

Does COVID-19 Pandemic Affect Bank Credit Risk?: A Panel Data Analysis

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This study aims to examine the impact of the COVID-19 pandemic on banking credit risk in Indonesia, namely conventional banks and Islamic banks which are proxied through NPL and NPF variables. This study used a sample of 12 conventional commercial banks and 12 Islamic commercial banks in Indonesia. The data used is quarterly data, namely from the 1st quarter of 2017 to the 4th quarter of 2020. Furthermore, in this paper, dummy variables are used to describe the period before and after the COVID-19 pandemic that caused various declines in the economy. The method in this study uses a panel data analysis approach. The results show that COVID-19 significantly affects credit risk in the overall model and conventional bank models. Meanwhile, no correlation was found between the COVID-19 pandemic and the Islamic bank model. Furthermore, the variables found to have a significant relationship with credit risk are bank capital, total loans, and bank profitability.

Keywords: Credit Risk; COVID-19; Conventional banks; Islamic banks

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INTRODUCTION

The ongoing COVID-19 pandemic has caused great uncertainty in global financial markets (Song, Du, & Wu, 2021). Covid-19 triggered a multidimensional crisis not only in the health sector but also for the economy, including financial institutions such as banks. Banking performance since the outbreak of COVID-19 has experienced the same structure as the global financial crisis (Aldaroso, Fender, Bryan, & Tarashev, 2020). Banks have experienced difficulties in raising funds from the public and MSE during the pandemic (Hidayat, Masyita, Nidar, Febrian, & Ahmad, 2021). So that the function of banking intermediation as a channel of funds is also disrupted.

As a result, there are limitations in increasing bank lending as COVID-19 affects borrowers' ability to repay loans. This will increase the volume of unpaid credit if the pandemic continues. So that in the end it can reduce bank liquidity, reduce bank income and capital (Hardianti & Aziz, 2021). The occurrence of bad credit cases in a number of banks is a symptom that bank operations are in bad condition. This was especially felt during the 2nd quarter of 2020, when the stock market also took a dive. In Indonesia, during the COVID-19 pandemic, the national banking non-performing loan (NPL) rate increased from 2.77% in March 2020 to 3.22% in July 2020. This can be seen through the trend depicted in the following graph:

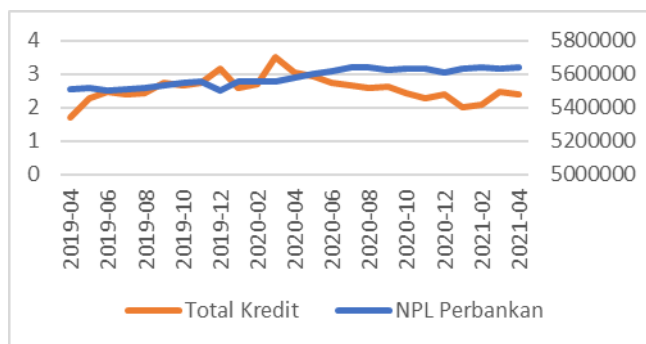


Figure 1: Total Bank Loans and Non-performing Loans Ratio

The existence of the pandemic has affected banking activities in many countries, forcing stakeholders to respond with caution (Baldwin & Mauro, 2020). At the same time, to avoid the various risks that banking will face in order for banking services to continue to operate in the event of a pandemic, including the various operational impacts of maintaining cost-effective operations, profitability, and capital adequacy. In addition to this, what needs to be emphasized is the strong expectation that banks will not only withstand shocks but will also play an active role in a broader economic solution, assisting the government in addressing the recessive effects of pandemic risk.

Indeed, in the midst of pandemic outbreak, there are serious concerns about the banking sector's ability to continue to perform the expected intermediation role

(Cecchetti & Schoenholtz, 2020). In general, financial institutions must be able to actively support the economies in times of crisis while ensuring financial system stability and resilience. Banks as financial institutions act as financial intermediaries between parties who have excess funds and those who need funds (Suprayitno & Hardiani, 2021).

Most banks in Indonesia make lending or financing their main source of income. The biggest risk faced when the economy is experiencing a downturn due to COVID-19 is credit or financing risk. This can threaten the sustainability of the bank and affect the soundness of the bank as measured by indications of bank financial performance. In Islamic banks, the level of financing risk can be indicated by the ratio of Non-Performing Financing (NPF). Meanwhile, Non-Performing Loans (NPLs) indicate credit risk in conventional banks.

Availability of loan distributing is strongly influenced by bank management which adjusts to economic conditions (Viphindrartin, Zainuri, & Anugrah, 2020). When banking is disturbed by limitations in diversifying and distributing risk, bank management will choose risk-averse behavior. This is because banks with inadequate capital face a variety of risks, including non-performing loans, liquidity problems, and other issues (Incekara & Çetinkaya, 2019). The rise in non-performing loans indicates a decrease in the banking sector's performance as well as a decrease in the credit portfolio's quality (Lehner, 2016).

The impact of the swelling value of NPLs on the economy is well recognized in the financial literature. Bernanke et al., (1996) describe the financial accelerator model of how banks are burdened with NPLs. The level of NPL greatly affects the weakening balance sheet limiting credit, thus making loans to the real sector shrink (Park & Shin, 2021). Therefore, persistently high levels of NPLs will limit bank profitability, weaken balance sheet health, and limit lending capacity. According to Aiyar et al., (2015), a high NPL ratio is strongly connected with overhanging corporate debt, which might restrict investment and defer economic recovery. Unresolved credit and financing risk issues may hamper the economic recovery following COVID-19.

Since COVID-19 began to spread widely in Indonesia, and became one of the causes of the economic recession that affected the banking sector. Many financial crises are related to high levels of non-performing loans and financing. The literature has recognized that high NPLs depress credit growth, thereby damaging bank balance sheets, ultimately exacerbating crisis recovery (Kalemlı-Özcan, Şebnem, Laeven, & Moreno, 2018). Therefore, this analysis would be an important indicator to assess the bank's ability to survive. In addition, the goal of strengthening the banking structure during a weak economy can be achieved and banks can accelerate recovery.

Analysis of the dynamics of NPLs during the crisis has been extensively researched, while a study that focuses on analysing the new wave of NPLs caused by the COVID-19 crisis has not been widely discussed. This study present and measure a new dataset of NPLs and NPFs in Indonesia during COVID-19 outbreak. Does the presence of covid have an impact on the credit risk level of these banks. Furthermore, several control variables are used (banking-specific variables) to see the extent to which these variables can affect NPL and NPF. This study also tries to compare 3 panel models, namely the conventional bank model, Islamic bank, and the overall model.

LITERATURE REVIEW

The crisis resulting from the COVID-19 outbreak has had a severe impact on all pillars of the business, resulting in reduced revenue and cash flow problems. In general, COVID-19 has altered banking behavior preferences in minimising demand for bank loans, since banks will be more cautious of defaults or poor loans, which can exacerbate situations in difficult times. Many researchers compare Islamic and conventional banks using a range of bank performance criteria, drawn by their fast growth even during the recent global financial crisis.

Credit risk is the main risk faced by banks. This risk arises due to default by the counter-party. The collapse of the banking industry was strongly influenced by credit risk, which was the result of the increasing level of non-performing loans (Waemustafa & Sukri, 2015). Credit quality issues can lead to bank failure or a severe loss of capital and net value. As a result, the bank's growth prospects and capacity to compete with other domestic and international banks could be affected (How, Karim, & Verhoeven, 2005).

In both Islamic and conventional banks, credit risk is the most prominent source of risk. Islamic banks, according to some research, suffer a larger credit risk than conventional banks. Elgari et al., (2003) In comparison to conventional banks, Islamic banks lack Sharia-compliant tools to handle debt-based contracts. On the other hand, there is evidence that Islamic banks have a lower credit risk than conventional banks. Arguments against Islamic banks' ability to withstand higher credit risk, on the other hand, are based only on theoretical conclusions. Empirically, there is no clear evidence for this statement.

Because conventional and Islamic banks have fundamental differences in terms of business structures and corporate governance, their abilities to handle the Covid-19 outbreak will be different. Mollah and Zaman (2015), revealed that Islamic banks were more shock-resistant and better protected during the 2008 global financial crisis than conventional banks. Shariah has different survival rates compared to its conventional counterparts. Moreover, recent studies (Elnahass,

Salama, & Trinh, 2020; Abdelsalam, Elnahass, Ahmed, & Williams, 2020) have proven that it is true that the two types of banks have different impact on bank stability. However, it is questionable whether the earlier findings will hold up under the pressure of Covid-19, and whether the Islamic banking model will be able to remain strong and resilient enough to mitigate the turmoil.

Pappas et al., (2017) state that many skeptics assume that the practices of Islamic banks and conventional banks are identical. According to Waemustafa (2013) argues that credit risk in both Islamic and conventional banks are influenced by internal and external factors. The theory explains that bank assets are dominated by loans, while liabilities consist of deposit payables. Where the mismatch in assets and liabilities will contribute to liquidity risk and credit risk. Kolapa et al., (2012) stated that poor lending practices, inappropriate credit policies, low capital and liquidity risk, weaknesses in credit assessment, poor loan guarantees, limited institutional capacity, volatile interest rates, insufficient central bank supervision, and government intervention all contribute to credit risk. Waemustafa and Sukri (2015) found that liquidity affects the failure of Islamic banks and conventional banks.

Because credit risk is a major problem for the bank, the Basel Committee on Banking Supervision formulated capital requirements regulations specifically to address it. The average bank's banking book asset portfolio has an 80 percent probability of default, which is the cause of 80 percent of bank failures. Previous researchers have studied the interaction between liquidity and credit risk. According to Boumediene (2011) states that in Islamic banks credit risk occurs in murabahah financing, where customers cancel the purchase of commodities which causes the bank to finally bear losses. Furthermore, according to Swartz (2013), credit risk in Murabaha financing occurs when the client fails to meet the scheduled payment obligations for assets that have been handed over by the bank. Several other studies related to the determinants of NPL have been carried out by researchers such as Hosen and Muhari (2019), Alandejani and Asutay (2017), Saif-Alyousfi et al. (2018) and Kusmayadi et al. (2017).

Hardiyanti and hakim (2021) define Non-performing Loans are loans classified as sub-standard credit, doubtful credit, and bad credit. A loan with bad credit is one that has payment issues as a result of deliberate or external conditions beyond the debtor's control. The internal factors of commercial banks, the internal factors of debtors, and the external variables of non-banks and debtors are all elements that influence non-performing loans in Indonesia (Barus, 2016). A bank's fundamental function is to distribute funds in the form of credit. Credit, according to the Constitution/Undang-undang Dasar Number 7 of 1992, is the provision of money or comparable claims based

on a loan arrangement or agreement between a bank and another party that compels the debtor to repay his obligation after a set length of time with a set amount of interest. Banks must pay attention to the quality of financing agreements in the period of the COVID-19 epidemic (OJK, 2020).

Several researchers have previously tried to examine how the influence of COVID-19 on credit risk in banks across countries such as Aldasoro et al., (2020) and Agustin et al., (2021) has done. Furthermore, several researchers studied the impact of covid on banking in Indonesia and analyzed its determinants (Disemandi & Shaleh, 2020; Achsani & Kassim, 2021).

RESEARCH METHOD

We compile balanced quarterly panel data of 12 conventional and 12 Islamic banks from the first quarter of 2017 until the fourth quarter of 2020. The data used as the dependent variable is the credit risk of conventional banks and financing risk of Islamic banks proxied by NPL and NPF. Furthermore, the independent variables consist of dummy variable as proxied of COVID-19 outbreak. Meanwhile, we added control variables from bank specific indicators including total credit, CAR, FDR and ROA.

The type of research used in this paper is a type of quantitative method using a panel data approach. Panel data is data that contains observations about different cross-sections across time. To examine the impact of COVID-19 on bank credit risk, the following baseline regression analysis was used:

Overall Model :

$$CR_{it} = \alpha + \beta_1 DCovid_{it} + \beta_3 \ln Total CR_{it} + \beta_4 CAR_{it} + \beta_4 LDR_{it} + \beta_5 ROA_{it} + \varepsilon_{it}$$

Conventional Banks Model :

$$NPL_{it} = \alpha + \beta_1 DCovid_{it} + \beta_3 \ln Total CR_{it} + \beta_4 CAR_{it} + \beta_4 LDR_{it} + \beta_5 ROA_{it} + \varepsilon_{it}$$

Islamic Banks Model :

$$NPF_{it} = \alpha + \beta_1 DCovid_{it} + \beta_3 \ln Total Fn_{it} + \beta_4 CAR_{it} + \beta_4 FDR_{it} + \beta_5 ROA_{it} + \varepsilon_{it}$$

Where,

CR : Credit Risk

Dummy: Period before and after COVID-19 Pandemic

Total Cr: Total Credit of Conventional Bank

Total Fn: Total Financing of Islamic Bank

CAR : Capital Adequacy Ratio

FDR : Financing to Deposit Ratio

ROA : Return on Asset

ε_{it} : Error in the model

α : intercept

ln : Log Natural

i : cross-section for banks

t : a period of study

There were two main reasons for choosing this method: i) panel data can provide more accurate inferences of model parameters, ii) greater capacity to capture the complexity of individual behavior. Therefore, the use of panel data in this study is needed to be able to see how the COVID-19 pandemic can affect the banking credit risk.

Based on panel data estimation, there are three alternative models of panel data that can be used to estimate the behavior of banking credit risk, namely the pooled least squares model or often referred to as the common effect model, the fixed-effect model, and the random effect model (Baltagi, 2005). Furthermore, to determine the best model in estimating panel data regression. Several test techniques are used: first, the Chow test, this test technique are used to choose between a common effect or fixed-effect models. Second, the Hausman test, this test technique are used to choose between the fixed effect or random effect model. Third, the Lagrange Multiplier test, this test technique are used to choose between a common effect or random-effect model in estimating panel data regression.

After the model is selected, the next step is to test the hypothesis. Hypothesis testing can be measured by looking at the value of the t-statistic, the value of the F-statistic, and the value of the coefficient of determination. The value of the t-statistic is used to see the effect of each independent variable on the dependent variable. Furthermore, the F test was conducted to see whether the independent variables used in the study were able to explain changes in the dependent variable. In other words, the F-statistic test is used to test whether the use of the model is appropriate and reliable. Finally, by looking at the value of the coefficient of determination (R-square) which aims to assess how far the regression model able to explain the dependent variable

RESULT AND DISCUSSION

Table 1: Descriptive Statistics

Variables	Overall Bank		Conventional Banks		Islamic Banks	
	Mean	SD	Mean	SD	Mean	SD
Credit Risk	1.836841	1.413290	1.427604	1.058215	2.248220	1.597100
Total Loans	1.45E+08	2.26E+08	2.71E+08	2.63E+08	19,224,751	23,780,766
Capital Adequacy Ratio	27.79410	36.21233	21.26688	3.621619	34.35550	50.36817
Loan to Deposit Ratio	93.34065	39.91706	91.59792	18.11122	95.09251	53.55014
Return on Asset	2.062386	2.940658	2.150417	1.141554	1.973895	4.007525
Dummy	0.248042	0.432441	0.250000	0.434145	0.246073	0.431854

Table 1 shows descriptive statistics on bank credit risk and bank-specific variables, namely total distributed loans expressed in natural logarithms, capital adequacy ratios, loan to deposit ratios, bank performance variables derived by return on assets proxies, and dummy variables indicating the COVID period pandemic. The following facts are found regarding the banking industry in Indonesia which are captured. Credit risk owned by conventional banks has an average of much smaller than Islamic banks.

Furthermore, the average total loans issued by conventional banks show a much larger number than Islamic banks. This is because the total assets owned by conventional banks are several times larger than the total assets of Islamic banks. However, in the variable capital adequacy ratio, Islamic banks have a higher average value than conventional banks. Islamic banks have better capitalization than conventional banks. The variable loan to deposit ratio of Islamic banks has a higher value than conventional banks. Although in fact, the two values are almost equal. As we expected, the funding ratio (i.e the ratio of deposits to loans) is slightly higher for Islamic banks. Furthermore, the variable return on assets of conventional banks has a higher average than Islamic banks. This means that the performance of conventional banks shows greater results, which is supported by large total assets.

Table 2: Model Estimation Result

Variable	Overall Bank	Conventional Banks	Islamic Banks
Constant	3.986563 (0.0016)	9.926114 (0.0000)	3.152943 (0.0376)
COVID-19 (Dummy)	-0.197551*** (0.0124)	-0.217841*** (0.0071)	-0.160387 (0.2595)
Controlled Variable			
Ln Total Loans	-0.112555 (0.1217)	-0.400815*** (0.0004)	-0.040143 (0.6615)
Capital Adequacy Ratio	-0.004889* (0.0809)	-0.029917** (0.0514)	-0.003706 0.3000
Loan to Deposit Ratio	0.000790 (0.4963)	0.001719 (0.5327)	-7.4605 (0.9597)
Return on Asset	-0.044946** (0.0569)	-0.178079*** (0.0013)	-0.052902* (0.0780)
R-Square	0.804826	0.199956	0.184626
F-Statistic	52.13442***	9.297442***	1.793235***

Notes:
***significant at 1% significance level, **significant at 5% significance level, *significant at 10% significance level

Based on the results of the estimation model selection using several tests, the best model to explain the full sample Model uses the Fixed Effect Model, while the Conventional banks and Islamic banks model uses the Random Effect Model. Furthermore, to be able to explain the impact of COVID-19 on banking credit risk, the specific factor used in this study is a dummy variable. Other determinants used in this study are bank-specific factors such as total loans expressed in natural logarithms, capital adequacy ratio, then liquidity which is proxied by financing to deposit ratio, and banking performance which is proxied by return on asset.

Table 2 reveals the correlation results (t-statistics) of this examination. The results of the study show that in the overall model the dummy variable sample which shows the effect of COVID-19 pandemic on bank credit risk has a significant effect, while for each bank it is found that COVID-19 pandemic only affects credit risk of conventional banks. The probability value of F-statistics for all models shows significant results (below 5 percent), so the variables used in this study are total credit/total financing, CAR, LDR/FDR, ROA, and the dummy variable simultaneously affect the independent variables, namely NPL/NPF. So it can be concluded that the use of the model in this study is appropriate and reliable. The Adjusted R-square value of the whole model is 0.8048 or 80.48 percent, meaning that the NPL/NPF variable can be explained by the total credit/total financing, CAR, LDR/FDR, ROA, and

dummy variables of 80.48 percent while the remaining 19, 52 percent is explained by variables outside the model. Meanwhile, the Adjusted R-square value for the conventional banks model is 0.1999 or 19.99 percent and for Islamic banks, the model is 0.1846 or 18.46 percent.

Findings

In this study, it was found that COVID-19 had an impact on increasing non-performing loans in all sample banks. The increase in non-performing loans led to a decline in the quality of the loan portfolio as a major negative consequence of COVID-19 for banks (Goodell, 2020). The possible causes for the increase in NPF and NPL are generally influenced by the inability of debtors to meet their responsibilities due to being affected by pandemic conditions. During the pandemic, debtors extended loan payments, thereby allowing the risk of a loan default (Quanyun, Du, & Wu, 2021). This is driven by a large number of SMEs that have gone bankrupt in several sectors.

Furthermore, the variable that has a significant influence on credit risk is the variable capital adequacy ratio. The CAR variable has a negative correlation with credit risk, this means that when the CAR variable increases by one unit, it will reduce the NPL/NPF variable by a certain percentage. Capital in financial institutions has a very important role. The theory shows that banks with more capital are found to operate more efficiently than banks with less capital, this means that the capitalization rate is a good proxy for bank performance. CAR shows the ability of banks to provide funds to support business development needs and accommodate the risk of loss of funds caused by bank operations (Widarjono & Rudatin, 2021). Thus, a high CAR ratio can increase customer safety and trust, which can have a positive impact on increasing profitability. Studies by Purwaningtyas and Hartono (2020), state that capital, as measured by CAR, affects the NPF of Islamic banks in Indonesia.

Furthermore, the risk of non-performing loans was found to significantly affect the level of bank profitability. Return on Assets is the most critical measure of a bank's performance that focuses on the bank's ability to profit from its operations. The higher the value of non-performing loans or bad loans will increasingly affect the decline in a bank's profit due to poor credit quality (Burton, Lauridsen, & Obel, 2002). Return on Assets is one of the basic measures to assess a company's profitability (Noreen, 2019). When the economy is in decline, the Return on Assets ratio is the element that is most often highlighted, because this ratio indicates the success of a company in generating profits (Nguyen & Nguyen, 2020). Return on Assets measures the overall effectiveness in generating profits through assets.

The results of the study found that COVID-19 re-attributed the rise of bad credit cases in several

conventional commercial banks in Indonesia. The results of data analysis show that the presence of COVID-19 has an impact on increasing cases of bad loans at conventional commercial banks. COVID-19 has worsened the debtor's business situation, increasing the number of non-performing loans for conventional commercial banks in Indonesia. The behavior of the demand for loans is higher in conventional banks compared to Islamic banks which in turn causes the problem of excessive credit creation for conventional banks in the current crisis.

The results in this study indicate that loans from conventional banks are proven to have a significant negative relationship with NPL, meaning that when loans increase, the NPL level will decrease. This means that when conventional banks can select prospective business actors who request funds from banks. The more loans provided by conventional banks, the lower the NPL. This is by the restructuring policy that has been issued by the government to overcome the problems caused by the outbreak of COVID-19. Thus, conventional banks can manage lending strategies and select customers carefully. This result is consistent with the study by [Sukmana \(2018\)](#).

In pieces of any literature is found that the Islamic banking system is more crisis resistant than conventional banking institutions stemming from the nature of the asset link ([Kaleem, 2000](#)). According to [Bala and Nafis \(2007\)](#), Islamic banks are protected in terms of lower liquidity and solvency risks than conventional banks. [Ahmed \(2010\)](#) stated that the Islamic financial system is safe from all speculative risks and excessive leverage when the crisis hits. Islamic banks are further judged to be able to share their losses with depositors through a mode of financing (PLS) on the liability side, an option that conventional banks cannot exercise with their depositors ([How, Karim, & Verhoeven, 2005](#)). In addition, religiosity is one of the factors that have the potential to reduce the credit risk of Islamic banks because they operate by Sharia principles ([Baele, Farooq, & Ongena, 2014](#)).

The next reason is that there are a series of investment opportunities that can help Islamic banks to have higher liquid assets. To provide confidence in deposit guarantees, Islamic banks maintain more liquidity than conventional banks. The higher liquidity ratio of Islamic banks compared to conventional banks also comes from the majority of Islamic bank investments and short-term loans. The results show that conventional banks are still negligent in the use of their resources, this is based on capital and savings to produce the same service at a lower cost ([Hassan, Khan, & Ngow, 2010](#)). This is probably due to the aspirations of banks to provide better quality services to their customers, causing these banks to incur higher costs ([Lassoued, 2018](#)). Thus, this acts concerns that if the situation persists, excessive use of capital even though it is not profitable, will cause banking institutions to not

pay their current accounts on time because they do not have sufficient reserves.

This study further found that credit risk both in conventional banks represented by NPL and in Islamic banks represented by NPF had a negative relationship with bank profitability performance as proxied by ROA. This means that the increase in credit risk will reduce the performance of the two banks. This, of course, happened during difficult times caused by the COVID-19, where not only the banking sector but other sectors felt the same way, namely a decline in their profitability. The increase in credit risk shows signs of a decline in the performance of the banking sector ([Lehner, 2016](#)).

CONCLUSION

In this paper, we quantitatively assess the direct impact of COVID-19 on the credit risk faced by banks in Indonesia. We further developed and calibrated the model using samples from two types of banks, namely conventional banks, and Islamic banks to clearly illustrate the impact of COVID-19 on the credit risk of the two banks. We analyze the impact of COVID-19 on the NPL and NPF variables. Then, we added several control variables of bank-specific indicators to see which ones influence the credit risk variable.

The research found that COVID-19 significantly affected credit risk in the overall model and the conventional bank model. Meanwhile, in the Islamic bank model, no correlation was found from the COVID-19 pandemic. Furthermore, the variables found to have a significant relationship with credit risk are Bank Capital, totally distributed loans, and Bank Profitability.

Our analysis has important implications for policymakers. Therefore, conventional commercial banks in Indonesia must be able to formulate the right strategic formula to overcome the problem of bad loans as institutional strengthening and improvement of banking service procedures. Banks must be more selective in distributing loans and financing which will have an impact on increasing credit risk and decreasing profitability. Furthermore, our results indicate a trade-off between capital and risk. Regulators should pay attention to these trade-offs to enforce capital requirements and limit risk exposure to secure financial stability and the health of the banking system as a whole.

As for academic, this work has a limitation that can be addressed for further research. It could be better to added other internal factors and conducted external factors that have an impact on credit risk by increasing the number of samples. Furthermore, it is hoped that future researchers will use other robust methods, so that the results obtained are more accurate.

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ATTACHMENT

	CR	TOTAL Cr	CAR	LDR	ROA	COVID
Mean	1.836841	1.45E+08	27.79410	93.34065	2.062386	0.248042
Median	1.520000	54560959	21.14000	89.22000	1.440000	0.000000
Maximum	6.370000	8.84E+08	346.4300	500.0000	17.23000	1.000000
Minimum	0.000000	54.00000	3.110000	13.00000	-10.77000	0.000000
Std. Dev.	1.413290	2.26E+08	36.21233	39.91706	2.940658	0.432441
Skewness	0.714745	1.897295	6.113300	7.266947	2.047837	1.166808
Kurtosis	2.605676	5.315458	43.58574	69.16328	11.09213	2.361440
Jarque-Bera	35.09127	315.3409	28672.21	73229.81	1312.687	93.41241
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	703.5100	5.57E+10	10645.14	35749.47	789.8940	95.00000
Sum Sq. Dev.	763.0023	1.94E+19	500929.3	608667.8	3303.333	71.43603
Observations	383	383	383	383	383	383

	NPL	TOTAL Cr	CAR	LDR	ROA	COVID
Mean	1.427604	2.71E+08	21.26688	91.59792	2.150417	0.250000
Median	1.155000	1.28E+08	21.67500	90.19000	2.235000	0.000000

Maximum	6.370000	8.84E+08	35.68000	171.3200	4.020000	1.000000
Minimum	0.000000	11079784	10.52000	56.06000	-4.610000	0.000000
Std. Dev.	1.058215	2.63E+08	3.621619	18.11122	1.141554	0.434145
Skewness	1.781524	0.962412	-0.305300	1.641752	-1.366986	1.154701
Kurtosis	6.579857	2.402236	4.673638	7.956250	8.609466	2.333333
Jarque-Bera	204.0856	32.49818	25.39119	282.7665	311.5257	46.22222
Probability	0.000000	0.000000	0.000003	0.000000	0.000000	0.000000
Sum	274.1000	5.20E+10	4083.240	17586.80	412.8800	48.00000
Sum Sq. Dev.	213.8853	1.33E+19	2505.180	62651.12	248.9008	36.00000
Observations	192	192	192	192	192	192

	NPF	TOTAL Fn	CAR	FDR	ROA	COVID
Mean	2.248220	19224751	34.35550	95.09251	1.973895	0.246073
Median	2.250000	6398562.	20.14000	88.49000	0.650000	0.000000
Maximum	5.890000	95114699	346.4300	500.0000	17.23000	1.000000
Minimum	0.000000	54.00000	3.110000	13.00000	-10.77000	0.000000
Std. Dev.	1.597100	23780766	50.36817	53.55014	4.007525	0.431854
Skewness	0.041323	1.538072	4.183888	5.908376	1.721644	1.179075
Kurtosis	1.854850	4.502180	21.18519	42.16614	6.577595	2.390219
Jarque-Bera	10.49067	93.26532	3189.070	13319.24	196.2161	47.21447
Probability	0.005272	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	429.4100	3.67E+09	6561.900	18162.67	377.0140	47.00000
Sum Sq. Dev.	484.6384	1.07E+17	482021.1	544847.4	3051.449	35.43455
Observations	191	191	191	191	191	191

Overall Model

Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.971837	0.162002	18.34440	0.0000
TOTAL_CR_FIN	-1.86E-09	2.64E-10	-7.056205	0.0000
CAR	-0.003358	0.002030	-1.654090	0.0989
LDR_FDR	-0.002989	0.001580	-1.892248	0.0592
ROA	-0.213986	0.023164	-9.237665	0.0000
DUMMY	-0.204772	0.134912	-1.517818	0.1299
Root MSE	1.116068	R-squared		0.374749
Mean dependent var	1.836841	Adjusted R-squared		0.366457
S.D. dependent var	1.413290	S.E. of regression		1.124914
Akaike info criterion	3.088832	Sum squared resid		477.0677
Schwarz criterion	3.150681	Log likelihood		-585.5114
Hannan-Quinn criter.	3.113367	F-statistic		45.19162
Durbin-Watson stat	0.421662	Prob(F-statistic)		0.000000

Fixed-Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.244083	0.202661	11.07309	0.0000
TOTAL_CR_FIN	-1.44E-09	1.17E-09	-1.225852	0.2211
CAR	-0.001895	0.001927	-0.983258	0.3262
LDR_FDR	7.99E-07	0.001017	0.000785	0.9994

ROA	-0.049810	0.023292	-2.138525	0.0332
DUMMY	-0.171565	0.082607	-2.076870	0.0385

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.624348	R-squared	0.804329
Mean dependent var	1.836841	Adjusted R-squared	0.788852
S.D. dependent var	1.413290	S.E. of regression	0.649418
Akaike info criterion	2.047217	Sum squared resid	149.2972
Schwarz criterion	2.346155	Log likelihood	-363.0421
Hannan-Quinn criter.	2.165801	F-statistic	51.97005
Durbin-Watson stat	0.958972	Prob(F-statistic)	0.000000

Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.367874	0.254866	9.290646	0.0000
TOTAL_CR_FIN	-1.83E-09	7.24E-10	-2.530237	0.0118
CAR	-0.002317	0.001876	-1.235160	0.2175
LDR_FDR	-0.000281	0.001008	-0.278282	0.7809
ROA	-0.064582	0.022645	-2.851875	0.0046
DUMMY	-0.165801	0.080271	-2.065518	0.0396

Effects Specification

	S.D.	Rho
Cross-section random	0.987622	0.6981
Idiosyncratic random	0.649418	0.3019

Weighted Statistics

Root MSE	0.647448	R-squared	0.067687
Mean dependent var	0.298345	Adjusted R-squared	0.055322
S.D. dependent var	0.671426	S.E. of regression	0.652580
Sum squared resid	160.5495	F-statistic	5.474128
Durbin-Watson stat	0.902169	Prob(F-statistic)	0.000071

Unweighted Statistics

R-squared	0.259254	Mean dependent var	1.836841
Sum squared resid	565.1909	Durbin-Watson stat	0.256272

Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	33.790416	(23,354)	0.0000
Cross-section Chi-square	444.938500	23	0.0000

Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.680243	5	0.1225

LM Test

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1058.250 (0.0000)	4.503653 (0.0338)	1062.753 (0.0000)

Conventional Bank Model

Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.198295	0.424353	14.60647	0.0000
TOTAL_CREDIT	-1.23E-09	2.67E-10	-4.610830	0.0000
CAR	-0.133813	0.018778	-7.126137	0.0000
LDR	-0.011422	0.003046	-3.749217	0.0002
ROA	-0.236321	0.074882	-3.155893	0.0019
COVID	-0.146600	0.133713	-1.096378	0.2743
Root MSE	0.707695	R-squared		0.550414
Mean dependent var	1.427604	Adjusted R-squared		0.538328
S.D. dependent var	1.058215	S.E. of regression		0.719019
Akaike info criterion	2.208894	Sum squared resid		96.15986
Schwarz criterion	2.310690	Log likelihood		-206.0538
Hannan-Quinn criter.	2.250122	F-statistic		45.54277
Durbin-Watson stat	0.547288	Prob(F-statistic)		0.000000

Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.351857	0.538547	4.367038	0.0000
TOTAL_CREDIT	-6.16E-10	8.44E-10	-0.730318	0.4662
CAR	-0.015168	0.016678	-0.909447	0.3644
LDR	0.000342	0.002770	0.123472	0.9019
ROA	-0.185203	0.056465	-3.279970	0.0013
COVID	-0.271129	0.087860	-3.085934	0.0024

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.402136	R-squared		0.854833
Mean dependent var	1.427604	Adjusted R-squared		0.841561
S.D. dependent var	1.058215	S.E. of regression		0.421216
Akaike info criterion	1.193031	Sum squared resid		31.04898
Schwarz criterion	1.481455	Log likelihood		-97.53099
Hannan-Quinn criter.	1.309845	F-statistic		64.40701
Durbin-Watson stat	1.284289	Prob(F-statistic)		0.000000

Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.857055	0.509785	5.604427	0.0000
TOTAL_CREDIT	-9.99E-10	5.50E-10	-1.817207	0.0708
CAR	-0.027911	0.015941	-1.750899	0.0816
LDR	-0.000675	0.002698	-0.250353	0.8026
ROA	-0.204675	0.055493	-3.688301	0.0003

COVID	-0.252440	0.083617	-3.019017	0.0029
Effects Specification				
			S.D.	Rho
Cross-section random			0.623695	0.6868
Idiosyncratic random			0.421216	0.3132
Weighted Statistics				
Root MSE	0.420940	R-squared		0.156212
Mean dependent var	0.237671	Adjusted R-squared		0.133529
S.D. dependent var	0.459449	S.E. of regression		0.427676
Sum squared resid	34.02062	F-statistic		6.886882
Durbin-Watson stat	1.180511	Prob(F-statistic)		0.000006
Unweighted Statistics				
R-squared	0.380592	Mean dependent var		1.427604
Sum squared resid	132.4822	Durbin-Watson stat		0.303148

Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	33.361954	(11,175)	0.0000
Cross-section Chi-square	217.045610	11	0.0000

Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.748878	5	0.0827

LM Test

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	397.8719 (0.0000)	2.219152 (0.1363)	400.0910 (0.0000)

Islamic Bank Model

Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.128812	0.238615	13.11238	0.0000
TOTAL_FIN	-4.84E-09	4.14E-09	-1.169439	0.2437
CAR	-0.005181	0.002422	-2.138933	0.0338
FDR	-0.002013	0.001966	-1.023731	0.3073
ROA	-0.196099	0.027558	-7.115725	0.0000
COVID	-0.126392	0.221689	-0.570131	0.5693
Root MSE	1.277938	R-squared		0.356372
Mean dependent var	2.248220	Adjusted R-squared		0.338977
S.D. dependent var	1.597100	S.E. of regression		1.298496
Akaike info criterion	3.391200	Sum squared resid		311.9269

Schwarz criterion	3.493365	Log likelihood	-317.8596
Hannan-Quinn criter.	3.432582	F-statistic	20.48661
Durbin-Watson stat	0.490580	Prob(F-statistic)	0.000000

Fixed-Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.781190	0.268995	14.05675	0.0000
TOTAL_FIN	-7.30E-08	1.20E-08	-6.084840	0.0000
CAR	-0.002830	0.002240	-1.263151	0.2082
FDR	0.000359	0.001205	0.297951	0.7661
ROA	-0.027634	0.027815	-0.993498	0.3218
COVID	-0.049534	0.129990	-0.381058	0.7036

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.711256	R-squared	0.800627
Mean dependent var	2.248220	Adjusted R-squared	0.782293
S.D. dependent var	1.597100	S.E. of regression	0.745191
Akaike info criterion	2.334441	Sum squared resid	96.62399
Schwarz criterion	2.623911	Log likelihood	-205.9391
Hannan-Quinn criter.	2.451690	F-statistic	43.67090
Durbin-Watson stat	1.093062	Prob(F-statistic)	0.000000

Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.296860	0.401840	8.204404	0.0000
TOTAL_FIN	-4.05E-08	9.12E-09	-4.437661	0.0000
CAR	-0.003294	0.002186	-1.507333	0.1334
FDR	-0.000261	0.001195	-0.217945	0.8277
ROA	-0.050017	0.026975	-1.854238	0.0653
COVID	-0.094082	0.129385	-0.727152	0.4681

Effects Specification

	S.D.	Rho
Cross-section random	1.133235	0.6981
Idiosyncratic random	0.745191	0.3019

Weighted Statistics

Root MSE	0.771718	R-squared	0.127980
Mean dependent var	0.365476	Adjusted R-squared	0.104411
S.D. dependent var	0.828525	S.E. of regression	0.784133
Sum squared resid	113.7498	F-statistic	5.430199
Durbin-Watson stat	0.921184	Prob(F-statistic)	0.000110

Unweighted Statistics

R-squared	-0.188253	Mean dependent var	2.248220
Sum squared resid	575.8728	Durbin-Watson stat	0.181958

Chow Test

Effects Test	Statistic	d.f.	Prob.
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Cross-section F	35.246945	(11,174)	0.0000
Cross-section Chi-square	223.840880	11	0.0000

Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	24.840112	5	0.0001

LM Test

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	391.0046 (0.0000)	4.801112 (0.0284)	395.8058 (0.0000)