The Effect of Efficiency, Capital Adequacy and Liquidity on the Financial Performance of Commercial Banks in Indonesia with Foreign Share Ownership as Moderator

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Abstract
This study aims to determine the effect of efficiency (BOPO), capital adequacy (CAR), and liquidity (LDR) on the financial performance of commercial banks with foreign share ownership as a moderator variable. This research was conducted on commercial banks included in the KBMI 3 and KBMI 4 categories with the research period 2017 - 2022. The sampling technique used in this research is saturated sample with a total sample of 13 commercial banks. The results of this study indicate that efficiency (BOPO) has a significant negative effect on financial performance while capital adequacy, liquidity has no effect on financial performance. Furthermore, foreign share ownership is able to moderate the effect of capital adequacy on financial performance but has not been able to moderate the effect of independent variables efficiency and liquidity on the financial performance of KBMI 3 and KBMI 4 category banks.

Keywords: BOPO, CAR, LDR, Foreign Share Ownership, Commercial Banks.

1. INTRODUCTION

The classification of Commercial Banks in Indonesia based on the Financial Services Authority Regulation No.12/POJK.03/2021 of 2021 is based on the core capital owned by banks, namely KBMI 1 with core capital up to IDR6 Trillion; KBMI 2 with core capital of more than IDR6 Trillion up to IDR14 Trillion; KBMI 3 with core capital of more than IDR14 Trillion up to IDR70 Trillion and KBMI 4 with core capital of more than IDR70 Trillion. All of these banks have a target to generate profit as much as possible from year to year. Bank Indonesia and the Financial Services Authority, which are Bank control and supervision institutions, prefer the ROA (Return On Asset) ratio to show bank profitability because Bank Indonesia prioritises the value of banking profitability as measured by assets whose funds predominantly come from public deposits (Susilawati & Nurulrahmatiah, 2021).

Indonesian Banking Statistics data issued by Financial Services Authority (OJK) shows the trend of commercial banks’ financial performance from 2017 to 2022 as shown in the following figure 1.
Based on Figure 1.1, the average financial performance of Commercial Banks in Indonesia fluctuates. In 2020 and 2021, the average ROA value is below the ROA standard of 2.00%. This condition also occurs with the ROA of commercial banks included in the KBMI 3 and KBMI 4 categories. Even the average value of ROA of commercial banks in the KBMI 3 and KBMI 4 categories that have more capital is still below the average value of banking ROA in Indonesia. This indicates that there are factors that can affect banks in generating profits as measured by return on assets (ROA). In accordance with Bank Indonesia Circular Letter No.13/24/DPNP dated 25 October 2011, bank assessment is carried out through a qualitative approach to factors that affect the condition and development of banks, including capital factors (Capital), asset quality, management factors (Management), profitability factors (Earnings), liquidity factors (Liquidity) (Winarso & Park, 2020).

Bank capital can be measured using the Capital Adequacy Ratio (CAR), which is the bank's ability to meet minimum capital obligations or what is called solvency or the ability to pay its obligations (Winarso & Park, 2020). According to Sarjono & Suprapto (2020), CAR represents the bank's funding level and an indication of the relative proportion of equity and debt used to finance the company's assets. Some previous researchers have conducted research on the relationship between capital adequacy and banking financial performance with inconsistent results. Some of the results of previous studies prove that the CAR ratio has a positive effect on banking financial performance (Nugroho, Mangantar, & Tulung, 2019; Ratnawati et al., 2022; Rembet & Baramuli, 2020; Safitri, Suyanto, Maximus, & Prasilowati, 2020; Yulianto, Nurlaela, & Masitoh, 2020; Yusuf & Ichsan, 2021). However, there are also research results that find that the CAR ratio has no effect on banking financial performance (Chandra & Anggraini, 2020; Hasanah & Hariyono, 2022; Rohayati, Cahyo, & Mulwati, 2020; Usman & Lestari, 2019; Widyarini & Santoso Marsoem, 2021). In addition, there are also research results that show that the CAR ratio has a negative effect on financial performance (Abdurrohman, Fitrianingsih, Salam, & Putri, 2020; Anggraini, Nita Aryani, Budi Prasetyo, & Malang Kucecwara, 2020; Barasa & Hikmah, 2021)

Furthermore, to increase profitability, banks make efficiency on the company's operating costs. To measure the level of efficiency of a bank, it can use the BOPO ratio (operational efficiency ratio). The BOPO ratio is calculated by comparing operating costs with operating income. The banking industry is an intermediary institution that uses many inputs and outputs, so the
measurement of the level of efficiency using the BOPO ratio is considered to describe the level of efficiency of a bank. Therefore, the measurement of efficiency in banks can be an indicator to measure the financial performance of banks. Research related to the effect of the BOPO ratio on banking financial performance also provides inconsistent results. Research conducted by Cuandra & Setiawan, (2020); Hidayat & Kurniasih, (2022); Purnamasari, (2020); Widyarini & Santoso Marsoem, (2021); Yusianto et al., (2020); Yusuf & Ichsan, (2021) found that the BOPO ratio has a significant negative effect on bank financial performance. However, there are also research results that find that the BOPO ratio has a significant positive effect on bank financial performance (Chandra & Anggraini, 2020; Hasanah & Hariyono, 2022; Parendi & Hendratni, 2018; Susilowati & Tiningrum, 2019). Meanwhile, according to Rembet & Baramuli (2020); Rohimah, (2021); Siagian et al., (2021), the BOPO ratio has no effect on bank performance.

Furthermore, an important factor in banking is bank liquidity, which is measured using the Loan to Deposit Ratio (LDR). The LDR ratio shows the bank’s ability to pay public funds from its own capital and from loans that have been distributed to the public (Sarjono & Suprapto, 2020). The lower limit of the Loan to Deposit Ratio (LDR) target is 78%, while the upper limit of the Loan to Deposit Ratio (LDR) target is 94%. The effect of liquidity on financial performance has also been studied by previous researchers who found inconsistent results. Some previous research results suggest that the liquidity ratio has a significant positive effect on banking financial performance (Haryanto et al., 2021; Hermuningsih & Rahmawati, 2022; Jaworski & Czerwonka, 2021; Musyriah, 2020; Suyanto, 2021; Waswa et al., 2018; Zaineldeen, 2018). However, based on the results of research by (Anggraini et al., 2020; Widyarini & Santoso Marsoem, 2021; Yusianto et al., 2020), the LDR ratio has no significant effect on banking financial performance. Meanwhile, other studies have found that the LDR ratio has a significant negative effect on banking financial performance as measured by the ROA ratio (Chandra & Anggraini, 2020; Mosharrafa & Islam, 2021; Musyriah, 2020; Reskita & Purwanto, 2019).

In principle, to be able to produce good financial indicators, of course, requires financing / funding from company owners and close supervision from shareholders. Ownership structure is one of the factors that can influence the financing and investment decisions of the company (Siswanti & Prowanta, 2021). The company's objectives will be determined by the ownership structure, the motivation of owners and creditors, corporate governance that shapes the incentives or motivation of managers. Companies controlled by foreign parties/investors are considered to perform better because they have better transparency and control options. Foreign investors supervise all company activities and managers’ actions to ensure that the company operates in good faith.

Research related to the effect of foreign ownership on banking financial performance also provides inconsistent results. Some research results show that the ownership structure of foreign management is considered to have a positive effect on company (Abdallah & Ismail, 2017; Al-Janadi, 2021; Din, Arshad Khan, Khan, & Khan, 2022; Iwasaki, Ma, & Mizobata, 2022; Kao, Hodgkinson, & Jaafar, 2019; Matari, Matari, & Saif, 2017; Tjahjadi & Tjakrawala, 2020). Different results were presented by Allina & Aris (2022); Amin & Hamdan, (2018); Fahlevi et al., (2023); Ritha (2016); Suman et al.,(2016) which shows that there is no effect of foreign management ownership structure on company performance. In this study, the foreign share ownership variable is a moderator variable because there are inconsistencies in the results of research on the relationship between foreign ownership and financial performance and until
now research examining this is also still limited. Inconsistent results in previous studies are a
strong reason to use foreign ownership as a moderator variable (Rahadi & Farid, 2021).

Based on the above conditions and the inconsistency of research results, it is necessary to
conduct further research to determine whether efficiency, capital adequacy and liquidity have
an influence on the financial performance of banks in the KBMI 3 and 4 categories in Indonesia
and to find out whether the presence of foreign share ownership is able to moderate the
influence of efficiency, capital adequacy and liquidity on the financial performance of banks in
the KBMI 3 and 4 categories in Indonesia during the period 2017 to 2022.

2. LITERATURE REVIEW

2.1 Efficiency on The Financial Performance of Commercial Banks In Indonesia.

Efficiency is one of the performance parameters that theoretically underlies the performance of
an organisation. The ability to produce maximum output with existing inputs is a measure of
expected performance. When efficiency measurement is conducted, banks are faced with the
condition of how to get the optimal level of output with the existing level of input, or get the
minimum level of input with a certain level of output (Hadad, Santoso, Mardanugraha, & Illyas,
2003).

The Bank’s efficiency level can be measured through the ratio of operating costs to operating
income (BOPO) in accordance with PBI No.14/26/PBI/2012 Article 21 regarding the achievement
of the Bank’s efficiency level. This ratio is used to measure the ability of bank management in
controlling operating costs against operating income. The greater the BOPO ratio, the less
efficient the bank is in managing/controlling its operating costs. If the bank is inefficient, the
profit earned will decrease. Several previous studies have suggested that the BOPO ratio has a
significant negative impact / influence on banking financial performance as measured by return
on assets (Chandra & Anggraini, 2020; Cuandra & Setiawan, 2020; Hidayat & Kurniasih, 2022;
Purnamasari, 2020; Widyarini & Santoso Marsoem, 2021; Yulianto et al., 2020; Yusuf & Ichsan,
2021). Based on the theory and previous research above, the proposed hypothesis is as follows:

H1: Efficiency (BOPO) has a significant negative effect on the Financial Performance of Commercial
Banks in Indonesia.

2.2 Capital Adequacy (CAR) on The Financial Performance of Commercial Banks In
Indonesia.

Bank management must ensure that the bank has sufficient capital to support operations and is
able to plan capital requirements to support business development and compete with
competitors. To calculate capital adequacy can use the CAR (Capital Adequacy Ratio) ratio. The
capital adequacy ratio (CAR) is a ratio that shows the extent to which all risky bank assets
(financing, investments, securities and receivables from other banks) are financed by the bank’s
own capital assets in addition to loans (Anggraeni & Citarayani, 2022) so that the higher the
Capital Adequacy Ratio (CAR) means that the bank has sufficient capital to finance all assets
that contain risk.

The results of previous studies show that under the level of capital adequacy (CAR) has a
significant positive effect on financial performance (D. Nugroho et al., 2019; Ratnawati et al.,
2022; Rembet & Baramuli, 2020; Safitri et al., 2020; Yulianto et al., 2020; Yusuf & Ichsan, 2021)
Based on the theory and previous research above, the hypotheses proposed are:
**H2:** Capital Adequacy (CAR) has a significant positive effect on the Financial Performance of Commercial Banks in Indonesia.

### 2.3 Liquidity (LDR) on the Financial Performance of Commercial Banks in Indonesia

According to Darmawi, (2018), liquidity is a term used to refer to the supply of cash and other assets that can be easily used as liquidity. Another definition of liquidity is a condition related to the provision of capital and other liquidity instruments controlled by the bank concerned. Liquidity is the ability to fulfil all obligations in a short time. Based on the definition above, it can be concluded that the higher the liquidity ratio, the better the bank's ability to manage its intermediation function optimally. Conversely, the lower the liquidity ratio, the less liquid it is because many dormant funds (unused funds) cause the intermediation function to not run well and reduce the possibility of obtaining higher income (Arfiyanti & Pertiwi, 2020). However, if the liquidity ratio is too high, there is a risk of decreasing bank liquidity because more funds are allocated to financing.

The results of previous research show that the loan to deposit ratio (LDR) has a significant positive effect on bank performance (Haryanto et al., 2021; Hermuningsih & Rahmawati, 2022; Jaworski & Czerwonka, 2021; Musyrifah, 2020; Suyanto, 2021; Waswa et al., 2018; Zaineldeen, 2018). Based on the theory and previous research above, the hypothesis proposed is as follows:

**H3:** Liquidity (LDR) has a significant positive effect on the Financial Performance of Commercial Banks in Indonesia.

### 2.4 Foreign Share Ownership in moderating the effect of Efficiency on Financial Performance of Commercial Banks in Indonesia.

The relationship between ownership structure and firm performance is primarily based on agency theory (Jensen & Meckling, 1976). From the agency theory view, firms will benefit from high levels of foreign ownership as foreign investors demand higher standards of corporate governance and take on the role of active monitors. Foreign share ownership will improve financial performance due to the ability of foreign investors to monitor the company more seriously, the implementation of new technologies that companies have abroad so that they can save on company operating costs (Balagobei & Velnampy, 2017).

In addition, foreign shareholders are considered to have good managerial skills, can manage the company effectively, have high commitment, and are not vulnerable to political pressure (Ritha, 2019). Some previous research results show that foreign management ownership has a positive effect on company financial performance (Abdallah & Ismail, 2017; Al-Janadi, 2021; Din et al., 2022; Iwasaki et al., 2022; Kao et al., 2019; Matari et al., 2017; Tjahjadi & Tjakrawala, 2020). Based on the theory and previous research above, the hypothesis proposed is as follows:

**H4:** Foreign Share Ownership is able to moderate the effect of efficiency on the Financial Performance of Commercial Banks in Indonesia.

### 2.5 Foreign Share Ownership in moderating the effect of Capital Adequacy on the Financial Performance of Commercial Banks in Indonesia.

In order to increase the profits earned by the company, foreign ownership or foreign investors will bring finance, marketing and technology that can assist company managers in improving the company's financial performance (Yavaş & Erdoğan, 2016). In addition, foreign share
Ownership can also improve the quality of the company's capital because it has access/facilities to obtain more funds from existing international relations.

Companies that have a good level of capital adequacy will certainly be able to run smoothly and will have an impact on improving the company's financial performance (D. Nugroho et al., 2019; Ratdogan, 2019). Nugroho et al., 2019; Ratnwati et al., 2022; Rembet & Baramuli, 2020; Safitri et al., 2020; Yulianto et al., 2020; Yusuf & Ichsan, 2021).

This correlation is expected to be further strengthened by the existence of foreign share ownership, which based on previous research shows that foreign share ownership has a positive effect on company performance (Abdallah & Ismail, 2017; Al-Janadi, 2021; Din et al., 2022; Iwasaki et al., 2022; Kao et al., 2019; Matari et al., 2017; Tjahjadi & Tjakrawala, 2020). Based on the theory and previous research above, the hypothesis proposed is as follows:

**H5**: Foreign Share Ownership is able to moderate the effect of capital adequacy (CAR) on the Financial Performance of Commercial Banks in Indonesia.

2.6 **Foreign Share Ownership in moderating the effect of Liquidity on the Financial Performance of Commercial Banks in Indonesia.**

Foreign ownership in the company can increase the benefits obtained by the company because foreign ownership or foreign investors will bring finance, marketing and technology that assist company managers in improving the company's financial performance (Yavaş & Erdogan, 2016). The company will be supervised by external parties/foreign investors who have a better level of transparency and monitoring/control in management techniques, corporate governance mechanisms and information technology (Karyani & Obrien, 2020)

Better monitoring from foreign investors is expected to have an impact on the liquidity of the company being maintained. This is motivated because foreign investors/shareholders have good skills and experience in finance and business so that the existence of foreign share ownership can have a positive effect on the company's financial performance (Abdallah & Ismail, 2017; Al-Janadi, 2021; Din et al., 2022; Iwasaki et al., 2022; Kao et al., 2019; Matari et al., 2017; Tjahjadi & Tjakrawala, 2020). Based on the theory and previous research above, the hypothesis proposed is as follows:

**H6**: Foreign share ownership is able to moderate the effect of liquidity (LDR) on the financial performance of Commercial Banks in Indonesia.

2.7 **Conceptual Framework**

Based on the description and hypothesis above, the conceptual framework in this study can be described as follows:

![Figure 2. Research Framework](image-url)
3. RESEARCH METHODOLOGY

This study uses quantitative research methods using quantitative data in the form of numbers and secondary data sourced from annual financial reports of banks listed on the Indonesia Stock Exchange. Based on the data source, this study uses secondary data with the type of data in the form of time series for 6 (six) years from the financial statements and annual reports of banks from 2017 to 2022. Secondary data sources are sources that do not provide data directly to data collectors, such as through other people or through documents (Hartono, 2000). Judging from the type, this research is a type of ex post facto research, because this research is conducted to examine an event that occurs without direct manipulation of variables or does not create certain conditions. This type of research includes causal research, which is research that tests hypotheses and determines the relationship and influence between two or more variables on other variables.

Profitability measures can be presented using several ratios related to profitability, including those related to sales using profit margin and expense ratio, related to investment can be measured by return on assets, return on equity, and return on capital employed (Sihombing, 2018). To measure financial performance / banking profitability, Bank Indonesia uses the Return On Asset (ROA) assessment because Bank Indonesia prioritises the value of banking profitability as measured by assets whose funds predominantly come from public deposits (Susilawati & Nurulrahmatiah, 2021). Return On Asset (ROA) is one of the profitability ratios that uses the link between net income and assets (Sihombing, 2018) which can be formulated as follows:

\[
ROA = \frac{Net\ Profit\ After\ Tax}{Total\ Asset} \times 100
\]

Source: Sihombing (2018)

The BOPO ratio (Operating Expenses to Operating Income) which is often called the efficiency ratio is used to measure the ability of bank management to control operating costs against operating income. Operating costs are costs incurred by the bank in order to carry out its activities, while operating income is all forms of income obtained from bank activities. According to Hasibuan (2017), Operating cost of operating income (BOPO) is the ratio of operating costs to operating income (BOPO) formulated as a comparison or operating costs to operating income in the same period which can be formulated as follows:

\[
BOPO = \frac{Operating\ Expense}{Operating\ Income} \times 100\%
\]

Source: Hasibuan (2017)

Capital Adequacy Ratio (CAR) can be used to evaluate whether the bank has sufficient capital to bear the risk of assets that carry risk, such as loans, stocks, bonds, bank loans, and others (Saputri & Supramono, 2021). The Capital Adequacy Ratio (CAR) is a measure of the extent to which the bank’s risk-bearing assets can be financed by the bank’s own capital in addition to obtaining from sources outside the bank (Sarjono & Suprapto, 2020). Based on BI Circular Letter 13/24/DPNP/2011, the Capital Adequacy Ratio (CAR) can be calculated as follows:

\[
CAR = \frac{Capital}{ATMR} \times 100\%
\]

Source: BI Circular Letter 13/24/DPNP/2011

According to Kasmir (2018), the LDR ratio is a comparison between total loans granted and total Third Party Funds (DPK) that can be collected by banks. LDR will show the level of the bank’s...
ability to distribute third party funds raised by the bank concerned. Kasmir (2018) explains that the safe limit of a bank’s LDR is around 80%. However, the maximum LDR limit is 110%. The LDR ratio is calculated by comparing credit with third party funds where the credit used is the total credit given to third parties, and does not include credit given to other parties. While third party funds are current accounts, savings, and deposits that do not include interbank. This ratio can be formulated as follows:

$$\text{LDR} = \frac{\text{Total Third Party Loans}}{\text{Total Third Party Funds}} \times 100\%$$

Source: Kasmir (2018)

Foreign ownership is the portion of shares owned or capital invested by foreign parties either individually, legal institutions, institutions or government bodies with foreign status to the total shares outstanding, in other words, this portion can provide a control over the company or institution it owns. The percentage of foreign share ownership can be calculated using the following equation (Sumantaningrum & Kiswara, 2017):

$$\text{Foreign Ownership} = \frac{\text{Total Shares owned by foreign investors}}{\text{Total Shares of the Company in circulation}} \times 100\%$$

Source: Sumantaningrum & Kiswara, (2017)

The population in this study are all banking sector companies included in the classification of bank groups based on core capital 3 and 4 listed on the Indonesia Stock Exchange during 2017 to 2022. The total population in this study was 13 commercial banks. To determine the number of samples from which the data will be taken, the researcher uses a saturated sampling technique. According to Sugiyono (2021), saturated sampling is a technique for taking or collecting samples in a population, when all members of the population are used as samples in the study. The sample in this study were 13 Commercial Banks, this is based on the use of saturated sampling techniques where the population in this study were 13 Commercial Banks. The following is the sample data used in this study:

**Table 1. List of Sample**

<table>
<thead>
<tr>
<th>No</th>
<th>Company Name</th>
<th>Bank Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bank Rakyat Indonesia (Persero) Tbk</td>
<td>BBRI</td>
</tr>
<tr>
<td>2</td>
<td>Bank Mandiri (Persero) Tbk</td>
<td>BMRI</td>
</tr>
<tr>
<td>3</td>
<td>Bank Central Asia Tbk</td>
<td>BBCA</td>
</tr>
<tr>
<td>4</td>
<td>Bank Negara Indonesia (Persero) Tbk</td>
<td>BBNI</td>
</tr>
<tr>
<td>5</td>
<td>Bank Pan Indonesia Tbk</td>
<td>PNBN</td>
</tr>
<tr>
<td>6</td>
<td>Bank Danamon Indonesia Tbk</td>
<td>BDMN</td>
</tr>
<tr>
<td>7</td>
<td>Bank CIMB Niaga Tbk</td>
<td>BNGA</td>
</tr>
<tr>
<td>8</td>
<td>Bank BTPN Tbk</td>
<td>BTPN</td>
</tr>
<tr>
<td>9</td>
<td>Bank Permata Tbk</td>
<td>BNLI</td>
</tr>
<tr>
<td>10</td>
<td>Bank OCBC NISP Tbk</td>
<td>NISP</td>
</tr>
<tr>
<td>11</td>
<td>Bank Maybank Indonesia Tbk</td>
<td>BNII</td>
</tr>
<tr>
<td>12</td>
<td>Bank Tabungan Negara (Persero) Tbk</td>
<td>BBTN</td>
</tr>
<tr>
<td>13</td>
<td>Bank Mega Tbk</td>
<td>MEGA</td>
</tr>
</tbody>
</table>

Source: Data processed (2023)
The data analysis method used in this research is quantitative analysis with theory testing through secondary data analysis sourced from the annual report of commercial banks that are the sample of the study, followed by descriptive statistical test procedures, inferential statistical tests in the form of multiple linear regression analysis, panel data regression model selection, classical assumption tests, significance tests and finally Moderated Regression Analysis (MRA) with Eviews 12 software analysis tools.

4. RESULTS

4.1 Descriptive Statistical Analysis

Table 2. Descriptive Statistical

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>BOPO</th>
<th>CAR</th>
<th>LDR</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.021641</td>
<td>0.771167</td>
<td>0.229346</td>
<td>0.879615</td>
<td>0.564333</td>
</tr>
<tr>
<td>Median</td>
<td>0.021000</td>
<td>0.783500</td>
<td>0.224000</td>
<td>0.878000</td>
<td>0.424500</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.042000</td>
<td>0.981000</td>
<td>0.357000</td>
<td>1.630000</td>
<td>0.988000</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.001000</td>
<td>0.465000</td>
<td>0.168000</td>
<td>0.565000</td>
<td>0.045000</td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

On the measurement of Return on Asset (ROA), the average value is 0.0216 or 2.16%. This result shows that the average ROA of commercial banks included in the KBMI 3 and 4 categories has a very good ROA value (ROA value > 2%). During the period 2017 to 2022, the lowest ROA value was generated by PT Bank Tabungan Negara (Persero) Tbk in 2019 amounting to 0.00139 or 1.39%. The above was influenced by a decrease in pre-tax profit performance and the impact of the impairment loss reserve (CKPN) charge on PT BTN (Persero) Tbk which was quite large as a form of preparation in facing the implementation of PSAK 71 in early 2020. Meanwhile, the highest ROA value was generated by PT Bank Mega Tbk of 0.0422 or 4.22% which was supported by net profit growth of 33.23% from 2020.

In the BOPO variable, the average value is 0.7711 or 77.11%. This result shows that the average BOPO of commercial banks included in the KBMI 3 and 4 categories during the period 2017 to 2022 has a BOPO value with a very good predicate (BOPO ≤ 94%). The lowest BOPO value of 0.4650 or 46.50% was generated by PT Bank Central Asia Tbk in 2022. While the highest BOPO value of 0.9812 or 98.12% (very bad predicate with BOPO value> 97%) was generated by PT Bank Tabungan Negara (Persero) Tbk in 2019.

Furthermore, the CAR value has an average value of 0.2294 or 22.92%. This result shows that the average CAR value of commercial banks included in the KBMI 3 and 4 categories during the period 2017 to 2022 is included in the very good category (CAR ≥ 12%). The lowest CAR value of 0.168 or 16.80% was generated by PT Bank Negara Indonesia (Persero) Tbk in 2020. While the highest CAR value was generated by PT Bank Permata Tbk of 0.0357 or 35.70% in 2020.

During the observation period 2017 to 2022, the average LDR value was 0.8795 or 87.95%. This result shows that the average LDR value of commercial banks in the KBMI 3 and KBMI 4 categories is in the bad category (LDR value is in the range of 87% < LDR ≤ 92%). The lowest
LDR value was generated by PT Bank Mega Tbk in 2017 of 56.47%. While the highest LDR value was generated by PT.Bank Tabungan Pensiun Nasional Tbk of 163% in 2019.

The foreign share ownership variable has an average value of 0.5643 or 56.43%. The bank that has the lowest foreign share ownership is PT.Bank Mega Tbk of 4.51% in 2022. Meanwhile, PT Bank Permata Tbk is the bank with the highest foreign share ownership of 98.77% in 2020.

### 4.2 Regression Model Selection Test

Based on the results of the Hausman Test and the Lagrange Multiplier Test, it shows that the best panel data regression model used in this study is the random effect model. The model selection results can be seen in the following table:

<table>
<thead>
<tr>
<th>Testing</th>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow Test</td>
<td>Common Effect Model vs Fixed Effect Model</td>
<td>Fixed Effect Model</td>
</tr>
<tr>
<td>Hausman Test</td>
<td>Random Effect Model vs Fixed Effect Model</td>
<td>Random Effect Model</td>
</tr>
<tr>
<td>LM Test</td>
<td>Common Effect Model vs Random Effect Model</td>
<td>Random Effect Model</td>
</tr>
</tbody>
</table>

### 4.3 Normality Test

The figure above shows the Jarque-Bera probability value of 0.162959> 0.05 so this shows that the data is normally distributed.

### 4.4 Multicollinearity Test

<table>
<thead>
<tr>
<th></th>
<th>X1BOPO</th>
<th>X2CAR</th>
<th>X3LDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1BOPO</td>
<td>1.000000</td>
<td>-0.157304</td>
<td>0.215520</td>
</tr>
<tr>
<td>X2CAR</td>
<td>-0.157304</td>
<td>1.000000</td>
<td>-0.215139</td>
</tr>
<tr>
<td>X3LDR</td>
<td>0.215520</td>
<td>-0.215139</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)
Based on the table above, all correlation coefficient numbers are less than 0.90 which indicates that there is no correlation value between independent variables. Thus it can be concluded that the model is free from multicollinearity problems.

4.5 Heteroscedasticity Test

Table 5. Heteroscedasticity Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.013319</td>
<td>0.004438</td>
<td>3.001529</td>
<td>0.0039</td>
</tr>
<tr>
<td>X1BOPO</td>
<td>0.007536</td>
<td>0.006392</td>
<td>1.178987</td>
<td>0.2430</td>
</tr>
<tr>
<td>X2CAR</td>
<td>-0.018636</td>
<td>0.012217</td>
<td>-1.525450</td>
<td>0.1323</td>
</tr>
<tr>
<td>X3LDR</td>
<td>-0.004424</td>
<td>0.003090</td>
<td>-1.431777</td>
<td>0.1573</td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

Based on the probability value, each variable has a value greater than 0.05 so this indicates that there are no symptoms of heteroscedasticity in the regression model tested.

4.6 Goodness of Fit Test

4.6.1 Coefficient of determination R2 (R-Square)

Table 6. Coefficient of Determination R2 (R-Square)

<table>
<thead>
<tr>
<th>Weighted Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root MSE</td>
</tr>
<tr>
<td>Mean dependent var</td>
</tr>
<tr>
<td>S.D. dependent var</td>
</tr>
<tr>
<td>Sum squared resid</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

The coefficient of determination for the banking financial performance variable proxied by Return On Asset (ROA) is 0.1352. This shows that 13.52% of the value of banking financial performance can be influenced by Efficiency (BOPO), Capital Adequacy (CAR), and Liquidity (LDR). The rest is influenced by other factors that are not explained and included in this research model.
4.6.2  F-Statistic Test

Table 7. Coefficient of Determination R2 (R-Square)

<table>
<thead>
<tr>
<th>Weighted Statistics</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Root MSE</td>
<td>0.005366</td>
<td>R-squared</td>
</tr>
<tr>
<td>Mean dependent var</td>
<td>0.006404</td>
<td>Adjusted R-squared</td>
</tr>
<tr>
<td>S.D. dependent var</td>
<td>0.005957</td>
<td>S.E. of regression</td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>0.001872</td>
<td>F-statistic</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>1.089089</td>
<td>Prob(F-statistic)</td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

Based on the table above, the probability value is 0.0077 or less than the significance value (Sig ≤ 0.05) so that simultaneously the independent variable has a significant effect on the dependent variable.

4.7  Hypothesis Test (t)

Table 8. t-Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.014377</td>
<td>0.010614</td>
<td>1.354543</td>
<td>0.1806</td>
</tr>
<tr>
<td>X1BOPO</td>
<td>-0.037328</td>
<td>0.010115</td>
<td>-3.690304</td>
<td>0.0005</td>
</tr>
<tr>
<td>X2CAR</td>
<td>-0.006649</td>
<td>0.025145</td>
<td>-0.264409</td>
<td>0.7924</td>
</tr>
<tr>
<td>X3LDR</td>
<td>0.009106</td>
<td>0.007324</td>
<td>1.243220</td>
<td>0.2185</td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

For the Efficiency variable (BOPO), the probability value at the α = 5% significance level is 0.0005 or smaller than the α = 0.05 value with a regression coefficient value of -0.037. So with these results, it can be stated that Efficiency proxied by BOPO has a significant negative influence on financial performance proxied by ROA. The regression coefficient value shows that if every one unit increase in BOPO will reduce the value of financial performance by 0.037 and vice versa. For the Capital Adequacy (CAR) variable, the probability value at the α = 5% significance level is 0.7924 or greater than the α = 0.05 value with a regression coefficient value of -0.006. So it can be stated that Capital Adequacy (CAR), has no influence on financial performance proxied by ROA. Furthermore, for the Liquidity variable (LDR), the probability value at the α = 5% significance level is 0.2185 or greater than the α = 0.05 value with a
regression coefficient value of 0.009. So with these results, it can be stated that Liquidity (LDR) has no influence on financial performance proxied by ROA.

4.8 Moderation Test

4.8.1. Moderation Test of Foreign Share Ownership on the effect of Efficiency on Bank Financial Performance

Table 9. Moderation Test Results of Foreign Share Ownership on the effect of Efficiency on Bank Financial Performance

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
<th>Description</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>0.025</td>
<td>0.004</td>
<td>6.840</td>
<td>-</td>
<td>Prob. &gt;0.05 insignificant</td>
<td>non moderator</td>
</tr>
<tr>
<td></td>
<td>XIBOPO</td>
<td>-0.033</td>
<td>0.010</td>
<td>-3.262</td>
<td>0.002</td>
<td>Adjusted R-squared 13.89%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>-0.007</td>
<td>0.005</td>
<td>-1.303</td>
<td>0.197</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>0.025</td>
<td>0.003</td>
<td>7.057</td>
<td>-</td>
<td>Prob. &gt;0.05 insignificant</td>
<td>pure moderator</td>
</tr>
<tr>
<td></td>
<td>XIBOPO</td>
<td>-0.051</td>
<td>0.018</td>
<td>-2.801</td>
<td>0.007</td>
<td>Adjusted R-squared 14.39%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>-0.007</td>
<td>0.005</td>
<td>-1.301</td>
<td>0.198</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA_BOPO</td>
<td>0.038</td>
<td>0.032</td>
<td>1.197</td>
<td>0.236</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

Based on the results in table 9 above, it shows that the effect of foreign share ownership variable (SA) on ROA (Return On Asset) in output 1 and the effect of foreign share ownership variable (SA) * Efficiency (XIBOPO) in output 2 both have probability values greater than 0.05. So it can be concluded that the foreign share ownership variable (SA) is not a moderator variable in the interaction between BOPO and Return On Asset.

4.8.2. Moderation Test of Foreign Share Ownership on the Effect of Capital Adequacy on Bank Financial Performance

Table 10. Moderation Test Results of Foreign Share Ownership on the Effect of Capital Adequacy on Bank Financial Performance

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
<th>Description</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>0.023</td>
<td>0.006</td>
<td>4.040</td>
<td>0.000</td>
<td>Prob. &gt;0.05 insignificant</td>
<td>pure moderator</td>
</tr>
<tr>
<td></td>
<td>X2CAR</td>
<td>0.005</td>
<td>0.024</td>
<td>0.216</td>
<td>0.830</td>
<td>Adjusted R-squared -1.73%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>-0.005</td>
<td>0.006</td>
<td>-0.824</td>
<td>0.413</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>-0.022</td>
<td>0.014</td>
<td>-1.546</td>
<td>0.126</td>
<td>Prob. &lt;0.05 significant</td>
<td>Adjusted R-squared 10.77%</td>
</tr>
<tr>
<td></td>
<td>X2CAR</td>
<td>0.201</td>
<td>0.061</td>
<td>3.290</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>0.058</td>
<td>0.019</td>
<td>2.997</td>
<td>0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA_CAR</td>
<td>0.267</td>
<td>0.079</td>
<td>3.399</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

Based on the results in table 10 above, it shows that the effect of foreign share ownership variable (SA) on ROA (Return On Asset) in output 1 has a probability value greater than 0.05 and the effect of foreign share ownership variable (SA) * Capital Adequacy (x2CAR) in output 2 has a probability value smaller than 0.05. So it is concluded that the foreign share ownership variable (SA) is a Pure Moderator. So it can be concluded that the foreign share ownership variable (SA) is a Pure Moderator. In addition, the adjusted Chi-Square value generated in the first model estimation is -1.73%, while in the second model estimation it increases to 10.77%, indicating that foreign share ownership (SA) can strengthen the relationship of capital adequacy (CAR) to ROA.
4.8.3. Moderation Test of Foreign Share Ownership on the Effect of Liquidity on Bank Financial Performance

Table 11. Moderation Test Results of Foreign Share Ownership on the Effect of Liquidity on Bank Financial Performance

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
<th>Description</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>0.020</td>
<td>0.007</td>
<td>3.000</td>
<td>0.004</td>
<td>Prob. &gt;0.05 insignificant; Adjusted R-squared -0.78%</td>
<td>non moderator</td>
</tr>
<tr>
<td></td>
<td>X3LDR</td>
<td>0.006</td>
<td>0.007</td>
<td>0.869</td>
<td>0.388</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>0.045</td>
<td>0.015</td>
<td>3.075</td>
<td>0.003</td>
<td>Prob. &gt;0.05 insignificant; Adjusted R-squared 1.70%</td>
<td>non moderator</td>
</tr>
<tr>
<td></td>
<td>X3LDR</td>
<td>-0.023</td>
<td>0.017</td>
<td>-1.370</td>
<td>0.175</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>-0.037</td>
<td>0.018</td>
<td>-1.977</td>
<td>0.052</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA_LDR</td>
<td>-0.035</td>
<td>0.021</td>
<td>-1.685</td>
<td>0.096</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data processed Eviews 12 (2023)

Based on the results in table 10 above, it shows that the effect of the foreign share ownership variable (SA) on ROA (Return On Asset) in output 1 has a probability value greater than 0.05 and the effect of the foreign share ownership variable (SA) * Liquidity (X3LDR) in output 2 has a probability value greater than 0.05. So it is concluded that the foreign share ownership variable (SA) is a Pure Moderator. So it can be concluded that the foreign share ownership variable (SA) is a Non Moderator.

5. DISCUSSION AND CONCLUSION

The analysis results show that the efficiency proxied by the BOPO ratio has a significant negative effect on financial performance (ROA) with an observation period of 2017 to 2022. This shows that the higher the BOPO value of KBMI 3 and 4 Commercial Banks, the lower their financial performance (ROA) will be. The bank’s operating costs are all types of costs directly related to the bank’s business activities that are reflected in the bank’s financial income statement. Operating costs are obtained by adding up the cost of profit sharing, labour costs, general administrative costs, depreciation costs and allowance for earning assets, building rental costs, investments and others related to the operations carried out by the company. The higher operating costs will reduce the amount of profit to be obtained because operational costs or expenses act as a deduction factor in the income statement.

The increase in operating costs can be caused by, among others, inefficiency in bank operating costs, an increase in interest rates, low growth in interest income compared to interest expenses, an increase in non-performing loans, an increase in impairment loss reserves (CKPN) and others. The results of this study are in line with previous research which suggests that the BOPO ratio has a significant negative impact / influence on banking financial performance as measured by return on assets (Chandra & Anggraini, 2020; Cuandra & Setiawan, 2020; Hidayat & Kurniasih, 2022; Purnamasari, 2020; Widyarini & Santoso Marsoem, 2021; Yulianto et al., 2020; Yusuf & Ichsan, 2021).

For CAR, the Prob value is 0.7924 or greater than the alpha value of 0.05, so it is found that CAR has no significant effect on financial performance (ROA). The analysis results show that capital adequacy proxied by the CAR ratio has no effect on Financial Performance (ROA) with the observation period 2017 to 2022. This shows that the increasing capital of KBMI 3 and 4 Commercial Banks does not necessarily improve the financial performance (ROA) of each bank. Capital adequacy owned by banks will provide protection for consumers/customers and the financial system as a whole.
Banks will be able to bear losses that may occur in the future due to poor market conditions or increased bad debts if they have sufficient capital or in accordance with what is determined by the regulator. During the study period, the value of CAR ratio of KBMI 3 and 4 Commercial Banks still met the requirements of the regulator but was not followed by an increase in bank management expansion so that it did not bring significant changes to the company’s financial performance. The level of capital adequacy does not have a significant effect on ROA because banks have not been fully effective in using their capital potential to increase bank profitability, such as developing products and services outside of loans that can increase the company’s fee-based income.

This condition is also influenced by the influence of the Covid-19 pandemic that occurred during the research period so that banks are very careful in the placement / use of existing capital given the unstable market conditions. The results of this study are in line with previous research which suggests that the CAR ratio does not have a significant impact / influence on banking financial performance as measured by return on assets. (Chandra & Anggraini, 2020; Hasanah & Hariyono, 2022; Rokhayati et al., 2020; Usman & Lestari, 2019; Widyarini & Santos Marsoem, 2021)

As for LDR, the Prob value is 0.2185 or greater than the alpha value of 0.05 so it is obtained that LDR has no significant effect on financial performance (ROA). The analysis results show that liquidity proxied by the LDR ratio has no significant effect on financial performance (ROA) with the observation period 2017 to 2022. This shows that the increasing liquidity of KBMI 3 and 4 Commercial Banks does not necessarily improve the financial performance (ROA) of each bank. The lower the liquidity ratio, the less likely it is to earn more income. However, if the liquidity ratio is too high, there is a risk of decreasing bank liquidity because more funds are allocated to financing. Based on the research results, the average LDR ratio is in the bad category so it can be concluded that the bank's income potential can be depressed by the high provision for financing allocated by each Bank. The results of this study are in line with previous research which suggests that liquidity proxied by the LDR ratio has no significant effect on banking financial performance as measured by return on assets (ROA) (Anggraini et al., 2020; Widyarini & Santos, 2020; Widyarini & Santos Marsoem, 2021; Yulianto et al., 2020).

The results of the analysis show that foreign share ownership cannot moderate the effect of efficiency (BOPO) on financial performance (ROA) with an observation period of 2017 to 2022. This shows that the higher foreign share ownership in banking cannot strengthen the effect of efficiency (BOPO) on financial performance proxied by return on assets (ROA). Supervision by foreign investors of management actions has not been able to influence management policies in terms of the company’s operational efficiency. Foreign share ownership based on the results of the study does not have a significant effect on financial performance so that it cannot moderate the effect of efficiency on financial performance. The results of this study are in line with previous research which shows that foreign share ownership cannot moderate the effect of efficiency (BOPO) on financial performance (ROA) (Allina & Aris, 2022; Amin & Hamdan, 2018; Fahlevi et al., 2023; Ritha, 2016; Suman et al., 2016).

Furthermore the result analysis show that foreign share ownership is able to moderate the effect of capital adequacy (CAR) on financial performance (ROA) with an observation period of 2017 to 2022. This shows that the higher foreign share ownership in banking will be able to strengthen the influence of capital adequacy (CAR) on financial performance proxied by return on assets (ROA). The entry of foreign investors into the company will increase the amount of capital owned by banks. In addition, foreign share ownership can also improve the quality of the company's capital because it has access / facilities to obtain more funds from existing international relations. Companies that have a good level of capital adequacy will certainly be
able to run smoothly and will have an impact on improving the company's financial performance. The results of this study are in line with previous research which shows that foreign share ownership is able to moderate the effect of capital adequacy (CAR) on the financial performance (ROA) of a company (Abdallah & Ismail, 2017; Al-Janadi, 2021; Din et al., 2022; Iwasaki et al., 2022; Kao et al., 2019; Matari et al., 2017; Tjahjadi & Tjakrawala, 2020).

Based on the results of data processing show that foreign share ownership has not been able to moderate the effect of liquidity (LDR) on financial performance (ROA) with the observation period 2017 to 2022. This shows that the higher foreign share ownership in banking has not been able to strengthen the influence of liquidity (LDR) on financial performance proxied by return on assets (ROA). In addition, during the observation period there were several banks that in certain periods had ratio values below 78% and above 92%, which of course showed that the optimisation of liquidity use had not been carried out optimally and there was an increase in reserves due to high financing by banks. Banking liquidity will certainly increase with the increase of foreign investors in the company, but if it is not optimised optimally, it will not have an impact on increasing company profitability. The results of this study are in line with previous research which shows that foreign share ownership cannot moderate the effect of liquidity (LDR) on financial performance (ROA) (Allina & Aris, 2022; Amin & Hamdan, 2018; Fahlevi et al., 2023; Ritha, 2016; Suman et al., 2016).

From the description of the above conclusions, the management of the Commercial Banks studied to be able to manage the efficiency and liquidity of each bank with optimum considering that efficiency has a negative impact on banking financial performance and the average LDR banking results in 2017 - 2023 are in the bad category. In addition, investors can focus on the application of efficiency (BOPO) dan foreign ownership as a signal to filter companies that have good financial performance and become a signal in investing in these companies. To further see the effect of foreign share ownership, it is hoped that further research will add the number of samples of companies with dominant share ownership considering that the current research has limitations.

REFERENCES


