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The performance of rural banks in Indonesia during the Covid-19 pandemic

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ABSTRACT

Previous studies analyzing the relationship between the performance of rural banks and the COVID-19 pandemic are very limited in number. This study aims to find out how the impact of the COVID-19 pandemic on the performance of rural banks in Indonesia. This study uses panel regression data to examine the effect of the COVID-19 pandemic on the capital adequacy ratio (CAR) from the capital aspect, non-performing loan (NPL) from the asset quality aspect, return on assets (ROA) from the earning aspect, and cash ratio (CR) from the aspect of liquidity. Our findings explain that the COVID-19 pandemic has a positive effect on CAR and NPL, a negative effect on ROA, and no effect on CR.

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Introduction

Corona Virus Disease 2019 (COVID-19) has caused panic, so the world's governments, including Indonesia, have limited social and economic activities to stop the spread of COVID-19. The COVID-19 pandemic has harmed tourism, manufacturing, and financial sectors worldwide (Nicola et al., 2020; Zhang, Hu, and Ji, 2020). Economists, academics, and practitioners are worried that the COVID-19 pandemic has a negative impact on the banking industry in the world, especially in Indonesia, such as other events that have occurred in the world in the last 25 years, namely the Asian Financial Crisis in 1997, Severe Acute Respiratory Syndrome (SARS) in 2003, and the Global Financial Crisis in 2008 (Overby et al., 2004; Hill and Shiraishi, 2007; Winoto and Bustaman, 2020). Practitioners in the banking sector need to monitor the impact of the COVID-19 pandemic on their business and financial performance now and in the future. (Selvan and Vivek, 2020).

Currently, the entire banking industry in the world can certainly be affected by the COVID-19 pandemic (Zhang, Hu, dan Ji, 2020). COVID-19 is part of the coronavirus family, namely SARS, an outbreak in 2002-2003. When SARS emerged in 2003, banks in many countries were affected except for rural banks (Overby et al., 2004). Furthermore, in the current pandemic, Rural banks are again at the center of attention for researchers when commercial banks are badly affected by the COVID-19; they also question whether rural banks are safe from the COVID-19 pandemic. In Indonesia, regulators in the banking industry debated the impact of the COVID-19 pandemic on rural banks. The Bank of Indonesia (BI) (2020) and the Indonesia Financial Service Authority (IFSA) (2020) stated that although COVID-19 has spread in Indonesia, which has caused many economic activities to stop, banking conditions in Indonesia are still as healthy and safe as before the COVID-19 pandemic. This statement contradicts statements made by other regulators in the banking industry. The Indonesia Deposit Insurance Corporation (IDIC) (2020) and the Indonesia Rural Bank Association (IRBA) (2020) stated that the COVID-19 pandemic caused many rural credit banks to fail or stop operating.

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This study aims to determine how the impact of the COVID-19 pandemic on the performance of rural banks in Indonesia. The results of this study answer the issues debated by the banking industry regulators in Indonesia. To the best authors' knowledge, this study is the only study that examines the impact of the COVID-19 pandemic on the performance of rural banks in Indonesia.

This paper is divided into five sections. Section 1 describes the introduction. Section 2 discusses the literature review, which is developed into hypotheses. Section 3 describes the research methodology. Section 4 presents analysis and discussion. The last section is the conclusion.

Literature Review

Theoretical and Conceptual Background

Rural bank

The emergence of rural banks is related to the Asian Financial Crisis in 1997. The Asian Financial Crisis caused many banks in Indonesia to fail, and the Indonesian government had to increase liquidity in banks in Indonesia (Hill and Shiraishi, 2007). The existing banks at that time were commercial banks. Rural banks in Indonesia were permitted to operate by the Indonesian government in 1998 through the Banking Act No. 10 of 1998, so that since the Asian Financial Crisis until now there have been two types of banks in Indonesia, namely commercial banks and rural banks (Mongid and Tahir, 2010). In principle, rural banks have the same activities as commercial banks, namely collecting funds from the public in savings/deposits and distributing funds in the form of credit, but they have limitations on business location, products, and types of customers (Miyashita, 2000). For example, rural banks may not provide loans to customers outside the area where the rural bank is located, rural banks may not offer products denominated in foreign currencies, and rural banks may not serve foreign nationals and corporate customers. Rural banks may only provide loan and deposit products to small-medium enterprise (SME) customers (Mongid and Tahir, 2010). Rural banks' business is threatened by commercial banks that provide credit to SMEs (Hosen and Muhari, 2013). In addition, rural banks have to face competition with commercial banks that are shadow banks or universal banks; namely, they run not only traditional businesses but also businesses that are much more complex using technology, take advantage of loopholes in government regulations, issue very varied products, and others (Riasi, 2015; Buchak et al., 2018).

Financial performance

In Indonesia, the performance of all banks, both commercial and rural banks, is regulated by IFSA using the Capital, Asset, Management, Earning, and Liquidity (CAMEL) method. The CAMEL method has been used in general to evaluate the performance of rural banks (Biswas, 2014):

Capital: This aspect measures the ability of rural banks to provide funds that are used as reserves to overcome the possible risk of loss. The ratio used to measure this aspect is the Capital Adequacy Ratio (CAR) (Reddy and Prasad, 2011).

Asset: This aspect is essential to find out which assets can become problems and can cause losses for rural banks if a solution cannot be provided. The ratio used to measure this aspect is non-performing loans (NPL) (Chou and Buchdadi, 2016).

Management: Only this aspect is measured qualitatively, while others are measured quantitatively. This aspect uses a survey by providing questions to bank management regarding general management, risk management, and compliance with regulations (Nurazi and Evans, 2005).

Earning: This aspect uses Return on Assets (ROA) to measure the ability of rural banks to generate profits (Adusei, 2015).

Likuiditas (Liquidity): This aspect is crucial to measure the ability of rural banks to meet their short-term obligations. The ratio used to measure the liquidity aspect is the Cash Ratio (Roswinna et al., 2020).

Empirical Review and Hypotheses

The COVID-19 pandemic has impacted the world economy, such as investment, production, inventory, trade, and employment (Sarker, 2020). Malik et al. (2020) stated that microfinance institutions in Pakistan are experiencing irreversible liquidity problems due to the COVID-19 pandemic. In Indonesia, microfinance institutions have businesses similar to rural banks, but there are still differences between the two, which lie in the regulations and regulators (Hosen and Sa'roni, 2012). The COVID-19 pandemic has surprised commercial banks in Bangladesh, as evidenced by the significant increase in NPL values and negative CAR values (Barua and Barua, 2021). In addition, the CR of commercial banks in Bangladesh has been impacted by The COVID-19 pandemic (Karim, Shetu, and Razia, 2021). In Indonesia, the ROA of commercial banks has been affected by the COVID-19 pandemic (Rahmi and Sumirat, 2021). Rahmi and Sumirat (2021) used commercial banks for their research data and stated that the COVID-19 pandemic has a negative effect on ROA. Until this research was conducted, studies examining the impact of the COVID-19 pandemic on the performance of rural banks in Indonesia had never been done. Therefore, this study proposes several research hypotheses as follows:

H1: the COVID-19 pandemic has a negative effect on CAR

H2: the COVID-19 pandemic has a positive effect on NPL

H3: the COVID-19 pandemic has a negative effect on ROA

H4: the COVID-19 pandemic has a negative effect on CR

Research and Methodology

Data and sample

The sample selection used the purposive sampling method by selecting rural banks that had complete data, selecting rural banks operating before the COVID-19 pandemic occurred and were still operating until this research was conducted, and selecting rural banks from the largest bank size to the smallest. This study employed secondary data from monthly financial reports reported to IFSA through the APOLO application. In addition, these data can also be obtained through other sources, such as directly contacting each rural bank by looking at the respective rural banks website. The monthly financial data was used to calculate CAR, NPL, ROA, and CR each month. COVID-19 entered Indonesia in March 2020, and the Indonesian government restricted community activities, including business and social activities starting in April 2020. So, the observation period for this study is one year before March 2020 or February 2019 - February 2020 (pre-pandemic period) and one year after April 2020 or May 2020 - May 2021 (post-pandemic period).

Operational variables

This study operates three variables, i.e., the dependent, independent, and control variables. Dependent variables for this study are CAR, NPL, ROA, and CR. The four variables represent each aspect of the CAMEL method, and the management aspect is not used in this study, namely aspect management. The researchers found difficulties conducting surveys through questionnaires during the COVID-19 pandemic; therefore, the management aspect cannot be operated in this research. This study only uses one independent variable, namely the COVID-19 pandemic, written in the word DCVID. The first letter "D" in the DCVID word is a sign of a dummy variable if the number "0" indicates the period before COVID-19 entered Indonesia (pre-pandemic period), and the number "1" indicates the period after COVID-19 entered Indonesia (post-pandemic).

The use of a dummy on the independent variable refers to previous studies conducted by Malik et al. (2020), Barua and Barua (2021), Karim, Shetu, and Razia (2021), and Rahmi and Sumirat (2021). This study uses two control variables, bank size and ownership, to obtain more accurate results. The use of bank size and ownership as control variables refers to the research conducted by Çolak and Öztekin (2021). Çolak and Öztekin (2021) stated that bank size and ownership (government vs. private) influence bank performance. Rural banks that have significant total assets usually already have an excellent risk management system to be ready to face a crisis (Aebi et al., 2012).

Rural banks owned by the government always get help from the government when they experience a crisis (Anwar et al., 2018). The formulas for all variables used in this study can be seen in table 1.

Table 1: Measurement of Operational Variables

Variable	Notation	Formula
Capital Adequacy Ratio	CAR	(Tier 1 Capital+Tier 2 Capital) / Risk Weighted Assets
Non-performing Loan	NPL	Total of Non-performing Loans / Total Loans
Return on Assets	ROA	Profit before Interest and Tax / Total Assets
Cash Ratio	CR	(Total Cash+Total Cash Equivalent) / Total Current Liabilities
COVID-19 Pandemic	DCVID	1 = Period of the COVID pandemic; 0 = Otherwise
Bank Size	BSIZE	Ln (Total Assets)
Ownership	DGOWN	1 = Government ownership; 0 = Otherwise

Hypothesis testing

The research hypotheses are tested using multiple regression analysis. Hypothesis testing shows statistical significance (p-value) and alpha (α) values of 10%, 5%, and 1%, respectively. However, the value of 5% is used as the basis for accepting or rejecting the proposed hypothesis. The following are some of the regression equation models used in this study:

$$CAR_{i,t} = \alpha_0 + \beta_1 DCVID_t + \beta_2 BSIZE_{i,t} + \beta_3 DGOWN_{i,t} + \epsilon_{i,t} \quad (\text{Model 1})$$

$$NPL_{i,t} = \alpha_0 + \beta_1 DCVID_t + \beta_2 BSIZE_{i,t} + \beta_3 DGOWN_{i,t} + \epsilon_{i,t} \quad (\text{Model 2})$$

$$ROA_{i,t} = \alpha_0 + \beta_1 DCVID_t + \beta_2 BSIZE_{i,t} + \beta_3 DGOWN_{i,t} + \epsilon_{i,t} \quad (\text{Model 3})$$

$$CR_{i,t} = \alpha_0 + \beta_1 DCVID_t + \beta_2 BSIZE_{i,t} + \beta_3 DGOWN_{i,t} + \epsilon_{i,t} \quad (\text{Model 4})$$

Analysis and Findings

Descriptive statistics

Employing 60 rural banks as samples and monthly data, the descriptive statistics of the dependent variables can be seen in table 2. The CAR value (31.57%) in the post-pandemic period is greater than the CAR value (28.52%) in the pre-pandemic period. Furthermore, rural banks have a higher NPL value (5.63%) in the post-pandemic period than the NPL value (4.11%) in the pre-pandemic period. In the post-pandemic period, rural banks' ROA value (3.50%) is lower than the ROA value (4.49%) in the pre-pandemic period. Finally, the CR values (21.24% and 20.75%) from the two periods slightly differ in numbers.

Table 2: Summary of Descriptive Statistics

	Pre-Pandemic Period				Post-Pandemic Period			
	CAR	NPL	ROA	CR	CAR	NPL	ROA	CR
Average	0.2852	0.0411	0.0449	0.2075	0.3157	0.0563	0.0350	0.2124
Minimum	0.1100	0.0005	0.0008	0.0442	0.1043	0.0028	0.0016	0.0625
Maximum	0.6575	0.2307	0.3524	0.7706	0.9116	0.3578	0.1761	0.6164

Regression analysis

This section displays the results of multiple regression analysis for each model, which can be seen in Tables 3 and 4. The difference between each model can be seen in the dependent variable. Model 1 uses CAR as the dependent variable, model 2 uses NPL, model 3 uses ROA, and model 4 uses CR.

In table 3, the DCVID variable has a p-value of 0.0177. This value is below the value of = 5%, meaning that the COVID-19 pandemic has affected the CAR of rural banks. However, the DCVID coefficient value in model 1 is 0.0305 or positive. The positive coefficient and p-value below 5% explain that the COVID-19 positively influences the CAR of rural banks. Meanwhile, the hypothesis proposed for the DCVID variable concerning the CAR variable is that the COVID-19 pandemic has a negative effect on CAR from rural banks. So, the results of this study partially reject the first hypothesis.

Model 2 with NPL as the dependent variable has a p-value of DCVID of 0.0000 and a coefficient of 0.0152 (see table 3). The positive coefficient and significant p-value (below = 5%) explain that DCVID has a positive influence on the NPL of rural banks. These results support the proposed hypothesis, namely that the COVID-19 positively influences the NPL of rural banks. These results support the proposed hypothesis, namely that the COVID-19 positively influences the NPL of rural banks.

Table 3: The Regression Analysis of Model 1 and 2

Variables	Model 1: CAR		Model 2: NPL	
	Coefficient	p-Value	Coefficient	p-Value
DCVID	0.0305	0.0177**	0.0152	0.0000***
Bsize	-0.0577	0.0005***	-0.0078	0.2098
DGOWN	0.0880	0.0264**	-0.0283	0.0616*
R ²	0.1305		0.188794	
F-Value	0.0005		0.000011	

Note: ***p<0.01, **p<0.05, *p<0.1.

Model 3 uses ROA as the dependent variable. The DCVID variable has a coefficient with a value of -0.2238 and a p-value of 0.0131 (see table 4). DCVID has a statistical significance value below 5% and a negative coefficient, meaning that the COVID-19 pandemic has a negative effect on the ROA of rural banks. So, the regression analysis results for model 3 accept the proposed hypothesis. In table 4, in model 4, the DCVID variable has a positive coefficient of 0.0532. However, the p-value shows an insignificant result with a value of 0.3819, and this figure is above the value of = 5%. So, this model's proposed hypothesis for the DCVID variable is not accepted. The proposed hypothesis is that the COVID-19 pandemic has a negative effect on CR.

Table 4: The Regression Analysis of Model 3 and 4

Variables	Model 3: ROA		Model 4: CR	
	Coefficient	p-Value	Coefficient	p-Value
DCVID	-0.2238	0.0131**	0.0532	0.3819
Bsize	-0.0226	0.8434	-0.1741	0.0247**
DGOWN	0.1903	0.4912	0.3119	0.0944*
R ²	0.0366		0.0260	
F-Value	0.0817		0.1348	

Note: ***p<0.01, **p<0.05, *p<0.1.

Discussion

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As explained by previous studies (Goodell, 2020; Malik et al., 2020; Nicola et al., 2020; Sarker, 2020; Zhang et al., 2020), the COVID-19 pandemic has hurt all business sectors, including the financial industry, which includes banking and non-banking, and at all corporate scales, both large and small. From the four hypotheses proposed by this study, two are entirely accepted, one is partially accepted, and one is wholly rejected. Only three hypotheses are described in this section.

The first explanation is NPL from rural banks in Indonesia and during this pandemic. As a result of COVID-19, many debtors from rural banks have received layoffs from their places of work or have gone bankrupt in running their businesses so that they cannot make regular payments to rural banks. This problem causes the potential for unpaid loans to be faced by rural banks in Indonesia to increase.

The second explanation is ROA from rural banks in Indonesia during the pandemic. The COVID-19 pandemic has caused rural banks in Indonesia to experience a decline in ROA. The decline in ROA value from rural banks has been caused by the debtor being no longer able to pay interest regularly and repay the loan. In addition, another reason is that rural banks in Indonesia are cautious in distributing loans to debtors. Regulators make regulations to provide relaxation to debtors in paying their loans. These regulations can reduce income which in turn has an impact on the profits of rural banks.

The third explanation is CAR from rural banks in Indonesia and during this pandemic. This section explains why this study has different results from previous studies. The results of this study state that the COVID-19 pandemic has a positive influence on the CAR of rural banks in Indonesia. Meanwhile, previous studies conducted by Barua and Barua (2021) and Karim, Shetu, and Razia (2021) stated that the COVID-19 pandemic positively affected banking CAR. The research sample causes the difference in the results of this study with the previous studies. The previous studies did not separate commercial and rural banks in their samples. This study explains why the COVID-19 pandemic has a positive effect on banking CAR by using rural banks as research samples. Unpaid loans by debtors during the COVID-19 pandemic should reduce capital from rural banks and increase their risk-weighted assets. In addition, the COVID-19 pandemic should prevent rural banks from obtaining additional capital from the owners and shareholders of rural banks because they also experienced difficulties or losses in their respective businesses during the COVID-19 pandemic. However, the owners and shareholders of rural banks increase their capital in their rural banks. Local governments own many rural banks in Indonesia, and local governments do not want their rural banks to experience liquidity difficulties during this pandemic because it is related to public trust in local governments. Therefore, rural banks owned by local governments have the privilege of being compared to rural banks owned by private parties.

Conclusions

There are differences in the financial conditions of rural banks between the pre and post-COVID-19 periods. The COVID-19 pandemic has a positive effect on CAR and NPL and a negative effect on ROA. The COVID-19 pandemic does not affect the CR of rural banks. CAR and NPL from rural banks in Indonesia have increased since the COVID-19 pandemic. Many owners and shareholders of rural banks have increased their capital so that their rural banks can survive during this pandemic. This explains why the CAR value of rural banks has increased, not decreased, during the pandemic. Since the COVID-19 was declared a pandemic by the Indonesian government, many debtors have asked for relaxation in their interest and principal payments; even many debtors can no longer pay the interest and principal loans. These debtors' behavior causes rural banks to experience a decrease in their ROA and an increase in their NPL.

Limitations and Future Research Direction

This study still has weaknesses or limitations, such as the number of samples that need to be increased. Future studies are expected to be in normal conditions to increase the number of samples. Subsequent studies can use two approaches, namely quantitative and qualitative. Social distancing made it difficult for this research to conduct qualitative approaches such as surveys, focus group discussions, and interviews. By using a combination of quantitative and qualitative methods, future studies are expected to obtain more accurate and better results than this research.

Financial performance in this study is only measured using financial ratio, and this study does not discuss non-financial performance. Future research is recommended to widen the sample by considering manufacturing companies in micro scale, thus it can be distinguished from the aspects of financial performance. Companies can also form strategies and policies that are related to the improvement of company strategy.

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Institutional Review Board Statement: Ethical review and approval were waived for this study, due to that the research does not deal with vulnerable groups or sensitive issues.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

Conflicts of Interest: The authors declare no conflict of interest.

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