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Determinants of Bank Failre in All Asian Banks During The Covid-19 Pandemic

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Abstract

This research aims to determine the determining factors that led to bank failures in all Asian banks during the Covid-19 pandemic. The variables used to determine the factors of bank failure include Non-Performing Loans, Capital Adequacy Ratio, Equity to Total Assets, Total Assets, and L Assets to bank bankruptcy. This research uses a quantitative research design. The sample used is banking companies in Asia for 2017 - 2022. The data used in this research is secondary data from the financial reports of each Asian bank for the period 2017-2022. The data analysis technique used is panel data regression analysis. This research shows that Non-Performing Loans have a positive and significant effect on bank bankruptcy. Equity to Total Assets has a negative and significant impact on bank bankruptcy.

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1. Introduction

The coronavirus or COVID-19 outbreak has impacted all aspects of people's lives in Indonesia, especially the economic sector. Covid-19 affects all sectors, not only the health sector but other sectors, especially the banking sector. The impact of the COVID-19 pandemic on banking is at the level of bank health, so banking companies need to maintain bank health (Aditia et al., 2020).

Maintaining bank stability is an essential topic for policymakers in developing and developed countries. Policymakers and regulators have devoted much effort to reforming the banking system to increase bank stability in response to the global financial crisis (Kasri & Azzahra, 2020). The immediate critical economic impact for Indonesia is the difficulty of some industries in Indonesia that provide funding to United States financial institutions.

Financial or non-bank companies that distribute funds to other sources of income through the purchase of shares or letters of credit on foreign financial instruments, such as Citigroup, UBS, Merrill Lynch, Morgan Stanley, Lehman Brothers, Fannie Mae, Freddie Mac, American International Group (AIG) as well as existing ones. On the other hand, the indirect impacts of the crisis are reduced liquidity, soaring interest rates, falling prices of goods, weakening of the rupiah exchange rate, and weakening of the development of funding sources. Likewise, the decreasing confidence level of customers, investors, and the market in various financial institutions has weakened the capital market (Rumalutur et al., 2021).

The role of banks in the economy is vital, even though they are the first institutions to suffer losses when the economy recedes into crisis. The performance of the banking system influences and regulates most economic activities and vice versa

(Angraeni et al., 2020). Hamida et al. explained that the impact of the global financial crisis on Indonesian banking was that there was a withdrawal of funds by foreign investors in various Indonesian companies, resulting in banks experiencing a liquidation crisis, a decrease in the value of productive assets (earning assets) in the form of credit and securities purchased by banks, a decrease in the adequacy of capital (CAR) mainly due to losses originating from provisions for decreased capital adequacy of productive assets and failure to pay credit interest (Hamida et al., 2017).

A study shows that non-performing loans have a significantly positively affect the probability of banking bankruptcy (Yusrizal & Fransisca, 2018; Nuranto & Ardiansari, 2017; and Abdelaziz et al. (2022). However, re-search Duho et al. (2020); Siddique et al. (2022) and Haryanto et al. (2021) shows that credit risk has a negative effect on profitability. Other research related to Capital Adequacy Ratio (CAR) found that CAR positively affected financial bankruptcy (Humaira, 2021; Yusrizal & Fransisca, 2018; Hadiwardoyo, 2020). Further research shows that CAR has a positive and insignificant effect on bank bankruptcy (Nuranto & Ardiansari, 2017).

Research related to equity to total assets (ETA) shows that ETA positively affects on bank bankruptcy (Rumalutur et al., 2021). Different research results show that ETA harms bank bankruptcy (Ishak & Mongid, 2020). And ETA does not affect bank bankruptcy (Angraeni et al., 2020).

Research related to Total Assets in bankruptcy shows that Total Assets do not affect bank bankruptcy (Hikmah & Mutmainah, 2021). Some obtained the results that Total Assets affect bank bankruptcy (Nurwulandari & Filia, 2023). Research associated with LAset on bank bankruptcy shows that LAset has a negative and insignificant effect (Ishak & Mongid, 2020; Wakhidah, 2014). Apart from that, LAset does not affect bank bankruptcy (Angraeni et al., 2020)

The inconsistency of results regarding the determinants of bank failure shows a high level of specificity of the influence of variables in different environments and periods in determining bank failure. In this research, the author examines the bankruptcy or failure of banking companies, namely by predicting the bankruptcy of banking companies during the COVID-19 pandemIC, which is influenced by several factors. This research aims to determine the determinants of bank failure in all Asian banks during the Covid-19 pandemic. The variables used to determine the determinants of bank failure during the COVID-19 pandemic include Non-Performing Loans, Capital Adequacy Ratio, ETA, Total Assets, and L Assets against bank bankruptcy during COVID-19. This research aims to determine the determining factors that led to bank failures in all Asian banks during the Covid-19 pandemic.

2. Hypothesis Development

According to Yusrizal & Fransisca (2018), Non-Performing Loans (NPL) positively and significantly influence banking bankruptcy. The NPL level has a crucial role in determining the health and sustainability of the banking sector. NPL is not just a statistical figure but an indicator that reflects the extent to which a bank can manage its credit risk. According to Nuranto & Ardiansari (2017), banks with low NPL levels are generally considered more financially stable, while high NPLs can indicate significant risk. Effective credit risk management is critical in preventing an increase in NPLs, which could harm the sustainability of bank operations.

H_1: Non-Performing Loans influence Bank Bankruptcy during the Covid-19 pandemic

According to Yusrizal and Fransisca, Luciana (2018), Non Performing Loans (NPL) positively and significantly influence banking bankruptcy. A high Capital Adequacy Ratio reflects that the bank has sufficient capital to cover potential losses from its portfolio of assets or liabilities. This is different from Hutasoit & Haryanto (2016), where NPLs do no affect on bank bankruptcy. Sufficient capital will protect against the risk of bankruptcy because it can be used to cover losses and maintain the bank's financial health. Conversely, a low CAR can increase the risk of bankruptcy because the bank may not have enough capital to cover possible losses.

H_2: Capital Adequacy Ratio influences bank bankruptcy during the Covid-19 pandemic

According to Sari et al. (2020), ROE does not affect bank bankruptcy. By increasing their capital ratio, banks demonstrate that they have more capital available to support operations and bear risks. This provides a sense of security and confidence for creditors because the proportion of debt that the bankmust meet becomes smaller. Similar results were obtained by Dahruji & Muslich (2022), where ROE did not affect bank bankruptcy. Capital con-

tribution to assets can be seen through the ratio of equity to total assets or equity capital to total assets. The equity to total assets ratio shows the percentage of investment in tangible assets funded by one's capital.

H_3: ETA influences bank bankruptcy during the Covid-19 pandemic

According to Hikmah & Mutmainah (2021), Total Assets do not affect bank bankruptcy. Meanwhile, according to Nurwulandari & Filia (2023), total assets influence bank bankruptcy. Customer and investor confidence is also often related to the size of total assets, where banks perceived as significant and stable can attract more customers and investments. Therefore, a bank's total assets are integral in managing risk and maintaining financial stability to avoid potential bankruptcy.

H_4: Total Assets influence Bank Bankruptcy during the Covid-19 pandemic

Sutra & Mais (2019) found research results that Liquidity Assets (L Assets) did not affect bank bankruptcy. Liquidity reflects a bank's ability to meet short-term obligations using current assets and has an essential relationship with bankruptcy risk. Liquidity is the ability of a company to fulfil all financial obligations that can be immediately disbursed or matured. Company size is a scale on which the size of a company can be classified in various ways (log size, total assets, share market value, etc.) (Adria & Susanto, 2020). Nurwulandari & Filia (2023) state that L Assets influence bank bankruptcy. Thus, L Assets can indicate the bank's ability to manage liquidity risk and avoid financial conditions that could potentially lead to bank bankruptcy.

H_5: L Aset influences bank bankruptcy during the Covid-19 pandemic

3. Data and Methods

This research uses a quantitative research design. This research explains the factors that cause bankruptcies of banking companies due to the pandemic as shown by several variables, including NPL, CAR, ETA, Total Assets and L Assets and Bank Bankruptcy (Y). The period use is 2017 – 2022.

The population in this study was 155 banks in Asia. The sampling technique used in this research was saturated. The saturated sampling technique is a sample determination technique in which all population members are used as samples. Therefore, the samples used in this research were 930 from 2017-2022.

This research uses secondary data, namely the annual financial reports of commercial banks for six years from 2017 to 2022, which are the research sample. Financial reports can be accessed directly via the website of each sample throughout Bank Asia. In this study, researchers used panel data to simultaneously see specific influences and time. The financial report used is the company's most recent annual financial report that has been audited.

The variables used in this research include:
Non Performing-Loan is one form of problem in the loan payment process, which is measured by a formula (Tanjung, 2018):

$$\textbf{NPL Ratio} = \frac{\textbf{Total NPL}}{\textbf{Total Kredit yang Diberikan}}$$

Capital Adequacy Ratio can increase customer security, which can indirectly increase customer trust in the bank, which can then have a positive impact on increasing bank profitability, as measured by the formula (Wihauda, 2015):

$$ClR = \frac{Modal}{Aset\ Total} x100$$

Equity to Total Asset is a variable that is explained as the proportion of funds from assets whose funding source comes from equity or shareholders, which is measured by the formula (Damayanti & Mawardi, 2022):

$$\textbf{ETA} = \frac{\textbf{Total Utang}}{\textbf{Total Aset}} \textbf{x100\%}$$

Total Asset are essential for assessing a bank's financial health (Junaeni, 2017). Liquidity Assets (L Asset) Bank tends to experience economies of scale. Economies of scale is a concept in which the average cost of production or operations per unit decreases as it increases, as measured by (Firmansyah, 2014):

$$\textbf{L Aset} = \frac{\textbf{Aset Lancar}}{\textbf{Kewajiban Lancar}} \textbf{x100}$$

Bank Bankruptcy, as measured by Altman (Z-Score) (Ishak & Mongid, 2021)

The data collection methods used in this research include documentation and observation methods. This research uses panel data regression analysis techniques through the common effect model, fixed effect model, random effect model, chow test, and Hausman test.

4. Results

Description of Research Data

The results of the descriptive analysis above show that each variable has a mean value that is

greater than the standard deviation value. This shows that the data in the variables is less varied. This indicates that all variables are quite good at handling the objects in them. The standard deviation value is smaller than the mean, indicating no data deviation in the variable. The research data sample was 856 samples. The results of the description of research data in this study are as table 1.

Table 1. Description of Research Data

Variable	Mean (%)	St. Deviation
Bankruptcy (Y)	14.010	18.010
NPLs (X_1)	3.210	5.550
CAR (X_2)	116.970	1994,940
ETA (X_3)	9.130	9.810
Total Assets (X_4)	1.010	2.740
L Assets (X_5)	19.700	45.310

Source: Eviews Data Processing Results (2023)

Selection of Panel Data Regression Estimation Techniques

The regression model estimation method using panel data can be carried out using three types of estimation approaches: the Common Effect Model, Fixed Effect Model, and Random Effect Model. Of the three regression models that can be used to estimate panel data, the regression model with the best results will be used in the analysis. Test are carried out to determine the best technique for panel data regression, namely the Chow and the Hausman tests.

Common Effects Model (CEM)

The results of processing using the Common Effect Model are as table 2. From the CEM test results, it can be seen that three variables get a significance value of <0.05. These variables are NPL, ETA, and L Assets. This shows that these three variables partially influence the bank bankruptcy variable. From the F-statistic results, it is known that the sig value obtained is 0.000 <0.05; this shows that all variables have a significant effect on bank bankruptcy simultaneously with an R-squared value of 68%.

Table 2. Common Effect Model

Variable	Coefficient	t	Prob.
Constant	7.69	13.23	0.00
NPLs (X_1)	2.59	40.09	0.00
CAR (X_2)	-4.73	-0.27	0.79
ETA (X_3)	-0.16	-4.31	0.00
Total Assets (X_4)	-133.09	-1.02	0.30
L Assets (X_5)	-0.02	-2.74	0.01
R-Squared	0.680		
F-statistics	361.430		
$F_{Prob.}$	0.000		

Fixed Effect Model (FEM)

The results of processing using the Fixed Effect Model are as table 3. From the FEM test results, it can be seen that two variables get a significance value of <0.05. These variables are NPL and ETA. This shows that these two variables partially influence the bank bankruptcy variable. From the F-statistic results it is known that the sig value obtained is 0.000 <0.05; this shows that all variables have a significant effect on bank bankruptcy simultaneously, with an R-Squared value of 94.5%.

Table 3. Fixed Effect Model

Variable	Coefficient	t	Prob.
Constant	8.490	17.900	0.000
NPLs (X_1)	2.260	34.820	0.000
CAR (X_2)	-4.200	-0.470	0.630
ETA (X_3)	-0.150	-6.400	0.000
Total Assets (X_4)	-3.200	-1.060	0.280
L Assets (X_5)	-0.000	-0.320	0.740
R-Squared	0.945		
F-statistics	79.140		
$F_{Prob.}$	0.000		

Test Chow

The Chow test is carried out to make comparisons or choose the best model, the Common Effect Model or the Fixed Effect Model. Decision-making is made by looking at the probability value (p) for Cross-Section F. If the p value is > 0.05.The model selected is the Common Effect Model, but if p < 0.05, then the model chosen is the Fixed Effect Model.

Table 4. Chow test

Effect Test		Significance
Cross-section F		0.000
Chi-Square	Cross-section	0.000

Based on the Chow test table 4, the Cross-Section F and Chi-Square significance values' two probability values are more than alpha 0.05, thus rejecting the null hypothesis. So, to show Fixed Effect, the best model to use is a model using the Fixed Effect method. Based on the results of the Chow test, which rejected the null hypothesis, the data testing continued with the Hausman test.

Random Effect Model (BRAKE)

The results of processing using the Random Effect Model are as table 5. From the FEM test results, it can be seen that two variables get a significance value of <0.05. These variables are NPL and ETA. This shows that these two variables partially

influence the bank bankruptcy variable. From the F-statistic results, it is known that the sig value obtained is 0.000 <0.05; this shows that all variables have a significant effect on bank bankruptcy simultaneously, with an R-Squared value of 66.1%.

Table 5. Random Effect Model

Variable	Coefficient	t	Prob.
Constant	8.150	9.580	0.000
NPLs (X_1)	2.310	38.680	0.000
CAR (X_2)	-4.170	-0.470	0.630
ETA (X_3)	-0.150	-6.530	0.000
Total Assets (X_4)	-2.420	-1.160	0.240
L Assets (X_5)	-0.000	-0.610	0.540
R-Squared	0.661		
F-Statistics	331.630		
$F_{Prob.}$	0.000		

Hausman test

The Hausman test is carried out to compare or choose the best model, the Fixed Effect Model and the Random Effect Model. Decision-making by looking at the probability value (p) for Random Cross-Section. If the p-value is > 0.05 then the model selected is the Random Effect Model, but if p < 0.05, then the model chosen is the Fixed Effect Model. The results of the Hausman test show the probability of the Random cross-section value of 0.0706. Based on the Hausman test above, the significance value obtained from the random cross-section is 0.0706, more than (0.05), so statistically, Ho is accepted, and Ha is accepted, so the appropriate estimation model for panel data regression is the Random Effect Model.

Hypothesis Testing

Based on the Chow and Hausman tests, the appropriate panel data regression model for this research is the Random Effect Model. The regression results using the Random Effect Model are as table 6.

Table 6 Random Effect Model Panel Data Regression Results

Variable	Prediction	Coe.	t	Prob.
Constant		8.150	9.580	0.000
NPLs (X_1)	Positive	2.310	38.680	0.000
CAR (X_2)	Negative	-4.170	-0.470	0.630
ETA (X_3)	Negative	-0.150	-6.530	0.000
Total Assets (X_4)	Negative	-2.420	-1.160	0.240
L Assets (X_5)	Negative	-0.000	-0.610	0.540
R-Squared	0.660			
F-Statistics	331.630			
$F_{Prob.}$	0.000			

Based on the results of the Panel data regression using the Random Effect Model above, the results show that:Based on the regression results with the Random Effect Model, it is known that the R-square value is 0.661105. This shows that variations in the dependent variable, namely bank bankruptcy, can simultaneously be explained by the independent variables, namely NPL, CAR, ETA, Total Assets, and L Assets, amounting to 66.11%. Other factors outside the variables studied explain the remaining 33.89%. Because the R-squared value obtained in this study is almost near zero, the independent variables' ability to define the dependent variable is limited. This happens because, in the research model, only two variables have a significant influence on bank bankruptcy, namely the NPL and ETA variables.

Based on the results of the t-test, the t-statistic value of NPL is obtained 38.686 with a positive direction and a significance value of 0.000 less than 0.05. So it can be concluded that the hypothesis is accepted, where NPL has a positive and significant effect on bank bankruptcy. Based on the t-test results, the t-statistical value of CAR is obtained -0.478 with a negative direction and a significance value of 0.633, which is more than 0.05. So, the hypothesis is rejected, where CAR has no positive and significant effect on bank bankruptcy. Based on the t-test result, the t-statistic value of ETA is obtained at -6.536 with a negative direction and a significance value of 0.000 less than 0.05. So, the hypothesis that ETA negatively and significantly affects bank bankruptcy is accepted. Based on the t-test results, the t-statistical value for Total Assets is obtained -0.613 with a negative direction and a significance value of 0.245, which is more than 0.05. So, the hypothesis is rejected, where Total Assets do not positively and significantly affect bank bankruptcy. Based on the t-test results, the t-statistical value for L Asset is obtained -0.613 with a negative direction and a significance value of 0.540 more than 0.05. So, the hypothesis is rejected, where L Assets does not positively and significantly affect bank bankruptcy.

5. Discussion

Non-Performing Loans influence Bank Bankruptcy during the Covid-19 pandemic

The Non-Performing Loan Ratio or NPL is a type of financial ratio that is important for investors in analyzing a bank's health. NPL has a positive and significant effect on bank bankruptcy. This is because during the COVID-19 pandemic, banks experienced an increase in non-current credit, making banks unable to finance all their needs, causing banks to go bankrupt. This is in line with research

conducted by Yusrizal and Fransisca, 2018 and Nuranto et al., 2017 where Non-Performing Loans significantly positively affect the probability of banking bankruptcy. The greater the NPL ratio value indicates that the bank cannot manage its credit, the lower the health level, so that the possibility of the bank experiencing bankruptcy is also greater. In line with Khamisah et al. (2020), where NPL reflects credit risk, the smaller the NPL, the smaller the credit risk borne by the bank. Banks with high NPLs will increase the costs of productive asset reserves and other costs, resulting in potential bank losses. In contrast to Asyva et al. (2021), where research shows that NPLs do no affect bank bankruptcy. Apart from that Ginting & Mawardi (2021), also obtained results showing that NPL did not affect bank bankruptcy. It can be explained that the higher the NPL is followed by the decreasing bank bankruptcy because lending is the main function of banks as financial intermediary institutions. The influence is not significant. It can be concluded that the NPL ratio cannot be used as an Early Warning System to prevent Financial Distress in Commercial Banks in Indonesia.

Capital Adequacy Ratio influence Bank Bankruptcy During The Covid-19 Pandemic

Capital Adequacy Ratio (CAR) is a ratio that shows a bank's ability to maintain existing capital to cover possible losses in credit, investments, securities and receivables from other banks. CAR does not have a positive and significant effect on bank bankruptcy. During the Covid-19 pandemic, the government set minimum capital requirements for each bank. So, the amount of the CAR is adjusted to the CAR provisions that apply internationally, namely to the standards issued by the Bank for International Settlements (BIS). This increase in CAR aims to improve performance and ensure that banking principles of prudence are always guaranteed. If the CAR ratio value is lower than the provisions set by Bank Indonesia, the bankruptcy level will be higher. This aligns with Nuranto & Ardiansari (2017), where CAR negatively relates to bank bankruptcy. This is likely to happen in banking companies, most of which have been able to manage their capital so that banks do not experience asset depreciation due to risky or problematic assets. This contrast with Asyva et al. (2021), where CAR affects bank bankruptcy. Apart from that, Ginting (2017) also obtained results showing that CAR significantly influences bank bankruptcy.

Equity Total Assets Influence Bank Bankruptcy During The Covid-19 Pandemic

Equity total assets is a financial metric used to measure the extent to which a portion of the total assets of an entity (such as a company or bank) is funded by equity or own capital. ETA has a negative and significant effect on bank bankruptcy. During the COVID-19 pandemic, Bank Asia did not have sufficient capital because a lot of financing could not be financed, and credit stopped, which impacted bank bankruptcy. Increasing ETA will lead to lower bank bankruptcies because the growth of the equity ratio will manifest a negative relationship with bank bankruptcies. This research is not in line with Rumalutur (2021) that ETA positively affect bank bankruptcy. This aligns with Ishak & Mongid (2020), who state that ETA harms bank bankruptcy. Meanwhile, Angraeni et al. (2020) explained that ETA does not affect bank bankruptcy.

Total Assets Influence Bank Bankruptcy During The Covid-19 Pandemic

Total Assets is a term used in financial reports to refer to the total economic value of all resources and claims owned by an entity (such as a company or financial institution) at a certain time. Assets include everything that is owned by an entity and has measurable economic value. Total Assets do not have a positive and significant effect on bank bankruptcy. In this case, the wealth owned by each Asian Banking Institution has not decreased due to the absence of asset sellers during the COVID-19 period; this shows that total assets do not affect bank bankruptcy. This research aligns with Hikmah & Mutmainah (2021), where Total Assets do not affect bank bankruptcy. This contrasts with Sutra & Mais (2019), where total assets affect bank bankruptcy. This is also different from the results of Khusnudin & Munawir (2022), where total assets significantly affect bankruptcy predictions.

Liquidity Assets influence Bank Bankruptcy During The Covid-19 Pandemic

Liquidity assets refer to assets that can be quickly converted into cash without experiencing a significant decline in value. These assets are important because they provide an entity (such as a company or individual) with the ability to quickly meet financial obligations or urgent needs. L Asset does not have a positive and significant effect on

bankruptcy. The results of this research are in line with Ishak and Mongid (2021), Wakhidah (2014), and Angraeni, et.al (2020), where LAset does not affect bank bankruptcy.

6. Conclusions and Suggestions

Conclusion

Based on the results of research and discussion, NPL and ETA have a positive and significant effect on partial bank bankruptcy. Meanwhile, CAR, ETA, Total Assets and Liquidity Assets do not affect bank bankruptcy.

Suggestion

Facing potential bankruptcy during the pandemic is by maintaining the NPL figure. This can be done with techniques for handling problem loans based on their category or collectibility. Substandard collectability is quite easy to repair, making it smooth again and reducing NPL. However, credit settlement or credit rescue must be carried out for loans that are in doubtful collectibility and are in default. However, the bank can still collect the uncertain credit category.

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