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The Indonesian Commercial Banks' Profitability and Credit Risk

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ABSTRACT

This study examines the impact of credit risk on the profitability of commercial banks listed on the Indonesia Stock Exchange (IDX) during the period 2013-2022. Using purposive sampling, 40 banks were selected from 47 listed banks. Panel data regression analysis was employed to explore the impact of credit risk, measured by Non-Performing Loans (NPL) and Loan Loss Provisions (LLP), on profitability measured by Return on Assets (ROA). The results indicate that NPL has a negative but insignificant effect on ROA, suggesting that an increase in NPL does not directly impact a decrease in ROA. Conversely, LLP has a negative and significant effect on ROA, indicating that an increase in LLP can reduce ROA as banks allocate substantial funds for loan losses, thereby affecting their profitability. Therefore, banks and regulators need to enhance credit risk management. This not only impacts banking profitability but also can maintain the overall stability of the financial system.

Keywords **:** **Credit Risk, Non-Performing Loan, Loan Loss Provision, Return on Assets, Bank Profitability**

ABSTRAK

Penelitian ini menguji dampak risiko kredit terhadap profitabilitas bank umum yang terdaftar di Bursa Efek Indonesia (BEI) selama periode 2013-2022. Dengan menggunakan purposive sampling, 40 bank dipilih dari 47 bank yang terdaftar. Analisis regresi data panel digunakan untuk mengeksplorasi dampak risiko kredit, yang diukur dengan Non-Performing Loans (NPL) dan Cadangan Kerugian Penurunan Nilai (CKPN), terhadap profitabilitas yang diukur dengan Return on Asset (ROA). Hasil penelitian menunjukkan bahwa NPL memiliki pengaruh negatif namun tidak signifikan terhadap ROA, yang menunjukkan bahwa peningkatan NPL tidak secara langsung berdampak pada penurunan ROA. Sebaliknya, CKPN berpengaruh negatif dan signifikan terhadap ROA, menunjukkan bahwa peningkatan CKPN dapat menurunkan ROA karena bank mengalokasikan dana yang cukup besar untuk kerugian kredit, sehingga mempengaruhi profitabilitas mereka. Oleh karena itu, bank dan regulator perlu meningkatkan manajemen risiko kredit. Hal ini tidak hanya berdampak pada profitabilitas perbankan tetapi juga dapat menjaga stabilitas sistem keuangan secara keseluruhan.

Kata Kunci **:** ***Risiko Kredit; Kredit Bermasalah; Cadangan Kerugian Pinjaman; Pengembalian Aset; Profitabilitas Bank***

INTRODUCTION

The banking sector play many critical roles in the economy (Berger et al., 2020). By mobilizing savings, facilitating investments, and providing credit to households, small and medium enterprises (SMEs), corporations, and governments. This multifaceted role enables banks to promote economic activity and growth across various sectors (Allen et al., 2019). Through their efficient allocation of resources, banks ensure that capital is directed toward productive investments, supporting long-term infrastructure projects and promoting overall economic growth (Gowda, 2020). Additionally, banks manage financial risks and contribute to financial stability by offering secure deposits and acting as essential intermediaries in the financial system (Gowda, 2020).

Banking profitability is not merely an indicator of operational efficiency but also a key driver of economic growth (Klein et al., 2022). It reflects the financial performance and management effectiveness of banks within their operational context, significantly influencing the stability of the banking system. Profitable banking sectors are typically more resilient during financial crises, able to recover faster from economic downturns, and better equipped to mitigate the negative impacts of economic shocks (Ali & Puah, 2018). In today's volatile economic landscape, banks are continuously evolving, leveraging their role in managing capital flows and adapting to new challenges to maintain their crucial position in the global economy (Deloitte, 2023).

Banking profitability also reflects the efficiency of financial intermediation, where banks act as intermediaries between those with surplus funds and those in need of capital. When financial intermediation functions efficiently, the demand for deposits and loans can be met at a lower cost, benefiting society in various ways (Allen, 2012). For instance, lower interest rates on loans can make borrowing more affordable for small businesses, allowing them to expand, create jobs, and stimulate local economies. Similarly, individuals can access lower-cost loans for housing or education, which improves living standards and fosters long-term economic growth. Lower costs for deposit services can also incentivize higher savings, providing households with better financial security and stability, which in turn strengthens the overall economy by increasing available capital for investment. Therefore, profitability is not only a measure of a bank's operational success but also an indicator of how well it can fulfill its role in supporting the economy.

Banking profitability can be measured using the Return on Assets (ROA) metric. ROA is an indicator widely used to evaluate the overall health of a bank, as ROA shows the bank's efficiency in utilizing assets to generate profits. (Anam & Khairunnisah, 2019). ROA is often chosen over Return on Equity (ROE) for several reasons. First, ROA provides a more comprehensive measure of efficiency because it includes all of the bank's assets, not just the shareholders' equity, as in ROE. (Koch & MacDonald, 2014). In addition, ROA is not significantly influenced by bank leverage, thus providing a more accurate picture of performance. With ROA, comparisons between banks with different capital structures also become more consistent. (Madura, 2020). ROA also better reflects how banks manage risk, making it a more balanced metric in assessing operational efficiency and stability in a high-leverage banking environment. (Koch & MacDonald, 2014). Moreover, financial regulatory bodies such as the Financial Services Authority (OJK) and the International Monetary Fund (IMF) consistently emphasize the use of ROA as a primary indicator for assessing the performance and stability of a bank. Thus, ROA serves not only as an internal evaluation tool for banks but also as a critical parameter for regulatory authorities to ensure the health of the broader financial system.

Indonesia's banking sector has shown significant progress in recent years. Despite the global economic turmoil caused by the COVID-19 pandemic, Indonesia’s banking

sector has managed to remain resilient. However, in recent years, the sector has faced challenges in achieving optimal profitability. According to reports from the Financial Services Authority (OJK) for the period 2013-2022, Indonesia's banking industry has experienced fluctuating trends, with the lowest Return on Assets (ROA) recorded at 1.59%. Despite generally meeting industry standards at both national and global levels, many Indonesian banks continue to report low profitability, with some even experiencing losses.

One of the key factors contributing to the low profitability in Indonesia's banking sector is the complexity of credit risk. Credit risk, arising from the potential failure of borrowers to repay loans, is one of the most significant challenges faced by banks (Chou & Buchdadi, 2016; Saleh & Afifa, 2020). Credit risk not only impacts a bank's financial performance leading to reduced income and profitability due to non-performing loans (NPL) but also has broader effects. If not managed properly, credit risk can destabilize the financial system as a whole, creating the potential for a crisis that may spill over into other sectors (Allen, 2012).

This study aims to thoroughly examine the impact of credit risk on banking profitability in Indonesia, with profitability measured using Return on Assets (ROA). Credit risk is assessed through Non-Performing Loans (NPL) and Loan Loss Provisions (LLP). This research is crucial as it fills a gap in the existing literature, where most previous studies have focused only on the impact of NPL on profitability, without considering how the formation of loan loss provisions (LLP) affects the financial performance of banks. Thus, this study will provide new insights into comprehensive credit risk management and its impact on banking profitability, which can serve as a valuable reference for policy-making and risk management practices in Indonesia's banking sector.

Various studies have shown that NPL have a negative impact on banking profitability. For instance, Leon (2020) found that NPL negatively affect banking profitability in ASEAN. Similarly, Mei et al. (2019) found that NPL had a detrimental impact on bank profitability in Ghana, supported by studies from Million et al. (2015), who observed negative effects of NPL on bank profitability in Ethiopia, and Khamisah et al. (2020), who found similar results for Indonesian banks.

High NPL levels compel banks to allocate more resources to managing bad loans, which decreases profitability (Leon, 2020). However, Bohaene et al. (2012) argue that in certain cases, high NPL can actually increase profitability. This occurs when banks raise interest rates to compensate for NPL risk, allowing interest income to offset losses from bad loans. Nonetheless, high interest rates may reduce demand for loans, ultimately limiting the growth potential of the banking business (Miller, 2013).

High NPL lead to increased LLP, which in turn limit a bank's ability to extend productive loans. Funds that should have been used for credit expansion are instead allocated to cover losses from bad loans (Packer & Zhu, 2012). Under the Basel framework, LLP serves as an essential tool for absorbing credit risk and maintaining financial system stability. However, excessive LLP can negatively impact a bank's profitability (Mustafa et al., 2012; Saleh & Afifa, 2020), as it indicates poor asset and loan quality. High LLP levels can also reduce investor confidence in a bank’s financial health, potentially hindering the bank's ability to raise additional capital or secure low-cost funding (Kusuma & Haryanto, 2016).

Research has demonstrated that LLP negatively affect bank profitability, as noted by Mustafa and Hussain (2012), Saleh & Afifa (2020), and Abbas et al. (2019). However, Million et al. (2015) highlighted the positive role of LLP in profitability, suggesting that LLP is crucial for maintaining banking stability, as outlined in the Basel agreements. Yet, poorly measured or overly high LLP levels can adversely impact bank profitability.

Therefore, it is essential for banks to strike a balance in setting LLP to maintain financial stability without sacrificing profitability.

This study aims to further investigate the impact of Non-Performing Loans (NPL) and Loan Loss Provisions (LLP) on bank profitability in Indonesia. Given the crucial role of banks in the economy and financial system, and the increasing trends of NPL and LLP in recent years, a deeper understanding of the relationship between credit risk and bank profitability is essential. By comprehensively analyzing the effects of NPL and LLP, this study hopes to provide valuable insights for banks in managing credit risk more effectively while enhancing their profitability. Furthermore, the findings from this research will directly contribute to improving risk management practices within banks, equipping management with actionable strategies to mitigate credit risk and optimize financial performance. Policymakers can also leverage these insights to develop more informed regulatory frameworks that bolster the resilience and stability of Indonesia's banking sector, ensuring that both banks and the broader economy remain safeguarded against future financial risks.

RESEARCH METHOD

This study was conducted on commercial banks listed on the Indonesia Stock Exchange (IDX) during the 2013-2022 period. The objective of the research is to analyze the impact of Non-Performing Loans (NPL) and Loan Loss Provisions (LLP) on Return on Assets (ROA) as a measure of profitability. The research uses a quantitative approach with a descriptive-associative design, Descriptive-associative research is a type of study aimed at understanding the values of independent variables and the relationships between two or more variables. utilizing panel data from the banks' financial reports.

This study focuses on conventional commercial banks listed on the Indonesia Stock Exchange (IDX) with an initial population of 47 banks. From this population, a sample of 40 banks was selected using a purposive sampling method based on certain criteria, such as the availability of complete and relevant financial data for the period 2013 to 2022. This selection ensures that the data analyzed is reliable and representative to describe the banking sector. The purposive sampling method allows researchers to specifically select banks that provide the most valuable data related to the relationship between Non-Performing Loans (NPL), Loan Loss Provisions (LLP), and Return on Assets (ROA), thereby increasing the validity and quality of research findings. The criteria for sample selection are as follows: (1) conventional banking institutions listed on the IDX, (2) banks that consistently published annual reports during the 2013-2022 period, and (3) banks listed on the IDX in 2022 that provided complete data on Non-Performing Loans (NPL), Loan Loss Provisions (LLP), Total Loan Distribution, and Return on Assets (ROA) for the 2013-2022 period.

The data used in this study is secondary data, collected through documentation methods from annual reports published by the Indonesia Stock Exchange (IDX), the Financial Services Authority (OJK), and the official websites of the respective banks. (See Table 1)

Table 1. Variable Operationalization

No	Variable	Concept Definition	Indicator	Scale
1	Non-Performing Loan (NPL) (X1)	NPL refers to loans that have exceeded a certain time limit without payment of interest or principal for at least 90 days	NPL = (Non-Performing Loans / Total Loans) x 100%	Ratio
2	Loan Loss Provision (LLP) (X2)	LLP is a reserve allocated by the bank to cover potential losses due to loan defaults or delinquency	LLP = (Loan Loss Provision / Total Loans) x 100%	Ratio
3	Return on Assets (ROA) (Y)	ROA is a ratio that illustrates the efficiency of all funds used by the company, or it indicates the return/profit earned by the company from all assets employed	ROA = (Pre-Tax Profit / Total Assets) x 100%	Ratio

Source: Data Processed, 2024

The variables analyzed in this study consist of independent and dependent variables, as summarized in Table 1. The independent variables include Non-Performing Loans (NPL) and Loan Loss Provisions (LLP), while the dependent variable is Return on Assets (ROA). This study employs panel data regression analysis to measure the impact of NPL and LLP on ROA. Panel regression is selected because it captures both time-series and cross-sectional dynamics among the banks.

Three models of panel data regression will be used for analysis: Common Effect, which assumes no differences among banks; Fixed Effect, which accounts for specific differences across banks; and Random Effect, which assumes random differences among banks. The best model will be determined using the Chow Test (comparing the Common Effect and Fixed Effect models) and the Hausman Test (comparing the Fixed Effect and Random Effect models). The selected model will then be used to measure the influence of NPL and LLP on ROA for banks listed on the Indonesia Stock Exchange. Formula 1 is the regression equation for this research.

$$\boldsymbol{Y_{it} = \alpha_{it} + \beta_1 X1_{it} + \beta_2 X2_{it} + e_{it}} \qquad (\mathbf{1})$$

In Formula 1, Y_{it} epresents the dependent variable measuring the Return on Assets (ROA) for each bank in period t . The variable $X1_{it}$ s the Non-Performing Loans (NPL) of each bank during period t, and $X2_{it}$ is the Loan Loss Provision (LLP) for each bank in period t. The index i represents each bank, while the index t represents the research period spanning from 2013 to 2022. The coefficient α_{it} is the coefficient for ROA_{it} while $\beta_1\beta_2$ are the coefficients for the variables NPL_{it} dan LLP_{it} respectively. Additionally, e_{it} represents the standard error in this model.

RESULTS AND DISCUSSION

Results

Descriptive Statistics Analysis

The statistical descriptive analysis in this research provides an overview of the data characteristics, including Non-Performing Loans (NPL), Loan Loss Provision (LLP), and Return on Assets (ROA). Table 2 summarizes the statistical measures, including the mean, median, maximum, minimum, standard deviation, and skewness of each variable over the study period from 2013 to 2022.

Table 2. Descriptive Statistics of Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness
ROA	0.008008	0.011100	0.054200	-0.1589	0.026337	-2.86708
NPL	0.031571	0.027650	0.222700	0.000000	0.025385	2.613546
LLP	0.028527	0.021974	0.216780	0.000228	0.026726	2.495916

Source: Eviews Output, 2024

From Table 2, it can be observed that the average Return on Assets (ROA) of the banks in the sample during the study period (2013-2022) is only 0.8%, indicating that the profitability of Indonesian banks is far from optimal. According to OJK standards, a healthy bank should have an ROA between 1.25% and 2%, and this figure is also below the global banking industry average, which ranges between 1% and 2% (World Bank). This situation is concerning, especially with a minimum ROA value of -15.89%, indicating that some banks experienced extreme losses. Furthermore, the negative skewness shows that the ROA distribution of Indonesian banks is skewed towards lower values, suggesting that most banks have ROAs below the average. The variation in ROA is also significant, with a standard deviation of 0.0263, indicating large disparities between banks, even though some managed to achieve a maximum ROA of 5.4%.

For the Non-Performing Loans (NPL) variable, the banks studied have an average NPL of 3.16% with a median of 2.7%, which is below 5%, indicating that they are still categorized as healthy. However, the maximum NPL value reaches 22.27%, suggesting that some banks have a very high level of NPL. The positive skewness indicates that many banks have NPL levels above the average.

Similarly, for the Loan Loss Provision (LLP) variable, the average is 2.85%, and the median is 2.19%, which is lower than the NPL average. However, with a maximum value of 21.68% and positive skewness, it indicates that both the NPL and LLP variables, which serve as indicators of credit risk in this study, still pose serious issues for the profitability of banks in Indonesia.

Classical Assumption Test

Table 3 will present the results of the classical assumption tests. In panel data regression using the OLS model, the classical assumption tests conducted include only multicollinearity and heteroscedasticity tests (Basuki and Prawoto, 2016).

Table 3. Classical Assumption Test

	Criteria	Result
Multicollinearity Test	Corrrelation Value <0.85	0.583
Heteroscedasity Test	Glejser Test: Sig. > 0.05	NPL Sig. 0.664 LLP Sig. 0.209

Source: Data Processed, 2024

Based on Table 3, the results of the classical assumption test show that there are no multicollinearity problems between the independent variables, and the residual variance does not show heteroscedasticity.

Panel Data Regression Analysis

Table 4 will present the results of the Chow test, and Table 5 will present the results Hausman test to determine the best regression model for the panel data analysis.

Table 4. Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	7.497943	(39,358)	0.0000
Cross-section Chi-square	238.833994	39	0.0000

Source: Eviews output, 2024

Table 5. Hauusman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.889586	2	0.0001

Source: Eviews output, 2024

Based on Tables 4 and 5, the best regression model for this analysis is the fixed effect model. The results of the T-test analysis and the fixed effects determination coefficient are summarized in Tables 6 and 7.

Table 6. T-Test Table

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.021406	0.001759	12.16730	0.0000
NPL	-0.064858	0.059207	-1.095447	0.2741
LLP	-0.397871	0.052211	-7.620466	0.0000

Source: Eviews output, 2024

Based on Table 6, the results show that NPL has a negative but insignificant effect on ROA. In contrast, LLP has a significant negative impact on ROA, indicating that higher loan loss provisions reduce bank profitability.

Table. 7. Coeficient Determination

R-squared	Adjusted R-squared	S.E. of regression
0.57434	0.52559	0.01814

Source: Eviews output, 2024

Based on Table 7, the R-squared value indicates that 57.4% of the variation in ROA is explained by NPL and LLP. The Adjusted R-squared value shows that 52.5% of the variation in ROA is influenced by these two variables, while the remaining 47.5% is explained by other factors such as macroeconomic variables, inflation, loan amounts, global economic conditions, and bank operational efficiency (Albertazzi & Gambacorta, 2009; Gul et al., 2011).

Discussion

Based on the Table. 6. shows the results of the regression of credit risk variables, namely Non-Performing Loans (NPL) and Loan Loss Provisions (LLP), on bank profitability measured through Return on Assets. (ROA). Theoretically, credit risk is indeed expected to have a negative impact on profitability. This is reflected in the regression results, where the NPL coefficient is -0.06 and the LLP coefficient is -0.39, indicating that an increase in both of these variables tends to decrease ROA. In other

words, the higher the credit risk faced by the bank, the greater the likelihood of a decline in profitability.

Although statistically, NPL is not significant with a p-value of 0.27, its negative coefficient indicates that an increase in NPL still has a negative impact on ROA. NPL reflects problematic loans that cannot be repaid by debtors, which affects the decline in asset quality and the profitability of banks. Although not significant, banks should strengthen credit risk management to address the increasing trend of NPL from 2013 to 2022, which is in line with the declining trend of ROA during that period. This indicates that although its impact may not be significantly visible at the moment, managing credit risk by reducing the NPL rate is very important. If the NPL rate is not mitigated, the risk of losses will increase, worsening asset quality, and ultimately lowering the bank's profitability in the future. The bank will also bear greater losses from the high NPL rate, which will reduce profits as reflected in the ROA (Zulbetti, 2011). An increase in NPL can also lead to a rise in loan loss reserves and a decrease in net income. (Bouvatier dan Lepetit 2012).

Strategies such as strict credit assessments and regular credit monitoring need to be implemented to mitigate the negative impact of NPL and enhance the operational efficiency of banks. Although the impact of NPL is not significant, good credit risk management remains important to maintain the profitability of banks amid economic uncertainty. This finding is in line with Sunaryo et al. (2021) and Harun (2016), who state that the effect of NPL is not significant on ROA, but it contradicts studies such as Million et al. (2015) who studied credit risk in Ethiopian banks, found that high NPL levels significantly reduced ROA due to the substantial resources required to manage bad loans. Similarly, Kumaralita & Purwanto (2019) reported a significant relationship between NPL and ROA in Indonesian Banking Sector. However, in Indonesia, loan restructuring policies implemented like during the COVID-19 period likely mitigated the impact of NPL on profitability. This study also employed a fixed effect model, which better captures variations across banks compared to previous methods.

On the other hand, LLP shows a significant negative direction towards ROA with a p-value of 0.00. This supports the findings of Bouvatier and Lepetit (2012) that an increase in LLP due to high credit risk will decrease net income, thereby negatively impacting profitability. The high Loan Loss Provisions (LLP) reflect an increase in the risk of credit defaults, forcing banks to be more cautious in extending new credit. Although this policy reduces the risk of future losses, the high LLP can constrain the banks' ability to lend, ultimately lowering profitability. (Beatty dan Liao 2009). This is because the funds allocated for LLP cannot be used for productive activities, thereby reducing the potential interest income (Mustafa et al., 2012).

The relationship between NPL and LLP is also very clear. When the NPL rate is high, the reserve funds may not be sufficient to fully cover the losses, which means that the funds are used directly to cover the actual losses, rather than just being a reserve (Anandajran et al., 2013). In this situation, the high NPL indicates issues with the bank's credit quality, directly affecting their financial stability. Bouvatier and Lepetit (2012) found a significant relationship between NPL and LLP, where an increase in NPL encourages banks to raise LLP to anticipate greater losses in the future. Packer and Zhu (2012) state that this step increases the operational costs of banks and affects the quality of their assets, which ultimately reduces profitability.

However, when NPL are low, the reserve funds allocated through LLP are often not fully utilized, resulting in "idle funds." This fund does not contribute directly to profitability and can be a burden for the bank as it cannot be used productively to generate additional income. Bouvatier and Lepetit (2012) state that in the long run, ineffective

management of reserve funds can reduce the operational efficiency of banks and weaken their competitiveness in the market.

High LLP also increases the operational costs of the bank. Cucinelli (2015) shows that the recording of Loan Loss Provisions (LLP) as an operational expense reduces net income, which directly impacts the decline in Return on Assets (ROA). The larger the LLP allocated, the greater the portion of profit that is eroded to cover potential losses from bad debts. As a result, the bank's profitability is under significant pressure because funds that could have been used for investment or business expansion have to be redirected to cover credit losses.

In addition, the increase in LLP can reduce the net asset value reported by the bank. Bouvatier and Lepetit (2012) state that although LLP is a conservative measure to maintain financial stability, a significant increase in LLP can affect investors' perceptions of the bank's financial health. Haryanto and Kusuma (2016) add that investors tend to avoid banks with high LLP because they are considered riskier, which in turn increases the banks' cost of capital and decreases their attractiveness in the capital market. High LLP not only reduces net profit but also diminishes banks' access to cheaper financial resources, which are crucial for supporting business expansion and growth.

Overall, a high Loan Loss Provision (LLP) can indicate underlying issues in the bank's credit portfolio management. Deteriorating credit quality, inadequate credit assessments, or weak oversight of debtors are often contributing factors to the increase in LLP. The bank needs to balance maintaining sufficient loss reserves while ensuring that the available funds are used optimally to enhance profitability. Poor management can reduce operational efficiency and undermine a bank's competitiveness in the financial market.

In addition, overly conservative policies in setting LLP can hinder profitability growth. Although LLP is important for the stability of the banking financial system, excessive allocation can reduce opportunities for more profitable investments or for channeling new credit. Therefore, good credit risk management practices, including strict credit assessments and ongoing monitoring, are essential to maintain a balance between adequate reserves and productive use of funds.

The results of this study are consistent with the findings of Saleh and Afifa (2020), Kadioglu et al. (2017), and Mustafa et al. (2012), who demonstrated a significant negative impact of Loan Loss Provisions (LLP) on Return on Assets (ROA). However, this study contrasts with the findings of Kumaralita & Purwanto (2019), which suggest that a higher LLP is positively associated with ROA, indicating that higher provisions may reflect effective asset management in Indonesian banks. Similarly, Million (2015) found a significant positive relationship between LLP and profitability (ROA and ROE), suggesting that robust credit risk management can transform higher provisions into enhanced profitability.

Overall, the findings of this study emphasize the importance of proper credit risk management, especially in the face of fluctuations in banking profitability measured through ROA. Although NPL is not statistically significant, its negative coefficient indicates that high credit risk can affect asset quality and bank profitability in the long run. On the other hand, the significant influence of LLP on ROA indicates that an increase in loan loss reserves has the potential to reduce bank profits, especially when the funds allocated for LLP cannot be utilized productively.

An effective risk management framework is essential for reducing the negative impact of Non-Performing Loans (NPL) and Loan Loss Provisions (LLP) on a bank's profitability. To enhance credit risk management, banks should leverage advanced data analytics and machine learning technologies to improve debtor risk assessments.

Additionally, implementing an Early Warning System (EWS) allows for proactive monitoring of debtor performance, enabling early identification of potential defaults and facilitating timely loan restructuring.

To mitigate concentration risks, banks should diversify their loan portfolios across various sectors and regions, minimizing the financial impact of losses from any single sector. Moreover, it is crucial for banks to maintain an adequate level of LLP to cover potential losses while ensuring they have enough capital to continue lending and investing. This can be achieved by avoiding excessive provisioning that might lead to idle, unproductive funds.

Routine economic scenario simulations, or stress testing, should also be conducted to evaluate the potential effects of losses on LLP, allowing banks to take corrective actions early and maintain financial stability. To strengthen internal governance, banks must regularly update their risk management policies to comply with regulatory standards, such as Basel and OJK guidelines, while maintaining strong collaboration with regulators to ensure policies remain relevant to market dynamics.

To reduce NPL, banks can offer flexible repayment options for borrowers facing temporary financial difficulties, ensuring that loans remain productive without jeopardizing long-term relationships. Additionally, investing in intensive training and development for risk management staff is essential to equip them with the necessary skills to proactively assess and manage risks. By adopting these strategies, banks can manage credit risk more effectively, protect profitability, and contribute to the long-term stability of the banking sector.

CONCLUSION

Based on the results of this study, the impact of credit risk, represented by Non-Performing Loans (NPL) and Loan Loss Provision (LLP), on bank profitability measured through Return on Assets (ROA) provides several important insights. Although the impact of NPL on ROA is not statistically significant, the negative coefficient indicates that an increase in NPL has the potential to suppress the bank's profitability. High credit risk, as reflected by NPL, suggests issues in the bank's credit quality management, which could lead to a decline in net income in the future. On the other hand, LLP shows a significant and negative influence on ROA. LLP can significantly impact a bank's long-term profitability by diverting funds away from productive activities, as money set aside for LLP cannot be used for lending or investing. While increasing LLP helps protect against potential credit losses and ensures regulatory compliance, it also reduces net income and return on assets (ROA) in the short term. This cautious approach to risk management can lead to a conservative lending strategy, limiting loan growth and interest income. Therefore, banks must strike a balance between maintaining adequate LLP for financial stability and pursuing growth opportunities to enhance profitability over time. Therefore, effective credit risk management, such as the implementation of stringent credit monitoring strategies and optimal loss reserve management, remains a crucial element in maintaining the profitability of banks, especially amid uncertain economic conditions. These results support the findings of several previous studies that highlight the importance of careful credit risk management, while also opening up avenues for further research on the mechanisms by which banks can balance maintaining financial stability and enhancing profitability in the future.

RECOMMENDATION

Based on the findings of this research, it is important for the Financial Services Authority (OJK) and Bank Indonesia to strengthen regulations related to credit risk management by establishing stricter standards for Non-Performing Loans (NPL) and Loan Loss Provisions. (LLP). The update of guidelines regarding loss reserves and asset quality reporting requirements must be carried out to make the implementation of this policy more effective. In addition, the OJK's supervision of each bank's compliance in implementing this policy also needs to be enhanced. In the context of macroeconomics, Bank Indonesia needs to consider monetary policies that can reduce systemic risk. A balanced interest rate setting can support economic growth while controlling inflation, thereby reducing market volatility and credit risk. This will provide a clear signal to banks in managing credit risk. Banks also need to improve their credit risk assessment processes and asset quality monitoring to reduce the level of NPL (non-performing loans). The implementation of analytical technology and fintech can help detect potential problematic credits earlier. In addition, effective mitigation strategies and training systems for risk management staff must be developed to support more proactive risk management. Intensive cooperation with the OJK is also important to ensure the implementation of stricter policies in credit risk assessment. Bank management needs to pay special attention to the allocation of funds for LLP, ensuring that adequate reserves are set aside to cover potential losses from non-performing loans. A dynamic approach in the management of LLP, taking into account macro and microeconomic conditions, is essential. This will help banks adapt better to changing market conditions and reduce the negative impact on profitability. One of the weaknesses of this research is the lack of an in-depth understanding of the relationship between Non-Performing Loans (NPL), Loan Loss Provisions (LLP), and Return on Assets (ROA), as well as other factors that may influence this dynamic. The study did not involve a comprehensive analysis of macroeconomic variables such as inflation, interest rates, and economic growth, which can significantly impact NPL levels and LLP needs. Additionally, the absence of comparative studies across countries limits insights into best practices in credit risk management and how various external factors may influence the relationship between NPL, LLP, and ROA. Consequently, this research may not fully capture the complexities involved in credit risk management across different economic contexts. Lastly, further research is needed to gain a deeper understanding of the relationship between NPL, LLP, and ROA, as well as other factors that may influence this dynamic. A comprehensive analysis of macroeconomic variables such as inflation, interest rates, and economic growth can provide additional insights into best practices in credit risk management.

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