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The Effect of Income Diversification on Default Risk in Conventional Banking Companies in Indonesia

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ABSTRACT

This study aims to identify variables that affect the risk of bankruptcy in banks listed on the Indonesia Stock Exchange. The research method includes collecting data from 36 listed banks on the Indonesia Stock Exchange over a 5-year period (2018-2022) and using the panel data regression analysis method. The addition of novelty variables in this study, namely bank size, net interest margin, and deposit to total assets that have a negative effect on bankruptcy risk, while the diversification index and gross domestic product variables have no effect on bankruptcy risk. the implication for bank managers is as a reference and consideration in implementing income diversification strategies. this research also provides information that is expected to be used as reference material and expand information and insight in developing research in the banking sector.

ABSTRAK

Penelitian ini bertujuan untuk mengidentifikasi variabel-variabel yang mempengaruhi risiko kebangkrutan bank pada bank yang terdaftar di Bursa Efek Indonesia. Metode penelitian meliputi pengumpulan data dari 36 yang terdaftar dari di Bursa Efek Indonesia selama periode 5 tahun (2018-2022) dan menggunakan metode analisis regresi data panel. Penambahan variabel kebaruan pada penelitian ini yaitu bank size, net interest margin, dan deposit to total assets yang berpengaruh negatif terhadap risiko kebangkrutan bank, sementara variabel diversification index dan gross domestic product tidak memiliki pengaruh terhadap risiko kebangkrutan bank. implikasi untuk manajer bank adalah sebagai acuan dan bahan pertimbangan dalam menerapkan strategi diversifikasi pendapatan. penelitian ini juga memberikan informasi yang diharapkan dapat digunakan sebagai bahan referensi dan memperluas informasi serta wawasan dalam mengembangkan penelitian pada bidang perbankan.

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INTRODUCTION

The banking industry in Indonesia is a very vital sector for the national economy. Conventional banks in Indonesia function as financial intermediation institutions that link unit surpluses to unit deficits, thereby supporting economic growth by providing credit and other financial services. However, this industry also faces various challenges, including credit risk, market risk, liquidity risk and operational risk which can affect the stability and sustainability of banks. In an effort to minimize the impact or risk of an economic downturn in the banking world, several efforts can be made that will affect the risk of bank default, such as income diversification, which is done by carrying out new activities other than the bank's main activities, such as: securities trading, brokerage, investment banking, and other activities that generate income other than interest.

Default of a company occurs when the company is unable to meet its financial obligations. In banks, default risk refers to the perceived possibility that the bank will not be able to meet the required payments (principal or interest) on its debt. Risk is measured by the standard deviation of *return on assets* (SDROA) and *return on equity* (SDROE) (*Lepetit et al., 2008*) or RAROA and RAROE means risk-adjusted ROA and risk-adjusted ROE (*Batten & Vo, 2016*).

The current research is based on research conducted in Vietnam by (*Le et al., 2022a*) using independent variables namely *Diversification Index* (DIV), *Entry rate from foreign exchange trading and securities purchases* (NON1), *Proportion of income from fees and commissions* (NON2) *and other income* (NON3). This study also uses control variables, namely *Equity to Total Asset* (ETA), *Bank Size* (SIZE), *Growth rate of total assets* (GROWTH), *Net Interest Income* (NIM), *Deposit to Total Asset* (DA) and *Gross Domestic Product* (GDP). This study uses the Fixed Effect Model (FEM) and General Least Square (FGLS).

The *Diversification Index* is used to measure the level of bank income diversification. This index is calculated by dividing total bank income into two categories, namely interest income and non-interest income. Research results (*Le et al., 2022a*) show that the Diversification Index is positively related to the Z-Score. By conducting research on Chinese commercial banks from 2004 to 2018, (*Zhang et al., 2020*) shows that income diversification has a double-edged sword effect on bank risk in China. Specifically, diversification reduces the bank's pre-loan risk but increases the bank's post-loan risk. However, in state-owned commercial banks whose main function is government, diversification reduces pre- and post-lending risks. (*Kim et al., 2020*) argue that bank diversification at a moderate level will increase bank stability, but excessive diversification has negative impacts and during the crisis, banks need to focus on traditional intermediation functions rather than diversifying their activities.

Bank Size refers to the size used to measure the amount of assets owned by a bank in a certain time period. The greater the total assets of the bank, the greater the size of the bank. The research results (*Le et al., 2022a*) show that *Bank Size* has a negative sign, which means that bank risk will decrease as bank size increases, indicating a higher level of risk. (*Kumar et al., 2001*) explains that company size is related to the economics of scale theory. Technology theory emphasizes economics of scale using assets as a bank measure. This is because this theory focuses on the production process and investment in physical capital needed to produce output. The development of the technology used can increase the size of the company. So within banks, large bank size can further increase the confidence of investors and customers to invest and finance the bank.

Net Interest Margin is defined as the difference between the interest income received by the bank from providing loans and investments and the interest costs paid by the bank on the sources of funds used to finance the loans and investments. Research results (*Le et al., 2022a*) show that *Net Interest Margin* has a negative effect on risk and changes bank risk significantly. Banks that maintain good asset growth every year contribute to reducing the risk of default. The more a bank increases interest income while minimizing interest expenses, the more stable and efficient its operations will be.

Deposit to Total Assets refers to a ratio that measures how much third party funds are stored in the bank in the form of deposits or savings compared to the bank's total assets. Research results (*Le et al., 2022a*) show that the *Deposit to Total Asset Ratio* is negatively related to bank risk, the cause may be because banks are competing to mobilize public savings with many preferential policies in search of cheap and low-cost capital. At the same time, credit and other business activities experience many fluctuations, requiring large risk allowances which cause a decrease in assets on the bank's balance sheet.

Gross Domestic Product (GDP) can be explained as the market value of all final goods and services produced in a country within a certain period of time (usually one year). Research results (*Le et al., 2022a*) show that the GDP *Growth Rate* has a positive effect on the bank stability index. An advanced economy, along with the growth of financial markets and Government policies, creates opportunities for banks to do the same. operate effectively and minimize macro risks.

Based on the issues and research related to the effect of income diversification on the risk of bank default, a study was conducted to examine this effect on Indonesian commercial banks during the COVID-19 pandemic. The results of this study are expected to assist bank management in developing strategies for implementing income diversification. Given this background, the problem formulations proposed in this study are whether Diversification Index (DIV) affects Bank Insolvency Risk, whether Bank Size (SIZE) affects Bank Insolvency Risk, whether Net Interest Income (NIM) affects Bank Insolvency Risk, whether Deposit to Total Asset Ratio (DA) influences Bank Insolvency Risk, and whether Gross Domestic Product (GDP) influences Bank Insolvency Risk. Based on these formulations, the research objectives are to analyze the effect of Diversification Index (DIV) on Bank Insolvency Risk, to analyze the effect of Bank Size (SIZE) on Bank Insolvency Risk, to analyze the effect of Net Interest Income (NIM) on Bank Insolvency Risk, to analyze the effect of Deposit to Total Asset Ratio (DA) on Bank Insolvency Risk, and to analyze the effect of Gross Domestic Product (GDP) on Bank Insolvency Risk.

LITERATURE REVIEW

Bank Insolvency Risk

Research conducted by (Phan et al., 2022) in Bangladesh entitled Impact of income diversification on the business performance of Vietnamese commercial banks using the dependent variable bank performance as measured by ROA and ROE, while the independent variable used is the Income Diversification Index and its control variables bank size (SIZE), capital structure (ETA), asset growth rate (GR), size of credit operations (LTA), loan provision (LLP), deposit size (DTA), management efficiency (OTR), economic growth rate (GDP), inflation rate (INF). The results show that the business performance of commercial banks is influenced by many factors, the most influential factors are income diversification, scale of lending activities, and physical management efficiency. Based on the empirical results, this study proposes several recommendations to help banks improve business performance.

Research conducted by (Zhou, 2014) in China entitled The Effect of Income Diversification on Bank Risk: Evidence from China using the dependent variable Bank risk

and independent Income diversification, as well as control variables Asset scale, Deposit scale, Loan scale, and Financial leverage with the results of this study found that income diversification has a positive effect on bank risk in China, which is inconsistent with the general results achieved in most published studies and with general financial theory. The study also found that the correlation between interest income and non-interest income plays an important role when considering the diversification effect of income structure. Overall, this study contributes to the literature by filling a gap in the existing literature, which focuses on the diversification effects of banking in developed markets and neglects emerging markets.

Research conducted by Le et al. (2022a), titled *"Impact of Income Diversification on the Default Risk of Vietnamese Commercial Banks in the Context of the COVID-19 Pandemic,"* utilized several independent variables to analyze their effects on bank insolvency risk. The Diversification Index measures the level of income diversification by dividing a bank's total income into interest and non-interest income categories. A higher DIV value suggests greater diversification and reduced reliance on a single income source. Bank Size assesses the total assets of a bank, with larger assets indicating a larger bank size. It can affect financial performance and risk, and is often measured using the natural logarithm of total assets to avoid scale bias. Net Interest Margin evaluates the profit earned from interest activities by comparing interest income to interest expenses, with higher margins indicating better profitability. The Deposit to Total Asset Ratio measures the proportion of deposits relative to total assets, reflecting a bank's reliance on external funds and its liquidity risk. Gross Domestic Product (GDP) represents the market value of all final goods and services produced within a country over a specified period, and serves as an indicator of economic growth and welfare. This research is based on the study by Le et al. (2022a), using Bank Insolvency Risk as the dependent variable and examining how Diversification Index (DIV), Bank Size (SIZE), Net Interest Margin (NIM), Deposit to Total Asset Ratio (DA), and Gross Domestic Product (GDP) influence this risk.

Hypothesis Development

Effect of Diversification Index on Bank Insolvency Risk

The results of research (*Le et al., 2022a*) show that the *diversification index* has a negative effect on *bank insolvency risk*. The implementation of an income diversification strategy can help banks limit the risk of credit activities. In addition, banks can achieve a lower rate of return on risk because they can collect more valuable information and save costs thanks to existing traditional operations. (Zhang et al., 2020) showed that income diversification has a double-edged sword effect on bank risk in China. Specifically, diversification reduces the pre-loan risk but increases the post-loan risk of banks. However, in state-owned commercial banks whose main function is government, diversification reduces pre- and post-loan risk. The study is supported by research (Kim et al., 2020) which argues that bank diversification at a moderate level will improve bank stability, but excessive diversification has adverse effects and during a crisis, banks need to focus on traditional intermediation functions rather than diversifying their activities.

Effect of *Bank Size* on *Bank Insolvency Risk*

Research conducted by (Le et al., 2022a) shows that *bank size* has a positive influence on *bank insolvency risk*. Banks with small asset size do not always have greater risk than large banks, as this depends on many factors such as governance capacity, credit quality, or diversification strategy of each bank. The results of this study are not in line with research conducted (*Meslier, 2014*) which shows that bank size can affect bank risk through several mechanisms. Larger banks tend to have access to larger economies of scale, more sophisticated technology, better risk management, and the ability to diversify portfolios more effectively. As a result, bank size may contribute to reducing bank risk. This statement is supported by research (*Kumar et al., 2001*) which explains that company size has a relationship with economics of scale theory. In technology theory emphasizes economics of scale using assets as the size of the bank. This is because this theory focuses on the production process and investment in the physical capital needed to produce output. The development of the technology used can increase the size of the company. So that in a bank, a large bank size can further increase investor and customer confidence to make investments and financing to the bank.

Effect of *Net Interest Margin* on *Bank Insolvency Risk*

The results of the study (*Le et al., 2022a*) show that *net interest margin* has a negative effect on *bank insolvency risk*, because the more a bank increases interest income while minimizing interest costs, the more stable and efficient its operations. (*Kohler, 2014*) mentioned that banks with higher net interest margins (NIM) are much more stable. Not surprisingly, due to their focus on lending and depository services, NIM is only significant for savings banks, cooperatives, and other retail-oriented banks, but not for investment-oriented banks. Research results (Berger et al., 2013) suggest that a low net interest margin may indicate that a bank may face pressure in generating sufficient interest income to cover its operating costs and credit risk, which in turn may increase the risk of bankruptcy.

Effect of *Deposit to Total Assets* on *Bank Insolvency Risk*

The results of the study (*Le et al., 2022a*) show that *deposits to total assets* have a negative effect on *bank insolvency risk*, this can occur because banks compete to raise deposits from the public with preferential policies to obtain cheap capital and low costs. However, credit and other business activities experience fluctuations that require the provision of large risks that cause a decrease in assets on the bank's balance sheet. Research (*Kohler, 2014*) shows that savings and cooperative banks will have a significantly higher Z-score if they increase their deposit funding portion, while other retail-oriented banks will become significantly less stable. Research conducted by (Huizinga, 1999) shows that the ratio of deposits to total assets can affect the bankruptcy risk of banks. Banks that have a high deposit ratio tend to be more financially stable as deposits tend to be more stable and cheaper than other funding sources. Therefore, a high deposit ratio can help reduce the risk of bankruptcy.

Effect of *Growth of Gross Domestic Product* on *Bank Insolvency Risk*

The results of the study (*Le et al., 2022a*) show that the GDP *growth rate* has a negative influence on *bank insolvency risk*. An expanding economy, along with the growth of the financial market and the policies of the Government and the Central Bank of Vietnam, has created opportunities for banks to operate effectively and minimize macro risks. Research results (*Meslier, 2014*) show that income diversification, especially through non-interest

activities such as trading in government securities, can reduce bank insolvency risk. Income diversification can help reduce bank default risk when banks expand their activities to the non-interest sector. Therefore, based on the findings in the study, income diversification has a negative influence on bank risk. Research (Altunbas et al., 2010) states that strong economic growth tends to reduce the risk of bankruptcy for banks as it can improve general welfare, asset quality, and the ability of debtors to repay their loans. On the other hand, weak economic growth or economic contraction can increase the risk of bankruptcy of banks as it can lead to a decrease in income, an increase in credit risk, and pressure on bank liquidity.

RESEARCH METHOD

The research design for this study involves hypothesis testing to examine the effects of Diversification Index, Bank Size, Net Interest Margin, Deposit to Total Asset, and Gross Domestic Product on Bank Insolvency Risk. The methodologies employed include the Fixed Effect Model (FEM) and the Generalized Least Squares (GLS) method. The unit of analysis is commercial banks listed on the Indonesia Stock Exchange (IDX) over a five-year period from 2018 to 2022. This study uses secondary data, which includes processed information such as library research results, research documentation, and published financial reports. The population comprises 36 conventional banks listed on the IDX for the period 2018-2022. All data is sourced from the IDX website (www.idx.com), relating to the variables under investigation. Sampling was conducted using the purposive sampling method, with the following criteria: (1) Companies that are publicly listed and classified under the banking industry group on the IDX; (2) Banks that have been listed on the IDX since at least 2017; (3) Banks with complete financial statement data from 2018 to 2022.

Table 1 *Sample Selection Process Based on Criteria*

Sample Characteristics	Total
Banks listed on the IDX consecutively for the period 2017-2022	47
Banks that do not have complete financial statement data for the period 2018-2022	(11)
Total research sample	36
Total observation data x 5 years	180

The data testing method employed in this research involves panel data regression to analyze the effects of independent variables—including Diversification Index (DIV), Bank Size (SIZE), Net Interest Margin (NIM), Deposit to Total Asset Ratio (DA), and Gross Domestic Product (GDP)—on the risk of bankruptcy in banks listed on the Indonesia Stock Exchange (IDX). The data is processed and analyzed using E-Views 9 software. Three models are considered in panel data regression: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To identify the most appropriate model, the research employs two stages of testing: the Chow test and the Hausman test.

The Chow test determines whether the Common Effect or Fixed Effect model is more suitable. The null hypothesis (Ho) posits that the Common Effect model is appropriate,

while the alternative hypothesis (Ha) suggests that the Fixed Effect model is more suitable. If the probability of the cross-section chi-square is less than 0.05, Ho is rejected, indicating the Fixed Effect model is preferred. Conversely, if the probability exceeds 0.05, Ho is accepted, favoring the Common Effect model. If the Fixed Effect model is chosen, further testing is conducted using the Hausman test to compare it with the Random Effect model.

The Hausman test assesses whether the Fixed Effect or Random Effect model is more appropriate. The null hypothesis (Ho) assumes that the Random Effect model is suitable, while the alternative hypothesis (Ha) indicates that the Fixed Effect model is more appropriate. If the probability of the cross-section chi-square is less than 0.05, Ho is rejected, favoring the Fixed Effect model. If the probability is greater than 0.05, Ho is accepted, suggesting the Random Effect model is more appropriate.

Additionally, the F test evaluates whether the independent variables collectively impact the dependent variable and whether the regression model is significant. If the p-value for F is less than 0.05, Ho is rejected, indicating at least one independent variable significantly affects the dependent variable. If the p-value is greater than 0.05, Ho is accepted, suggesting the independent variables do not significantly impact the dependent variable, rendering the model unsuitable.

Finally, the goodness of fit test, or adjusted R^2, measures how well the independent variables explain the variability in the dependent variable. An R^2 value closer to one indicates a stronger relationship between the independent and dependent variables, while a value closer to zero suggests a weaker relationship.

RESULTS and DISCUSSION

Description of the Research Object

The data description briefly describes the company data, where the company is the object of research. The object of this research consists of 36 conventional banks listed on the Indonesia Stock Exchange from 2018-2022. The sampling method in this study used purposive sampling with several sample criteria, including: (1) The research sample includes companies that have gone public and are included in the banking industry group listed on the Indonesia Stock Exchange (IDX); (2) The bank has been listed on the Indonesia Stock Exchange (IDX) maximum since 2017; (3) The bank has complete financial statement data from 2018 - 2022.

Descriptive Statistics Analysis Results

Descriptive statistics explain the research data in summary as seen from several characteristics, namely the minimum, maximum, mean, and standard deviation values. The minimum value is the lowest value of each variable, while the maximum value is the highest value of each research variable. The mean value shows the average value of each variable. Standard deviation is the distribution of research data to show whether the data variation is homogeneous or heterogeneous which is fluctuating. The results of the descriptive statistical test can be described as follows:

Table 2 *Descriptive Analysis Results*

Variables	N	*Minimum*	*Maximum*	*Mean*	*Std. Dev*
Bank Insolvency Risk	108	-2.4071	10.5655	2.1561	2.5255
Diversification Index	108	0.000	0.4999	0.2970	0.1442
Bank Size	108	11.8266	15.3994	13.6197	0.7938
Net Interest Margin	108	-0.2330	0.0763	0.0346	0.0258
Deposit to Total Asset	108	0.0330	2.0393	0.7721	0.2839
Gross Domestic Product	108	-0.0207	0.0531	0.0343	0.0282

Source: *Data Processing, 2024*

Based on the table of descriptive statistical analysis results, the interpretation results can be described as follows:

a. ***Bank Insolvency Risk*** has an average (mean) value of 2.1561 and a standard deviation of 2.5255. The minimum value of RAROA of -2.4071 is owned by PT Bank QNB Indonesia Tbk. in 2021, while the maximum value of 10.5655 is owned by PT Bank Central Asia Tbk. in 2019.

b. ***Diversification Index*** has an average value (mean) of 0.2970 and a standard deviation of 0.1442. The minimum value of DIV of 0.000 is owned by PT Bank MNC Internasional Tbk. from 2018 to 2022, while the maximum value of 0.4999 is owned by PT Bank Mega Tbk. in 2021.

c. ***Bank Size*** has an average (mean) value of 13.6197 and a standard deviation of 0.7938. The minimum value of SIZE of 11.8226 is owned by PT Bank Jago Tbk. in 2018, while the maximum value is 15.3994 owned by PT Bank Mandiri (Persero) in 2022.

d. ***Net Interest Margin*** has an average value (mean) of 0.0346 and a standard deviation of 0.0258. The minimum value of NIM of -0.2330 is owned by PT Bank Capital Indonesia Tbk. in 2022, while the maximum value of 0.0763 is owned by PT Bank Danamon Indonesia Tbk. in 2018.

e. ***Deposit to Total Asset*** has an average value (mean) of 0.7721 and a standard deviation of 0.2839. The minimum DA value of 0.0330 is owned by PT Bank Negara Indonesia (Persero) in 2018, while the maximum value of 2.0393 is owned by PT Bank CIMB Niaga Tbk. in 2021.

f. ***Gross Domestic Product*** has an average value (mean) of 0.0343 and a standard deviation of 0.0282. The minimum value of GDP is -0.0207 in 2020, while the maximum value is 0.0531 in 2022.

Data Analytics

Panel Data Regression Analysis Results

This study uses panel data regression analysis to examine the effect of independent variables, including *diversification index*, *bank size*, *net interest margin*, *deposit to total assets*, and *gross domestic product* on *bank insolvency risk* as the dependent variable, which is measured through the standard deviation of return on assets (RAROA). The results of the regression equation in this study are as follows:

$$RAROA = -22.20161 + 0.721896\ DIV + 1.457332\ SIZE + 46.57670\ NIM + 2.815910\ DA - 1.729528\ GDP$$

T Test Results

The T test (individual) in this study is used to test the significance of the influence of each independent variable consisting of *diversification index*, *bank size*, *net interest margin*, *deposit to total assets*, and *gross domestic product* on *bank insolvency risk* on the dependent variable, namely the standard deviation of return on assets (RAROA).

Table 3 *Partial Test Results*

Independent Variables	Dependent Variables		
	Return On Asset Deviation Standart		
	Coefficient	Probability	Conclusion
Constant	-22.20161	-	-
Diversification Index	0.721896	0.6023	Insignificant
Bank Size	1.457332	0.0000	Significant
Net Interest Margin	46.57670	0.0002	Significant
Deposit to Total Asset	2.815910	0.0002	Significant
Gross Domestic Product	-1.729528	0.7353	Insignificant

Source: *Data Processing, 2024*

Based on the T test table, the interpretation of the test results is described as follows:

a. ***Diversification Index*** shows a probability value of 0.6023 > α 0.05, meaning that the *diversification index* has no effect on *bank insolvency risk*.
b. ***Bank Size*** shows a probability value of 0.000 < α 0.05 with a coefficient of 1.457332. This means that *bank size* has a significant positive effect on *bank insolvency risk*.
c. ***Net Interest Margin*** shows a probability value of 0.0002 < α 0.05 with a coefficient of 46.57670. This means that *net interest margin* has a significant positive effect on *bank insolvency risk*.
d. ***Deposit to Total Asset*** shows a probability value of 0.0002 < α 0.05 with a coefficient of 2.815910. This means that *deposit to total assets* has a significant positive effect on *bank insolvency risk*.
e. ***Gross Domestic Product*** shows a probability value of 0.7353> α 0.05, meaning, *gross domestic product* assets have no effect on *bank insolvency risk*.

Discussion of Research Results

Based on the results of hypothesis testing that has been carried out using the T test (partial), the effect of each independent variable on the dependent variable can be explained as follows:

There is no influence between *Diversification Index* and *Bank Insolvency Risk*.

The research results show that the *Diversification Index* has no influence on *Bank Insolvency Risk*. The results of this research are not in line with research conducted by (*Le et al., 2022b*) which shows that there is a negative influence on Bank Insolvency Risk. The research results (*Huhtilainen, 2020*) are in line with the results of this research which show that the *Diversification Index* has no effect on *Bank Insolvency Risk*.

There is a significant positive influence between *Bank Size* and *Bank Insolvency Risk*.

The research results show that *Bank Size* has an influence on *Bank Insolvency Risk*. The results of this research are in line with research conducted by (*Le et al., 2022b*) which shows that

there is a positive influence on Bank Insolvency Risk. The results of research (*Meslier et al., 2014*) and are in line with the results of this research which show that *Bank Size* has an effect on *Bank Insolvency Risk*. It can be explained that the larger the size of the bank, the greater the customer's trust in the bank, resulting in a decrease in the risk of bank bankruptcy.

There is a significant positive influence between *Net Interest Margin* and *Bank Insolvency Risk*.
The research results show *that Net Interest Margin* has an influence on *Bank Insolvency Risk*. The results of this research are in line with research conducted by (*Le et al., 2022b*) which shows that there is a negative influence on *Bank Insolvency Risk*. The research results of (*Köhler, 2014*) and (*Berger, 2013*) are in line with the results of this research which show that *Net Interest Margin* has an effect on *Bank Insolvency Risk*. This can happen because the main income from banks is interest, the greater the net income from interest will increase the value of the bank. If the value of the bank increases, the risk of bankruptcy will decrease.

There is a significant positive influence between *Deposit to Total Asset* and *Bank Insolvency Risk.*
The research results show that *Deposits to Total Assets* have an influence on *Bank Insolvency Risk*. The results of this research are in line with research conducted by (*Le et al., 2022b*) which shows that there is a negative influence on *Bank Insolvency Risk*. The research results of (*Köhler, 2014*) and (*Huizinga, 1999*) are in line with the results of this research which show that *Deposits to Total Assets* have an effect on *Bank Insolvency Risk*. This happens because deposits are one of the main sources of funding from banks, so the risk of bank bankruptcy will decrease as the ratio of deposits to total assets of the bank increases.

There is no influence between *Gross Domestic Product* and *Bank Insolvency Risk.*
The research results show that *Gross Domestic Product* has no influence on *Bank Insolvency Risk*. The results of this research are not in line with research conducted by (*Le et al., 2022b*) which shows that there is a negative influence on *Bank Insolvency Risk*. The research results (*Huhtilainen, 2020*) are in line with the results of this research which show that *Gross Domestic Product* has no effect on *Bank Insolvency Risk*.

CONCLUSIONS

The research conducted on 36 commercial banks listed on the Indonesia Stock Exchange for the period 2018-2022 aims to examine the influence of independent factors—namely Diversification Index, Bank Size, Net Interest Margin, Deposit to Total Asset Ratio, and Gross Domestic Product—on the dependent variable, Bank Insolvency Risk, which is measured using the standard deviation of Return on Assets. Based on the results of this research, the following conclusions can be drawn: Diversification Index has no influence on Bank Insolvency Risk; Bank Size has a significant positive effect on Bank Insolvency Risk; Net Interest Margin has a significant positive effect on Bank Insolvency Risk; Deposit to Total Asset Ratio has a significant positive effect on Bank Insolvency Risk; and Gross Domestic Product has no influence on Bank Insolvency Risk.

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