Factors Affecting Credit Risk of Conventional Banks Listed in Indonesia Stock Exchange

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Abstract

This research aims to analyze factors affecting bank credit risk. The sample of this study uses 34 conventional banks listed in Indonesia Stock Exchange for the period of 2015-2019. The sampling technique uses purposive sampling and the analysis method uses panel data regression. The independent variable in this study consists of bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate, while the dependent variable is non-performing loans. The result shows that return on assets and inflation rate have significant negative effect on non-performing loans while gross domestic product has significant positive effect on non-performing loans. On the contrary, bank size, loan to deposit ratio, and lending interest rate have no effect on non-performing loans. The findings are expected to be the reference for conventional banks in minimizing the credit risk by increasing the profitability and improving a better credit management when the economic growth, and inflation rate are getting higher.

Keywords: Bank Size, Credit Risk, Gross Domestic Product, Inflation Rate, Lending Interest Rate, Loan to Deposit Ratio, Return on Assets.

A. INTRODUCTION

The banking sector has a strategic role for the economic matters in Indonesia. Bank has the main function as the intermediary institution for both conventional and Islamic scope. It can be determined that bank is responsible to take deposits and lend for consumption or investment purposes (Morina, 2020). Lending is the main activity for generating income in the banking sector (Grima & Thalassinos, 2020). It forces bank to observe the credit risk that will be faced. Credit risk shows the possibility of debtor’s failure in repaying loans and causes bank’s loss. Rupeika-Apoga, Thalassinos, & Thalassinos (2018) states that the high exposure to credit risk represents the high level of non-performing loans (NPL).

A higher ratio of NPL will have a negative impact on the overall performance of the banking system. This ratio always contradicts the economic development. If this ratio does not decrease, the impact will not only reduce bank’s profit but also lead to bankruptcy for the bank. To determine factors affecting credit risk of conventional banks, it is necessary to analyze the internal and external factors, such as bank size,
return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate.

Bank size describes proportion of the bank based on the amount of bank’s assets. Research conducted by Morina (2020) states that bank size has a significant positive effect on NPL. Meanwhile, Sanyaolu, Siyanbola, & Makinde (2020) reveals that higher bank size could reduce the credit risk significantly. Return on assets shows bank efficiency level in using the assets and indicates the amount of net income generated from its investment. Sanyaolu et al. (2020) has proven that return on assets has significant positive effect on NPL. On the contrary, Kjosevski & Petkovski (2020) has proven that return on assets has significant negative effect on NPL.

Loan to deposit ratio signifies the amount of credit distributed and fund received. It reflects the utilization of bank’s fund policy and it is capable to assess the bank liquidity. Wood & Skinner (2018) adduces that there is a significant positive effect of loan to deposit ratio on NPL. Lending interest rate is similar with the cost of borrowed funds. It has significant positive effect on NPL (Zheng, Bhowmik, & Sarker, 2020).

Gross domestic product (GDP) represents market value of all goods and services produced by the country. Ghosh (2015) proves that GDP has significant negative effect on NPL. Inflation rate refers to the general and continuous increase in prices of goods and services over a period of time. Morina (2020) supports a significant negative effect of inflation rate on NPL.

In this study, the author analyzes factors affecting credit risk of conventional banks listed in Indonesia Stock Exchange. The data is provided from the financial report of each conventional bank during five years (2015-2019). The data is also provided in Rupiah as the currency. This research aims to prove if there are any internal or external factors that have significant effect on non-performing loans as the measurement of credit risk.

B. LITERATURE REVIEW

1. Credit Risk

A risk can generally be explained as an adverse event or a deviation from the expected results (Muchtar & Samosir, 2020). Credit risk is the main and the most important risk among the others in the financial industry. Credit risk implies delayed or even defaulted credit payment. It will absolutely cause losses for banks and affect the liquidity (Thalassinos & Thalassinos, 2019). In line with the study of Rupeika-Apoga et al. (2018), a high credit risk represents a high level of non-performing loans.

Non-performing loans (NPLs) are defined as the amount of loans which has a default risk of not going to be returned by the debtor to the creditor. Basel III and International Monetary Fund (IMF) state that a number of loans will be categorized as a problem if the arrears status is 90 days past the due date. Financial Services Authority and Banking Regulation Number 40 Year 2019 mentions that NPLs are divided into three collectabilities, such as substandard, doubtful, and loss. Maximum ratio of NPLs is 5% that can be accepted in Indonesia.
2. Bank Size

Bank size reflects the scale of banks through its total assets and capital ownership. Bank size is measured by logarithm of total assets (Koju, Koju, & Wang, 2018). Studies conducted by Morina (2020), Gambo, Abdul-Rahman, & Ibrahim (2017), and Asfaw, Bogale, & Teame (2016) prove that there is a significant positive effect of bank size on NPLs. The bigger size of a bank, the greater number of loans included in the assets. This may cause a higher credit risk exposure. On the contrary, Ashraf & Butt (2019), Bhattarai (2018), and Ćurak, Pepur, & Poposki (2013) argue that there is a significant negative effect of bank size on NPLs. Larger banks tend to have a better strategy of credit risk management. They always monitor the amount of loans regularly and have a higher chance of diversification.

3. Return on Assets

Return on assets (ROA) represents the bank’s profitability by measuring the amount of gain generated from the usage of its assets. Several studies conducted by Woo, Kwon, & Yuen (2020), Lee, Yahya, Habibullah, & Ashhari (2019), Lu & Boateng (2018), and Agić & Jeremić (2018) disclose that return on assets have significant positive effect on NPLs. Higher profitability reflects a good performance of banking system which is capable to attract borrowers for loan application. Those larger number of loans will trigger the growth of credit risk (Ahmad & Bashir, 2013). Otherwise, Sunday, Mukisa, & Mwebaze (2020), Long, Yen, & Long (2020), Kjosevski, Petkovski, & Naumovska (2019), and Gabeshi (2017) have stated that there is a significant negative effect of ROA on NPLs. Profitability is considered as a “source of life” to increase the prestige and value of the bank. This can be proven by improving the quality of control, improving management of credit operations, and active-handling of non-performing loans. Greater profitability can minimize the default risk.

4. Loan To Deposit Ratio

Loan to Deposit Ratio (LDR) shows the total volume of loans disbursed by banks and the amount of funds received from various sources. Wood & Skinner (2018), Dimitrios, Helen, & Mike (2016), and Ahmad & Bashir (2013) suggest that there is a significant positive effect of LDR on NPLs. The growth in customer deposits caused banks to increase their lending extensively which led to an increase in bank lending relative to deposits. This aggressive lending causes banks to allocate their funds, including to low-quality debtors, which results in an increase in loan risk. Studies conducted by Waemustafa & Sukri (2015) and Cornett, McNutt, Strahan, & Tehranian (2011) state that LDR has a significant negative effect on NPLs. Banks with high liquidity are able to increase their liquid assets while reducing lending to debtors so that the risk of loan default is smaller.

5. Lending Interest Rate

Lending interest rate is a fee charged from borrowed funds. Based on the research results of Morina (2020), Zheng et al. (2020), Dao, Nguyen, Hussain, &
Nguyen (2020), and Murthy, Kamil, Mariadas, & Devi (2017), lending interest rates have a significant positive effect on NPLs. Manz (2019) asserts that lending interest rates increase borrowing costs so that debtors choose to extend the term of their loans, which makes them weaker to repay and tends to default. In contrast, Tanaskovikov & Jandrić (2015), Saba, Kouser, & Azeem (2012), and Turan & Koskija (2014) reveal that the higher the loan interest rate, the lower the NPLs. The high interest rates on loans cause customers not to be interested in applying for loans because the loan burden is quite large. This can reduce the number of bank debtors so that the number of loans given by banks is reduced and credit risk can be minimized.

6. **Gross Domestic Product**

Gross domestic product (GDP) represents the market value of all goods and services produced by that country. Studies conducted by Assefa (2017) and Liu, Brahma, & Boateng (2019), and Memdani (2017) show that there is a significant positive effect of GDP on NPLs. Higher GDP indicates an increase in people’s income. The amount of income that is getting bigger increases the amount of savings that is channeled in the form of loans. The high number of loans causes credit risk to increase. Based on studies conducted by Ashraf & Butt (2019), Ha, Trien, & Diep (2014), and Sunday et al. (2020), GDP has a significant negative effect on NPLs. The higher the GDP growth, the higher the income received by the community. Their ability to repay loans will increase so that the bank’s credit risk decreases.

7. **Inflation Rate**

Inflation rate refers to the general and continuous increase in the price of goods and services over a certain period of time. The significant positive effect of inflation rate on NPLs has been proven by Mazreku, Morina, Misiri, Spiteri, & Grima (2018), Makri, Tsagkanos, & Bella (2014), and Gabeshi (2017). As long as inflation is running, debtor demand for loans will increase to meet consumption needs because the prices of goods and services are increasingly expensive. This will encourage banks to provide more loans and the credit risk that will be borne by the bank is higher. Research conducted by Morina (2020), Waemustafa & Sukri (2015), Poudel (2018), and Liu et al. (2019) revealed inflation rate significant negative effect on NPLs. A high inflation rate can reduce the real value of loans so that the debt burden paid by debtors will decrease.

8. **Conceptual Framework**

Banks as intermediary institutions in the financial industry play an important role in channelling and allocating funds from customer deposits into loans. This role raises the credit risk that will be faced by the bank. Credit risk is measured using non-performing loans (Radivojevic & Jovovic, 2017). Credit risk is influenced by bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate. Based on this explanation, the conceptual framework in this study can be described as follows:
9. Hypothesis Development

H_1 : Bank Size has a significant effect on Non-Performing Loans.
H_2 : Return on Assets has a significant effect on Non-Performing Loans.
H_3 : Loan To Deposit Ratio has a significant effect on Non-Performing Loans.
H_4 : Lending Interest Rate has a significant effect on Non-Performing Loans.
H_5 : Gross Domestic Product has a significant effect on Non-Performing Loans.
H_6 : Inflation Rate has a significant effect on Non-Performing Loans.

C. METHOD

1. Research Design

The research design used in this study is hypothesis testing which aims to examine the effect of independent variables, including bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate on the dependent variable, namely non-performing loans. The unit of analysis in this study is conventional banking on the Indonesia Stock Exchange for five years (2015-2019 period). The analysis method in this study uses panel data regression with the analysis tool, namely E-views software 10.0.

2. Variables & Measurement

The dependent and independent variables of this study are measured as shown on the table below:
### Table 1. Variables & Measurement

| Type of Variable | Name of Variable | Proxy | Measurement | Reference |
|------------------|------------------|-------|--------------|-----------|
| Dependent Variable | Non-Performing Loans | NPL | Bad Loans / Total Loans | Morina (2020) |
| Independent Variables | Bank Size | BS | Natural Logarithm of Total Assets | Morina (2020) |
| | Return on Assets | ROA | Net Income / Total Assets | Morina (2020) |
| | Loan To Deposit Ratio | LDR | Total Loans / Total Deposits | Wood & Skinner (2018) |
| | Lending Interest Rate | LIR | Interest Rate on Lending | Morina (2020) |
| | Gross Domestic Product | GDP | Growth Rate of GDP in Percentage | Morina (2020) |
| | Inflation Rate | INF | Annual Percentage Rate of Inflation | Morina (2020) |

### 3. Data Collection Method

The data collected in this study is secondary data or data obtained indirectly through published sources. The data is obtained from the financial and annual reports of conventional banking on the website of the Indonesia Stock Exchange (www.idx.co.id), from the website of Bank Indonesia (www.bi.go.id), and from the website of World Bank (data.worldbank.org) for five years (2015 – 2019 period).

### 4. Sampling Method

This study uses purposive sampling as the method. This means that the banking sample used for the study must meet several criteria, including: [1] Conventional banking has been listed on the Indonesia Stock Exchange for five years (2015-2019 period); [2] Conventional banking has not been delisted for five years (period 2015-2019); [3] Conventional banking has the data needed for research variables in financial and annual reports which are expressed in Rupiah.

### Table 2. Purposive Sampling Method

| Description | Total |
|-------------|-------|
| Banking population listed on the Indonesia Stock Exchange for five years (2015-2019 period) | 43 |
| Islamic banking listed on the Indonesia Stock Exchange for five years (2015-2019 period) | (3) |
| Regional Development Banking listed on the Indonesia Stock Exchange for five years | (3) |
Conventional banking with incomplete data in its financial and annual reports (3)

| Number of research samples | 34 |
| Total observational data (34 banks x 5 years) | 170 |

D. RESULT & DISCUSSION

1. Model Fit Test

The data testing in this study uses analysis method of panel data regression which consists of three models, namely common effect, fixed effect, and random effect. The model selection is carried out by Chow Test, Hausman Test, and Lagrange Multiplier Test.

a. Chow Test aims to determine the right model between common effect and fixed effect. This test is based on the null hypothesis in which there is no individual heterogeneity and an alternative hypothesis in which there is heterogeneity in the cross-section.

b. Hausman Test aims to determine the right model between fixed effect and random effect.

c. Lagrange Multiplier (LM) Test aims to determine the right model between common effect and random effect.

Table 3. Result of Model Fit Test

| Model Fit Test | Probability | Decision |
|----------------|-------------|----------|
| Chow Test      | 0.0000      | H₀ rejected, Fixed Effect accepted |
| Hausman Test   | 1.0000      | H₀ accepted, Random Effect accepted |
| LM Test        | 0.0000      | H₀ rejected, Random Effect accepted |

Source: Output of Panel Data Regression E-views 10.0

Based on the calculation above, Chow Test result shows that the probability value cross-section of the chi-square is 0.0000 < 0.05. The decision is obtained by H₀ rejected so that the appropriate model is a fixed effect. If the chosen model is a fixed effect, it is necessary to carry out the next test. The result of Hausman Test shows that the probability value cross-section of the chi-square is 1.0000 > 0.05. The decision is obtained by H₀ accepted so that the appropriate model is a random effect. The LM Test result shows that the probability value cross-section of Breusch-Pagan is 0.0000 < 0.05. The decision is obtained by H₀ rejected so that the appropriate model is a random effect.

2. F-Test

The F-Test aims to determine whether the independent variables affect the dependent variable. The F test also aims to determine whether the regression model is feasible or not. The result shows that the probability value of F-statistic is 0.000000 < 0.05. It means H₀ is rejected so that the independent variables, such as bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product,
and inflation rate affect the dependent variable, i.e. non-performing loans. This result indicates that the regression model in this study is feasible to use.

3. Goodness of Fit (Adjusted R\(^2\)) Test

The Goodness of Fit (Adjusted R\(^2\)) Test aims to determine how much influence the independent variable has in explaining the dependent variable. This test is analysed through the value of adjusted R\(^2\) (0 < adjusted R\(^2\) < 1) in the panel data regression model. The result indicates that the adjusted R\(^2\) is 0.380409. It means the independent variables are capable to explain the variation of the dependent variable by 38.0409%. The rest of them, 61.9591% states NPL is affected by other variables that are not included in this model. The result indicates that there is a weak relationship between bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate with non-performing loans.

4. Descriptive Statistical Analysis

The result of descriptive statistical analysis in this study has been provided on the table as follows:

Table 4. Result of Descriptive Statistical Analysis

| Variables                  | Observation | Minimum    | Maximum    | Mean        | Std. Dev. |
|----------------------------|-------------|------------|------------|-------------|-----------|
| Non-Performing Loans       | 170         | 0.001901   | 0.157525   | 0.030986    | 0.022214  |
| Bank Size                  | 170         | 12.29544   | 15.15130   | 13.57692    | 0.801832  |
| Return on Assets           | 170         | -0.117277  | 0.031343   | 0.006247    | 0.017967  |
| Loan To Deposit Ratio      | 170         | 0.416603   | 1.402008   | 0.827868    | 0.141325  |
| Lending Interest Rate      | 170         | 0.091300   | 0.241600   | 0.130441    | 0.027462  |
| Gross Domestic Product     | 170         | 0.048800   | 0.051700   | 0.050360    | 0.000936  |
| Inflation Rate             | 170         | 0.027200   | 0.036100   | 0.031660    | 0.003017  |

Source: Output of Panel Data Regression E-views 10.0

5. Panel Data Regression Analysis

This research uses panel data regression analysis to examine the effect of independent variables, such as bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate on the dependent variable, namely credit risk as measured by non-performing loans. The results of the regression equation in this study can be described as follows: 

\[
\text{NPL} = \beta_0 + \beta_1 \text{BS} + \beta_2 \text{ROA} + \beta_3 \text{LDR} + \beta_4 \text{LIR} + \beta_5 \text{GDP} - \beta_6 \text{INF}
\]

\[
\text{NPL (Y)} = \text{Non-Performing Loan} \\
\text{BS (X\textsubscript{1})} = \text{Bank Size} \\
\text{ROA (X\textsubscript{2})} = \text{Return on Assets} \\
\text{LDR (X\textsubscript{3})} = \text{Loan to Deposit Ratio} \\
\text{LIR (X\textsubscript{4})} = \text{Lending Interest Rate} \\
\text{GDP (X\textsubscript{5})} = \text{Gross Domestic Product} \\
\text{INF (X\textsubscript{6})} = \text{Inflation Rate}
\]
6. T-Test

The T-Test is conducted partially to measure whether the independent variables (bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate) have significant effect on the dependent variable (non-performing loans) by assuming other variables are constant. The decision-making criteria are detailed as follows:

a. If the significance of t (probability) < 0.05; H₀ is rejected. H₁ is accepted so that the independent variables have significant effect on the dependent variable.

b. If the significance of t (probability) > 0.05; H₀ is accepted. H₁ is rejected so that the independent variables have no significant effect on the dependent variable.

Table 5. Result of T-Test

| Independent Variables | Non-Performing Loans | Coefficient | Probability | Conclusion    |
|-----------------------|----------------------|-------------|-------------|---------------|
| Constant              |                      | -0.107602   | -           |               |
| Bank Size             |                      | 0.000596    | 0.8528      | Insignificant |
| Return on Assets      | -0.752467            | 0.0000      | Significant Negative |
| Loan To Deposit Ratio | -0.000569            | 0.9484      | Insignificant |
| Lending Interest Rate | 0.009726             | 0.8350      | Insignificant |
| Gross Domestic Product| 3.017793             | 0.0001      | Significant Positive |
| Inflation Rate        | -0.554992            | 0.0107      | Significant Negative |

Source: Output of Panel Data Regression E-views 10.0

Based on the hypothesis testing by T-Test on the table above, the effect of each independent variable on the dependent variable is interpreted below:

a. **Bank Size** has the probability 0.8528 > 0.05 which indicates that bank size has no significant effect on NPLs. This result is in line with the research conducted by Lee et al. (2019), Lu & Boateng (2018), Rajha (2017), Memdani, Dubey, & Suresh (2017), Khemraj & Pasha (2016), Pradhan & Pandey (2018), and Poudel (2018). This finding indicates that larger bank size is able to attract depositors to keep their money in the bank. Increasing revenues can increase the number of loans disbursed by banks to debtors. However, the increase in the number of loans does not necessarily reflect the growth in the level of non-performing loans. Each bank has a different effectiveness in screening and managing non-performing loans. As long as the level of non-performing loans is still below 5%, the bank is considered effective in screening and managing loans disbursed. This proves that the total assets of a bank will not affect the default risk.

b. **Return on Assets** has the probability 0.0000 < 0.05 with the coefficient -0.752467 which indicates that ROA has significant negative effect on NPLs. This result is in line with the research conducted by Sunday et al. (2020), Dao et al. (2020), Kjosevski & Petkovski (2020), Bayar (2019), Gabeshi (2017), and Makri et al. (2014). When bank profitability increases, banks do not really encourage or pressure their financial managers to get more profits from lending. Higher profitability has proven that bank financial managers are able to monitor the
quality of loans disbursed and manage non-performing loans. Banks that have higher profitability implies better credit management so that the bank is capable to minimize the credit risk.

c. **Loan to Deposit Ratio** has the probability 0.9484 > 0.05 which indicates that loan to deposit ratio has no significant effect on NPLs. This result is in line with the research conducted by Rezina et al. (2020), Pop et al. (2018), Bhattarai (2018), and Makri et al. (2014). The insignificant effect is caused by the average credit distribution obtained from conventional bank deposit receipts in Indonesia is still within reasonable limits, which is 82.7886%. This percentage is still in the 78%-92% range as stipulated by Bank Indonesia Regulation Number 19 of 2017. The ratio of bank deposit receipts to lending is still safe so that it does not indicate a level of non-performing loans. Therefore, the size of the loan value disbursed from the receipt of customer deposits will not affect bank credit risk.

d. **Lending Interest Rate** has the probability 0.8350 > 0.05 which indicates that loan to deposit ratio has no significant effect on NPLs. This result is in line with the research conducted by Gambo et al. (2018) and Rajha (2017). This indicates that the debtor does not pay too much attention to the loan interest rate as a consideration before applying for a loan to the bank. Debtors tend to focus on the principal of the loan that will be received so they can immediately meet their needs, both daily needs and urgent needs. They do not consider whether in the future they will be able or not to pay off the principal and interest on the loan. Moreover, the average loan interest rate at conventional banks in Indonesia is 13.0441%. This percentage shows that the loan interest charged to the debtor is still within reasonable limits so the debtor is not too worried about the debt burden and they just focus more on the loan principal. This shows that bank loan interest rates have no effect on the level of non-performing loans.

e. **Gross Domestic Product** has the probability 0.0001 < 0.05 with the coefficient 3.017793 which indicates that GDP has significant positive effect on NPLs. This result is in line with the research conducted by Assefa (2017), Memdani (2017), Kumarasinghe (2017), and Bhattarai (2018). A significant positive effect means in general, an increase in gross domestic product indicates the existence of economic growth through an increase in the amount of money earned by people in a country. The increasing number of their income leads to an increase in public investment, including an increase in the number of their deposits in banks. The high number of customer deposits implies an increase in the number of loans disbursed by banks to debtors. More loans disbursed can lead to a higher risk of debtor default so that economic growth is able to increase the level of non-performing loans in banking.

f. **Inflation Rate** has the probability 0.0107 < 0.05 with the coefficient -0.554992 which indicates that inflation rate has significant negative effect on NPLs. This result is in line with the research conducted by Morina (2020), Mazreku et al. (2018), Memdani et al. (2017), Bayar (2019), Poudel (2018), Memdani (2017), and
Rajha (2017). The result shows when inflation rate raises, the interest rate also does because it is capable to reduce the inflation. A high interest rate can suppress public demand for loans. They will prefer keeping their money in the bank rather than applying for a loan from the bank. They will not be interested in applying for a loan because high interest rates cause the loan burden to be even greater. This has resulted in fewer debtors applying for credit and a smaller number of loans disbursed so that the level of non-performing loans in banks is getting lower.

E. CONCLUSION

According to the result of this research, it can be concluded that return on assets, loan to deposit ratio, and lending interest rate have significant effect on non-performing loans. On the contrary, bank size, loan to deposit ratio, and lending interest rate have insignificant effect on non-performing loans. Therefore, the managerial implications are described as follows:

1. For companies, financial managers in banking should consider internal and external factors that affect credit risk. From an internal perspective, banks are expected to be able to increase their profitability in order to minimize the level of non-performing loans. On the other hand, from an external perspective, high GDP indicates a large amount of national income which encourages people to increase their savings in the form of demand deposits, savings, and time deposits. Most of the deposits collected by banks will be distributed in the form of credit. Another external factor is high inflation followed by an increase in interest rate so the debt burden for debtors is greater in which they will not be interested in applying for more loans. This can be interpreted when GDP and inflation rate are getting higher, banks are recommended to be able to develop better credit management. Banks need to improve the quality of loans disbursed so that the level of non-performing loans is getting lower.

2. For investors, when they decide to invest or apply for a loan, they need to pay attention to information related to the bank’s financial position, such as whether the bank’s profitability is getting higher or lower from year to year. Investors should choose a bank with increased profitability because it means the bank is capable to minimize their credit risk. In addition, investors are expected to choose a bank that pays attention to external factors, such as GDP and inflation rate, in managing the level of non-performing loans. Banks that have a good financial position and performance certainly reflect their ability to provide profits to investors so that their investment opportunities will be higher.

Based on the result of the research conducted, this study has several limitations, such as: [1] The sample only consists of 34 conventional banks listed on the Indonesia Stock Exchange within a five-years period (2015-2019); [2] The independent variables are only bank size, return on assets, loan to deposit ratio, lending interest rate, gross domestic product, and inflation rate. Therefore, the
suggestions for further research are: [1] Raising the research period for conventional banking, for example starting from the global financial crisis (2008) to 2019; [2] Adding other independent variables to test their effect on credit risk, such as financing quality & management efficiency (Misman & Bhatti, 2020), net interest margin & growth rate (Yüksel, 2017), and exchange rate fluctuation (Poudel, 2013).

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