Journal of Social Research

P-ISSN: 2827-9832
E-ISSN: 2828-335x
http://ijsr.internationaljournallabs.com/index.php/ijsr

# ANALYSIS OF THE EFFECT OF MONETARY POLICY ON BANK PROFITABILITY IN INDONESIA DURING THE PANDEMIC

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## ABSTRACT

This research aims to analyze the impact of monetary policy on bank profitability in Indonesia during the pandemic using panel data from 93 banks in Indonesia with a time span from 2017-2022 using the Generalized Method of Moments (GMM) approach. The motivation for this research comes from the identification that the relationship between monetary policy and bank profitability is simultaneously very important because it has significant implications in efforts to maintain monetary stability and financial system stability. The research results show that there is a significant positive impact of monetary policy in the form of the BI7DRR policy interest rate on the ROA, ROE and NIM ratios in the 2017-2022 period. Furthermore, the BI7DRR interest rate policy had a significant positive effect on ROA and ROE before and during the pandemic with a greater influence during the pandemic for ROA and during the pre-pandemic period for the ROE ratio. This reflects that banks in Indonesia have not yet fully found a way to anticipate the impact of lower policy interest rates on their profitability. Meanwhile, BI7DRR only had a significant effect on NIM in the pre-pandemic period, considering that the decline in BI7DRR was not immediately responded to by banks by reducing credit interest rates.

***Keywords:*** *bank; BI7DRR; generalized method of moments; pandemic; profitability*

## INTRODUCTION

The COVID-19 pandemic that has emerged since the end of 2019 has posed unprecedented challenges, both to health and the economy and has caused greater losses than the global financial crisis in 2008 (Hanif et al, 2021). Public health measures taken by governments around the world to contain the pandemic have had negative consequences on economic activity and put pressure on financial institutions and markets around the world. The global economy has been greatly affected by the COVID-19 pandemic. During 2020, economic output has been lost by more than USD 2 trillion, bringing the world's Gross Domestic Product (GDP) to only USD 84.54 trillion, or a decrease of 3.4% (Statista, 2023). This decrease is much higher than the global financial crisis in 2008-2009, where the decline in world GDP was only 0.1% (Faretti, 2021).

In Indonesia, the impact of covid-19 can be seen from the decline in Gross Domestic Product (GDP), where the Central Statistics Agency (BPS) noted that in the first quarter of 2020 when the first covid-19 case was found in Indonesia, the government had imposed several restrictions on community activities so that the economy began to slow down even though it still experienced growth of 2.9% (yoy). Furthermore, when Large-Scale Social Restrictions (PSBB) were imposed in the second quarter of 2020, economic growth slowed down again and experienced the lowest contraction of -5.32% (yoy) although in the third quarter of 2020 slightly improved with a contraction of -3.49% and the fourth quarter of 2020 which contracted by -2.19%. This indicates that Indonesia has entered a recession phase considering negative economic growth for 2 (two) consecutive quarters.

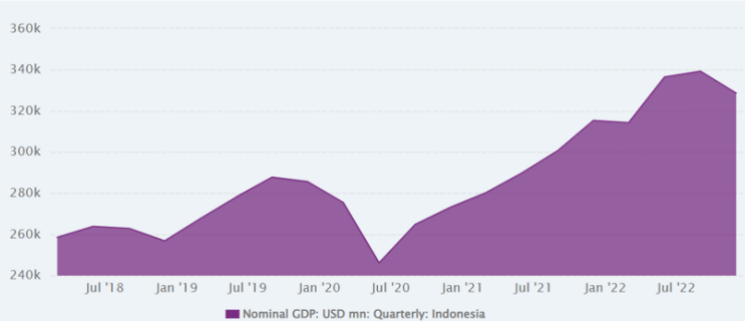


Figure 1. Development of Indonesia's GDP during the Pandemic Period
Sourcer: www.ceicdata.com

Pressure on the global economy also has an impact on banking as the main economic agent in the majority of countries in the world. The level of risk in the banking industry increased significantly in line with the weakening global economy, which resulted in an increase in loss provisions, a decrease in the outlook rating of the banking industry, and a decrease in capital adequacy to cover higher risks as shown in Figure 2 below:

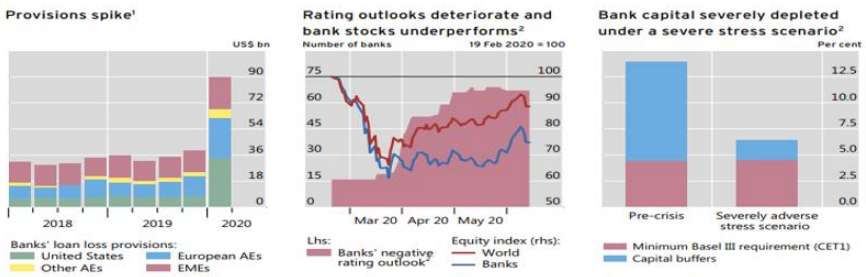


Figure 2. Banking Risk Level during the Pandemic Period
Source: Centre for Economic Policy Research

In line with global banking conditions, Indonesian banks have also experienced a considerable impact due to the Covid-19 pandemic due to deteriorating customer credit quality and restrained bank credit growth which has experienced a positive trend over the past decade, thus affecting bank profitability which has decreased. Based on Bank Indonesia data, bank profitability experienced a downward trend, as reflected by a decrease in the Return on Assets (ROA) ratio from 2.44% in December 2019 to 1.92% in June 2020, a decrease in the Return on Equity (ROE) ratio from 6.39% in December 2019 to 4.51% in June 2020, as well as a decrease in the Net Interest Margin (NIM) ratio from 4.80% at the end of December 2019 to 4.33% at the end of June 2020 due to the erosion of loan interest income. In addition, non-interest income also decreased due to an increase in the formation of Impairment Loss Reserves (CKPN) in line with credit restructuring practices carried out by banks.

In the midst of a slumping economy, sharply increasing market volatility, and uncertain global conditions, central banks around the world are taking policies beyond previous policies in terms of adequacy, size, and scope. The recession that occurs globally is a recession that is not triggered by several triggers of economic recessions that occurred before, so it requires a different response. Central banks are faced with the challenge of supporting the real economy and stabilizing financial markets through its main policy instrument, interest rates (Yuliani,

Larasati, Kismartini, & Yuningsih, 2022). Although fiscal policy and health care will require more attention during the pandemic, monetary policy has become crucial amid sluggish financial markets, reduced capital flows to emerging market countries, and stalled economic activity. To that end, central banks around the world are rapidly adopting crisis response measures from the monetary side by developing existing monetary policies and expanding several instruments to support economic recovery.

The policy rate as one of the main monetary policy tools of central banks, which before the Covid-19 pandemic conditions in most developed countries was already at a low level, quickly fell during the pandemic to close to 0% in several countries, such as Chile, Poland, Israel, and Korea. The majority of central banks around the world carry out expansionary monetary policy, among others, through policy rate reduction policies to encourage economic recovery, as Figure 3 below:

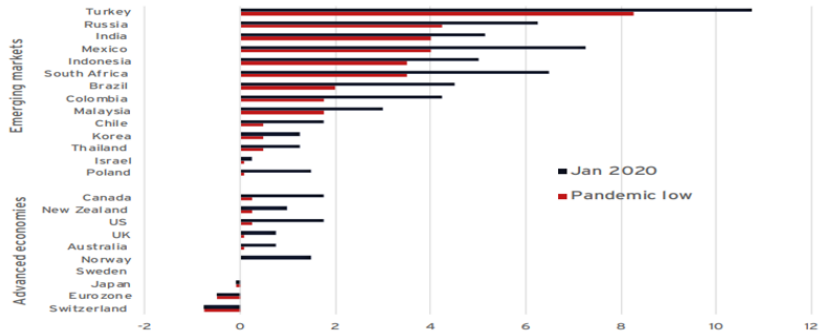


Figure 3. Central Bank Policy Rate Trends during the Pandemic
Source: Centre for Economic Policy Research

Bank Indonesia as the monetary authority in Indonesia like the majority of central banks in other countries also implements several policies to anticipate Indonesia's economic weakness in line with Covid-19, known as the policy mix, namely the monetary and macroprudential policy mix. Bank Indonesia's monetary policy stance to anticipate economic weakness is by easing macroprudential and monetary policy in the form of quantitative easing, through a reduction in the Bank Indonesia 7 Day Reverse Repo Rate (BI7DRR) and policy mix to increase liquidity by lowering the interbank money market interest rate, purchasing government securities (SBN) in the secondary market, lower the reserve requirement and burden sharing. Bank Indonesia cut the BI7DRR by 150 bps since June 2019 to 4.5% in March 2020, and since February 2021 it has decreased to 3.5%, the lowest level of Bank Indonesia's benchmark interest rate in history.

Reductions or increases in the benchmark policy rate by the central bank will usually be followed by the banking industry, as an institution that plays an important role in the implementation of monetary policy transmission set by BI. However, in general, changes in the policy rate are not directly followed by changes in commercial bank lending rates (Haughton and Iglesias, 2012), which have an impact on bank profitability. Interest rate cuts amid central bank monetary expansion can help borrowers reduce finance costs (Bernanke & Gertler, 1995). This not only benefits the borrower but also the lender. However, a reduction in interest rates has the potential to depress net interest margins (Samuelson, 1945). If interest

rates remain low for the long term and bank revenues continue to decline, banks may take on more risk (Rajan, 2006).

Under normal conditions, a reduction in the BI7DRR would lower lending rates and increase demand for loans from companies and households, but if the banking industry sees high economic risks, the response to the BI7DRR rate cut will be slower. Likewise, on the demand side, lower lending rates in the banking industry are also not always responded to by increasing demand for credit from the public if the economy is sluggish (Bank Indonesia, 2020). In addition, bank credit offerings are not only determined by interest rates and economic prospects, but also by liquidity conditions, funding structure and capital strength of banks. Therefore, central bank interest rate policy has a different effect on the economy, in accordance with internal banking and corporate conditions, as well as asymmetric in terms of monetary tightening or easing (Warjiyo dan Juhro, 2016)

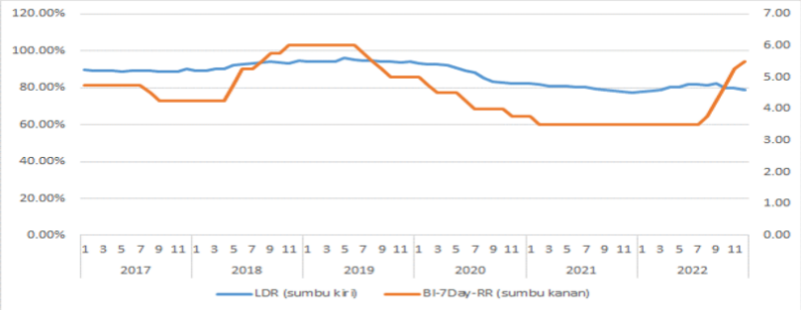


Figure 4. BI7DRR and LDR trends
Source: BI and OJK

Monetary policy affects bank profitability in two ways. First, the rate cut has a positive impact on macroeconomic conditions that will support the bank by reducing its funding costs and improving borrowers' creditworthiness. Second, expansionary monetary policy may cause a contraction in net interest income (Kumar, Acharya and Ho, 2020). There have been several studies investigating the relationship between monetary policy and bank profitability, but this area is a rarely studied area (Borio, Gambacorta and Hofmann, 2017), so there is no clear consensus among researchers on whether monetary policy has a positive, negative, or no influence on banking performance at all (Kumar, Acharya and Ho, 2020).

The mechanism that influences monetary policy towards banks consists of several factors, thus causing ambiguity in inferring the effect of monetary policy on bank performance. Given these facts, the relationship between monetary policy and bank performance is an empirical issue that is important to examine comprehensively. Research on the impact of monetary policy on bank profitability in Indonesia at low interest rates during the pandemic as part of expansionary monetary policy needs to be expanded. Research on the impact of monetary policy, especially the policy rate on bank profitability, is important to do considering that banks are financial institutions that dominate money circulation in Indonesia and monetary policy in Indonesia is mostly transmitted through the banking system

The mechanisms regarding which monetary policy can influence bank performance are quite diverse, resulting in differences in the impact of the implemented monetary policy on bank performance. Based on this, the relationship between monetary policy and bank performance as reflected in profitability is a crucial issue to be researched comprehensively.

From literature studies, it is generally found that the relationship between monetary policy and bank profitability is quite varied. In explaining the impact of monetary policy on bank profitability, Cruz-García, Fernández de Guevara, and Maudos (2017) concluded that expansionary monetary policy measures adopted in many countries had an impact negative impact on net interest margins and bank profitability. The relationship between interest rates and the slope of the yield curve with net interest margin and profitability is non-linear and concave. Low interest rates and a flat yield curve have a greater negative impact on net interest margins and profitability when at lower and flatter conditions. Normalizing monetary policy will be able to restore banking margins and profitability.

Borio, Gambacorta, and Hofmann (2017) found a positive relationship between net interest income and short-term interest rates and the slope of the yield curve with a greater impact on low interest rates. Higher interest rates will reduce non-interest income while short-term interest rates have a positive effect on loss reserves. Furthermore, Tuna and Almahadin (2021) also found the same thing, namely that monetary policy interest rates have a significant effect on all banking indicators in developing countries, with a tendency for a stronger relationship at low interest rates, which indicates that banking in developing countries developing vulnerable to policy interest rate risk.

Research conducted by Kumar, Acharya, and Ho (2020) also found that short-term interest rates positively influence bank profitability in New Zealand, while there is a negative relationship between long-term interest rates and bank profitability in New Zealand. Another study was conducted by Dang and Huynh (2022) with the conclusion that banks that carry out more income diversification and thus generate more non-interest income can mitigate the influence of monetary policy on bank performance. The impact of monetary policy is not significant for banks whose business models do not depend on traditional segments (interest income), so the bank business model is very influential in the transmission of monetary policy to bank performance.

In contrast, Dzeha, Boachie, Kriese, and Kusi (2022) conclude that increasing monetary policy interest rates will reduce banking profitability (NIM) in Ghana, while lower monetary policy rates will increase banking profitability. Rising interest rates serve as a condition for tightening monetary policy, leading to higher loan prices, lower lending, and in the short term lower profitability. However, the decline in banking profitability in the long term can be reduced because banks will adjust deposit and credit interest rates. Banking profitability can increase along with monetary expansion through a reduction in monetary policy interest rates. Likewise, the results of research by Demirgüç-Kunt, Pedraza, and Ruiz-Ortega (2021), which found that several monetary policies including easing monetary policy did not reduce the negative impact of the economic weakening due to the pandemic for all banks, especially for banks with less strong capital structures. and/or banks in countries that do not have sufficient fiscal strength.

In Indonesia, the influence of monetary policy and profitability was studied by Gustiono (2017) who also found that there was a significant impact of monetary policy on bank profitability in Indonesia. Interest rate decisions by central banks can cause volatility in financial markets thereby affecting various financial instruments such as bonds, shares and currencies. In other research, the profitability of Regional Development Banks (BPD) is influenced by variables such as interest rates, exchange rates and inflation (Mansur, 2015).

Dual bank system, which includes conventional and sharia banks also experience fluctuations in profitability due to internal and external factors, including operational efficiency, capital adequacy, and macroeconomic indicators such as inflation and GDP (Prasaja, 2021).

Research on bank profitability during the pandemic in Indonesia was conducted by Kusumawardani (2022), with the conclusion that during the COVID-19 pandemic the profitability of state-owned banks in Indonesia had been significantly affected as reflected in net interest margin, return on assets, return on equity and operational efficiency.

Furthermore, research on the influence of monetary policy on bank profitability at low interest rates was conducted by Windsor, Jokipii, and Bussiere (2023) found that the impact of a decrease in interest rates on bank profitability (NIM, ROA, non-interest margin, and credit loss reserves) is relatively small in economic terms, which reflects that the bank has found a way to anticipate the impact of a decrease in interest rates on its profitability. Research conducted by Alessandri and Nelson (2015) on banks in the UK and Busch and Memmel (2015) on banks in Germany also strengthens the findings in previous research that reducing policy interest rates did not have a significant impact on reducing bank profitability (NIM). Furthermore, research by Genay and Podjasek (2014) and Bikker and Vervliet (2017) on banks in the US also found that the decrease in net interest margin could be set-off by a decrease in costs due to the formation of lower loss provision costs resulting in lower interest rates. did not have a significant impact on the profitability of US banks.

Different research results were found by Magdalena, Lucian, and Maria (2021) who found that the application of negative interest rates had a significant positive effect on bank profitability and depended on the business model adopted by the bank. The same conclusion was also found by Molyneux, Reghezza, and Xie (2019), Lopez, Rose, and Spiegel (2020) and Beauregard and Spiegel (2020) who conducted research on banking in countries with negative interest rates. Meanwhile, Claessens, Coleman, and Donnelly (2018) also found that a reduction in policy interest rates had a significant positive effect on profitability, especially on the net interest margin. These results support the research of Borio, Gambacorta, and Hofmann (2017).

## METHODS

This research is quantitative research using secondary data, namely data that has been collected and published by an institution. Data are obtained from various sources as shown in table 3.1. Data observations totaling 93 banks in Indonesia consisting of conventional commercial banks and Islamic commercial banks as data to be used in cross section, while time series are data related to the time period to be studied, namely 2017 to 2022. Data on banks that took corporate actions (mergers, acquisitions, consolidations) during 2017 to 2022 were not included in the cross-section data.

Table 1. Data Type and Source Description

| No. | Variable Name | Unit | Period | Data Sources |
|---|---|---|---|---|
| 1 | *Return on Asset* | %ROA | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 2 | *Net Interest Margin* | %NIM | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 3 | *Return on Equity* | %ROE | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |

| | | | | |
|---|---|---|---|---|
| 4 | BI7DRR Interest Rate | %Interest | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 5 | Operating Costs/ Operating Income | %BOPO | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 6 | *Capital Adequacy Ratio* | %CAR | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 7 | *Non-Performing Loan (Net)* | %NPL | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 8 | *LnSize* | %LnSize | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 9 | *NIM* | %LagNIM | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 10 | *Loan to Asset Ratio* | %LAR | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 11 | *Loan to Deposit Ratio* | %LDR | Year 2017 to 2022 (Monthly) | LBUT Bank Indonesia |
| 12 | Inflation | %Inflation | Year 2017 to 2022 (Monthly) | BPS |
| 13 | Gross Regional Domestic Product (GRDP) | %GRDP | Year 2017 to 2022 (Monthly) | BPS |

The profitability data used is the percentage of Return on Asset (ROA), Return On Equity (ROE) and Net Interest Margin (NIM) index of banks in Indonesia sourced from the Monthly Report of Integrated Commercial Banks (MRICB) of banks in Indonesia submitted to Bank Indonesia as a measure in explaining the profitability of banks in Indonesia. The use of these three variables is in consideration of the extensive use in research on bank profitability and limited data owned. This research will use a quantitative approach with a generalized method of moment (GMM) with the consideration that this method is a commonly used method in panel data analysis or time-repeating data that allows overcoming the problem of endogeneity and simultaneous bias in regression models. In the context of bank profitability studies in Indonesia, the use of GMM can help control biases that arise due to unobserved and interfluencing factors between monetary policy and bank profitability to then see how monetary policy and bank profitability affect each other on economic stability with indicators in the form of bank profitability as a unit of measuring indicators.

## Research Model

To examine the impact of monetary policy in the form of BI7DRR on bank profitability, this study followed using GMM's two-step dynamic panel estimation technique.

Based on the literature review above, the basic model equation used in this study was developed from the specifications used by Bikker and Vervliet (2017), as follows:

$$Profit_{it} = c + \alpha Profit_{i,\,t-1} + \beta_1 SukuBunga_t + \sum_{j=1}^{J} \beta j\ XBSj,i,t + \sum_{m=1}^{M} \beta m\ Xmacro_{m,i,t} + \varepsilon_{i,t} \quad ....(1)$$

Where:

- c is a constant
- Profitability is profitability for bank i in year t as measured by the ratio of ROA, ROE and NIM. In Bikker and Vervliet's (2017) research, the measure of bank profitability as a dependent variable is Profit, ROA, ROE, and NIM, but in this study it does not use profit variables as a measure of profitability so it only uses 3 variables, namely ROA, ROE and NIM, considering the limited data they have.

As in many other studies, this study uses a dynamic model considering bank profitability that tends to persist over time (Berger, et al., 2000). The degree of persistence is reflected by the *lag of the* dependent variable of the α coefficient. For values close to zero, the persistence level is low enough that the bank is quite competitive because of its high adjustment speed. If it is close to 1, strong persistence indicates the absence of competition (Athanasoglou et al, 2008).

- The interest rate is the BI7DRR interest rate.
- XBS is a bank-specific determinant factor.
- XMacro is a macroeconomic factor.
- *Composite* error is expressed by εit=ηi+uit, where ηi is the *unoberserved specific* bank variable, which is *time invariant*, while uit is an *idiosyncratic error*.

To see the effect of monetary policy issuance and bank profitability in each period, control variables consisting of specific bank variables and macroeconomic variables were added according to the existing literature, so that the model built in this study is:

$$ROA_{i,t} = c_1 + \alpha_1 ROA_{i,t-1} + \beta_1 \text{Interest Rate}_t + \beta_{21} BOPO_{i,t} + \beta_{22} CAR_{i,t} + \beta_{23} NPL_{i,t} + \beta_{24} LAR_{i,t} + \beta_{25} LDR_{i,t-1} + \beta_{26} \ln Size_{i,t-1} + \beta_{27} NIM_{i,t-1} + \beta_{31} Inflasi_t + \beta_{32} GRDP_t + \varepsilon_{it} \quad (2)$$

$$ROE_{i,t} = c_2 + \alpha_2 ROE_{i,t-1} + \beta_2 \text{Interest Rate}_t + \beta_{41} BOPO_{i,t} + \beta_{42} CAR_{i,t} + \beta_{42} NPL_{i,t} + \beta_{43} LAR_{i,t} + \beta_{44} LDR_{i,t-1} + \beta_{45} \ln Size_{i,t-1} + \beta_{46} NIM_{i,t-1} + \beta_{51} Inflasi_t + \beta_{52} GRDP_t + \varepsilon_{it} \quad (3)$$

$$NIM_{i,t} = c_3 + \alpha_3 NIM_{i,t-1} + \beta_3 \text{Interest Rate}_t + \beta_{61} BOPO_{i,t} + \beta_{62} CAR_{i,t} + \beta_{63} NPL_{i,t} + \beta_{64} LAR_{i,t} + \beta_{65} LDR_{i,t-1} + \beta_{66} \ln Size_{i,t-1} + \beta_{71} Inflasi_t + \beta_{72} GRDP_t + \varepsilon_{it} \quad (4)$$

Where :

| | |
|---|---|
| $ROA_{i,t}$ | : *Return on Assets* (ROA) for bank i in year t |
| $ROE_{i,,t}$ | : *Return on Equity* (ROE) for bank i in year t |
| $NIM_{i,t,}$ | : *Net Interest Margin* (NIM) for bank i in year t |
| $c_1, c_2, c_3$ | : constant |
| $it$ | : for bank i in year t |
| $i$,t-1 | : for bank i in year t -1 |
| $\varepsilon_{it}$ | : *Random error* value at for bank I in year T, where $\varepsilon_{it}=\eta_i+u_{it}$ |
| $\alpha_1, \alpha_2, \alpha_3$ | : *lag* variabel dependen |
| $\beta_1, \beta_2, \beta_3$ | : variable for Interest Rate *BI 7DRR* |
| $\beta_{21}, \beta_{41}, \beta_{61}$ | : variable for BOPO |
| $\beta_{22}, \beta_{42}, \beta_{62}$ | : variable for CAR |
| $\beta_{23}, \beta_{42}, \beta_{63}$ | : variable for NPL Net |
| $\beta_{24}, \beta_{43}, \beta_{64}$ | : variable for LAR |
| $\beta_{25}, \beta_{44}, \beta_{65}$ | : variable for LDR period t-1 |
| $\beta_{26}, \beta_{45}, \beta_{66}$ | : variable for total bank assets in the form of natural logarithm (ln) period t-1 |
| $\beta_{27}, \beta_{46}$ | : variable for NIM period t-1 |
| $\beta_{31}, \beta_{51}, \beta_{71}$ | : variables for Inflation |
| $\beta_{32}, \beta_{52}, \beta_{72}$ | : variables for GRDP |

## RESULTS AND DISCUSSION

### Descriptive Analysis

The data used in this study consisted of 93 conventional commercial banks and Islamic commercial banks in Indonesia with a span of 6 years, namely from 2017-2022. As explained in the previous chapter, the ratio of Return on Assets (ROA), Return On Equity (ROE), and Net Interest Margin (NIM) is used as a dependent variable as an indicator that describes the measure of bank profitability indexed into percentage units. This research uses dynamic data panels using the Generalized Method of Moment (GMM) method and using the Stata 16 program.

Table 2. Descriptive Statistics

| Variable | Sum (Jan 2017-Des 2022) | | | Year Pra Pandemic (Jan 2017-Mar 2020) | | | Period Pandemic (Mar 2020-Des 2022) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Mean | Max | Min | Mean | Max | Min | Mean | Max |
| ROA | -27.37 | 1.55 | 15.07 | -27.37 | 1.78 | 15.07 | -15.96 | 1.30 | 13.58 |
| ROE | -355.35 | 8.25 | 107.34 | -355.35 | 9.42 | 107.34 | -96.52 | 6.94 | 44.01 |
| NIM | -28.19 | 4.5 | 21.03 | -28.19 | 4.72 | 21.03 | -9.08 | 4.24 | 20.68 |
| BI7DRR | 3.5 | 4.51 | 6 | 4.25 | 5.09 | 6.00 | 3.50 | 3.87 | 5.50 |
| BOPO | 25.78 | 86.2 | 423.54 | 35.34 | 85.38 | 423.54 | 25.78 | 87.11 | 290.73 |
| CAR | 8.7 | 28.06 | 538.07 | 8.70 | 24.54 | 166.15 | 9.31 | 31.99 | 538.07 |
| NPLNet | -0.02 | 1.54 | 14.38 | -0.02 | 1.69 | 14.38 | 0.00 | 1.38 | 5.48 |
| LAR | 0 | 9.52 | 76.09 | 0.00 | 9.87 | 76.09 | 0.00 | 9.12 | 72.85 |
| LDR | 0 | 89.12 | 432.77 | 0.00 | 92.15 | 432.77 | 8.79 | 85.74 | 355.00 |
| Inflation | 1.32 | 2.97 | 5.95 | 2.48 | 3.32 | 4.37 | 1.32 | 2.59 | 5.95 |
| LnSize | 27.02 | 30.81 | 35.1 | 27.03 | 30.67 | 34.83 | 27.57 | 30.97 | 35.10 |
| PDRB | -5.32 | 3.8 | 7.07 | -5.32 | 3.79 | 7.07 | -5.32 | 3.82 | 7.70 |

Source: Bank Indonesia, processed

Based on table 2 above, the mean value (average) of return on assets (ROA) of banks in Indonesia in the 2017-2022 period is 1.55%, where the lowest ROA value is -27.37% and the highest ROA value is 15.07%. When viewed per period, the average ROA in the pre-pandemic period (January 2017 to February 2020) was 1.78% higher than during the pandemic with an ROA of 1.30%. Meanwhile, the mean ROE and NIM in the entire year period were 8.25% and 4.5% respectively, with the tendency of the average value in the pre-pandemic period to be higher than the pre-pandemic period.

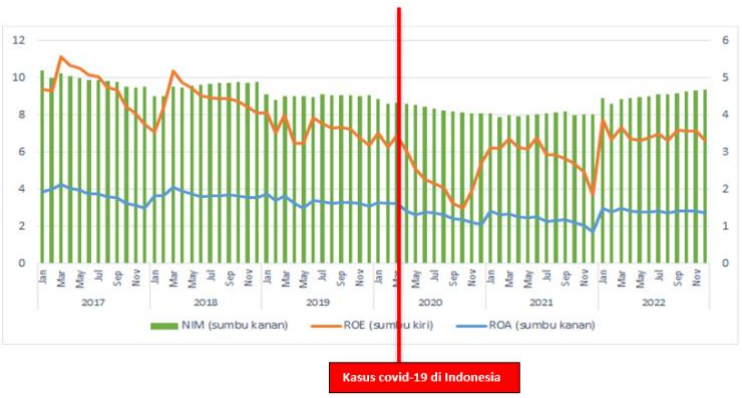


Figure 5. Average development of ROA, ROE and NIM in 2017 – 2022
Source: Bank Indonesia (processed)

Based on figure 5 above, before the pandemic (January 2017 to February 2020), although quite fluctuating, the average ROA was still above 1.5% except in the February 2017 period. However, since the pandemic broke out in March 2020, ROA has contracted quite deeply in line with uncertainty related to pandemic resolutions which has caused economic conditions to decline and increased banking risks as reflected by an increase in Gross NPLs as shown below, resulting in a deep contraction in the ROA in the banking industry.

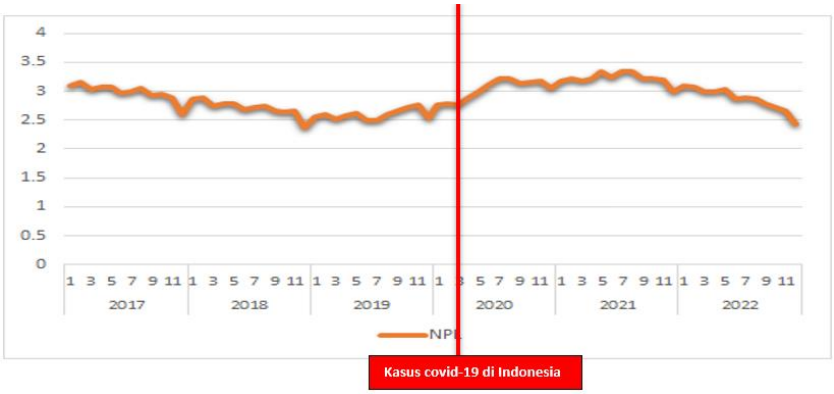


Figure 6. NPL Gross Development in 2017 – 2022
Source: OJK (processed)

The increase in NPL ratio will, in turn, increase Impairment Loss Reserves (CKPN) so that bank profitability during the pandemic period contracted quite deeply, as reflected in the increase in BOPO ratio from an average of 85.38% in the pre-pandemic period to 87.11% during the pandemic.

On the other hand, lower lending rates as a response to Bank Indonesia's looser monetary policy were not followed by an increase in demand for loans, as reflected in the average Loan to Deposit Ratio (LDR) which decreased from 92.15% in the pre-pandemic period to 85.74% during the pandemic, causing the Net Interest Margin (NIM) ratio to decrease from an average of 4.72% before the pandemic to 4.24% during the pandemic as shown in table 1 above. In line with the decline in ROA and NIM, ROE also decreased from 9.42% in the pre-pandemic period to 6.94% during the pandemic.

In 2021, the average ROA of banks improved and the improvement continued in 2022. However, until the end of 2022, the ROA level has not reached pre-pandemic conditions with the average ROA value still below 1.5%. Likewise, the average ROE and NIM have improved since 2021, but have not reached pre-pandemic conditions with the average ROE and NIM in the pandemic period still below 7.75% (ROE) and 4.4% (NIM) respectively.

On the other hand, there is a differentiation in the monetary policy rate of interest rates by Bank Indonesia before and during the pandemic, as shown in figure 7 as follows:


Figure 7. BI7DRR Development
Source: Bank Indonesia, processed

Based on figure 7 above, the BI7DRR interest rate before the pandemic (2017 to February 2020) was quite volatile with a tendency to increase in 2019 with the highest interest rate of 6% in November 2018 to June 2019. The increase in the BI7DRR interest rate is in line with Bank Indonesia's efforts to reduce the current account deficit to a safe limit and to increase capital inflows from abroad so as to increase the attractiveness of domestic assets to anticipate the trend of rising global interest rates. Based on this, it can be seen that Bank Indonesia has adopted contractionary monetary policy at the end of 2018 to mid-2019 to maintain economic overheating. However, from July 2019 to early 2020, Bank Indonesia began to gradually lower the BI7DRR by a total of 125 basis points in consideration of the low inflation rate and the lower limit of the inflation target and attractive yields on domestic financial assets. In addition, Bank Indonesia has also taken pre-emptive steps to stimulate domestic economic growth amidst slowing global economic growth, especially since the emergence of Covid-19 cases for the first time at the end of 2019.

Furthermore, since the discovery of COVID-19 cases in March 2020 and the determination of the emergency response status for non-natural disasters of the COVID-19 pandemic on March 14, 2020 which had an impact on the national economic slowdown, Bank Indonesia has again lowered the BI7DRR rate gradually from March 2020 to March 2020. July 2022 totaled 125 basis points with the lowest interest rate at 3.5% and became the lowest benchmark interest rate in history despite increasing again in August 2022. The policy is part of Bank Indonesia to strengthen the policy mix implemented by Bank Indonesia to mitigate risks to the economy from the spread of Covid-19, stimulate economic growth amidst the global economic slowdown, and maintain money market and financial system stability.

Differentiation in BI7DRR policy before and during the pandemic reflects central banks' responses to different economic conditions. With the pandemic, central banks around the world, including Bank Indonesia, must change the tight monetary stance in the form of higher policy rates with the aim of controlling inflation and maintaining currency stability, to lose monetary policy in the form of lowering policy rates. The main objective is to support economic growth hit hard by the impact of the pandemic, as well as to maintain financial sector stability with a focus on economic stimulus and liquidity efforts. Lowering interest rates is one tool used to encourage lending, investment, and consumer spending. However, changes in the policy rate can also be related to external factors, such as the policies of other central banks in the world, currency exchange rates, and fluctuating commodity prices.

Lowering interest rates can stimulate economic activity, boost loan growth, and increase liquidity in the market. It can be a response to a lower economic situation or as an attempt to stimulate economic growth by increasing consumer spending, corporate investment, and demand for products and services, thereby reducing the unemployment rate by creating new jobs.

However, low interest rate policies can also have a negative impact, among others, can encourage speculation in financial markets and create asset bubbles, which can then burst and result in financial crises, and can reduce investment returns for investors who rely on interest income so as to encourage investors to seek riskier investments and create potential problems in financial markets. Low interest rate policy is a complex instrument, and its impact depends on the specific economic context. Central banks typically have to consider a variety of economic factors, including inflation, growth, and financial stability, when determining the right interest rate.

In this study, the control variables used were average operating costs and expenses, Capital Adequacy Ratio, Non-Performing Loan Net, Loan to Asset Ratio, Loan to Deposit Ratio, Size, Inflation, and GDP. Bank profitability is influenced by a variety of factors whose impact on profitability varies across different studies. In the study by Andry Priharta et al. (2022), NPL and LDR variables had a significant negative effect on profitability, NIM had a significant positive effect on profitability, while CAR and company size were found to have no significant effect on profitability. Another study by Annisa Siti Fathonah et al. (2020) found that capital, operating costs, and NPLs had significant negative effects on profitability, while inflation and GDP did not significantly affect profitability. A study by Nindy Wulandari et al. (2018) found that ownership structure and financial decisions have varying effects on company value. Then, another study by Khaerunisa Harsono (2021) found that the capital adequacy ratio, operating costs, and NPLs had a significant impact on profitability, while the influence of company size variables was not significant on profitability.

**Interracial Analysis**

This study uses the dynamic panel generalize methods of moment (GMM) method, which is a combination of time series and cross section data to analyze the effect of BI7DRR interest rate policy on bank profitability in increasing economic growth. The data used are Return on Assets, Return on Equity, Net Interest Margin, BI7DRR interest rate, ratio of operating expenses and expenses, Capital Adequacy Ratio, Non-Performing Loan, Loan to Asset, Loan to Deposit Ratio, Bank size from all banks in Indonesia from 2017 – 2022 and external variables in the form of Inflation and GDP

**Research Method Test Results**

1. Pooled Least Square (PLS)

   Based on the processed data using Stata 16, it is proven that the coefficient of GMM regression is above the FEM value and below the OLS value so that the use of GMM regression is appropriate to use, as follows:

a. Whole year period for ROA and NIM variables

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| VARIABLES | ROA_FEM | ROA_OLS | ROA_GMM | ROE_FEM | ROE_OLS | ROE_GMM | NIM_FEM | NIM_OLS | NIM_GMM |
| L.roa | 0.153*** | 0.441*** | 0.190*** | | | | | | |
| | (0.006) | (0.036) | (0.070) | | | | | | |
| L.roe | | | | 0.142*** | 0.276*** | 0.219** | | | |
| | | | | (0.008) | (0.068) | (0.093) | | | |
| L.nim | | | | | | | 0.701*** | 0.930*** | 0.798*** |
| | | | | | | | (0.008) | (0.004) | (0.111) |

b. The period before and during the pandemic for the ROA variable

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| VARIABLES | ROA_FEM_Precovid | ROA_OLS_Precovid | ROA_GMM_Precovid | ROA_FEM_Postcovid | ROA_OLS_Postcovid | ROA_GMM_Postcovid |
| L.roa | 0.080*** | 0.417*** | 0.323*** | 0.184*** | 0.472*** | 0.199* |
| | (0.010) | (0.052) | (0.101) | (0.008) | (0.041) | (0.110) |

c. The period before and during the pandemic for the ROE variable

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| VARIABLES | ROE_FEM_Precovid | ROE_OLS_Precovid | ROE_GMM_Precovid | ROE_FEM_Postcovid | ROE_OLS_Postcovid | ROE_GMM_Postcovid |
| L.roe | 0.062*** | 0.141** | 0.090* | 0.305*** | 0.554*** | 0.394*** |
| | (0.011) | (0.062) | (0.054) | (0.010) | (0.043) | (0.096) |

d. Pre- and during the pandemic period for NIM variables

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| VARIABLES | NIM_FEM_Precovid | NIM_OLS_Precovid | NIM_GMM_Precovid | NIM_FEM_Postcovid | NIM_OLS_Postcovid | NIM_GMM_Postcovid |
| L.nim | 0.340*** | 0.884*** | 0.770*** | 0.771*** | 0.959*** | 0.818*** |
| | (0.012) | (0.006) | (0.168) | (0.010) | (0.004) | (0.101) |

2. Arellano-Bond Test (AR)

The results of the areallano bond test that have been carried out show that the model with the SYS-GMM approach has a Prob value of > 0.05, where the results of areallano bond AR (2) for each model are as follows:

a. The whole year period for the variables ROA, ROE and NIM was 0.099, 0.163 and 0.193 respectively.
b. The period before and during the pandemic for the ROA variable was 0.057 and 0.144 respectively.
c. The period before and during the pandemic for the ROE variable was 0.387 and 0.083 respectively.
d. The period before and during the pandemic for the NIM variable was 0.191 and 0.188 respectively.

Based on these results, the decision that can be taken is sufficient evidence to reject H0, this means that there is no autocorrelation in the estimation of the model in all models.

3. Hansen Test

The results of the Hansen test that have been carried out show that the model with the SYS-GMM approach has a Prob value of > 0.05 as in annex 3, so there is enough evidence to reject H0. This means that the overidentifying restriction condition in the model estimation is valid so that there is no correlation between the variable and the error.

**Estimation and Analysis Results**

Based on the running model using equation 3 mentioned above, the results of estimating the effect of monetary policy in the form of BI7DRR on bank profitability are obtained as follows:

Table 3. GMM Estimation Results for ROA Variables

| | (1) | (2) | (3) |
|---|---|---|---|
| | ***Entire Year*** | ***Pandemic*** | ***During the Pandemic*** |
| *Interest* | 0.139*** | 0.101*** | 0.132*** |
| | (0.025) | (0.023) | (0.035) |
| *BOPO* | -0.071*** | -0.070*** | -0.066*** |
| | (0.006) | (0.008) | (0.008) |
| *CAR* | 0.000 | 0.004 | -0.000 |
| | (0.002) | (0.003) | (0.002) |
| *NPL* | -0.007* | -0.030 | -0.083* |
| | (0.037) | (0.027) | (0.048) |
| *LAR* | -0.000 | 0.004 | -0.002 |
| | (0.003) | (0.006) | (0.004) |
| *LDR* | 0.001 | 0.001 | 0.001 |
| | (0.002) | (0.003) | (0.002) |
| *LnSize* | 0.000 | -0.004 | -0.002 |
| | (0.031) | (0.030) | (0.029) |
| *NIM* | 0.084 | 0.033 | 0.051 |
| | (0.074) | (0.047) | (0.070) |
| *Inflation* | -0.084*** | 0.019 | -0.098*** |
| | (0.018) | (0.029) | (0.018) |
| *PDRB* | 0.011 | 0.011 | 0.021 |
| | (0.020) | (0.020) | (0.025) |

Source: STATA Output Results 16, 2023

Information: Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01

Table 4. GMM Estimation Results for ROE Variables

| | (1) | (2) | (3) |
|---|---|---|---|
| | ***Entire Year*** | ***Pandemic*** | ***During the Pandemic*** |
| *Interest* | 0.983* | 0.845*** | 0.553** |
| | (0.208) | (0.301) | (0.252) |
| *BOPO* | -0.424*** | -0.575*** | -0.267*** |
| | (0.082) | (0.110) | (0.055) |
| *CAR* | -0.002 | 0.008 | -0.005 |
| | (0.032) | (0.058) | (0.019) |
| *NPL* | -0.493* | -0.171 | -0.408* |
| | (0.265) | (0.349) | (0.237) |
| *LAR* | -0.010 | 0.004 | -0.028 |
| | (0.032) | (0.041) | (0.033) |
| *LDR* | -0.028** | -0.034* | -0.015 |
| | (0.011) | (0.019) | (0.011) |
| *LnSize* | 0.337 | 0.673 | 0.240 |
| | (0.292) | (0.422) | (0.251) |
| *NIM* | 0.144 | 0.093 | 0.045 |
| | (0.155) | (0.244) | (0.123) |
| *Inflation* | -0.489*** | 0.554* | -0.424*** |
| | (0.148) | (0.293) | (0.123) |
| *PDRB* | 0.237 | 0.221 | 0.253** |
| | (0.145) | (0.230) | (0.114) |

Source: STATA Output Results 16, 2023

Information: Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01

Table 5. GMM Estimation Results for NIM Variables

| | (1) | (2) | (3) |
|---|---|---|---|
| | ***Entire Year*** | ***So Pandemic*** | ***During the Pandemic*** |
| *Interest rate* | 0.048* | 0.085* | -0.027 |
| | (0.028) | (0.047) | (0.021) |
| *BOPO* | -0.000 | -0.007 | -0.004 |
| | (0.003) | (0.006) | (0.003) |
| *CAR* | 0.002* | 0.007* | -0.001** |
| | (0.001) | (0.004) | (0.001) |
| *NPL* | -0.040 | -0.005 | -0.031 |
| | (0.052) | (0.047) | (0.046) |
| *LAR* | -0.009* | -0.009 | -0.008 |
| | (0.005) | (0.007) | (0.005) |
| *LDR* | -0.000 | -0.002 | 0.001 |
| | (0.001) | (0.001) | (0.002) |
| *LnSize* | -0.033 | -0.025 | -0.041 |
| | (0.036) | (0.030) | (0.029) |
| *NIM* | -0.798*** | 0.770*** | 0.818*** |
| | (0.111) | (0.168) | (0.101) |
| *Inflation* | 0.038** | 0.089 | 0.047** |
| | (0.017) | (0.057) | (0.020) |
| *PDRB* | 0.033 | 0.030 | 0.022 |
| | (0.023) | (0.027) | (0.018) |

Source: STATA Output Results 16, 2023

Information: Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01

The analysis was conducted on the effect of the BI7DRR interest rate policy on bank profitability in Indonesia, both throughout the year, before the pandemic and during the pandemic. Table 2 shows regression results for the ROA variable as a profitability variable, table 3 shows regression results for the ROE variable as a profitability variable, while table 4 shows regression results for the NIM variable as a profitability variable. In each table, column (1) shows GMM regression results for all-year models (period January 2017 – December 2022), column (2) shows GMM regression results for models before the pandemic (period January 2017 – February 2020), while column (3) shows GMM regression results for models during the pandemic period (period March 2020-December 2022).

**Estimated Results for ROA Variables**

From table 3 column (1), it can be seen that monetary policy in the form of the BI7DRR interest rate implemented by Bank Indonesia in the 2017-2022 period has a significant positive impact on banking profitability in Indonesia, as reflected in the variable ROA as a profitability indicator. With a significance level of 1 percent, the BI7DRR interest rate policy is significantly positive, indicating that a 1% percent increase in the BI7DRR will increase the profitability of banks in Indonesia by 0.139%.

In general, funds obtained by banks in the form of third-party funds and other sources of funds with short tenors but are channeled in the form of loans with long tenors, therefore rising short-term interest rates allow banks in Indonesia to increase loan margins, resulting in increased bank profitability. Likewise, if there is a reduction in the policy rate, it will reduce bank profitability due to lower interest rate spreads on the asset side with the liability side. However, the impact of monetary policy on the profitability of banks as a whole will also depend on the impact of monetary policy on macroeconomic conditions. In particular, this will

depend heavily on the effectiveness of monetary policy in increasing aggregate demand and in suboptimal balance sheet conditions.

The conclusions of this study are in line with the research of Borio, Gambacorta and Hofmann (2017), Gulcay and Hamed (2021), Kumar, Acharya and Ho (2020), and Dang and Huynh (2022) on offshore banking. For other control variables, only BOPO, NPL and inflation variables had a significant effect on ROA, where these three variables had a significant negative effect on ROA.

Furthermore, from table 3 columns (2) and (3), it can be seen that monetary policy in the form of the BI7DRR interest rate had a significant positive impact on the ROA ratio of banks in Indonesia before and before the pandemic, but during the pandemic the influence was stronger than before the pandemic. In the pre-pandemic period with a high BI7DRR rate, a 1% reduction in the BI7DRR policy rate would reduce the ROA of banks in Indonesia by 0.101%. Meanwhile, during the pandemic period with a lower BI7DRR interest rate in line with expansionary monetary policy by Bank Indonesia, a 1% reduction in the BI7DRR rate will reduce ROA by 0.132%.

The results show that monetary policy easing (expansionary monetary policy) by Bank Indonesia through a reduction in the policy rate will reduce bank profitability as reflected by a decrease in ROA, with an impact on ROA higher than in the period of tight monetary policy (contraction) which indicates that low policy rates can weaken bank performance. This reflects that banks in Indonesia have not found a way to anticipate the impact of interest rate cuts on their profitability, thus risking conditions where there is a reduction in the policy rate. Bank Indonesia seeks to recover the economy through monetary policy expansion by lowering the benchmark interest rate in response to the adverse effects of the pandemic, but the impact may reduce bank performance.

Therefore, normalization of monetary policy will have a beneficial impact in restoring banks' margins and profitability. However, on the other hand, the difference in bank profitability between the pandemic period and the pre-pandemic period can also be influenced by various economic and policy factors that changed during the period. During the pandemic, many debtors experienced difficulties in meeting their payment obligations due to economic uncertainty. This can lead to increased credit risk and credit losses for banks, which can have a negative impact on profitability. Government measures in tackling the pandemic, such as lockdowns and restrictions, can also affect bank profitability.

The results of this study are in line with the research conclusions of Borio, Gambacorta and Hofmann (2017), G. Tuna and Almahidin (2021), and Bikker and Vervliet (2018). However, the results of the study are not in line with research conducted by Windsor, et al (2023); Alessandri and Nelson (2015), Busch and Memmel (2015), Genay and Podjasek (2014).

The control variable that affects ROA before and during the pandemic is BOPO with a smaller influence during the pandemic. Meanwhile, NPL control variables and inflation only have a significant negative influence during the pandemic. This is because rising inflation will reduce people's purchasing power, thus impacting credit quality which causes pressure on bank profitability.

**Estimated Results for ROE Variables**

From table 4 column (1), it can be seen that monetary policy in the form of the BI7DRR interest rate implemented by Bank Indonesia in the 2017-2022 period has a significant positive impact on banking profitability in Indonesia, which is reflected in the ROE variable as a profitability indicator, the same as the impact on ROA. With a significance level of 10 percent, the BI7DRR interest rate policy is significantly positively related to ROE, indicating that an increase of 1% percent BI7DRR will increase the ROE of banks in Indonesia by 0.983%.

The conclusions of this study are in line with the research of Kumar, Acharya and Ho (2020) and Bikker and Vervliet (2018) on offshore banking. For other control variables, only BOPO, NPL, LDR and inflation variables had a significant effect on ROE, where these four variables had a significant negative effect on ROE.

Furthermore, from table 4 columns (2) and (3), it can be seen that monetary policy in the form of the BI7DRR interest rate had a significant positive impact on the ROE ratio of banks in Indonesia in the pre-pandemic period, but in contrast to the ROA, during the pandemic the effect was lower than before the pandemic. In the pre-pandemic period with a fairly high BI7DRR rate, a 1% reduction in the BI7DRR policy rate would lower the ROE of banks in Indonesia by 0.845%. Meanwhile, during the pandemic period with a lower BI7DRR interest rate in line with expansionary monetary policy by Bank Indonesia, a 1% reduction in the BI7DRR rate will reduce ROE by 0.553%. This indicates that during the pandemic, although banks have not fully anticipated the impact of the BI7DRR rate cut on their profitability, the impact of lowering interest rates on further ROE reductions may be anticipated by fostering capital to be able to absorb high risks during the pandemic, especially credit risk due to economic weakness. Anshori et. al (2022) found that there was no significant difference between banking CAR before and during the pandemic which showed maintained banking capital to support their operational activities and to absorb potential risks that increased during the pandemic. This causes a difference between the impact of monetary policy in the form of lowering the policy rate on ROA and ROE during the pandemic.

The impact of monetary policy in the form of a lower policy rate on bank profitability as reflected by the overall ROE will also depend on the impact of monetary policy on macroeconomic conditions. In particular, this will depend largely on the effectiveness of monetary policy in increasing aggregate demand at low policy rates.

The control variables that affect ROE before and during the pandemic are BOPO and inflation with a smaller influence during the pandemic. Meanwhile, NPL control variables and inflation only have a significant negative influence during the pandemic. This is because rising inflation will reduce people's purchasing power, thus impacting credit quality.

**Estimation Results for NIM Variables**

From table 5 column (1) above, it can be seen that monetary policy in the form of the BI7DRR interest rate implemented by Bank Indonesia in the 2017-2022 period has a significant positive impact on banking profitability in Indonesia, as measured by the NIM variable as a profitability indicator. This result is the same as the impact of the BI7DRR interest rate on ROA and ROE which has a significant positive effect. With a significance level of 1 percent, the BI7DRR interest rate policy is significantly positive, indicating that a 1% percent increase in the BI7DRR will increase banking profitability in Indonesia by 0.048%. The conclusion of

this study is in line with research conducted by Borio, Gambacorta and Hofmann (2017). However, the results of the study are not in line with the research conducted by Alessandri and Nelson (2015), Busch and Memmel (2015), and Cruz-García, P., Fernández de Guevara, J., Maudos, J. (2017).

As for other control variables, only the CAR, LAR and inflation variables have a significant effect on NIM, where the CAR and inflation variables have a significant positive effect while the LAR variable has a significant negative effect.

Furthermore, based on table 5 columns (2) and (3), it is also known that monetary policy in the form of the BI7DRR interest rate had a significant positive impact on the NIM ratio of banks in Indonesia before the pandemic, but during the pandemic did not have a significant effect. In the pre-pandemic period with a high BI7DRR rate, a 1% increase in the BI7DRR policy rate would increase banking NIM in Indonesia by 0.085%. Meanwhile, during the pandemic with a lower BI7DRR interest rate in line with expansionary monetary policy by Bank Indonesia, an increase or decrease in the BI7DRR interest rate did not have a significant effect on NIM.

The potential cause of the difference in direction between the impact of monetary policy and bank profitability during the pandemic can be caused by two opposites. First, the impact of monetary policy on bank profitability can be based on changes in bank interest margins. Given the fact that the elasticity of bank lending rates can be greater than that of deposit rates (Hancock, 1985), in the case of easing monetary policy through lowering the policy rate, the positive difference between monetary policy in the form of the policy rate and the interest rate on third-party funds can become wider. This can lower the bank's net interest margin and ROE. Second, macroeconomic conditions that can be improved through monetary policy in the form of lowering interest rates, causing favorable funding costs for banks and increasing creditworthiness for borrowers (Borio, Gambacorta and Hoffman, 2017), thereby increasing bank profitability.

**Periode Seluruh Tahun (Januari 2017 s.d. Desember 2022)**

| | *Rata-rata SB DPK* | *BI-7Day-RR* |
|---|---|---|
| Rata-rata SB DPK | 1 | |
| BI-7Day-RR | 0.734808559 | 1 |

| | *BI-7Day-RR* | *Rata-rata SB Kredit* |
|---|---|---|
| BI-7Day-RR | 1 | |
| Rata-rata SB Kredit | 0.560581328 | 1 |

**Sebelum pandemi (Januari 2017 s.d. Februari 2020)**

| | *Rata-rata SB DPK* | *BI-7Day-RR* |
|---|---|---|
| Rata-rata SB DPK | 1 | |
| BI-7Day-RR | 0.4644006 | 1 |

| | *BI-7Day-RR* | *Rata-rata SB Kredit* |
|---|---|---|
| BI-7Day-RR | 1 | |
| Rata-rata SB Kredit | -0.536420154 | 1 |

**Pada saat pandemi (Maret 2020 s.d. Desember 2022)**

| | *Rata-rata SB DPK* | *BI-7Day-RR* |
|---|---|---|
| Rata-rata SB DPK | 1 | |
| BI-7Day-RR | 0.402492422 | 1 |

| | *BI-7Day-RR* | *Rata-rata SB Kredit* |
|---|---|---|
| BI-7Day-RR | 1 | |
| Rata-rata SB Kredit | 0.213098046 | 1 |

Figure 8 Comparison of Deposit and Credit Rate Correlation with BI7DRR
Source: OJK and Bank Indonesia, processed

Based on Pearson's correlation in figure 8 above, it can be seen that in the period of all years and before the pandemic BI7DRR had a fairly strong correlation with the average deposit and credit interest rates, namely 0.73 and 0.56 respectively in the whole year period and 0.46 and -0.53 in the pre-pandemic period. The correlation between the BI7DRR and the average deposit rate is higher than the average lending rate, reflecting faster deposit rate adjustments than loans. In the pre-pandemic period, the BI7DRR interest rate was positively correlated quite strongly with an average deposit rate of 0.46 and a negative correlation with an average lending rate of 0.53. This is due to high interest rates, demand for loans will decrease, so to increase the

number of loans amid declining demand, banks are more cautious in raising lending rates despite the increase in BI7DRR interest rates which has an effect on lowering NIM.

Meanwhile, during the pandemic with a low policy rate (loose monetary policy) in the form of a decrease in the BI7DRR, the BI7DRR interest rate is positively correlated quite strongly with an average deposit rate of 0.40. However, it has a weak correlation with the average lending rate of 0.21. During the pandemic, liquidity conditions were loose with various monetary and macroprudential policies by Bank Indonesia to meet liquidity needs in the market through quantitative easing mechanisms and the government through the National Economic Recovery (PEN) program. This causes that with excessive liquidity conditions, fund owners who have a risk averse attitude during the pandemic considering the uncertainty of economic conditions can encourage them to invest their funds in the banking system so that banks can increase efficiency.

This causes that during the pandemic, the BI7DRR interest rate has no significant effect on NIM. At low interest rates, deposit rate adjustments are faster in response to the BI7DRR reduction than the lower lending rate. The reasons are partly due to bank prudence during the pandemic due to the high level of risk, resulting in tightening lending standards which has led to a decrease in BI7DRR not directly addressed by banks with lower lending rates.

The conclusion of this study is in line with research conducted by Alessandri and Nelson (2015) and Busch and Memmel (2015) which states that low interest rate policy in the short term has no effect on NIM. However, the results of the study are contrary to research conducted by Borio, Gambacorta and Hofmann (2017) which found a stronger positive relationship between the policy rate and the NIM ratio in low interest rate conditions.

Furthermore, control variables that have a significant effect on banking NIM during the pandemic are CAR, LAR, and inflation. For the CAR variable and inflation has a significant positive influence, while for the LAR variable has a significant negative influence.

## CONCLUSION

The conclusion of this study is: BI7DRR interest rate policy is one of the monetary instruments as a signal of monetary policy response by Bank Indonesia in controlling inflation in accordance with the predetermined target. The effect of the BI7DRR interest rate policy on bank profitability is strongly influenced by a number of factors and prevailing economic conditions. This research uses panel data from 93 banks in Indonesia with a data period of 2017-2022. The research method uses the GMM method which is the best prediction in this study by including other variables that are thought to affect bank profitability as measured by ROA, ROE and NIM variables, by referring to previous studies, namely BOPO, CAR, NPL, LAR, LDR, LnSize, NIM, inflation, and GDP. In the entire year period (January 2017 – December 2022), monetary policy in the form of BI7DRR has a significant positive effect on banking profitability in Indonesia, as reflected in ROA, ROE and NIM variables. For control variables in the form of BOPO, NPL and inflation have a significant effect on ROA, for control variables BOPO, NPL, LDR and inflation have a significant effect on bank ROE in Indonesia, while CAR, LAR, and inflation variables have a significant effect on NIM.

The BI7DRR policy had a significant positive impact on ROA and ROE in the period before and during the pandemic. The influence on ROA during the pandemic was stronger than in the pre-pandemic period, on the contrary, the influence of BI7DRR on ROE was stronger in the

pre-pandemic period than during the pandemic. This reflects that banks have not fully found a way to anticipate lowering interest rates against their profitability, among others, by increasing non-interest income. The BI7DRR policy had a significant positive impact on bank profitability as measured by the NIM ratio only before the pandemic, while during the pandemic it did not have a significant effect. Before and during the pandemic, interest rate adjustments on the liability side were faster than on the asset side, but during the pandemic the average lending rate was not strongly correlated with the BI7DRR because economic weakness resulted in increased credit risk which caused banks to be more cautious in responding to the BI7DRR reduction by lowering lending rates.

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