

Competition and Profitability: Impact on Stability in Indonesian Banking

Ivo Nila Krisna Putri¹, Rida Rahim², Mohamad Fany Alfarisi³

¹correspondent Author: ivonilakrisna1@gmail.com

¹*Andalas University, Indonesia*

²*Andalas University, Indonesia*

³*Andalas University, Indonesia*

| INFO | ABSTRACT |
|--|--|
| Article History Received: 2022-03-16 Revised: 2022-03-30 Accepted: 2022-04-23 | Currently the banking industry has undergone major changes in recent years due to regulatory deregulation. Seeing this, in implementing it, banks must be managed more carefully, one of which is by maintaining it. Banking instability occurs because banks face too many risks. The purpose of this study is to examine how the influence of competition and profitability on banks in the Indonesian banking industry. The population used is commercial banks listed on the Indonesia Stock Exchange in 2015-2019. A series of indicators from internal and external banks are also used in this study to support the research results, which consist of bank size, concentration, inflation, and GDP. That is, banking is measured using three risks, credit risk with NPL proxy, liquidity risk with LDR proxy, and insolvency risk with Z-score proxy. Using panel data analysis, the following results were found in the 2015-2019 research period, competition had a positive and insignificant effect on credit risk, competition had a negative and insignificant effect on liquidity risk and insolvency risk. Profitability has a negative and significant effect on credit risk and insolvency risk, and profitability has a positive and insignificant effect on liquidity risk. |



This work is licensed under [Attribution-NonCommercial-NoDerivatives 4.0 International](https://creativecommons.org/licenses/by-nc-nd/4.0/)

Keywords: Market orientation; Innovation; Business Performance.

INTRODUCTION

Currently the banking industry has undergone major changes in recent years due to regulatory deregulation. Seeing this, in carrying out its functions, banks must be managed more carefully, one of which is by maintaining stability. Stability as opposed to vulnerability or instability, will create a dangerous situation of uncertainty and in extreme cases any disruption to the financial sector will have dire consequences on economic activity and even on political stability (Adusei, M., 2015)

Banks have business activities that show complexity so that they depend on public trust, where this complexity can be seen from the completeness of the business activities carried out by banks. Most banks in Indonesia still rely on credit as the main source of income to finance their operations. However, not all of these loans are free from risk, some of them have quite large risks and can threaten bank stability, namely credit risk. According to Ali (2019), the occurrence of high credit risk can cause banks to experience difficulties in fulfilling their obligations, which is called liquidity risk. The high risk of these two in a bank will increase the bankruptcy of the bank itself.

Risk taking can be influenced by several factors, one of which is competition between banks. The impact of competition between banks and the financial system became a major concern after the emergence of the phenomenon of massive and simultaneous bank failures during the 2008 global financial crisis. According to Brei et al (2020) intense competition will encourage banks to take excessive risks and create threats to stability. financial system. On the other hand, according to Acemoglu et al (2015) in their research, they argue that the lack of competition actually causes the banking system to become fragile. Banks with low competition and dominated by large banks tend

to be more fragile because the behavior of large banks is influenced by the belief in government assistance to save the bank which has a large systemic impact (Too Big To Fail).

According to Apriadi et al (2017) research investigating the dynamic causality relationship between competition and banking stability in Indonesia has emerged, where the relationship between competition and banking stability has been a debate before various world crises occurred both theoretically and empirically. There is currently a debate in the banking literature regarding the effect of competition on bank stability. According to research conducted by Diaconu, R., & Oanea, D (2014) there are two traditional views of competition, namely "Competition-Fragility", more bank competition erodes market power and lowers profit margins. And "Competition-Stability", namely bank stability will actually worsen when the level of competition decreases.

The unprecedented 2008 financial crisis highlighted the importance of the factors that determine bank profitability. In measuring the financial performance of a bank, profitability is one indicator that can be used. According to Hu & Xie (2016) managing a bank is a complex process which involves the interaction of various factors including risk taking and profitability, where these two indicators are the most important of bank performance. According to Tan (2016) profitability reflects bank management especially in the Chinese banking industry, because all banks are encouraged to be listed on the stock exchange in order to get external supervision and funds, higher profitability can increase bank competitiveness. According to Tan et al (2021) banks with low levels of profitability generally have incomplete monitoring and management mechanisms, thereby increasing the volume of non-performing loans and thus leading to an increase in the level of credit risk.

Seeing the problems above, the authors conducted research on stability in the Indonesian general banking industry. Banking instability occurs because banks face too many risks. The level of bank stability in this study was measured using three risk indicators, namely credit risk, liquidity risk, and insolvency risk. According to Ghenimi et al (2017a), the biggest risks faced by banks are credit risk and liquidity risk. Credit risk is the risk that arises because the debtor fails to fulfill its obligations to the bank, while liquidity risk is the risk that arises due to the inability of the bank to finance the increase in assets and fulfill its obligations without causing large losses. Meanwhile, according to Tan et al (2021) using the Z-Score as an indicator in measuring bank stability explains the ratio of provision for loan losses to total loans and ROA volatility. These ratios reflect different risk indicators primarily reflecting credit risk and bankruptcy risk.

In addition to the independent variables above, there are other factors that influence various types of risk in the banking industry, namely bank size. Bank size is basically an important thing in a company. This is because the size of the company describes the size of a company which can be shown by total assets (Laeven et al., 2016). According to Haryanto (2016) the size of the company shows the amount of experience and ability to grow a company which indicates the ability and level of risk in managing investments provided by stockholders to increase investor prosperity so that it shows that large companies are more promising good performance.

Another factor that influences various types of risk in the banking industry in this study is concentration. According to Finance et al (2017) concentration not only has an impact on profitability but also on stability. According to Personal & Archive (2011) the effect of industrial concentration on bank profitability was found to be insignificant. Therefore, this result is in line with the theoretical consideration which states that concentration is not related to profitability, after other effects are controlled for in the model.

Other factors that influence various types of risk in the banking industry in this study are inflation and GDP. According to Personal & Archive (2011) said that macroeconomic control variables such as inflation and cyclical output clearly affect the performance of the banking sector. In terms of the macroeconomic environment, the impact of inflation on banking risk is estimated to

be significant and negative. Inflation adversely affects the financial system and the real economy, exacerbating information asymmetry and making the price level more volatile (Tan et al., 2021). Meanwhile, a higher GDP growth rate increases bank risk. However, ownership of risky assets increases with GDP growth.

Therefore, the reason the researcher conducts research and takes the topic of competition and profitability is due to the large number of business activities carried out by banks in order to increase profitability and the emergence of new banks. And the researcher wants to see whether the many activities and the emergence of new banks will create banking stability or cause fragility in the banking system.

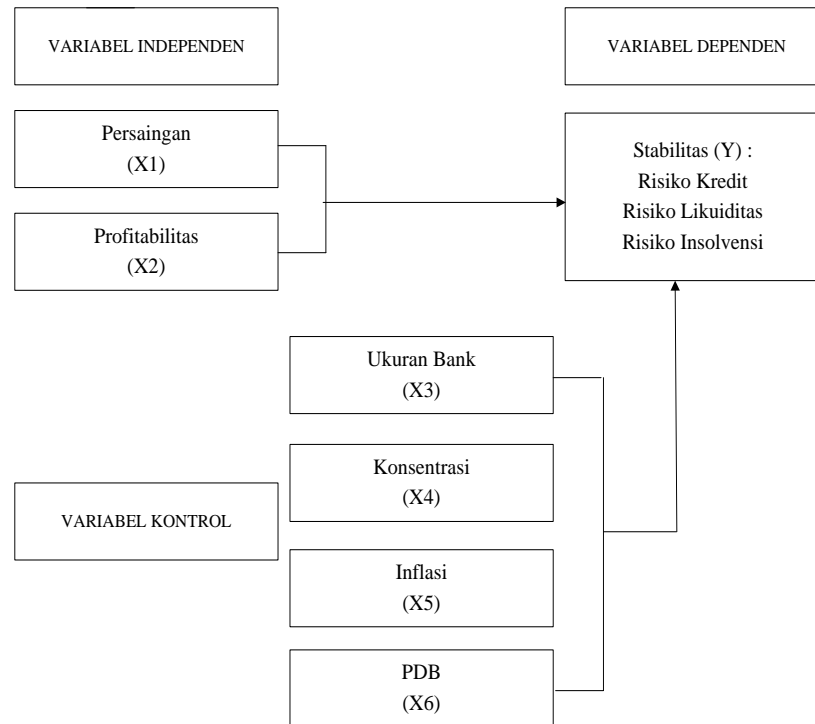


Figure 1. Research Framework

Based on the research framework that has been presented, the authors formulate the following hypotheses:

- H_{1.1}: Competition has a positive and significant effect on credit risk*
- H_{1.2}: Competition has a positive and significant effect on liquidity risk*
- H_{1.3}: Competition has a positive and significant effect on insolvency risk*
- H_{2.1}: Profitability has a negative and significant effect on credit risk*
- H_{2.2}: Profitability has a negative and significant effect on liquidity risk*
- H_{2.3}: Profitability has a negative and significant effect on insolvency risk*
- H_{3.1}: Bank size has a positive and significant effect on credit risk*
- H_{3.2}: Bank size has a positive and significant effect on liquidity risk*
- H_{3.3}: Bank size has a positive and significant effect on insolvency risk*
- H_{4.1}: Concentration has a positive and significant effect on credit risk*
- H_{4.2}: Concentration has a positive and significant effect on liquidity risk*
- H_{4.3}: Concentration has a positive and significant effect on the risk of insolvency*
- H_{5.1}: Inflation has a negative and significant effect on credit risk*
- H_{5.2}: Inflation has a negative and significant effect on liquidity risk*
- H_{5.3}: Inflation has a negative and significant effect on the risk of insolvency*

$H_{6.1}$: GDP has a positive and significant effect on credit risk

$H_{6.2}$: GDP has a positive and significant effect on liquidity risk

$H_{6.3}$: GDP has a positive and significant effect on insolvency risk

RESEARCH METHOD

The research data used are conventional commercial banks listed on the Indonesia Stock Exchange. In this study the population uses 41 commercial banks in Indonesia. The sample in this study is 37 banks listed on the Indonesia Stock Exchange and which have a complete *annual report* on the IDX. Then with the observation period from 2015 to 2019. The sample criteria used are as follows: Public banking listed on the Indonesia Stock Exchange (IDX) for the 2015-2019 period. General banking that consistently has complete data or annual financial reports and is available for further research.

Operational Definition and Measurement of Variables

Dependent Variable

Credit Risk

According to Bank Indonesia (2003) credit risk is the risk arising from the failure of the debtor and/or other parties to fulfill their obligations to the Bank. Formulated as follows:

$$Risiko\ Kredit = NPL = \frac{Kredit\ Bermasalah}{Total\ Kredit} \times 100\%$$

Liquidity Risk

Liquidity risk is the risk due to the Bank's inability to meet maturing obligations from cash flow funding sources and/or from high quality liquid assets that can be used without disrupting the bank's activities and financial condition (Bank Indonesia, 2003).

$$LDR = \frac{Kredit\ yang\ diberikan}{Dana\ Pihak\ Ketiga} \times 100\%$$

Insolvency Risk

The default risk of an individual bank ($Z - score_{i,t}$) is calculated using the following formula:

$$Z - score_{i,t} = \frac{ROA + E/TA}{\sigma ROA}$$

Independent Variable

Competition

The *Lerner index* is used as a proxy for current and future gains derived from price strength.

$$Lerner\ Index = \frac{TR - TC}{TR}$$

Profitability

Profitability can be defined as the company's ability to earn a profit through its business operations using asset funds owned by the company.

$$ROA = \frac{Laba\ bersih\ setelah\ pajak}{Total\ aset}$$

Control Variable

Bank Size

The size of the bank is the amount of wealth owned by a company . Bank size is calculated by the *bank size ratio* as follows:

$$Size\ Bank : Ln (total\ assets\ bank)$$

Concentration

Concentration was measured using the *'Herfindahl Hirschman (HH) index'*. The *Herfindahl Index* is a methodology used to measure the distribution of market share or to calculate market concentration within an industry.

$$H = S_1^2 + S_2^2 + \dots + S_N^2$$

Inflation

According to Ratna & Ginting (2015) inflation can be formulated as a general price increase originating from the disruption of the balance between the flow of money and the flow of goods.

$$INF : \text{Inflation rate (\%)}$$

GDP

GDP is the added value of goods and services. Gross Domestic Product (GDP) is calculated with the following ratio:

$$GDP : \text{GDP growth rate (\%)}$$

The equation model is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \varepsilon_{it} \dots (1)$$

| | |
|--|--|
| Y_{it} | : Credit Risk, Liquidity Risk, Insolvency Risk |
| β_0 | : Constant |
| $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ | : Coef. independent variable |
| X_{1it} | : Competition |
| X_{2it} | : Profitability |
| X_{3it} | : Company Size |
| X_{4it} | : Concentration |
| X_{5it} | : Inflation |
| X_{6it} | : GDP |
| ε_{it} | : Another coefficient |

RESULTS AND DISCUSSION

Classic assumption test

Normality test

Credit Risk

Based on the Kolmogorov-Smirnov test, a value of 0.069 is obtained, therefore it can be said that the residuals are normally distributed because they have a value of $> 0,05$.

Liquidity Risk

Based on the Kolmogorov-Smirnov test, the value obtained is equal 0,550to, therefore it can be said that the residuals are normally distributed because they have a value of $> 0,05$.

Insolvency Risk

Based on the Kolmogorov-Smirnov test, the value obtained is equal 0,438to, therefore it can be said that the residuals are normally distributed because they have a value of $> 0,05$.

Multicollinearity Test

Based on the tests that have been carried out on the dependent variable of various types of risk, the VIF obtained from each variable can be seen in the table below:

Table 1. Multicollinearity Test Results

| Variable | VIF | 1/VIF |
|---------------|------|----------|
| Competition | 1.82 | 0.548916 |
| Profitability | 1.98 | 0.506057 |
| Bank Size | 1.47 | 0.681757 |
| Concentration | 1.15 | 0.867388 |
| Inflation | 1.03 | 0.969670 |
| GDP | 1.11 | 0.897206 |
| Mean VIF | 1.43 | |

Source: Stata15 (processed)

Heteroscedasticity Test

Credit Risk

Table 2. Credit Risk Heteroscedasticity Test Results

| | |
|---------------------|--------|
| <i>chi2 (1)</i> | 7.26 |
| <i>Prob>chi2</i> | 0.0070 |

Source: Stata15 (processed)

Based on the results from table 2 with a *Prob>chi2* value of 0.0070 where $< 0,05$, it can be concluded that there are symptoms of heteroscedasticity. In the equation variable that has heteroscedasticity symptoms, it will produce a biased analysis, so that in the statistics for heteroscedasticity symptoms, a *robust command* is used which can eliminate these symptoms.

Liquidity Risk

Table 3. Heteroscedasticity Test Results Liquidity Risk

| | |
|---------------------|--------|
| <i>chi2 (1)</i> | 0.04 |
| <i>Prob>chi2</i> | 0.0012 |

Source: Stata15 (processed)

Based on the results from table 3. with a *Prob>chi2* value of 0.0012 where $< 0,05$, so it can be concluded that there are symptoms of heteroscedasticity.

Insolvency Risk

Table 4. Insolvency Risk Heteroscedasticity Test Results

| | |
|---------------------|--------|
| <i>chi2 (1)</i> | 86.04 |
| <i>Prob>chi2</i> | 0.0000 |

Source: Stata15 (processed)

Based on the results from table 4. with a *Prob>chi2* value of 0.0000 where $< 0,05$, so it can be concluded that there are symptoms of heteroscedasticity.

Panel Data Regression Model Selection

Credit Risk

a. Chow Test

Table 5. Credit Risk Chow Test Results

| | |
|--------------------|--------|
| <i>F(36, 142)</i> | 4.14 |
| <i>Prob > F</i> | 0.0000 |

Source: Stata15 (processed)

Based on the results of table 5 the obtained *probability* of 0.0000 where $< 0,05$, so it can be concluded that the model used is the *Fixed Effect Model*.

b. *Hausman Test*

Table 6. Hausman Credit Risk Test Results

| | |
|---------------------|--------|
| <i>chi2(6)</i> | 9.18 |
| <i>Prob>chi2</i> | 0.1634 |

Source: Stata15 (processed)

Based on the results of table 6, the obtained *probability* of 0.1634 where $> 0,05$, so it can be concluded that the model used is the *Random Effect Model*.

c. *Multiplier Test*

Table 7. Credit Risk LM Test Results

| | |
|--------------------------|--------|
| <i>chibar2(01)</i> | 32.92 |
| <i>Prob > chibar2</i> | 0.0000 |

Source: Stata15 (processed)

Based on the results from table 7, the *probability obtained is* 0.0000 where $< 0,05$, so it can be concluded that the model used is the *Common Effect Model*.

Liquidity Risk

a. *Chow Test*

Table 8. Liquidity Risk Chow Test Results

| | |
|--------------------|--------|
| <i>F(36, 142)</i> | 4.55 |
| <i>Prob > F</i> | 0.0000 |

Source: Stata15 (processed)

Based on the results from table 8, the obtained *probability is* 0.0000 where $< 0,05$, so it can be concluded that the model used is the *Fixed Effect Model*.

b. *Hausman Test*

Table 9. Hausman Test Results Liquidity Risk

| | |
|---------------------|--------|
| <i>chi2(6)</i> | 0.78 |
| <i>Prob>chi2</i> | 0.9927 |

Source: Stata15 (processed)

Based on the results of table 9, the *probability obtained is* 0.8658 where $> 0,05$, so it can be concluded that the model used is the *Random Effect Model*.

c. *Multiplier Test*

Table 10. Liquidity Risk LM Test Results

| | |
|--------------------------|--------|
| <i>chibar2(01)</i> | 63.88 |
| <i>Prob > chibar2</i> | 0.0000 |

Source: Stata15 (processed)

Based on the results of table 10, the *probability is obtained* of 0.0000 where $< 0,05$, so it can be concluded that the model used is the *Common Effect Model*.

Insolvency Risk

a. *Chow Test*

Table 11. Results of Insolvency Risk Chow Test

| | |
|--------------------|--------|
| <i>F(36, 142)</i> | 7.55 |
| <i>Prob > F</i> | 0.0000 |

Source: Stata15 (processed)

Based on the results of table 11, the obtained *probability* is 0.0000 where $< 0,05$, so it can be concluded that the model used is the *Fixed Effect Model*.

b. *Hausman Test*

Table 12. Hausman Test Results Insolvency Risk

| | |
|---------------------|--------|
| <i>chi2(6)</i> | 6.86 |
| <i>Prob>chi2</i> | 0.3340 |

Source: Stata15 (processed)

Based on the results of table 12, the *probability obtained* is 0.3340 where $> 0,05$, so it can be concluded that the model used is the *Random Effect Model*.

c. *Multiplier Test*

Table 13. LM Insolvency Risk Test Results

| | |
|--------------------------|--------|
| <i>chibar2(01)</i> | 105.05 |
| <i>Prob > chibar2</i> | 0.0000 |

Source: Stata15 (processed)

Based on the results of table 13, the *probability obtained* is 0.0000 where $< 0,05$, so it can be concluded that the model used is the *Common Effect Model*.

Panel Regression Model

Credit Risk

Table 14. Credit Risk Panel Regression Results with Common Effect Model

| Variable | Coef | Probability |
|-----------------|-------------|--------------------|
| constant | 1.131495 | 0.831 |
| Competition | 2.983975 | 0.110 |
| Profitability | -0.5210492 | 0.000 |
| Bank Size | -0.0703443 | 0.333 |
| Concentration | 0.0393658 | 0.681 |
| Inflation | -8,724989 | 0.372 |
| GDP | 34.12375 | 0.731 |

Source: Stata15 (processed)

Based on the table above, the regression equation is obtained as follows:

$$Y_{it} = 1.131495 + 2.983975 X_{1it} - 0.5210492X_{2it} - 0.0703443X_{3it} + 0.0393658X_{4it} - 8.724989X_{5it} + 34.12375X_{6it} + e$$

Liquidity Risk

Table 15. Liquidity Risk Panel Regression Results with Common Effect Model

| Variable | Coef | Probability |
|---------------|------------|-------------|
| constant | 4.798288 | 0.000 |
| Competition | -0.0841223 | 0.366 |
| Profitability | 0.0003375 | 0.967 |
| Bank Size | 0.0291133 | 0.001 |
| Concentration | 0.0134219 | 0.078 |
| Inflation | -0.8728667 | 0.528 |
| GDP | -25.0295 | 0.073 |

Source: Stata15 (processed)

Based on the table above, the regression equation is obtained as follows: $Y_{it} = 4.798288 - 0.0841223X_{1it} + 0.0003375X_{2it} + 0.0291133X_{3it} + 0.0134219X_{4it} - 0.8728667X_{5it} - 25.0295X_{6it} + e$

Insolvency Risk

Table 16. Results of Insolvency Risk Panel Regression with Common Effect Model

| Variable | Coef | Probability |
|---------------|-----------|-------------|
| constant | -53.60398 | 0.056 |
| Competition | -3.145495 | 0.372 |
| Profitability | -1.486037 | 0.000 |
| Bank Size | 0.7402904 | 0.027 |
| Concentration | 0.0159668 | 0.948 |
| Inflation | -10,54474 | 0.825 |
| GDP | 717,408 | 0.181 |

Source: Stata15 (processed)

Based on the table above, the regression equation is obtained as follows:

$$Y_{it} = -53.60398 - 3.145495X_{1it} - 1.486037X_{2it} + 0.7402904X_{3it} + 0.0159668X_{4it} - 10.54474X_{5it} + 717.408X_{6it} + e$$

Determination Test (R²)

Table 17. Coefficient of Determination Test Results (R²)

| Weighted Statistics | | |
|---------------------|---------------|--------|
| Credit Risk | R-Squared | 0.2911 |
| | Adj R-Squared | 0.2613 |
| Liquidity Risk | R-Squared | 0.0861 |
| | Adj R-Squared | 0.0553 |
| Insolvency Risk | R-Squared | 0.2529 |
| | Adj R-Squared | 0.2277 |

Source: Stata15 (processed)

CONCLUSION

The conclusion obtained from the results of the previous analysis and discussion is that the first hypothesis is found that competition has a positive and insignificant effect on credit risk, competition has a negative and insignificant effect on liquidity risk and insolvency risk in banks listed on the Indonesia Stock Exchange. The second hypothesis is found that profitability has a negative and significant effect on credit risk and insolvency risk, and profitability has a positive and insignificant effect on liquidity risk. The results of testing the third hypothesis, namely the control variable, found that bank size had a negative and insignificant effect on credit risk, bank size had a positive and significant effect on liquidity risk and insolvency risk. The fourth hypothesis found that concentration had a positive and insignificant effect on credit risk and insolvency risk but had a

positive and significant effect on liquidity risk. The results of testing the fifth hypothesis namely inflation was found to have an insignificant negative effect on credit risk, liquidity risk, and insolvency risk. The sixth hypothesis is that GDP is found to have a positive and insignificant effect on credit risk, and it is found to be negatively and insignificantly related to liquidity risk and insolvency risk.

There are several implications that can be proposed related to each research variable. The types of risks that occur in banking companies in 2015-2019 are still categorized as safe, this can be seen from the proxies used to measure these risks. However, banks are also expected to pay attention to variables related to this research such as competition, profitability, company size and concentration to reduce the occurrence of various types of risk. Banks can consider policies related to company performance considering that banks are very vulnerable to various types of risks because they are related or have the aim of improving the country's economy.

A company can be in a risky condition because the policies given are less than optimal, so they are not able to control the company properly. In this study, one of the independent variables is profitability, and two control variables, namely bank size and concentration, are variables that have an influence on the risks in this study. For banks, this result can be used as a consideration for setting policies or carrying out various activities in order to avoid risks so that the possibility of instability will be small.

There are several shortcomings and weaknesses due to the limitations of the results found in the study, including the sample used is limited to conventional general banking companies. Therefore, further research should be able to use a larger sample size or include other financial institutions that are also listed on the Indonesia Stock Exchange. In addition to the sample, judging from the test results, this study has a low R-Squared value which shows that there are still many other variables that can be used in subsequent research. These other variables will later affect various types of risk in banking, both bank-specific variables and industry-specific variables.

There are several shortcomings and weaknesses due to the limitations of the results found in the study, including the sample used is limited to banking companies and does not include other financial institutions. Therefore, further research should be able to use a larger sample size or include other financial institutions that are also listed on the Indonesia Stock Exchange. In addition to the sample, judging from the test results, this study has a low *R-Squared* value which shows that there are still many other variables that can be used in subsequent research. These other variables will later affect various types of risk in banking, both bank-specific variables and industry-specific variables.

REFERENCE

- Acemoglu, D., Ozdaglar, A., & Tahbaz-Salehi, A. (2015). Systemic risk and stability in financial networks. *American Economic Review*, 105 (2), 564–608. <https://doi.org/10.1257/aer.20130456>
- Adusei, M. (2015). The impact of bank size and funding risk on bank stability. *Cogent Economics and Finance*, 3 (1). <https://doi.org/10.1080/23322039.2015.1111489>
- Ali, M. (2019). *The internal determinants of bank profitability and stability An insight from banking sector of Pakistan*. 42(1), 49–67. <https://doi.org/10.1108/MRR-04-2017-0103>
- Allen, F., & Gale, D. (2004). Competition and Financial Stability. *Journal of Money, Credit, and Banking*, 36 (3b), 453–480. <https://doi.org/10.1353/mcb.2004.0038>
- Apriadi, I., Sembel, R., Santosa, PW, & Firdaus, M. (2017). BANKING COMPETITION AND STABILITY IN INDONESIA An Approach to Panel Vector Autoregression Analysis. *Journal of Management*, 21 (1), 33. <https://doi.org/10.24912/jm.v21i1.146>
- Basel Committee on Banking Supervision. (2006). International Convergence of Capital Measurement and Capital Standards: A Revised Framework & Comprehensive Version. In *Bank for International Settlements* (Issue June). <http://www.bis.org/publ/bcbs128.pdf>
- Berger, AN, & Klapper, LF (2008). *Bank Competition and Financial Stability*. August.
- Berger, AN, Klapper, LF, & Turk-Ariss, R. (2009). Bank competition and financial stability. *Journal*

- of Financial Services Research* , 35 (2), 99–118. <https://doi.org/10.1007/s10693-008-0050-7>
- Brei, M., Jacolin, L., & Noah, A. (2020). Credit risk and bank competition in Sub-Saharan Africa. *Emerging Markets Review*, 44(July), 100716. <https://doi.org/10.1016/j.ememar.2020.100716>
- Cetorelli, N. (1999). Competition among Banks: Good or Bad? *Journal of Financial Intermediation* , 8 (3), 235–236. <https://doi.org/10.1006/jfin.1999.0268>
- Diaconu, R., & Oanea, D. (2014). The Main Determinants of Bank ' s Stability . Evidence from Romanian Banking The Main Determinants of Bank ' s Stability . Evidence f rom Romanian Banking Sector. *Procedia Economics and Finance*, 16(May 2015), 329–335. [https://doi.org/10.1016/S2212-5671\(14\)00810-7](https://doi.org/10.1016/S2212-5671(14)00810-7)
- Finance, M. E., Trabelsi, M. A., & Trad, N. (2017). *Profitability and Risk in Interest-Free Banking Industries : A Dynamic Panel Data Analysis International Journal of Islamic and Middle Eastern Finance and Management Article information : October.* <https://doi.org/10.1108/IMEFM-05-2016-0070>
- Ghenimi, A., Chaibi, H., & Omri, MAB (2017a). The effects of liquidity risk and credit risk on bank stability: Evidence from the MENA region. *Borsa Istanbul Review* , 17 (4), 238–248. <https://doi.org/10.1016/j.bir.2017.05.02>
- Hu, T., & Xie, C. (2016). Competition, Innovation, Risk-Taking, and Profitability in the Chinese Banking Sector: An Empirical Analysis Based on Structural Equation Modeling. *Discrete Dynamics in Nature and Society* , 2016 . <https://doi.org/10.1155/2016/3695379>
- Laeven, L., Ratnovski, L., & Tong, H. (2016). *Bank size, capital, and systemic risk : Some international evidence . 69 , 25–27.*
- Financial Services Authority. (2020). Indonesian banking development roadmap. *Indonesian Journal of Economics and Banking* . <https://www.ojk.go.id/id/berita-dan-activities/info-terkini/Documents/Pages/-Roadmap-Pengembangan-Perbankan-Indonesia-2020---2025/Buku - Roadmap for the Development of Indonesian Banking 2020 - 2025 Long Version.pdf>.
- Personal, M., & Archive, R. (2011). *Working Papers . 32026 .*
- Tan, Y. (2016). The impacts of risk and competition on bank profitability in China. *Journal of International Financial Markets, Institutions and Money* , 40 , 85–110. <https://doi.org/10.1016/j.intfin.2015.09.003>
- Tan, Y., Lau, MCK, & Gozgor, G. (2021). Competition and Profitability: Impacts on Stability in Chinese Banking. *International Journal of the Economics of Business* , 28 (2), 197–220. <https://doi.org/10.1080/13571516.2020.1724009>