hypothesis that the two groups have the same average value or if they are significantly different. This test is particularly useful when comparing the means of two groups that are not related or dependent on each other. The t-test provides a statistical measure that helps researchers make inferences about population means based on sample data. It allows for the evaluation of the significance of observed differences between groups and assists in drawing conclusions about the populations they represent" (Ghozali, 2011).

a) Paired Sample T-Test

"This method is used to test two paired samples, whether they have significantly different averages or not" (Santoso, 2010). The steps in this Test are as follows:

1) Define Hypotheses

If H0: $\mu 1 = \mu 2$ (there is no significant difference between banking health before and during the Covid-19 pandemic)

If Ha: $\mu 1 \neq \mu 2$ (there is a significant difference between banking health before and during the Covid-19 pandemic)

2) Finding the value of t table using a significance level $\alpha = 0.5$ with 2-way testing, and db = n-1

3) Decision criteria

If sig. <0.05, then H_0 is rejected and Ha is accepted

If sig. > 0.05, then H_0 is accepted and Ha is rejected.

2. Hypothesis testing

"The hypothesis testing was carried out using the Dependent Sample T-test analysis in the SPSS program, the decision was made by comparing the t-count value with the t-table with the conditions" (Ghozali, 2018):

a. If the t-count <t-table, then H0 is accepted and Ha is rejected
b. If the t-count > t-table, then H0 is rejected and Ha is accepted
c. If the significance value of t > 0.05 then H0 is accepted and Ha is rejected
d. If the significance value of t <0.05 then H0 is rejected and Ha is accepted

Information:

H_0 (1): There was no difference in the level of banking soundness before and during the Covid-19 pandemic.

H_a (1): There were differences in the level of banking soundness before and during the Covid-19 pandemic.

3. RESULTS AND DISCUSSION

To compare the differences in banking performance, specifically the average NPL (Non-Performing Loans), GCG (Good Corporate Governance), ROA (Return on Assets), and CAR (Capital Adequacy Ratio) before and during Covid-19, you can use the t-test or paired samples t-test.

1. Differences in Banking Soundness Levels of Bank Groups Based on Core Capital 1 Before and During Covid-19

It seems that you have mentioned conducting a different test analysis of the clustered sample mean using the Paired t-test to analyze the differences in banking soundness levels between the periods before and during the Covid-19 pandemic. Unfortunately, you have not provided Table 2 or the specific calculation results of the Paired t-test. Without the actual data or results, it is not possible to provide a detailed interpretation or analysis of the findings. However, in general, the Paired t-test is suitable for comparing the means of two related samples (in this case, the financial ratios of banking soundness) to determine if there is a significant difference between them. By comparing the means of the same variables before and during the Covid-19 pandemic, you can assess whether there is a statistically significant change in banking soundness levels due to the influence of Covid-19.

To interpret the results of the Paired t-test, you would typically look at the t-value, degrees of freedom, and p-value. If the p-value is less than the chosen significance level (e.g., 0.05), it suggests that there is a statistically significant difference between the means of the two periods, indicating an influence of Covid-19 on the banking soundness level. It is essential to examine the specific results in Table 2, including the t-values, degrees of freedom, and p-values, to draw conclusions regarding the impact of Covid-19 on the level of banking soundness.

Table 2. Differences in KBMI 1 Banking Health Levels Before and During Covid-19

N = 4	***Paired Samples Test***		
	Mean Differences	**t**	***Sig (2-tailed)***
NPL before-after	-1,270	-8,890	0.012
GCG before-after	0.800	4,000	0.057
ROA before-after	0.058	0.279	0.807
CAR before-after	0.682	1,930	0.193

Source: Processed Results of SPSS 25

Based on the results of the Paired sample t-test for the NPL variable, it is found that the t-count value is -8.890, which is smaller than the t-table value of -6.313 at a degree of freedom of 1 (n-1). This indicates that there is a significant difference between the average NPL ratio before and during the Covid-19 period. Additionally, the significance value of t is 0.012, which is smaller than the chosen significance level of 0.05. This further supports the conclusion that there is a significant difference in the NPL ratio before and during Covid-19.

Furthermore, the mean difference value of -1,270 suggests that the NPL ratio before Covid-19 was smaller than during Covid-19. This means that there was an increase in the NPL ratio during the Covid-19 outbreak, specifically by 1,270. These findings indicate that the Covid-19 pandemic had a significant impact on the NPL ratio in the banking sector, leading to an increase in non-performing loans during that period. It highlights the challenges faced by banks in managing credit risk and maintaining the quality of their loan portfolios during times of economic uncertainty.

Based on the results of the Paired sample t-test for the GCG variable, it is found that the t-count value is 4.00, which is smaller than the t-table value of 6.313 at a degree of freedom of 1 (n-1). This suggests that there is no significant difference between the average GCG before and during the Covid-19 period. Furthermore, the significance value of t is 0.057, which is greater than the chosen significance level of 0.05. This indicates that there is no statistically significant difference between the average GCG before and during Covid-19.

“Additionally, the mean difference value of 0.800 implies that the GCG value before Covid-19 was greater than during Covid-19. This means that there has been a decrease in GCG during the Covid-19 period, specifically by 0.800. Based on these findings, it can be concluded that there is no significant difference in the average GCG between before and during the Covid-19 period”. (Masita et. Al., 2021) However, there has been a decrease in the GCG value during Covid-19, indicating a potential impact of the pandemic on the corporate governance practices in the banking sector. It highlights the importance of maintaining and strengthening good corporate governance practices, even during challenging times.

Based on the information you provided, it appears that you have conducted a paired sample t-test to compare the average return on assets (ROA) before and during the Covid-19 period. The t-count value you obtained was 0.279, which is less than the critical t-value of 6.313 for a significance level of 0.05 (assuming a one-tailed test). Since the t-count value is smaller than the critical t-value, it suggests that there is no significant difference between the average ROA before Covid-19 and during Covid-19. Additionally, the significance value (p-value) you obtained was 0.807, which is greater than the significance level of 0.05. This further supports the conclusion that there is no statistically significant difference in the average ROA.

Furthermore, you mentioned that the mean difference between ROA before and during Covid-19 was 0.058. This indicates that, on average, the ROA before Covid-19 was higher than during Covid-19. The decrease in ROA during the Covid-19 period is estimated to be 0.058. It's important to note that the conclusions are based on the specific data and assumptions used in your analysis. If there are any additional details or considerations that could affect the interpretation of the results, it would be helpful to provide them for a more comprehensive understanding.

Based on the corrected information you provided, it appears that you have conducted a paired sample t-test to compare the average cumulative abnormal returns (CAR) before and during the Covid-19 period. The t-count value you obtained was 1.930, which is less than the critical t-value of 6.313 for a significance level of 0.05 (assuming a one-tailed test). Since the t-count value is smaller than the critical t-value, it suggests that there is no significant difference between the average CAR before Covid-19 and during Covid-19. Additionally, the significance value (p-value) you obtained was 0.193, which is greater than the significance level of 0.05. This further supports the conclusion that there is no statistically significant difference in the average CAR. Furthermore, you mentioned that the mean difference between CAR before and during Covid-19 was 0.682. This indicates that, on average, the CAR before Covid-19 was higher than during Covid-19. The decrease in CAR during the Covid-19 period is estimated to be 0.682.

2. Differences in Banking Soundness Levels of Bank Groups Based on Core Capital 2 Before and During Covid-19

The assessment of banking stability can be observed through indicators such as Non-Performing Loans (NPL), Good Corporate Governance (GCG) (CGPI), Return on Assets (ROA), and Capital Adequacy Ratio (CAR). These financial ratios were compared for two

periods: pre-Covid-19 pandemic, specifically 2018-2019, and during the Covid-19 pandemic, covering a span of two years, namely 2020-2021. If a significant difference is found, it indicates the impact of Covid-19 on the level of banking stability. The analysis of variations in banking stability levels was conducted using a different test analysis of the clustered sample mean. The calculation results are presented in Table 3, which includes the outcomes of the Paired t-test.

Table 3. Differences in KBMI 2 Banking Health Levels Before and During Covid-19

	Paired Samples Test		
N = 4	***Mean Differences***	**t**	***Sig (2-tailed)***
NPL before-after	-0.040	-1.355	0.308
GCG before-after	-0.835	-5,061	0.124
ROA before-after	-0.543	-2,601	0.121
CAR before-after	-0.584	-1,467	0.280

Source: Processed Results of SPSS 25

The Paired sample t-test results for the NPL variable indicate that the t-value is -1.355, which is smaller than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This implies that there is no significant difference between the average NPL ratio before and during the Covid-19 period. Moreover, the significance value (p-value) of the t-test is 0.308, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average NPL ratio before Covid-19 and during Covid-19. The mean difference value of -0.040 indicates that the NPL ratio was smaller before the Covid-19 outbreak compared to during Covid-19. This suggests that there was an increase of 0.040 in the NPL ratio during the Covid-19 period.

In the GCG Paired sample t-test, the t-value obtained is -5.061, which is smaller than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This indicates that there is no significant difference in the average GCG between the pre-Covid-19 and during Covid-19 periods. Additionally, the significance value (p-value) of the t-test is 0.124, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average GCG before Covid-19 and during Covid-19. The mean difference value of -0.835 reveals that the GCG value before Covid-19 was smaller than during Covid-19. This indicates an increase of 0.835 in the GCG during the Covid-19 period.

“In the Paired sample t-test for ROA, a t-value of -2.601 is obtained, which is smaller than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This indicates that there is no significant difference in the average ROA between the periods before and during Covid-19. Additionally, the significance value (p-value) of the t-test is 0.121, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average ROA before Covid-19 and during Covid-19. The mean difference value of -0.543 shows that the ROA value before Covid-19 was smaller than during Covid-19. This indicates an increase of 0.543 in the ROA during the Covid-19 period” [Anggraini et al.2021].

“In the Paired sample t-test for CAR, a t-value of -1.467 is obtained, which is smaller than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This indicates that there is no significant difference in the average CAR between the periods before and during Covid-19. Additionally, the significance value (p-value) of the t-test is 0.280, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average CAR before Covid-19 and during Covid-19. The mean difference value of -0.584 shows that the CAR value before Covid-19 was smaller than

during Covid-19. This indicates an increase of 0.584 in the CAR during the Covid-19 period" [Anggraini et al.2021].

3. Differences in Banking Soundness Levels of Bank Groups Based on Core Capital 3 Before and During Covid-19

The analysis of banking soundness is based on various financial ratios such as Non-Performing Loans (NPL), Good Corporate Governance (GCG) (CGPI), Return on Assets (ROA), and Capital Adequacy Ratio (CAR). These ratios are compared between the pre-Covid-19 period (2018-2019) and the Covid-19 period (2020-2021) to examine the potential influence of the pandemic on banking soundness. To assess the differences in banking soundness, a paired sample t-test was conducted using a clustered sample mean analysis. The results of this analysis are presented in Table 4, which includes the outcomes of the Paired sample t-test.

Table 4. Differences in KBMI 3 Banking Health Levels Before and During Covid-19

	Paired Samples Test		
N = 4	***Mean Differences***	**t**	***Sig (2-tailed)***
NPL before-after	-2,130	-6,481	0.023
GCG before-after	-0.600	-1,897	0.198
ROA before-after	0.107	0.512	0.660
CAR before-after	0.762	0.468	0.686

Source: Processed Results of SPSS 25

In the Paired sample t-test for NPL, a t-value of -6.481 is obtained, which is greater than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This indicates that there is a significant difference in the average NPL ratio between the pre-Covid-19 and during Covid-19 periods. Additionally, the significance value (p-value) of the t-test is 0.023, which is smaller than the significance level of 0.05. Therefore, we can conclude that there is a statistically significant difference between the average NPL ratio before Covid-19 and during Covid-19. The mean difference value of -2.130 indicates that the NPL ratio before Covid-19 was smaller than during Covid-19. This implies an increase of 2.130 in the NPL ratio during the Covid-19 outbreak.

"In the GCG Paired sample t-test, a t-value of -1.897 is obtained, which is smaller than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This suggests that there is no significant difference in the average GCG between the periods before and during Covid-19. Moreover, the significance value (p-value) of the t-test is 0.198, which is greater than the significance level of 0.05. Thus, we can conclude that there is no statistically significant difference between the average GCG before Covid-19 and during Covid-19. The mean difference value of -0.600 indicates that the GCG value before Covid-19 was smaller than during Covid-19, showing an increase of 0.600 in the GCG during the Covid-19 period" [Anggraini et al.2021].

"In the Paired sample t-test for ROA, a t-value of 0.512 is obtained, which is smaller than the critical t-value of 6.313 at a degree of freedom of 1 (n-1). This indicates that there is no significant difference in the average ROA between the periods before and during Covid-19. Additionally, the significance value (p-value) of the t-test is 0.660, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average ROA before Covid-19 and during Covid-19. The mean difference value of 0.107 suggests that the ROA value before Covid-19 was smaller than during Covid-19. This indicates a decrease of 0.107 in the ROA during the Covid-19 period" [Anggraini et al.2021].

In the Paired sample t-test for CAR, a t-value of 0.468 is obtained, which is smaller than the critical t-value of 6.313 at a degree of freedom of 1 (n-1). This suggests that there is no significant difference in the average CAR between the periods before and during Covid-19. Additionally, the significance value (p-value) of the t-test is 0.686, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average CAR before Covid-19 and during Covid-19. The mean difference value of 0.762 indicates that the CAR value before Covid-19 was smaller than during Covid-19. This suggests a decrease of 0.762 in the CAR during the Covid-19 period.

4. Differences in Banking Soundness Levels of Bank Groups Based on Core Capital 4 Before and During Covid-19

The level of banking soundness is assessed through various financial ratios, including Risk Profile (NPL), Good Corporate Governance (GCG) (CGPI), Earnings (ROA), and Capital (CAR). To evaluate the impact of the Covid-19 pandemic on banking soundness, these ratios are compared between the pre-pandemic period (2018-2019) and the pandemic period (2020-2021). If there is a significant difference, it indicates the influence of Covid-19 on the banking soundness level. The analysis of the differences in banking soundness levels is conducted using a Paired sample t-test, utilizing a clustered sample mean analysis. The calculation results of this analysis are presented in Table 5, which provides the outcomes of the Paired sample t-test for the respective financial ratios.

Table 5. Differences in KBMI 4 Banking Health Levels Before and During Covid-19

N = 4	***Paired Samples Test***		
	Mean Differences	**t**	***Sig (2-tailed)***
NPL before-after	-3,552	-9,852	0.010
GCG before-after	-0.575	-3,286	0.081
ROA before-after	0.280	1,727	0.226
CAR before-after	1,521	2,396	0.139

Source: Processed Results of SPSS 25

In the Paired sample t-test for NPL, a t-value of -9.852 is obtained, which is greater than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This indicates a significant difference in the average NPL ratio between the periods before and during Covid-19. Additionally, the significance value (p-value) of the t-test is 0.010, which is smaller than the significance level of 0.05. Therefore, we can conclude that there is a statistically significant difference between the average NPL ratio before Covid-19 and during Covid-19. The mean difference value of -3.552 suggests that the NPL ratio before Covid-19 was smaller than during Covid-19, indicating an increase of 3.552 in the NPL ratio during the Covid-19 outbreak.

In the GCG Paired sample t-test, a t-value of -3.286 is obtained, which is smaller than the critical t-value of -6.313 at a degree of freedom of 1 (n-1). This suggests that there is no significant difference in the average GCG between the periods before and during Covid-19. Additionally, the significance value (p-value) of the t-test is 0.081, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average GCG before Covid-19 and during Covid-19. The mean difference value of -0.575 indicates that the GCG value before Covid-19 was smaller than during Covid-19, suggesting an increase of 0.575 in GCG during the Covid-19 period.

In the Paired sample t-test for ROA, a t-value of 1.727 is obtained, which is smaller than the critical t-value of 6.313 at a degree of freedom of 1 (n-1). This suggests that there is no significant difference in the average ROA between the periods before and during Covid-19.

Additionally, the significance value (p-value) of the t-test is 0.226, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average ROA before Covid-19 and during Covid-19. The mean difference value of 0.280 indicates that the ROA value before Covid-19 was greater than during Covid-19, suggesting a decrease of 0.280 in ROA during the Covid-19 period.

Based on the Paired sample t-test for CAR, a t-value of 2.396 is obtained, which is smaller than the critical t-value of 6.313 at a degree of freedom of 1 (n-1). This suggests that there is no significant difference in the average CAR between the periods before and during Covid-19. Additionally, the significance value (p-value) of the t-test is 0.139, which is greater than the significance level of 0.05. Therefore, we can conclude that there is no statistically significant difference between the average CAR before Covid-19 and during Covid-19. The mean difference value of 1.521 indicates that the CAR value before Covid-19 was greater than during Covid-19, suggesting a decrease of 1.521 in CAR during the Covid-19 period.

4. CONCLUSION

Based on the study results, it was observed that at KBMI 1, 3, and 4 banks, there were significant differences in NPL ratios between the periods before and during Covid-19. However, there were no significant differences observed in GCG, ROA, and CAR. On the other hand, Bank KBMI 2 did not show significant differences in NPL, GCG, ROA, and CAR between the two periods. The NPL ratio is used as an indicator of credit risk or the extent of financing provided to third parties. The results indicate that there is no significant difference in the average NPL ratio before and during Covid-19. This can be attributed to the fact that during the early days of the pandemic, customers faced financial difficulties and were unable to make timely loan repayments. Consequently, cases of default or payment delays increased, leading to an increase in the NPL ratio.

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