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Financial Distress Before and During Pandemic Covid-19: Is Islamic Banking in Indonesia Resilience?

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ABSTRACT

This study aims to predicts financial distress before and during the pandemic and to analyze the influence factors on the financial distress of sharia commercial banks in Indonesia. This study was quantitatif used purposive sampling method with twelve Islamic commercial banks in Indonesia as samples based on these criteria. Data were analyzed and processed by using Microsoft Excel 2016 and SPSS 22 software. The result found that most Islamic banks in Indonesia were in a positive financial condition before and during the pandemic Covid-19. Further, the result also found that NOM had a significant negative effect in all models, OER had a significant positive impact in all models, CAR had a significant negative effect in the first and second models, and GDP had a significant negative impact in the second until fifth models. Meanwhile, size, exchange rate, and inflation do not significantly affect financial distress of Islamic commercial banks in Indonesia before and during the pandemic Covid-19.

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INTRODUCTION

Corona Virus Disease 2019 (COVID-19) was declared a pandemic by the World Health Organization (WHO) in March 2020, which caused the Indonesian government to implement Large-Scale Social Restrictions (PSBB) (Hassan, et. al., 2021; Nurfalah & Rusydiana, 2021). This policy has a significant economic impact on the Islamic banking industry.

Beaver, et, al., (2010) define financial distress as the company's inefficiency in dealing with dependents when they fall due. Financial difficulties can be seen as a sign of bankruptcy that a company may face. The company management needs to take action to prevent the company from going bankrupt if the company is indicated to have entered a financial distress condition. According to Kordestani, et, al., (2011) financial difficulties are one of the stages of bankruptcy.

The company's internal and external factors are the causes of the company's financial distress (Ogden, et, al., 2003). The company's internal factor of financial distress is financial ratios (Brealy & Myers, 2000). Financial ratios can benchmark a company's financial performance, including the probability of financial distress or even bankruptcy (Assaji & Machmuddah, 2017). Pratama (2016) demonstrated that capital adequacy ratio (CAR) and return on equity (ROE) had a significant positive effect, return on assets (ROA) had a significant negative effect, while financing to deposit ratio (FDR) and operating expenses ratio to operating income (OER) had no significant effect on financial distress of Islamic commercial banks in Indonesia. Meanwhile, Shidiq & Wibowo (2017) demonstrated that operating expense ratio (OER), CAR, significantly affected financial distress. Besides the internal variables mentioned, Bestari & Rohman (2013) found that size impacted financial distress. The bigger the bank will impact, the higher level of trust for investors and customers to invest in the bank so that the chances of the bank experiencing problematic conditions become small.

According to Assaji & Machmuddah (2017), monitoring the ROA level in each period can estimate the expected financial condition. The next stage is the Shortage of Cash stage. At this stage, the company's cash begins to experience a reduction due to insufficient cash resources to cover existing dependents, even though the company has a good profitability performance. After that, the stage of financial distress. This stage is a financial crisis condition. This condition is a condition leading to bankruptcy. The last is the Bankruptcy stage, in which the company cannot recover indications of financial distress.

However, external factors such as inflation, GDP, exchange rate, and interest rate might affect financial distress. Liou & Smith (2007) mention that external factors that can cause financial distress for companies are macroeconomic conditions such as inflation, interest rates, and the exchange rate of the rupiah against the dollar. Inflation, interest rate and GDP have significant effect to bank risk (Baselga-pascual, et, al., 2015). Economic growth significantly negatively affects banking financial distress (Wulandari, et, al., 2017). Meanwhile, the exchange rate has a positive and significant relationship to the possibility of a non-performing bank condition. Rising exchange rates worsen banking

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problems through other fundamentals such as interest rates and inflation (Prasidha & Wahyudi, 2015).

During year 2021, Islamic Banking Outlook shows that the profitability performance of Islamic banking has decreased from the previous period (Majeed & Zainab, 2021; Ledhem & Mekidiche, 2021). The decline in the profitability of Islamic commercial banks as measured by return on assets (ROA) occurred as an impact of the economic slowdown due to pandemic Covid-19. Figure 1 shows an increasing trend in Islamic commercial banks' profitability ratio in Indonesia estimated to return on assets (ROA) from QI-2018 to Q1-2020. Meanwhile, after Q1-2020 ROA of Islamic commercial banks in Indonesia tends to decrease (Mansour, et, al., 2022). There is a significant decrease from 1.86% in Q1-2020 to 1.40% in Q2-2020.

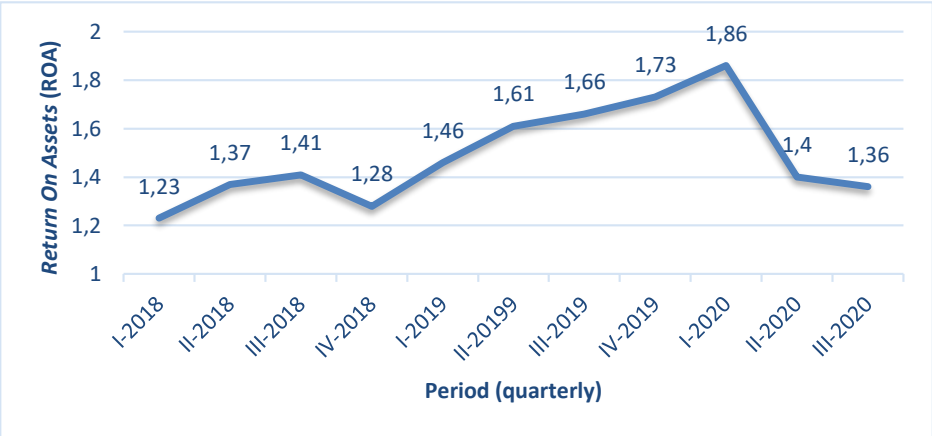

Figure 1. The development of ROA Islamic commercial banks in Indonesia

The decline in profitability indicates that the Islamic commercial banks are incapable of maximizing their assets to generate profits; therefore, the probability of them encountering the risk of financial distress is higher (Muhtar, 2017). Financial distress is a condition of financial difficulties that occur in the company and is characterized by a decreased profitability ratio (Kordestani et al., 2011). Also, financial distress is the decline of the financial performance experienced by a company that occurred before the bankruptcy of a company (Platt & Platt, 2002). All industries need to prevent financial distress, including Islamic banking. Law No. 21 of 2008 states that Islamic banking must maintain its health level to maintain community loyalty (Pemerintah Republik Indonesia, 2008).

Therefore, research on the prediction of financial distress is necessary that can be used as a reference by the BUS management in taking actions that can improve the financial condition of the BUS. Besides being functional for the BUS, financial distress predictions are also effective for various parties in determining future steps, such as creditors providing financing and investors making investments.

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The financial ratios are applicable to predict financial distress (Shidiq & Wibowo, 2017). Financial ratio analysis is widely applied to estimate financial distress (Dwijayanti, 2010). Some models that take into financial ratios to the estimated financial condition include the Zmijewski (X-Score), Grover (G-Score), and Altman (Z-Score) models, which include being implemented in Islamic banks.

Mulkarim, et, al. (2019) conducted a study using the Altman, Springate, and Zmijewski model. The results showed that the Islamic commercial banks' condition in the Altman and models Zmijewski was in good condition. In contrast, the Springate model showed that some Islamic commercial banks had the potential to encounter financial distress risks. Meanwhile, Kurniawati & Kholis (2016) used the Altman, Grover, and Zmijewski model. The results found that Grover is one of the three models that can be applied in predicting the financial distress of Islamic commercial banks with the highest accuracy value. Then the Zmijewski model, and the last is the Altman model. Marlinda and Yulia (2020) found that all Islamic banks in the five years were in the healthy category by using the Springate model.

Despite of the compelling previous research above, this study aims to analyze factors that influence the financial distress of Islamic commercial banks in Indonesia before and during the pandemic Covid-19. This study seeks to analyze factors that influence the financial distress of Islamic commercial banks in Indonesia using the binary logistic method uses the Altman, Zmijewski, and Grover models to predict the financial distress of Islamic commercial banks in Indonesia. The primary results of this study will demonstrate the condition of Islamic commercial banks in Indonesia before and during the Pandemic Covid-19. The result was based on testing several variables namely NOM, OER, CAR and GDP.

RESEARCH METHOD

This study was quantitatif used purposive sampling method with the following criteria: Islamic banks in Indonesia are registered on Financial Services Authority or Otoritas Jasa Keuangan (OJK), possess an official website that can be accessed, and published the complete financial statements from Q1-2018 to Q3-2020. This study used twelve Islamic commercial banks in Indonesia as samples based on these criteria. This study applied the financial distress prediction method, including the Altman, Zmijewski, and Grover models. In addition, this study also used the binary logistic method to analyze the factors that affect the financial distress of Islamic commercial banks in Indonesia. Data were analyzed and processed using Microsoft Excel 2016 and SPSS 22 software.

Model Altman Z-score

The Altman model is a financial distress prediction model formulated in 1968. Altman modified his model by eliminating the variable X5 (sales to total asset) to be applied by various companies. Companies classified in the distress zone have a Z-Score <1,1. Meanwhile, companies classified in the safe zone have a Z-Score > 2,6. Companies belonging to the grey area have a 1,1 < Z-score < 2,6 (Altman, 1968).

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$$Z_{score} = 6{,}5X_1 + 3{,}267X_2 + 6{,}72X_3 + 1{,}05X_4$$

Information:

Z = Overall index

X1 = Working capital to total assets (WCTA)

X2 = Retained earnings to total assets (RETA)

X3 = Earnings before interest and taxes to total assets (EBITTA)

X4 = Book value of equity to book value of debt ratio

Model Zmijewski X-score

The Zmijewski model is a financial distress prediction model formulated in 1984 by Mark E. Zmijewski. Companies classified in the distress zone have an X-Score ≥ of 0. Meanwhile, the company's score in the safe zone is X-score < 0 (Zmijweski, 1984).

$$X_{score} = -4{,}3 - 4{,}5X_1 + 5{,}7X_2 + 0{,}004X_3$$

Information:

X = Overall index

X1 = Return on assets (ROA)

X2 = Debt ratio

X3 = Current ratio

Model Grover G-score

The Grover model is a financial distress prediction model formulated in 2001 by Jeffrey S. Grover. Companies classified in the distress zone have a G-score ≤ -0,02. Meanwhile, the company's score in the safe zone is G-score ≥ 0,01 (Grover 2001).

$$G_{score} = 1{,}650X_1 + 3{,}404X_3 - 0{,}016ROA + 0{,}057$$

Information:

G = Overall index

X1 = Working capital to total assets (WCTA)

X3 = Earnings before interest and taxes to total assets (EBITTA)

ROA = Net income to total assets

Binary Logistics Regression Analysis

Logistic regression analysis aims to analyze how financial distress influences Islamic commercial banks in Indonesia. Through particular systematic equations, logistic regression analysis can evaluate the interaction between the influence of the independent variable on the dependent variable. Numbers 0 and 1 are the basic categories in the analysis which use the logit model. Number 0 defines Islamic commercial banks in the safe zone, and number 1 defines Islamic commercial banks in the distress zone.

This study applied the dependent variable; a z-score calculates the model Zmijewski. Independent variables are operating expense (OER), net operating margin (NOM), capital

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adequacy ratio (CAR), size, gross domestic product (GDP), interest rate, exchange rate, and inflation. This research model consists of five models, which are:

First model

$$Y = Yn\left(\frac{P_i}{1-P_1}\right) = \beta_0 + \beta_1 OER + \beta_2 NOM + \beta_3 CAR + \beta_4 SIZE + \varepsilon$$

Second model

$$Y = Yn\left(\frac{P_i}{1-P_1}\right) = \beta_0 + \beta_1 OER + \beta_2 NOM + \beta_3 CAR + \beta_4 SIZE + \beta_5 PDB + \varepsilon$$

Third model

$$Y = Yn\left(\frac{P_i}{1-P_1}\right) = \beta_0 + \beta_1 OER + \beta_2 NOM + \beta_3 CAR + \beta_4 SIZE + \beta_5 PDB + \beta_6 RATE + \varepsilon$$

Fourth model

$$Y = Yn\left(\frac{P_i}{1-P_1}\right) = \beta_0 + \beta_1 OER + \beta_2 NOM + \beta_3 CAR + \beta_4 SIZE + \beta_5 PDB + \beta_6 RATE + \beta_6 KURS + \varepsilon$$

Fifth model

$$Y = Yn\left(\frac{P_i}{1-P_1}\right) = \beta_0 + \beta_1 OER + \beta_2 NOM + \beta_3 CAR + \beta_4 SIZE + \beta_5 PDB + \beta_6 RATE + \beta_7 KURS + \beta_8 INF + \varepsilon$$

RESULT AND DISCUSSION

Based on the calculations from the three financial distress prediction models, the Altman model predicts that Islamic commercial bank conditions in Indonesia during the Pandemic Covid-19 tend to improve. Six Islamic commercial banks were in the grey zone before the Pandemic Covid-19, and five were in the grey zone during the Pandemic Covid-19.

Zmijewski's model predicts that Islamic commercial bank conditions in Indonesia during the Pandemic Covid-19 are likely to worsen. There were two Islamic commercial banks in the distress zone before the Pandemic Covid-19, but during this time there were five Islamic commercial banks in the distress zone.

Grover model predicts that Islamic commercial bank conditions in Indonesia before and during the Pandemic Covid-19 are in good condition. All Islamic commercial banks in Indonesia are in a safe zone before and during the pandemic. All calculations from the three financial distress prediction models are included in Appendix.

Table 1. Variables in the Equation

Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
			Sig.		
NOM	-2.439**	-6.059**	-6.485**	-6.621**	-6.523**
SIZE	-.321	-.495	-.077	-.128	-.059
CAR	-.444**	-.779***	-.724	-.754	-.709
OER	1.247*	2.705*	2.906*	2.952*	2.959*
GDP		-.988**	-.862**	-.880**	-.893**
RATE			-1.492	-1.419	-1.257

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Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
			Sig.		
ExRate				3.165	2.695
INF					.923
Constant	.002	.005	.007	.342	.342
Nagelkerke R^2	.822	.909	.915	.915	.916

Description: * significant at 1% significant level
** significant at 5% significant level
*** significant at 10% significant level

Table 1 described that in model 1, the OER variable affected a significance level of 1%, while CAR and NOM affected a 5% significance level. In model 2, the OER variable affects the 1% significance level, and the NOM and GDP variables significantly affect the 5% significance level. In comparison, the CAR variable affects the 10% significance level. Models 3,4 and 5 show that the OER variable affected the 1% significance level, while the NOM and GDP variables affected the 5% significance level. Other variables, namely SIZE and INF, have no significant relationship to financial distress in all models.

Partial test results showed that OER variables affected the financial distress of Islamic commercial banks in Indonesia with significant positive relationships. It indicates that if the OER ratio increases, the probability of Islamic commercial banks in the distress zone will become higher. The more significant the OER ratio, the smaller the bank's profitability, so the possibility of the bank facing financial distress risk will increase because the operational costs incurred by the bank are more significant than the operating income obtained. This study's results are relevant to Theodorus & Artini (2018) research that OER variables have positive implications and significantly predict the probability of financial distress in banking companies.

Generally, CAR had a negative relationship with financial distress, indicating that if the CAR increases, the probability of Islamic commercial banks in the distress zone is lower. However, the addition of macroeconomics variables in a model 3, 4, and 5 cause the significance of CAR to increase because the correlation between independent variables becomes high; therefore, CAR has no significant impact on the financial distress of Islamic banks. The results of this study are relevant to the research of Shidiq & Wibowo (2017) that CAR variables paired with macroeconomic variables do not significantly affect the financial distress of Islamic commercial banks in Indonesia.

Partial test results showed that NOM variables affected the financial distress of Islamic commercial banks in Indonesia with significant negative relationships. It indicates that if the NOM ratio increases, the probability of Islamic commercial banks being in the distress zone will become lower. The relationship between NOM and financial distress is in line with signaling theory, where if NOM shows the positive value and is not in a losing position, customers will believe that investing in the bank can make a big profit (Sadıda, 2018). The result of this study was in line with the research done by Pristianti & Musdholifah (2020) and Asyikin & Chandrarin (2018) that found NOM variables have negative implications and significantly predict the probability of financial distress in banking companies.

The SIZE did not affect the financial distress of the Islamic commercial banks in all models. A large bank does not always guarantee health but must also be supported by the management and performance. Therefore, the bank size does not impact the risk of

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financial distress. The result of this study was in line with Sari & Sadriatwati (2020); Theodorus & Artini (2018) that the size variable does not significantly affect the financial distress of Islamic commercial banks in Indonesia.

GDP variables affected the financial distress of Islamic commercial banks in Indonesia with significant negative relationships in all models. It indicates that if the GDP ratio increases, the probability of Islamic commercial banks being in the distress zone will be lower. If the economy experiences growth, the real GDP growth rate will increase, and the probability of banks facing the risk of financial distress will decrease. The results of this study are relevant to the research of Baselga-pascual et, al. (2015) and Wulandari et al. (2017) that the GDP variable has a negative and significant relationship to the financial distress of Islamic commercial banks.

Partial test results showed that interest rate (RATE) variables did not affect the financial distress of Islamic commercial banks in Indonesia. The interest rate rigidity theory explains that the changes did not directly follow changes in the BI Rate in bank deposit/credit interest rates. Therefore, the case study of Islamic banking, which carries out its operational activities, did not use interest rates but ICMR as a reference for determining margins and changes in the BI Rate, followed by the stability of interest rates in conventional banking. Both deposit/credit rates did not impact the financial distress of Islamic banks. The result of this study was in line to the research by Indriyani & Nazar (2020) which stated that the macro BI Rate did not affect the estimate of financial distress for Islamic banks.

The exchange rate variable had no significant effect on the financial distress of Islamic commercial banks. It is due to the stability of the rupiah exchange rate during the study period. The maintained Rupiah exchange rate stability did not affect the financial distress condition of Islamic banks from Q1-2018 to Q3-2020. The results of this study was in line with the research of Indriyani & Nazar (2020), which stated that the exchange rate did not affect the estimation of Islamic bank financial distress at a macro level.

Inflation had no significant effect on the financial distress of Islamic commercial banks. Inflation instability that occurred during the study period did not have a significant impact on Islamic banking. It s can be observed in the increment of total third-party funds (TPF) and financing during the research period. It indicates that the purchasing power of people for Islamic banking products is relatively stable because the operations of Islamic banks benefit from profit sharing and ratio models. The result of this study was in line to Kriswanto (2019) which found that the inflation variable has no significant effect on the financial distress of Islamic commercial banks.

Meanwhile, the value of the model's Nagelkerke R Square test of model 1 is 0.822, meaning that the factors that affected the financial distress of Islamic commercial banks in Indonesia can be explained by 82l. The value of the Nagelkerke R Square model 2 test result is 0.909, which means that the factors that affect the financial distress of BUS in Indonesia can be explained by 91% by the model. The value of the Nagelkerke R Square test results for models 3 and 4 is 0.915, meaning that the factors that affect the financial distress of Islamic commercial banks in Indonesia can be explained by 92% by the model. The value of the Nagelkerke R Square model 5 test result is 0.916, meaning that the factors that affect the financial distress of BUS in Indonesia can be explained by 92% by the model.

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Table 2. Estimated logistic regression parameters based on Hosmer and Lemeshow test

Model	Chi-square	df	Sig.
1	6.213	8	.623
2	.773	8	.999
3	.647	8	1.000
4	.698	8	1.000
5	.715	8	.999

The results of the model fit test in Table 2 show that all models' significance value was greater than the significance level (> 0.05). In addition, the Chi-square value generated by all models is also higher than the significance level (> 0.05). Therefore, the model fit test results indicate that all research models have adequately described the data or goodness of fit.

Table 3. Estimated logistic regression parameters based on the classification model

		Observed	Safe	Distress	Overall Percentage
Predicted Z Score	model 1	safe	105	3	97.2
		distress	3	21	91.7
		percentage correct			96.2
	model 2	safe	105	3	97.2
		distress	3	21	91.7
		percentage correct			96.2
	model 3	safe	106	2	98.1
		distress	2	22	91.7
		percentage correct			97.0
	model 4	safe	106	2	98.1
		distress	2	22	91.7
		percentage correct			97.0
	model 5	safe	106	2	98.1
		distress	2	22	91.7
		percentage correct			97.0

In Table 3, it can be concluded that model 1 can categorize the data correctly by 96%. The data shows that 132 data were processed, and 127 were successfully categorized correctly. The estimation results can categorize banks in the safe zone by 97%, meaning that 105 of the 108 banks are in the safe zone, while the other three are in the distress zone. The estimation results for banks in the distress zone are 92%, meaning that 21 of the 25 banks are in the distress zone, while the other two are in the safe zone.

Model 2 can categorize the data correctly by 96%. The data shows that 132 data were processed, and 128 were successfully categorized correctly. The estimation results can categorize banks in the safe zone by 98%, meaning that 105 of the 108 banks are in the safe zone, while the other three are in the distress zone. The estimation results for banks in the distress zone are 92%, meaning that 21 out of 25 banks are in the distress zone, while the other two are in the safe zone.

Models 3, 4, and 5 can categorize data correctly by 97%. The data shows that 132 data were processed, and 128 were successfully categorized correctly. The estimation

results can categorize banks in the safe zone by 98%, meaning that 106 of the 108 banks are in the safe zone, while the other two are in the distress zone. The estimation results for banks in the distress zone are 92%, meaning that 22 out of 24 banks are in the distress zone, while the other two are in the safe zone.

Based on the results above, this study described the strength of Islamic commercial banks in Indonesia before and during the Pandemic Covid-19. However, the management of Islamic banks have to prevent the occurrence of financial distress so that Islamic banks can continue to run their business: *first,* to mitigate the risk to reduce losses that may result from the impact of the risk. One of them is restructuring financing. Restructuring financing can reduce the expense of Islamic banks so that the stipulated provisions can maintain the NOM ratio of Islamic banks. *Second,* to maximize the digitization of banking services so that they are better able to optimize the function of the office network to minimize operational costs incurred by Islamic banks so that the efficiency of Islamic banks as a proxy by the OER ratio can be maintained. *Third,* restructuring assets, namely conducting the preparation of Islamic bank activities, improve the performance of Islamic banks. Options that Islamic banks can consider in restructuring assets reduce long-term spending, releasing assets considered non-productive. *Fourth,* conducting operational restructuring by identifying the causes of the decline in operational performance and developing strategies to achieve improvements. Operational restructuring focuses on the ability of Islamic banks to generate profits. Islamic banks can consider operational restructuring options, including reducing operational costs and managing risky assets. *Fifth,* to conduct organizational restructuring by rearranging the management and organizational structures, division of labor, and other matters relating to managerial and organizational issues. Islamic banks can consider reorganization and change of control in organizational restructuring.

CONCLUSION

This study aims to his study aims to predicts financial distress before and during the pandemic and to analyze the influence factors on the financial distress of sharia commercial banks in Indonesia. The primary results of this study demonstrate that Islamic commercial banks in Indonesia are in a safe zone before and during the Pandemic Covid-19. This result based on the test of several variables namely NOM, OER, CAR and GDP. From this point of view, by looking to the size, exchange rate, and inflation pandemic Covid-19 do not significantly affect to the financial distress of Islamic commercial banks in Indonesia.

Despite of the compelling results, this study acknowledges a research limitation. Further research should use wider and various independent variables to get a better research model and more significant results. In addition, further research should use other research objects such as Islamic business units or Islamic non-bank financial industries such as Islamic insurance, Islamic financing institutions, and others.

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