

## THE EFFECT OF NON PERFORMING LOANS (NPL) AND INCOME DIVERSIFICATION ON PROFITABILITY: A STUDY ON THE BANKING SECTOR IN INDONESIA

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### Abstract

Banks have an important role in maintaining economic stability, but recently several macroeconomic factors have occurred in Indonesia so that NPLs in banks have increased, high NPLs can have a negative impact on bank profitability, so many banks are trying to obtain other sources of income outside of their main income by implementing income diversification strategies. Therefore, this study aims to analyze the influence of Non-Performing Loans (NPL) and income diversification on bank profitability in Indonesia, as measured through Return on Assets (ROA). The object of this research is 11 banks listed on the Indonesia Stock Exchange (IDX) during the 2020-2023 period, this study uses the EViews 12 application, with the research object selected using purposive sampling and panel data regression is the technique of this research. The results of the study show that NPLs have a negative influence on ROA, which shows that an increase in NPLs can reduce a bank's profitability. But on the other hand, revenue diversification does not have a significant effect on ROA.

Keywords: NPL, Income Diversification Strategy, Bank Profitability

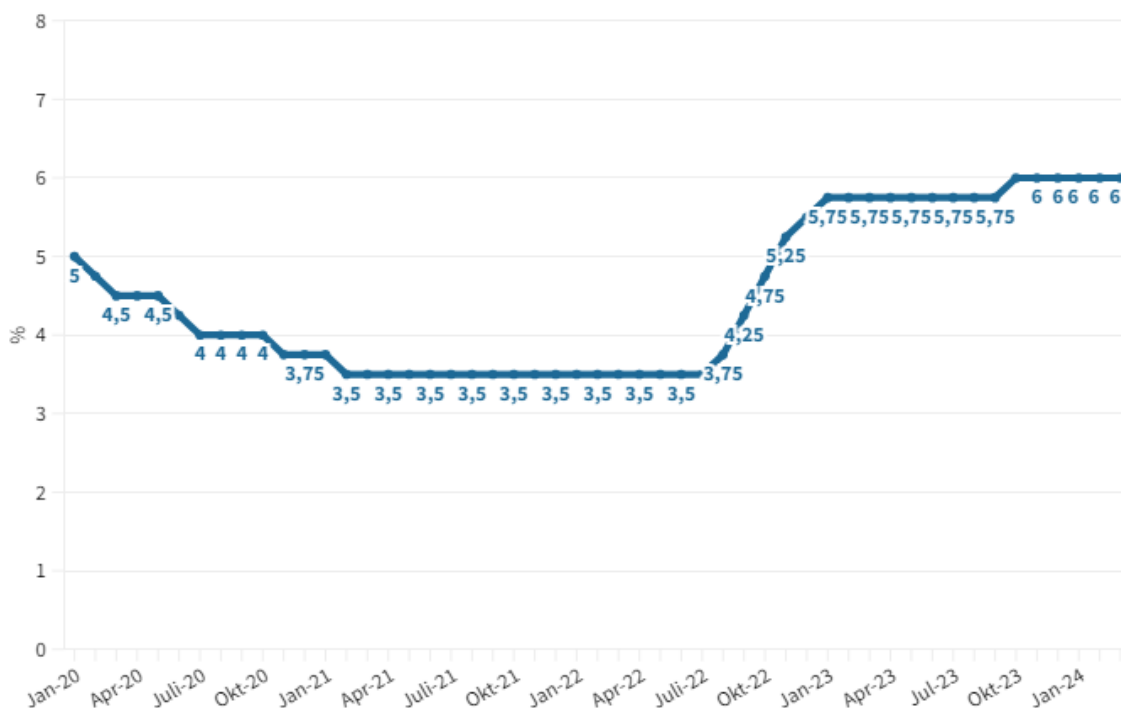
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### 1. Introduction

The banking industry is one of the important sectors that plays a crucial role in maintaining economic stability. The Financial Services Authority states that the banking industry in Indonesia has a goal in national development where banks play a role in economic growth and equity by collecting funds in the form of deposits and distributing the funds back to the community in the form of credit with the aim of improving people's welfare. According to Law Number 10 of 1998 concerning Banking, a bank is a business entity that collects funds from the community in the form of deposits and distributes them to the community in the form of credit and or other forms in order to improve the standard of living of many people.

In recent years, the level of banking profitability in Indonesia has decreased. This is caused by various factors, such as changes in the benchmark interest rate and a surge in the number of Termination of Employment (PHK). Additionally, the economic slowdown, declining loan demand, and an increase in non-performing loans (NPL) have further pressured the banking sector. The weakening purchasing power of consumers and reduced business expansion due to economic uncertainty have also contributed to the decline in banking profitability. Furthermore, regulatory changes and digital transformation in the financial industry have forced banks to adapt, often requiring significant investment in technology, which impacts short-term profitability.

### Suku Bunga Acuan BI (BI Rate) (Januari 2020-Maret 2024)



Sumber: Bank Indonesia

**Figure 1.** BI Rate January 2020 – March 2024

Starting from 2020 to 2023, Bank Indonesia (BI) has set various changes in the benchmark interest rate as a form of response to economic conditions in Indonesia. In January 2020, BI's benchmark interest rate was at 5%, then gradually lowered until it reached its lowest point of 3.5% in February 2021. This policy lasts until July 2022. The change in interest rates was experienced again in August 2022, where at that time BI began to raise the benchmark interest rate to 3.75% and continued to increase until it reached 6% in October 2023.

An increase in interest rates can increase the burden of credit interest, which ultimately affects the debtor's ability to fulfill his or her credit payment obligations, because debtors have an obligation to pay higher credit interest. Utami and Wuryani (2020) revealed that interest rate hikes have a positive influence on NPLs.

On the other hand, there was a surge in layoffs during the COVID-19 pandemic, causing an increase in the risk of NPLs. The high rate of Termination of Employment (PHK) in Indonesia has contributed to the increase in NPLs. According to Afrizan et al. (2024), the high wave of layoffs has a direct impact on the increase in NPL risk, especially on consumer loans such as mortgages and vehicle loans. Data from the Ministry of Manpower shows that there was a surge in layoffs in 2020. This condition causes more individuals to experience difficulties in fulfilling installment payment obligations, which ultimately contributes to an increase in the NPL ratio.

To mitigate the risks caused by NPLs, income diversification can be one of the strategies that banks can implement. By adding sources of income from insurance sales, service fees, investments, trading or other non-interest income, banks can reduce their dependence on credit interest income while increasing profitability.

This study aims to continue previous research on the influence of NPLs and income diversification on banking profitability. Previous research has given mixed results related to these two variables. Lestari and Setianegara (2020) found that NPLs did not have a significant influence on profitability, while the research by Rachmawati and Marwansyah (2019) concluded that NPLs had a significant negative effect on profitability. Regarding income diversification, the research by Damayanti and Mawardi (2022) showed a positive influence on profitability, while Yustyarani and Yuliana (2020) found a negative influence, while Lestari and Hersugondo (2021) did not find a significant influence. This study provides a new picture by combining NPL variables and income diversification at the same time, which has rarely been done in previous studies. In addition, this research was conducted after the COVID-19 pandemic, which provided different economic conditions for the banking sector than before.

Problems related to NPLs and income diversification raise two main questions. First, how does the NPL rate affect the profitability of banks? Given that higher NPLs generally reflect poor credit performance and potentially lead to financial instability, understanding these relationships is crucial to improving financial management in the banking sector. Second, how does income diversification affect profitability? Banks that rely solely on interest income are more vulnerable to NPL risk, so income diversification can be an important strategy to maintain a company's profitability.

Therefore, this study aims to analyze the influence of NPLs and income diversification on bank profitability. In particular, this study will analyze how the NPL rate relates to profitability, through this research we can find out how income diversification strategies can contribute to the profitability level in the Indonesian banking sector.

## **2. Theoretical Background**

### **2.1 Bank profitability**

Bank Profitability is a key indicator in showing a bank's ability to generate profits from its operational activities. Profitability can be measured through several key indicators, such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). ROA is a financial ratio that is often used in measuring the profitability of a company, ROA provides information on how well the assets are used in generating the company's profits (Haninun & Nurdiawansyah, 2014) A high ROA value in a company, describes the good and effective use of assets to get profits or profits. On the other hand, ROE is a measure of efficiency that describes a company's ability to generate profits from its shareholders' equity. ROE provides information on how well a company manages the capital provided by its shareholders to generate profits. A high ROE value indicates good capital management so that the company can generate profits for its shareholders. Meanwhile, NIM is the difference between the interest income received and the interest expense paid to the customer. A high NIM indicates the bank's good performance in generating income from interest differences. Overall, the value of profitability generated is something that needs to be considered because it reflects how the bank can develop its profits.

### **2.2 Non Performing Loans (NPL)**

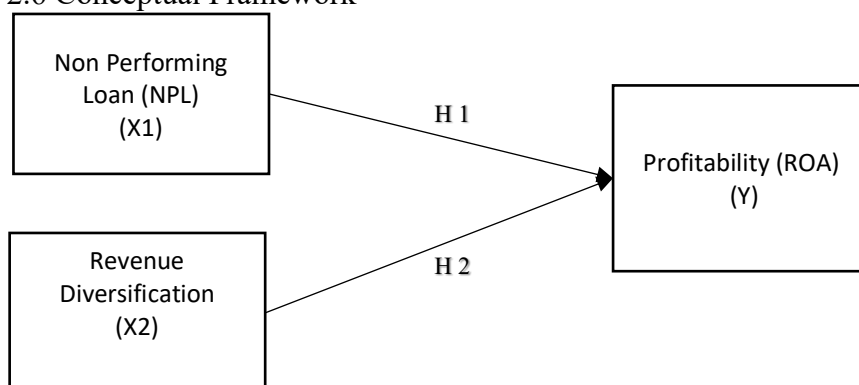
NPLs are one of the important aspects that need to be considered in the banking world, because NPLs indicate the health of financial management in banks. NPLs show the risk of credit failing to fulfill payment obligations according to the time agreed upon by the debtor and the creditor. The greater the NPL level in a bank, the more loans are given with poor quality. Not only that, the costs that banks have to incur also increase due to

the NPL value being too high, which can reduce bank performance (Damayanti & Mawardi, 2022).

### 2.3 Revenue Diversification

Revenue diversification is a strategy that can be carried out by banks to earn other income outside of their main income. The main income comes from interest obtained from loans or loans distributed to the community. According to Edirisuriya et al. (2019) Revenue diversification is a strategy that allows banks to reduce their dependence on interest income and develop other sources of income. According to research from Goldstein et al. (2023), this diversification helps increase banks' resilience to economic fluctuations, banks that have diversified income tend to be more stable in their financial position and are able to maintain credit disbursement during difficult economic periods, such as financial crises. Portfolio theory states that asset diversification can reduce total risk without sacrificing return expectations (Markowitz, 1952). Research conducted by Hoffmann et al. (2019) shows that the use of asset diversification with a good strategy can help banks in managing risk better without sacrificing profitability.

### 2.6 Conceptual Framework



### 2.4 The effect of NPLs on bank profitability

The high NPL rate reflects the large number of uncollected loans, thereby reducing interest income from loans granted by banks. In addition, high NPLs increase the cost of credit loss provisions, which can ultimately lower profitability levels. This research is in line with Isah Serwadda (2018) in Damayanti and Marwadi (2022) which shows that a high NPL ratio causes banks to lose more opportunities to earn interest income. However, research conducted by Lestari and Setianegara (2020) found that NPLs had no significant influence on profitability. Therefore, the hypothesis proposed is, *H1: NPLs have a negative influence on the profitability of banks.*

### 2.5 The Effect of Revenue Diversification on Bank Profitability

Income diversification is a strategy that can be applied by banks to get profits beyond the main income, namely interest income. By adding sources of income from insurance sales, service fees, and investments, banks can increase revenue stability. However, previous studies have shown mixed results. Sianipar (2015), Setiawan and Arrafi (2022) stated that income diversification has a positive effect on profitability, while Yustyarani and Yuliana (2020) found that there was a negative influence, while Lestari and Hersugondo (2021) did not find a significant influence. Based on this, the hypothesis proposed is, *H2: Revenue diversification has a positive influence on bank profitability.*

### 3. Methods

The research was conducted by taking the population from banks that have been registered on the Indonesia Stock Exchange (IDX), while the sample selected was 11 banks. The selection of these banks was chosen by setting several criteria, first, the banks always publish financial statements consistently on the IDX from 2020-2023. The two selected banks have a core capital of more than 1 trillion. Third, the selected banks also include State-Owned Enterprises (SOEs) and private banks. And lastly, these 11 banks play a significant role in the banking industry in Indonesia with a large market share.

**Table 1.** The selection of banks

It	Bank Name	Category
1	BRI	SOEs
2	Self-sufficient	
3	BNI	
4	BTN	
5	BCA	Private
6	CIMB Niaga	
7	Panin	
8	Jewel	
9	OCBC NISP	
10	Cloud	
11	Sinarmas	

The independent variables in this study were NPLs and income diversification, while the bank's profitability measured using ROA was a dependent variable. The data was processed through various tests, namely descriptive statistical tests to provide information on mean, standard deviation, median, maximum and minimum values from the company's sample data. This study also carried out a classical assumption test consisting of an autocorrelation test, a multicollinearity test, a heteroscedasticity test and a normality test. The analysis method used is panel data regression, this method can combine data across time and data between individuals, so as to provide a more accurate analysis of the research variables. The application used for data processing is EViews 12.

#### 4. Results and Discussion

**Table 2.** Partial Test (t-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.027720	0.006200	4.471179	0.0001
X1	-0.156199	0.076215	-2.049446	0.0490
X2	-0.010644	0.021248	-0.500939	0.6200

Regression Equation:  $Y: 0.027 - 0.16 X1 - 0.01 X2$

Based on the results of the study, the X1 variable (NPL) has a t-statistic value of -2,049 and a probability value (p-value) of 0.0490. Since the probability value is below the significance level of 0.05 (5%), it can be concluded that NPLs have a significant negative influence on the bank's profitability level, as measured through Return on Assets (ROA).

The high NPLs indicate the number of defaulted loans, resulting in a direct reduction in bank interest income. In addition, banks must also increase the cost of credit loss reserves which can reduce the bank's profitability. This finding is in accordance with previous research by Damayanti and Mawardi (2022), Sudarmawanti and Pramono (2017), and Lisnawati et al. (2020), which stated that NPLs have a significant negative influence on ROA.

Meanwhile, the variable X2 (Revenue Diversification) has a t-statistic value of -0.500 and a probability value of 0.6200, which is greater than the significance level of 0.05 (5%). These results show that revenue diversification does not have a significant influence on ROA.

This can be due to the fact that non-interest income generated through diversification strategies has a smaller portion compared to credit interest income. As found in the research of Lestari and Hersugondo (2021), credit interest income can provide a higher profit margin, so the contribution of non-interest income to profitability is not so large. In addition, revenue diversification strategies often increase operational costs or new product development costs, which can ultimately reduce the profits generated from diversification strategies. This is in line with the findings of Turkmen and Yigit (2012), which stated that increased diversification is often accompanied by additional costs, so it does not always result in higher returns. Revenue diversification does not always have a positive impact on ROA. However, in certain situations, such as during the Covid-19 pandemic, it shows that income diversification can have a positive effect on ROA (Setiawan & Arrafi, 2022). This is supported by the research of Quyen et al. (2021) which emphasizes that income diversification can be an effective risk mitigation strategy in dealing with economic crises.

This finding shows the difference between the two independent variables, namely NPL and revenue diversification on profitability measured through ROA, where the negative influence of NPL is more dominant than revenue diversification which does not significantly affect ROA.

**Table 3.** Simultaneous Test (F-Test)

F-statistic	12.15470	Durbin-Watson stat	1.347201
Prob(F-statistic)	0.000000		

The results showed an F-statistic probability value of 0.0000, which is much smaller than the significance level of 0.05 (5%). This shows that the NPL (X1) and revenue

diversification (X2) variables simultaneously or together have a significant influence on bank profitability as measured through ROA.

These results show that although the revenue diversification variable (X2) partially does not have a significant influence on ROA, the existence of this variable together with NPLs makes a significant contribution in explaining the variation in bank profitability. This illustrates the relationship between independent variables (NPL and income diversification) and dependent variables (ROA).

Overall, the simultaneous test provides an overview that the two independent variables, namely NPL and revenue diversification, affect ROA, although NPL has a more significant influence than revenue diversification.

**Table 4.** Determination Coefficient Test ( $R^2$  and Adjusted  $R^2$ )

R-squared	0.824717	Mean dependent var	0.020234
Adjusted R-squared	0.756865	S.D. dependent var	0.011630

The value of Adjusted R-squared is 75.69%, this value provides information that the dependent variable influenced by the independent variable is 75.69%, for the remaining 24.31% is influenced by other variables outside this study.

## 5. Conclusion

The results show that Non-Performing Loans (NPLs) have a significant negative impact on bank profitability, especially as measured through Return on Assets (ROA). High NPLs reflect poor credit quality, which has the potential to reduce interest income and increase operational costs due to the need for reserves that can affect the bank's profitability. Meanwhile, revenue diversification has a negative result that is not significant to ROA. This is due to the small portion of income diversification compared to bank credit interest income, as well as the costs incurred due to the revenue diversification strategy can reduce bank profitability. This study has several limitations, the first is the variables used in this case are Non-Performing Loans (NPL) and income diversification as the main determinant of bank profitability as measured through Return on Assets (ROA). Second, this study only used data on certain banks in Indonesia over a period of 4 years, so the results of the study may be less relevant for banks that have different characteristics. For further research, other variables can be added, so that it can provide a better picture of the factors that can affect the bank's profitability. In addition, further research can add research objects, so that research has a wider population of banks. Research can also extend the research time period to analyze long-term trends.

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