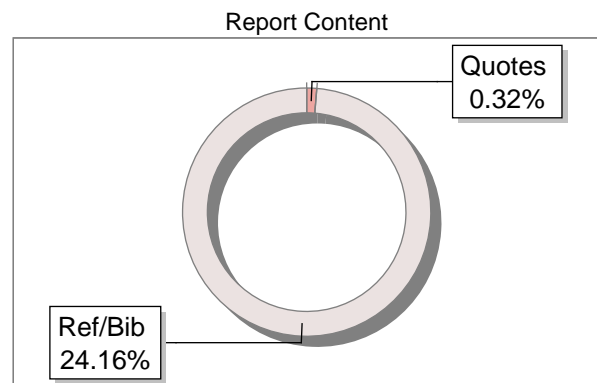
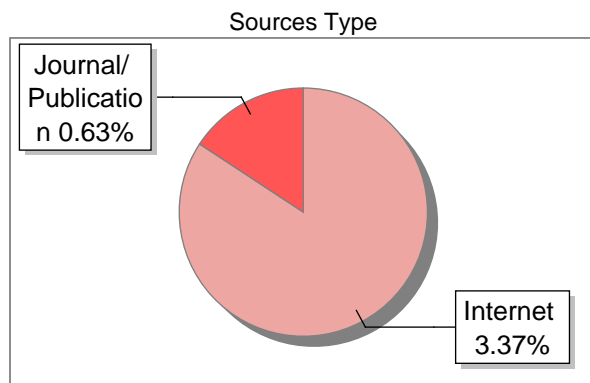
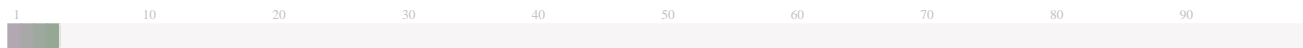


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# “The relationship between profitability and capital buffer in the Indonesian banking sector”

## AUTHORS

<sup>7</sup>Gregorius N. Masdjojo   
<sup>7</sup>Titiek Suwarti   
Cahyani Nuswandari   
Bambang Sudyatno 

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Gregorius N. Masdjojo, Ph.D., Associate Professor, Faculty of Economics and Business, Department of Management, University of Stikubank, Indonesia.

Titiek Suwarti, Ph.D., Lecturer, Faculty of Economics and Business, Department of Accounting, University of Stikubank, Indonesia.

Cahyani Nuswandari, Ph.D., Lecturer, Faculty of Economics and Business, Department of Accounting, University of Stikubank, Indonesia.

Bambang Sudiyatno, Ph.D., Associate Professor, Faculty of Economics and Business, Department of Management, University of Stikubank, Indonesia. (Corresponding author)



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Gregorius N. Masdjojo (Indonesia), Titiek Suwarti (Indonesia), Cahyani Nuswandari (Indonesia), Bambang Sudiyatno (Indonesia)

# THE RELATIONSHIP BETWEEN PROFITABILITY AND CAPITAL BUFFER IN THE INDONESIAN BANKING SECTOR

## Abstract

This study examines profitability as a mediating variable to explore variables that affect the capital buffer in commercial banks. The research population is conventional commercial banks operating in Indonesia, with an observation period of 2017–2020. A purposive sampling method was used, during which 90 observations were found. Data analysis used multiple regression and the Sobel test to test for the mediating role of profitability. The results show that profitability acts as a mediating variable for non-performing loans and the ratio of loans to deposits in the capital buffer. Therefore, it is suggested that banks must maintain their ability to generate profitability in order to avoid liquidity risk. Another finding that is also important for bank managers is that non-performing loans have a significant effect on reducing profitability, while loans to total assets have a positive impact. Loan-to-deposit ratio and income diversification are not significant to profitability. Profitability, debt-to-total assets ratio, and income diversification have a negative impact on the capital buffer. Non-performing loans are not significant, while the loan-to-deposit ratio has a significant positive impact on the capital buffer.

## Keywords

non-performing loan, income diversification, loan-to-deposit ratio, loan-to-total assets ratio, profitability

## JEL Classification

G21, G24, G28

## INTRODUCTION

The main element of the financial system that is full of risk is the bank. Banks always face many problems. Bank capital requirements have been explored in various studies in the last few decades. In the debate of numerous financial books, the connection between bank capital and the business cycle has received significant attention.

In international banking regulations, according to Basel II, banks must keep their capital adequacy ratio over the 8% solvency threshold. That standard can help protect the financial system against problems that may arise. The Basel II seeks to achieve this by setting up strict risk and capital management requirements designed to ensure that a bank has sufficient capital reserves to face bank risks, due to its lending and investment practices. Generally speaking, these regulations highlight that the bank needs more capital to sustain its liquidity and economic stability the higher the risk it faces.

Profitability is an important indicator of bank performance and plays an important role in maintaining customer confidence in a bank. The amount of bank profitability depends on the profit generated from the bank's operational activities. The greater the expectation to earn a profit, the greater the capital required by the bank, and this will have

an impact on increasing the required capital buffer. Therefore, profitability can play an important role in determining the capital buffer.

The Central Statistics Agency (BPS) said that in 2018, compared to 2017, Indonesia's economic growth increased by 5.17 percent. However, Indonesia's economic growth decreased to 5.02 percent in 2019 and saw a growth drop of 2.07 percent (c-to-c) in 2020. While bank lending in Indonesia increased only 6.08 percent in 2019 and 2.41 percent year over year (yoy) in 2020 compared to 2019, the country's banks credit growth increased 12.45 percent in 2018. The impact of the COVID-19 pandemic, which has affected nearly every country in the world, is inextricably linked to the reduction in economic growth and credit.

Developments in economic growth and credit affect bank operations and increase risk. These risks include the risk of non-performing loans, changes in interest rates and inflation that can affect bank performance (profitability) and capital buffers. The condition of economic and credit growth, which continued to decline during 2018–2020, increased banking risk so that banks needed more capital to continue operating normally. The impact of the decline in economic growth and credit is a decrease in interest income as the main source of bank income. This, of course, can be bad news for investors, so bank managers must try to prevent this condition from worsening their relationship with investors.

During times of strong economic conditions, Bank Indonesia enacted a regulation requiring banks to raise additional capital (boom period). Banks must meet this requirement along with the creation of a capital buffer. The application of provisions for the formation of additional capital to anticipate losses from excessive credit/financing expansion. When it is believed that the economy is about to enter a burst period, this increased capital acts as a buffer to absorb losses.

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## 1. LITERATURE REVIEW AND HYPOTHESES

Capital buffer is defined as the excess difference between the capital adequacy ratio (CAR) owned by banks and the minimum banking capital requirements imposed by the central bank. Capital buffers can be used by banks as capital reserves in the event of an unfavorable economic slowdown for banks. The discussion of capital buffers in literature motivates us to explore the Indonesian banking system focusing on profitability ratios and bank capital ratios. Abbas et al. (2019) explained that according to Basel III, some restrictions were imposed on banks to maintain a certain amount of capital buffer during good economic conditions. In this case, the regulator provides guidelines to maintain a conservative capital buffer of 2.5 percent to reduce failure in adverse economic situations and conditions.

To increase trust in banks, a bank can be managed by maintaining a high capital buffer. As noted by Jackson (1999), a high capital buffer also reflects the risk and soundness of a bank, which can in-

crease a good rating. However, the position of the capital buffer can lead to gains and losses, so bank management needs to consider the trade-off between the benefits and losses that can occur related to the capital buffer (Atici & Gursoy, 2013).

A bank's growth will slow down if it limits its operations by maintaining a higher capital adequacy ratio. Then it can affect its credit expansion and growth. Ayuso et al. (2004) pointed out that risk-based capital rules are an attempt to lessen the possible drawbacks of these capital requirements. The Basel Committee considers determining the appropriate size of the capital buffer to be a key risk management obligation for banks and proposes periodic stress testing, as shown by Peura and Jokivuolle (2004).

The difference between the bank's CAR and the regulator's minimum bank capital requirements is referred to as the capital buffer, according to Brasli and Arefjevs (2014). A capital buffer, according to the Indonesian Central Bank, is extra capital that acts as a safeguard against losses in the event of rapid credit expansion or bank credit that jeop-

ardizes the integrity of the financial system. The position of a bank with a strong capital buffer can increase public confidence in the bank so that people are more confident in the convenience of the services provided to them. Numerous studies on variables that affect capital buffer size have been conducted, but the results have been inconsistent or do not fit the definition and purpose of the capital buffer. The inconsistency of the results of this study makes this topic interesting for further research with various variations and innovations in using the variables and models used.

Liu (2016) stated that NPL is one indicator of the current level of bank risk. If the NPL value increases, the risk faced by a bank will also increase. Then, it can affect the decline in bank income. Therefore, banks must have sufficient capital reserves to anticipate it. Nisar et al. (2018) and Pratama et al. (2021) found empirical facts showing that NPL has a negative impact on ROE, while Amoah et al. (2019) and Quyen et al. (2021) found empirical evidence showing that NPL has a favorable impact on ROE. Maguni et al. (2020) found that NPL did not affect ROE. Then Liu (2016) and Dwiarti (2019) found that NPL affects capital buffers negatively, while Anggraini and Baskara (2020) and Abbas et al. (2021) found that NPL affects capital buffers positively.

A bank's ability to manage the capital it receives from external parties is demonstrated by the LDR. A healthy LDR position in the range of 80 percent to 92 percent is required by Bank Indonesia Regulation No. 18/14/PBI/2016. The greater the loan disbursed by a bank, the greater the LDR, which means the bank's ability to generate income increases, and this ability requires strong capital support. Likewise, with the increase in loans disbursed, the need for bank capital also increases to cover the occurrence of liquidity risk so that the need for capital buffers also increases. Several previous research results show that the loan-to-deposit ratio has a positive effect on return on equity (Edison et al., 2019; Lawati, 2021). Likewise, Fauziah and Wulandari (2020) found that the loan-to-deposit ratio had a positive effect on the capital buffer. However, Anisa and Sutrisno (2020) discovered that the LDR had a negative impact on the capital buffer, contrary to Maguni et al. (2020), who found no evidence of this effect.

Loan-to-total assets ratio shows the proportion of total assets disbursed in the form of a credit to customers. The greater the funds lent in credit to customers, the bank's income will increase, and this will determine the sustainability of the bank's operations because the bank's main operating income is from lending. However, if the distribution of these funds is not controlled because management only pursues income, it will have the consequence of decreasing bank liquidity, because most of its assets are channeled in the form of a credit to customers so that the need for capital buffers to eliminate these risks increases. According to Uddin (2021), LDR had a beneficial impact on ROE; however, Ashyari and Rokhim (2020) did not found this effect. Alper and Anbar (2011) found a negative impact. In their studies, Belém and Gartner (2016) and Anggraini and Baskara (2020) revealed that loans as a percentage of total assets had a favorable impact on the capital buffer.

As stated by Winton (1999), income diversification refers to non-interest income, which is a bank's effort to expand income from the main business so that it does not only focus on interest income as its main income. Diversification can also increase market value; Sawada (2013) conducted a study of Japanese banks and found that income diversification affected bank market value. Bapat and Sagar (2016) stated that the motivation of banks to diversify is related to the need to have a profit center, presence in diversified financial market services, broad customer access, and building a leading market position in all financial services to increase non-interest income. Empirical evidence from studies by Amoah et al. (2019), Uddin et al. (2021), and Pratama et al. (2021) shows that income diversification has a positive effect on return on equity. Stiroh and Rumble (2006), Mercieca et al. (2007), and Alper and Anbar (2011) found no empirical evidence of this influence in their studies. Pratama et al. (2020) and Wang (2017) found that income diversification affected the capital buffer negatively. Nonetheless, according to Wang (2017), diversification of a bank's income structure not only diminishes the level of the capital buffer but also weakens the capital buffer's counter-cyclical nature.

Return on equity is a cost for a bank but shareholders are a reward. According to Eliskovski (2014), if all profits are distributed as dividends,

then there is no source of funds from retained earnings that can increase the bank's capital buffer so that it has an impact on increasing the capital buffer. According to Jokipii and Milne (2006), the excess can be reinvested to have a positive effect on the capital buffer if the return on equity is high enough to outpace the projected return from shareholders. As a result, the capital cushion will be smaller. While Atici and Gursoy (2013), Eliskovski (2014), and Anggraini and Baskara (2020) found no such effect, Liu (2016), Dwiarti et al. (2019), and Pratama et al. (2021) found that return on equity had a negative impact on the capital buffer. According to the conclusions made by Tabak et al. (2013), Belém and Gartner (2016), and other researchers, ROE has a favorable impact on the capital buffer.

The purpose of this study is to define profitability as a variable with many functions and to investigate how it affects NPL, LDR, LOTA, and the capital buffer's income diversification. It is anticipated that adding profitability as an intervening variable will supplement the conclusions of earlier studies on the variables affecting the capital buffer.

The following hypotheses can be formulated based on the literature review:

- $H_1$ : High non-performing loan will reduce profitability.
- $H_2$ : Low non-performing loan will increase the need for capital buffers.
- $H_3$ : Loan-to-deposit ratio has a positive impact on profitability.
- $H_4$ : An increase in the loan-to-deposit ratio will have an impact on increasing the capital buffer.
- $H_5$ : Loan-to-total assets ratio has a positive impact on profitability.
- $H_6$ : Loan-to-total assets ratio has a positive impact on the capital buffer.
- $H_7$ : Income diversification has a favorable impact on profitability.

$H_8$ : Diversification income has a detrimental impact on the capital buffer.

$H_9$ : Profitability affects the capital buffer.

## 2. METHOD

The data are taken from the Indonesia Capital Market Directory and Bank Indonesia Statistics. Based on Bhattacharya (2003) and Wu et al. (2020), only conventional commercial banks are selected to become the sample of this study to avoid potential problems of bias in sample selection, as well as to minimize the possibility of bias due to differences in the nature and scope of business between banks. Given that not all banks have complete data, the banks in the sample are selected based on the availability of data according to the required variables.

This study uses the multiple regression equations conducted by Cox (1994) and Sibindi (2018). The Multiple regression equation has the following formulation:

$$ROE = a_{10} + b_{11}NPL + b_{12}LDR + b_{13}LOTA + b_{14}IDIV + \mu_{11}, \quad (1)$$

$$CBUFF = a_{20} + b_{21}ROE + b_{22}NPL + b_{23}LDR + b_{24}LOTA + b_{25}IDIV + \mu_{22}, \quad (2)$$

where  $\alpha_{10}$  and  $\alpha_{20}$  are constants;  $\beta_{11}$ ,  $\beta_{12}$ ,  $\beta_{13}$ ,  $\beta_{14}$  and  $\beta_{21}$ ,  $\beta_{22}$ ,  $\beta_{23}$ ,  $\beta_{24}$ ,  $\beta_{25}$  are regression coefficients; and  $\mu_{11}$  and  $\mu_{22}$  are the stochastic error terms of the regression equation (1) and (2).

The model is estimated using multiple regression. To be clear, ROE is return on equity as a proxy for profitability; CBUFF is a capital buffer; NPL is a non-performing loan; LDR is the loan-to-deposit ratio; LOTA is the loan-to-total assets ratio; and IDIV is income diversification.

The first model is the regression equation (1), with return on equity as a dependent variable. The second is the regression equation (2), with the capital buffer (CBUFF) as a dependent variable. Return on Equity becomes a mediating variable. That variable has a dual status: dependent variable and in-

dependent variable. Data analysis uses path analysis. To test whether profitability is a mediating variable, the Sobel test was used.

### 3. RESULTS AND DISCUSSION

Table 1 shows that the lowest capital buffer is 6.11%, and the highest is 44.00%, with a mean value of 15.45%. The lowest profitability (ROE) is 0.05%, and the highest is 20.05%, with an average profitability of 8.13%. The lowest non-performing loan is 0.00%, and the highest is 7.66%, with an average NPL value of 2.99%. The lowest loan-to-deposit ratio was 39.33%, and the highest was 145.26%, with an average LDR of 86.18%. The lowest loan-to-total assets ratio is 31.84%, and the highest is 76.95%, with an average LOTA value of 62.23%. The lowest income diversification is 0.01%, and the highest is 86.08%, with an average income diversification of 15.65%. All standard deviation values are smaller than the mean. That indicates that the data is homogeneous so that the variance of each variable is not far from the mean.

The completion of equation (1) shows that the adjusted R-squared is 0.353, and the value of  $F = 15.728$  has a significance of 0.000. Meanwhile, from equation (2), an  $F$  value of 11.741 is obtained with a significance of 0.000, and a corrected R-squared of 0.376. As a result, both regression models are effective and meet the fit criteria, making them effective predictors.

The conclusions of the hypothesis test are presented in Tables 2 and 3. The first hypothesis looks at how *NPL* affect profitability (ROE). The results showed that the beta coefficient of *NPL* was negative with a value of  $t = -7.106$  at a significance of 0.000. These findings suggest that non-performing loans have a sizable and detrimental impact on profitability. The second hypothesis looks at how

*NPL* affect the capital buffer. Non-performing loans consequently have a negative coefficient with a value of  $t = -1.748$  and a significance of  $t$  of 0.08. Thus, this indicates that *NPL* have a negative effect on the capital buffer at a significance level of less than 10 percent. Hypothesis 3 examines the effect of *LDR* on profitability. The results show that the beta coefficient of the *LDR* on profitability is positive with a value of  $t = 0.173$  at a significance of 0.863. This indicates that the *LDR* has no effect on profitability. Hypothesis 4 examines the effect of the *LDR* on the capital buffer. The results show that the beta coefficient is positive with a value of  $t = 4.808$  with a significance of  $t = 0.000$ . These data suggest that *LDR* has a beneficial effect on the capital buffer. Hypothesis 5 examines the effect of *LOTA* ratio on profitability. With a value of  $t = 4.085$  and a significance value (sig-t) of 0.000, this result indicates that the *LOTA* ratio has a positive effect on profitability. The impact of *LDR* on the capital buffer is examined in hypothesis 6. The results show that the beta coefficient is negative with a value of  $t = -5.335$  with a significance of  $t = 0.000$ . These results indicate that the *LOTA* ratio has a negative effect on the capital buffer. Hypothesis 7 examines the effect of income diversification on profitability. The results show that the beta coefficient of income diversification on profitability is positive with a value of  $t = 1.202$  at a significance of 0.232. These results indicate that income diversification has no effect on profitability. The results of hypothesis test 8 show that the beta coefficient is negative with a value of  $t = -3.161$  with a significance of  $t = 0.002$ . These results indicate that income diversification has a negative effect on the capital buffer. While the effect of profitability on the capital buffer is tested by hypothesis 9 with the result that profitability (ROE) has a negative effect on the capital buffer.

Based on Table 2 and Table 3, the analysis and discussion are carried out.

**Table 1.** Data distribution

Variable	N	Minimum	Maximum	Mean	Std. deviation
CBUFF	90	6.11	44.00	15.45	2.20
Profitability	90	0.05	20.05	8.13	5.63
NPL	90	0.00	7.66	2.99	1.50
LDR	90	39.33	145.26	86.18	15.53
LOTA	90	31.84	76.95	62/23	8.40
IDIF	90	0.01	86.08	15.65	12.83

**Table 2.** Test of regression 1

Model	Unstandardized coefficients		t	Sig.
	B			
(Costant)	-0.745		-0.230	0.819
NPL	-2.148		-7.106	0.000***
LDR	0.003		0.173	0.863
LOTA	0.226		4.085	0.000***
IDIV	0.037		1.202	0.232

Note: \*\*\* significant at 1 percent, \*\* significant at 5 percent, and \* significant at 10 percent. The Depended variable: Profitability (ROE).

**Table 3.** Test of regression 2

Model	Unstandardized coefficients		t	Sig.
	B			
(Costant)	40.257		40.257	0.000***
ROE	-0.487		-0.487	0.001***
NPL	-0.907		-0.907	0.084*
LDR	0.299		0.299	0.000***
LOTA	-0.663		-5.335	0.000***
INDIV	-0.167		-3.161	0.002***

Note: \*\*\* significant at 1 percent, \*\* significant at 5 percent, and \* significant at 10 percent. The Depended variable: Capital Buffer (CBUFF).

The results of this empirical study indicate that non-performing loans have a negative effect on profitability and capital buffers. The results of the empirical study indicate the negative impact of non-performing loans. This empirical evidence shows that in the conventional banking industry in Indonesia, a non-performing loan has a detrimental impact on banks, because it reduces profitability and capital buffer. The results of this study support the assumption that non-performing loans have implications for debtors, because they are unable to pay their debts, causing bank operations to be disrupted, and resulting in a decrease in bank income. Non-performing loans, on the other hand, also have a negative impact on the capital buffer, the need for a capital buffer increases when non-performing loans increase so that bank management must provide more capital to prevent banks from experiencing liquidity risk.

The findings of this empirical analysis corroborate studies by Pratama et al. (2021), Uddin et al. (2021), and Nisar et al. (2018) that non-performing loans have a detrimental impact on profitability. They have proven that many bad debts cause a decrease in return on equity as the bank's operating profit falls. This implies that the bank's rate of return on capital will drop if the value of non-performing loans rises. For this reason, bank management

must be able to manage credit activities properly according to applicable standards and procedures.

Non-performance loans, according to this study's findings, have a detrimental impact on the capital buffer. The results of this empirical study support empirical research from Atici and Gursoy (2013), Liu (2016), Sibindi (2018), Dwiarti et al. (2019), Anisa and Sutrisno (2020), Fauziah and Wulandari (2020), and Jiang et al. (2020). High non-performing loans can reduce the value of the capital buffer, and when NPLs decrease, it will increase the capital buffer. In accordance with the provisions of the monetary authority in Indonesia, banks with non-performing loans are required to establish capital reserves to mitigate risk. As a result, the value of bank capital will drop.

The results of other empirical studies found empirical evidence that the loan-to-deposit ratio has no effect on profitability but has a positive effect on capital buffer. Judging from the coefficient of the direction of the loan-to-deposit ratio on profitability, it is positive, there is a positive indication that an increase in credit has an impact on increasing profitability, although statistically the increase is not significant. This empirical evidence shows that there are inefficiency problems in credit management at conventional banks in

Indonesia, this condition is inseparable from the COVID-19 pandemic situation, which has an impact on a disproportionate decrease in income and operational costs. Hard work is needed from bank managers in Indonesia to improve the efficiency of managing customer funds in order to generate high income.

The findings of this empirical investigation concur with those of an earlier study by Magumi (2020), which also found no relationship between bank profitability and liquidity. When banks increase their liquidity reserves, the amount of money invested in productive activities such as credit is reduced or non-existent. This condition indicates that there is no potential interest income received from the bank's operational activities so that it does not affect the bank's income.

The empirical investigation also discovered that the capital buffer is positively impacted by the loan to deposit ratio. This empirical study's findings corroborate those of Riaz et al. (2019), Fauziah and Wulandari (2020), and Abbas et al. (2021). They stated that if funds disbursed in the form of credit continued to increase, the bank's liquidity would decrease. To maintain the continuity of banking operations, a large capital buffer is needed to cover these risks so that banks avoid liquidity risk and can maintain public trust.

The results of other empirical studies found that the loan-to-total assets ratio has a positive effect on profitability but has a negative effect on capital buffers. An increase in the loan-to-total assets ratio has a positive effect on profitability. An increase in lending results in an increase in a bank's income, which can lead to an increase in the bank's profit. If the bank implements a policy that retained earnings always increase when the bank earns a profit, then the capital buffer requirement can be met from retained earnings.

This empirical finding is consistent with those of Uddin et al. (2021), who found that the higher the loan-to-total assets ratio, the higher the return on bank equity (profitability). The size of the loan-to-total assets ratio represents the amount of money lent in the form of credit. Thus, the greater the credit given, the higher the bank's income that will be received. This affects the increase in re-

turn on equity. The implication is that bank management must always try to keep this ratio high in order to increase bank income. If costs can be reduced, bank profits will increase, then the interests of shareholders can be met.

The capital buffer is also negatively impacted by the loan-to-total-assets ratio. These empirical findings support the results of empirical research by Belém and Gartner (2016) and Anggraini and Baskara (2020). This empirical finding indicates that the increase in lending influences increasing the capital buffer. This is because bank management must provide a larger capital buffer to anticipate liquidity needs. This is necessary to protect banks from liquidity crises and to maintain public trust in banks.

Diversification income has no impact on profitability, but it hurts the capital buffer. Although there is no statistically significant difference between income diversification and profitability, the direction coefficient points in a favorable direction. This condition indicates that the income other than the interest income of banks in Indonesia is not optimal. An increase in income outside of interest income will affect bank income, which will also affect bank profits and profitability.

These empirical findings support the results of empirical studies by Alper and Anbar (2011), Nisar et al. (2018), and Quyen et al. (2021). The results of this empirical study indicate that non-interest income generated by banks in Indonesia does not significantly increase the main income of banks. This means that bank management cannot explore the potential for non-interest income. The implication is that bank management must be able to explore sources of non-interest income, improve bank services, profit trading activities, and other non-interest sources.

Income diversification has a negative effect on capital buffer, the results of this empirical study support the empirical findings of Wang (2017) and Pratama et al. (2021). This finding indicates that the non-interest income of banks in Indonesia influences increasing total bank income, and with increasing bank income, bank profits and profitability also increase. This is beneficial for banks, because with the increase in bank profits, banks

can increase retained earnings to form capital reserves so that if there is a credit expansion, bank management can use the capital reserves for credit expansion purposes.

According to the findings of empirical research, profitability has a significant negative impact on the capital buffer. Bank profitability shows bank performance indicators that are used as a basis for assessing the success of management in managing a bank. High profitability indicates that the bank's operating profit generated is also high. Some of the profits that are not distributed to shareholders as dividends are used as retained earnings, which can be used for capital reserves when credit expansion occurs during booming economic conditions. Thus, if many banks that produce high profitability show good indications, so that the need for a capital buffer can be met from the bank's internal capital reserves, and the bank is protected from liquidity risk. The results of this study support previous empirical studies conducted by Liu (2016), Dwiarti et

al. (2019), and Pratama et al. (2021). However, this is not in line with Belém and Gartner (2016) who found a positive effect, and Atici and Gursoy (2013) and Eliskovski (2014) who found no effect of profitability on the capital buffer.

According to the analysis using the Sobel test, profitability functions as an intermediary variable that mediates the impact of non-performing loans and loan-to-deposit ratios on capital buffers. Banks with low non-performing loans will increase profitability, and with increased profitability, the capital buffer will be small. Likewise, banks with high loan-to-assets will increase profitability, with increased profitability resulting in a decrease in the capital buffer. The results of this empirical study shows that profitability plays an important role in influencing the capital buffer. Profitability as an indicator of bank performance is used by banks in Indonesia to reduce opportunities for liquidity risk and build investor confidence to enhance banking convenience.

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## CONCLUSION

This paper explores profitability by placing it as a mediating variable in the research design and examines its role as a variable that mediates the effect of non-performing loans, loan-to-deposit ratio, loan-to-total assets ratio and income diversification on the capital buffer. Profitability has a dual role, namely as a dependent variable and as an independent variable. This empirical study proves non-performing loans and the loan-to-total assets ratio can affect profitability, while the loan-to-deposit ratio and income diversification do not. The lower the non-performing loans, the higher the profitability and the higher the loan-to-total assets ratio, the higher the profitability generated by a bank. This empirical result also shows that profitability, non-performance loans, loan-to-deposit ratio, loan-to-total assets ratio and income diversification affect the capital buffer. A bank's capital buffer increases as profitability, non-performance loans, loan-to-total assets ratio, and income diversification decline, and decreases as loan-to-deposit ratio increases. Non-performing loans and the loan-to-total assets ratio not only have a direct effect, but also have an indirect effect on the capital buffer, namely through profitability. Thus, profitability acts as a variable that mediates the effect of non-performing loans and the loan-to-total assets ratio on the capital buffer. Thus, profitability as an intermediate variable in future studies will play a large role as an intermediate variable, allowing more to be learned about other variables that affect the capital buffer.

## AUTHOR CONTRIBUTIONS

Conceptualization: Gregorius N. Masdjojo, Bambang Sudiyatno.

Data curation: Cahyani Nuswandari.

Formal analysis: Cahyani Nuswandari, Bambang Sudiyatno.

Funding acquisition: Bambang Sudiyatno.

Investigation: Gregorius N. Masdjojo, Titiek Suwanti.

Methodology: Gregorius N. Masdjojo.

Project administration: Cahyani Nuswandari.

Resources: Cahyani Nuswandari.

Software: Gregorius N. Masdjojo.

Supervision: Bambang Sudiyatno.

Validation: Titiek Suwarti, Bambang Sudiyatno.

Visualization: Gregorius N. Masdjojo, Titiek Suwarti.

Writing – original draft: Titiek Suwarti.

Writing – reviewing & editing: Gregorius N. Masdjojo, Cahyani Nuswandari, Bambang Sudiyatno.

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## APPENDIX A

**Table A1.** Calculation data for the capital buffer component of Indonesian banks for 2017–2020

Bank	2017	2018	2019	2020
Bank Rakyat Indonesia Agroniaga Tbk	21.58	16.28	16.28	16.33
Bank Central Asia Tbk	15.10	15.40	15.80	17.80
Bank Mestika Dharma Tbk	27.36	26.58	30.60	38.49
Bank Negara Indonesia (Persero)	10.50	10.50	11.70	8.80
Bank Rakyat Indonesia (Perasero)	14.96	13.21	7.77	12.61
Bank Bisnis Internasional Tbk	44.00	42.87	51.66	86.63
Bank Tabungan Negara (Persero)	10.87	10.21	9.32	11.34
Bank JTrust Indonesia Tbk.	6.15	6.03	6.53	3.59
Bank Danamon Indonesia Tbk	14.10	14.20	16.20	17.00
BPD Jawa Barat dan Banten Tbk	10.77	10.63	9.71	9.31
Bank Mandiri (Persero) Tbk	14.06	13.14	14.09	12.16
Bank Bumi Arta Tbk.	17.67	17.52	15.55	17.80
Bank Maybank Indonesia Tbk	9.53	11.04	13.38	16.31
Bank Permata Tbk	10.10	11.40	11.90	27.70
Bank Sinarmas Tbk	10.31	9.60	9.32	9.10
Bank Victoria International Tbk	10.76	8.98	9.76	9.39
Bank Artha Graha Internasional Tbk	9.58	11.94	10.67	8.66
Bank Mayapada Internasional Tbk	6.11	7.82	8.18	7.45
Bank China Construction BI Tbk	8.66	8.76	10.60	29.86
Bank Mega Tbk	16.11	14.79	15.68	23.04
Bank OCBC NISP Tbk	9.51	9.63	11.17	14.04
Bank Nationalnobu Tbk	18.83	15.26	13.57	14.02
Bank Pan Indonesia Tbk.	13.99	15.33	15.41	12.58

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