# Liquidity Surplus and Profitability: How Does Liquidity Affect Profitability prior to and during COVID-19? (Empirical Indonesian Banking Sector)

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*Abstract:* - This study aims to analyse the liquidity and profitability of the banking sector before the COVID-19 pandemic and during the COVID-19 pandemic. In addition, the focus of this research is also related to the effect of liquidity on profitability during the period prior to COVID-19 and during COVID-19. The research method used is quantitative, using secondary data, namely published financial reports from the banking industry. The total number of data observations used in this study is 132 banks. The problem formulation of this research includes: (i) How was the liquidity of the banking industry before the Covid-19 pandemic and during the Covid-19 pandemic?, (ii) How was the profitability of the banking industry before the Covid-19 pandemic and during the Covid-19 pandemic?, (iii) Does liquidity affect profitability in the pre-Covid-19 pandemic?, (iv) Does liquidity affect profitability during the Covid-19 pandemic?; (v) How is the comparison of the effect of liquidity on profitability between the period before the Covid-19 pandemic and during the Covid-19 pandemic?. The results of this study found that: (i) There is a significant difference in liquidity in the banking industry during the period before the Covid-19 pandemic and the Covid-19 pandemic, (ii) There is a significant difference in profitability in the banking industry before the Covid-19 pandemic and during the Covid-19 pandemic. During the Covid-19 pandemic, lending was constrained by the high risk of non-performing loans due to the decreased ability to pay from customers, (iii) In the period before the Covid-19 pandemic, the liquidity of the banking industry had no effect on the profitability of the banking industry, (iv) During the Covid-10 pandemic, the liquidity of the banking industry had a significant and negative effect on the profitability of the banking industry, (v) There is a difference between the impact of liquidity on the profitability of the banking industry in the pre-COVID-19 period and during COVID-19. This research implies that it is a benchmark for pre-researchers and practitioners affected by the banking sector's liquidity aspects. In addition, the novelty of this research is the object of research related to the analysis that compares the relationship between liquidity and profitability in the period before the Covid-19 pandemic and during the Covid-19 pandemic.

*Key-Words:* Banking Industries, liquidity, loan-to-deposit ratio, profitability, return on asset ratio, covid-19

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## 1 Introduction

The banking industry is the locomotive of economic growth where banks are a source of financing for entrepreneurs to expand their business and revitalize it, which will impact the growth of the real sector, [1], [2], [3], [4]. However, business expansion and business revitalization by entrepreneurs need to consider external conditions, namely the demand and need from the community for products and services owned by producers, [5], [6], [7].

Furthermore, the phenomenon that occurs is that the current external condition is the Covid-19 pandemic, which has disrupted all business sectors, causing producers or entrepreneurs to cancel their plans to expand or revitalize their business activities, [8], [9], [10]. The cancellation of plans for business expansion from entrepreneurs is not without good reason but based on the existing phenomenon, where during the Covid-19 pandemic, there were 30 million business people in Indonesia who went bankrupt, [11]. This amount is not small; therefore, intervention in the form of incentives from the government is needed so that business people during the Covid-19 pandemic can survive and not go bankrupt.

On the other hand, the large number of business players who experience bankruptcy will decrease the demand for credit in the banking industry. Furthermore, regarding, [12], until the beginning of 2021, bank lending experienced a contract minus 2.1 percent. Therefore, during the Covid-19 pandemic, banks have yet to be able to carry out their intermediation function optimally, so there is a potential for a decrease in the performance or profitability of the banking industries.

During the current Covid-19 pandemic, according to, [13], [14], entrepreneurs have a wait-and-see behavior, namely placing their funds in instruments with the lowest risk, such as deposits, and being very careful in expanding their business. However, on the other hand, there have been withdrawals of funds from people who during the Covid-19 pandemic experienced layoffs and from entrepreneurs whose businesses went bankrupt, and their business turnover decreased. However, based on information submitted by the Financial Services Authority (OJK), the liquidity conditions of the banking industry are loose, or the decline in lending causes excess liquidity, [15].

Based on these phenomena, the formulation of the problems in this study include: (i) How was the liquidity of the banking industry before the Covid-19 pandemic and during the Covid-19 pandemic?; (ii) How was the profitability of the banking industry before the Covid-19 pandemic and during the Covid-19 pandemic?; (iii) Does liquidity affect profitability in the pre-Covid-19 pandemic?; (iv) Does liquidity affect profitability during the Covid-19 pandemic?; (v) How is the comparison of the effect of liquidity on profitability between the period before the Covid-19 pandemic and during the Covid-19 pandemic?

Referring to the formulations of these problems, this study aims to analyze the liquidity and profitability of the banking industry before the Covid-19 pandemic and during the Covid-19 pandemic. In addition, the purpose of this research is also related to the effect of liquidity on profitability in the period before the Covid-19 pandemic and during the Covid-19 pandemic. This research implies that it is a benchmark for pre-researchers and practitioners affected by the banking sector's liquidity aspects. In addition, the novelty of this research is the object of research related to the analysis that compares the relationship between liquidity and profitability in the period before the Covid-19 pandemic and during the Covid-19 pandemic.

## 2 Literature Study and Hypothesis Development

The theory used in this study is agency theory, which was first introduced by, [16]. In agency theory, there is a phenomenon where company management (agency) will do what the owner (principal) expects, whereas in the current phenomenon where the Covid-19 pandemic has disrupted all business sectors due to restrictions on the mobility of the public, causing a slowdown in trade transactions so that it affects the decline in income from the business sector, [17], [18]. The banking industry has a vital role in mobilizing funds in the community, namely collecting and channeling them back to the community through credit, [19], [20]. However, declining economic growth and sluggish business prospects during the Covid pandemic have caused a decline in lending to the banking industry, [21]. Furthermore, the purpose of bank lending can be divided into two types, which include (i) working capital loans and (ii) investment loans. According to, [22], [23], working capital credit aims to finance the company's current assets, such as adding supplies and equipment and replacing cash that the company has used to run its operations. In comparison, investment loans are loans given to debtors to finance their fixed assets, such as renovating their business or opening company branches by purchasing fixed assets, [24].

In addition to distributing credit, the bank's core business is to collect funds from the public in the form of deposits; the more deposits, the greater the source of bank funding that can be channeled to the public. Therefore, most bank capital comes from

funds owned by the public, which are deposited in the bank, [25], [26]. Thus, the bank must maintain the public's trust, especially the owners of the funds that keep them in the bank, by maintaining its reputation. One way to maintain the company's reputation is to realize investors' and the public's expectations to provide optimal profits, [27], [28]. Suppose the bank can realize the expectations of investors and the public. In that case, the bank has a good reputation from a stakeholder perspective, and there is a potential that the bank's management has the opportunity to continue its management of the bank, [29], [30], [31].

Moreover, referring to the current phenomenon where the Covid-19 pandemic has caused a slowdown in the economy, the demand for working capital credit and investment credit has decreased. Furthermore, with the decline in demand for credit in the banking sector, during the Covid-19 pandemic, the performance of the banking industry experienced a decline, and there was excess banking liquidity, [32]. Therefore, there is a potential difference in liquidity and profitability in the period before the Covid-19 pandemic. Furthermore, during the Covid-19 pandemic, there were even differences in the effect of liquidity on profitability in the period before the Covid-10 pandemic. Therefore, based on the literature review, the conceptual research framework can be illustrated as follows:

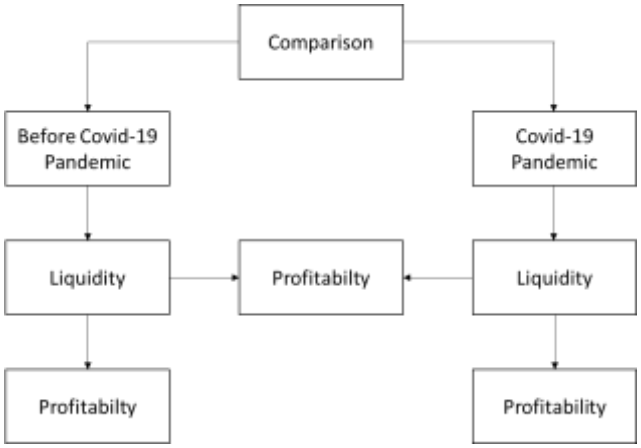

Fig. 1: Conceptual Research Framework

Referring to Figure 1 above, the development of the hypothesis in this study is as follows:

## 2.1 How was Liquidity Before and During the Covid-19 Pandemic?

Economic growth before the Covid-19 pandemic in Indonesia in 2018 reached 5.17%, and in 2019 it grew to 5.02% or decreased by 0.15%, [33], [34]. Based on the economic growth in 2018 and 2019, although at the end of December 2019, there were cases of Covid-19 in China, it had yet to impact economic growth in Indonesia, which was still able to reach numbers above 5%. Therefore, in the pre-Covid-19 period, there was a potential for banking industry liquidity to be in tight conditions due to the relatively good demand for bank credit in the pre-Covid-19 period due to Indonesia's economic growth being still above 5%, [35]. The liquidity of the banking industry is relatively tight or suitable if the loan-to-deposit ratio of banks can average above 90%, [36]. However, it was different during the Covid-19 pandemic, when economic growth slowed, which resulted in a decrease in demand from bank credit and excess bank liquidity due to entrepreneurs needing to be more willing to expand their business, [37], [38]. Therefore, the hypothesis in this study is that there is a difference in liquidity before the Covid-19 pandemic and during the Covid-19 pandemic.

## 2.2 How is Profitability Before and During the Covid-19 Pandemic?

The primary income from the banking industry comes from lending, [39], [40]. Therefore, before the Covid-19 pandemic, the demand for credit from entrepreneurs was higher, and bank liquidity tended to be tight due to promising business prospects, which resulted in entrepreneurs applying for credit to expand their businesses and invest in them, [41], [42], [43]. This differs from the demand for credit during the Covid-19 pandemic, which experienced a decline, and liquidity tended to be excessive due to slowing economic growth and declining household consumption, [44], [45]. Thus, hypothesis II in this study is that there are differences in the banking industry's profitability before the Covid-19 pandemic with profitability during the Covid-19 pandemic.

## 2.3 Is There any Influence of Liquidity on Profitability before the Covid-19 Pandemic?

Increased credit growth will have an impact on increasing interest income and also tight liquidity from banks. Therefore, the banking industry continually optimizes lending from the funds it collects to be distributed to the public so that the profit generated can be optimal, [46], [47]. Optimal income from the banking industry will increase public confidence in the banking industry so that business continuity from the banking industry can

be maintained. On the other hand, before the Covid-19 pandemic, the demand for bank credit increased because economic growth had favorable prospects, [48], [49], [50]. Thus, hypothesis III in this study is that liquidity influences profitability in the period before the Covid-19 pandemic.

### 2.4 Is There any Influence of Liquidity on Profitability During the Covid-19 Pandemic?

Credit distribution is always balanced with adequate risk mitigation so that it does not cause significant losses, [51]. Therefore, even though during the Covid-19 pandemic, the demand for credit decreased and led to looser liquidity from banks, banks as institutions that function to mobilize funds from the public must continue to channel credit to the public with a focus on specific sectors that have low risk so that they can maintain good performance, [52], [53]. Therefore, hypothesis IV in this study is that liquidity affects profitability during the Covid-19 pandemic.

### 2.5 Is There a Difference in The Effect of Liquidity on Profitability in the Period Before the Covid-19 Pandemic and During the Covid-19 Pandemic

Before the Covid-19 pandemic, liquidity from banks should be tighter than during the Covid-19 pandemic. This is because banks can optimize lending to the public where economic growth is good so that the demand for funds increases (tighter liquidity). As a result, the increased use of funds to channel credit impacts the profitability of the banking industry, [54], [55]. Meanwhile, during the Covid-19 pandemic, bank liquidity experienced relaxation, reducing the influence of liquidity on bank profitability compared to the period before the Covid-19 pandemic, [37]. Thus, the fifth hypothesis in this study is a difference in the effect of liquidity on bank profitability in the period before the Covid-19 pandemic with the Covid-19 pandemic.

## 3 Method

### 3.1 Population and Sample

This study uses the total population of the banking industry registered with the OJK and has complete financial reports under the need of statistical processing in the study. The calculation of the number of samples in this study is shown in the table as follows:

Table 1. Research Sample

| Information | Amount Sample | Total Sample |
|---|---|---|
| Total population of the Bank | 35 | 35 |
| Banks that have complete data | 33 | 33 |
| Quarterly financial statements of 2019 (Before the Covid-19 Pandemic) | = 33 x 4 | 132 |
| Quarterly financial statements in 2020 (During the Covid-19 Pandemic) | = 33 x 4 | 132 |

Based on Table 1 above, the total number of data observations used in this study is 132 banks.

### 3.2 Operational Definition of Variables

Operational variables in this study consist of the following:

- Liquidity, the banking industry's liquidity definition, is banks' ability to redistribute funds collected from the public, [56], [57]. The distribution of funds back to the community is in the form of credit, both working capital and investment credit, [58], [59]. Therefore, in this study, the operational liquidity variable or known as the loan-to-deposit ratio (LDR), is as follows:

$$\frac{Outstandings}{Third\ Party\ Funds}$$

- Profitability, the definition of profitability, is the ability of the banking industry to generate profits based on its business activities and also sourced from the management of its assets, [60]. According to, [61], one of the profitability ratios is the return on assets. The operational return on assets (ROA) variables are as follows:

$$\frac{Return}{Total\ Assets}$$

### 3.3 Data Analysis Technique

The research method used is quantitative, using secondary data, namely published financial reports from the banking industry. The statistical tool used in Stata software version 13 and the data processing techniques in this study are as follows:

- Using the Two-Sample t-test to determine the difference between LDR and ROA before the Covid-19 pandemic with LDR and ROA during the Covid-19 pandemic.
- Using the linear regression test to find out the difference in the effect of LDR on ROA in the period before the Covid-19 pandemic with the Covid-19 pandemic.

# 4 Results and Discussion

## 4.1 Two Sample T-test

The results of the comparison of the LDR variable in the period before the Covid-19 pandemic with the LDR variable during the Covid-19 pandemic are as follows:

Table 2. T-Test (LDR before the Covid-19 Pandemic and LDR during the Covid-19 Pandemic)

| Variable | Obs | Mean | Std. Err. | Std. Dev. | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| LDRB4C~d | 132 | 1.232423 | .0441972 | .5077867 | 1.14499 | 1.319855 |
| LDRinC~d | 132 | .8682833 | .035615 | .4091853 | .7978284 | .9387383 |
| combined | 264 | 1.050353 | .0304702 | .4950827 | .9903564 | 1.11035 |
| diff | | .3641394 | .0567611 | | .2523735 | .4759053 |

diff = mean(LDRB4Covid) - mean(LDRinCovid) t = 6.4153
Ho: diff = 0 degrees of freedom = 262

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 1.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 0.0000

Referring to Table 2 above, the average LDR value before the Covid-19 pandemic was 1.23, while the average LDR value during the Covid-19 pandemic was 0.87. Therefore, the average LDR before the Covid-19 pandemic was higher than during the Covid-19 pandemic. In addition, there is a significant difference between the LDR before the Covid-19 pandemic and the LDR during the Covid-19 pandemic, which Pr indicates (|T| > |t|) = 0.0000, which is <0.05. Furthermore, the results of the T-test on the ROA variable in the period before the Covid-19 pandemic with ROA during the Covid-19 pandemic are as follows:

Table 3. T-Test (ROA before the Covid-19 Pandemic and ROA during the Covid-19 Pandemic)

| Variable | Obs | Mean | Std. Err. | Std. Dev. | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| ROAB4C~d | 132 | .0101773 | .0009757 | .0112095 | .0082472 | .0121074 |
| ROAinC~d | 132 | .007325 | .0007478 | .0085917 | .0058457 | .0088043 |
| combined | 264 | .0087511 | .0006197 | .0100696 | .0075308 | .0099714 |
| diff | | .0028523 | .0012293 | | .0004317 | .0052728 |

diff = mean(ROAB4Covid) - mean(ROAinCovid) t = 2.3203
Ho: diff = 0 degrees of freedom = 262

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9895 Pr(|T| > |t|) = 0.0211 Pr(T > t) = 0.0105

Based on Table 3 above, it is known that the average ROA value in the period before the Covid-19 pandemic was 0.010, while during the Covid-19 pandemic, it decreased to 0.007. Therefore, based on Pr (|T| > |t|) = 0.0211 or <0.05, there is a significant difference between ROA before the Covid-19 pandemic and ROA during the Covid-19 pandemic.

## 4.2 Linear Regression

Furthermore, to determine the effect of LDR on ROA in the period before the Covid-19 pandemic, the results of linear regression are as follows:

Table 4. Linear Regression Test of the Effect of LDR on ROA Before the Covid-19 Pandemic

| Source | SS | df | MS | | |
|---|---|---|---|---|---|
| Model | .000139512 | 1 | .000139512 | Number of obs = | 132 |
| Residual | .01632096 | 130 | .000125546 | F( 1, 130) = | 1.11 |
| Total | .016460472 | 131 | .000125652 | Prob > F = | 0.2938 |
| | | | | R-squared = | 0.0085 |
| | | | | Adj R-squared = | 0.0008 |
| | | | | Root MSE = | .0112 |

| ROAB4Covid | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| LDRB4Covid | -.0020323 | .0019279 | -1.05 | 0.294 | -.0058464 | .0017818 |
| _cons | .0126819 | .0025683 | 4.94 | 0.000 | .0076008 | .0177631 |

Moreover, referring to Table 4 above, it is known that LDR did not affect ROA in the period before the Covid-19 pandemic. Furthermore, the table below shows the effect of LDR on ROA during the Covid-19 pandemic as follows:

Table 5. Linear Regression Test of the Effect of LDR on ROA during the Covid-19 Pandemic

| Source | SS | df | MS | | |
|---|---|---|---|---|---|
| Model | .00041324 | 1 | .00041324 | Number of obs = | 132 |
| Residual | .009256807 | 130 | .000071206 | F( 1, 130) = | 5.80 |
| Total | .009670048 | 131 | .000073817 | Prob > F = | 0.0174 |
| | | | | R-squared = | 0.0427 |
| | | | | Adj R-squared = | 0.0354 |
| | | | | Root MSE = | .00844 |

| ROAinCovid | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| LDRinCovid | -.0043406 | .0018018 | -2.41 | 0.017 | -.0079052 | -.0007759 |
| _cons | .0110938 | .0017283 | 6.42 | 0.000 | .0076746 | .014513 |

Based on Table 5 above, it is known that LDR has a negative and significant effect on ROA. Thus, if there is an increase in LDR, it will decrease the banking industry's ROA.

## 4.3 Liquidity of the Banking Industry before the Covid-19 Pandemic and during the Covid-19

From the statistical analysis of this study, it was found that there was a significant difference between liquidity (LDR) before the Covid-19 pandemic and LDR during the Covid-19 pandemic.

Before the Covid-19 pandemic, liquidity from the banking industry was very tight, at an average of 123% (Table 2). However, during the Covid-19 pandemic, liquidity eased, and the average LDR became 87% (Table 2). This is in line with the slowdown in economic growth during the Covid-19 pandemic, [62]. The slowdown in economic growth has resulted in a decline in demand for credit, resulting in loose bank liquidity, [63]. Therefore, during the Covid-19 pandemic, banks must be able to place their excess liquidity in securities instruments that can provide optimal yields, [64].

Moreover, prior to the COVID-19 pandemic, many countries reported stable or increasing credit growth. The world economy was generally stable and economic growth was good in many regions. Thus, economic conditions in the world before the Covid-19 pandemic were favorable for increased credit activity, as consumers and entrepreneurs felt more confident to borrow and invest, [65]. During the pre-COVID-19 period, credit distribution could be allocated to a variety of things based on need, for example:

- Consumer Credit: Individuals generally use this credit to buy consumer goods or services such as cars, houses (mortgages), or electronic equipment. This type of credit may also be used for purposes such as travel and education costs, [66], [67].
- Productive credit: Productive credit or loans are usually used by companies or individuals for activities that will generate income or profits in the future. These may include business loans or working capital, investments in equipment or infrastructure, or research and development, [68], [69].

At the same time, the COVID-19 pandemic has created many uncertainties and challenges for business owners. Here are some of the reasons why they may be afraid or hesitant to apply for credit due to, among others:

- Economic uncertainty: The pandemic has resulted in drastic changes in consumer habits and market behavior, complicating forecasting and business planning. Entrepreneurs may worry that they will not be able to meet credit payments if economic conditions deteriorate or change rapidly, [70].
- Decreased Revenue: Many businesses, especially in sectors such as tourism, entertainment, and restaurants, have experienced a significant drop in revenue due to the pandemic. With lower revenues, they may struggle to meet their credit obligations, [71].
- Shifting priorities: Amid the pandemic, many entrepreneurs may prefer to maintain cash flow and mitigate risk rather than scale up or invest in their businesses, [72].

### 4.4 Profitability of the Banking Industry Before the Covid-19 Pandemic and During the Covid-19 Pandemic

Furthermore, the statistical analysis results found a significant difference in profitability (ROA) during the pre-pandemic period and the Covid-19 pandemic. Before the Covid-19 pandemic, the ROA of the banking industry had a higher average, which was 0.010; during the Covid-19 pandemic, it fell to 0.007. Therefore, based on the results of this study, the banking industry experienced a significant decline in performance during the Covid-19 pandemic. However, the average ROA of the banking industry is still positive. The OJK provides relaxation through the OJK letter (POJK) No. 11/POJK.03/2020 about the Covid-19 stimulus. Therefore, there are three primary relaxations on credit during the Covid-19 pandemic to support bank business, [73]. The relaxation includes:

- Relaxation of credit quality assessment or other provision of funds with a ceiling below Rp 10 billion is only based on the accuracy of payment of principal and/or interest, margin, profit sharing, or ujrah until March 31, 2022.
- Determining the quality of credit or financing to be smooth after being restructured during the POJK Covid-19 stimulus.
- Banks can provide new loans or financing funds to debtors who have received special treatment following the POJK Covid-19 stimulus by determining the credit quality separately from the previous credit quality.

However, in the banking environment, the decrease in ROA during the COVID-19 pandemic can be caused by several factors, including:

- Increase in Loan Loss Reserves: During the pandemic, bad credit risk increased because many debtors (individuals and companies) experienced financial difficulties. This forces banks to increase their loan loss reserves, which reduces net profit and therefore lowers ROA.
- Decreased Interest Income: With low benchmark interest rates during the pandemic to stimulate the economy, interest income from

loans and investments will likely decline. This has a negative impact on profits, which in turn lowers ROA.

- Economic uncertainty: Economic uncertainty during the pandemic could make banks more prudent in issuing new loans, potentially reducing loan volumes and interest revenues.

### 4.5 Effect of Liquidity on Profitability before the Covid-19 Pandemic

In the period before the Covid-19 pandemic, it has yet to be able to create significant credit growth despite economic growth. It is shown that banking liquidity (LDR) does not affect profitability (ROA). However, to maintain performance and public trust, there is an opportunity for banks to earn profits from other business activities that generate fee-based income in the period before the Covid-19 pandemic. These business activities include remittance services, support trade such as bank guarantees and letters of credit, and cash management systems. Furthermore, related to, [74], [75], [76], the development of financial technology (fintech) may also cause banking revenues to stagnate for a variety of reasons, including:

- Increased competition: Fintechs often offer similar services to banks but with reduced fees or quicker and more convenient processes. This could make some bank customers switch to fintech services.
- Changes in Payment Transactions: Fintechs have also introduced new payment methods, such as e-wallets and peer-to-peer transfers, which could reduce banks' revenue from traditional payment services.
- Pressure on Interest Rates: Some fintech, such as peer-to-peer lending platforms, may offer better interest rates to borrowers or investors, forcing banks to lower their interest rates to compete, thus reducing interest income.
- Innovation in Products and Services: Fintech has introduced a range of innovative products and services, from robo-advisors for investments to digital insurance. Traditional banking products and services may be less attractive to customers.

### 4.6 The Effect of Liquidity on Profitability during the Covid-19 Pandemic

Moreover, during the Covid-19 pandemic, all business sectors experienced disruptions that impacted the economic slowdown, resulting in a decline in the financial capacity of the community. This is indicated by the results of this study which state that banking liquidity (LDR) has a negative and significant effect on profitability (ROA). Thus, if the bank disburses its credit, it can significantly reduce profits. Therefore, during the Covid-19 pandemic, the banking industry must implement business refocusing, determining which sectors have low risk during the current Covid-19 pandemic so that bank ROA remains positive. In addition, to mitigate credit that can result in bank losses in the future, banks need to make risk acceptance criteria for lending and implement three aspects in credit termination, namely business aspects, risk aspects, and operational aspects, into one unified consideration in deciding credit. Nevertheless, according to, [60], [77], [78], during the COVID-19 pandemic, lending can have an impact on declining asset performance due to:

- Increase in bad debts: In an uncertain economic situation such as a pandemic, the risk of bad debts can increase as many debtors, individuals, and businesses experience financial difficulties. These bad loans reduce the bank's net profit and lowering ROA.
- Increase in Loan Loss Provision: Banks need to increase their loan loss reserves due to an increase in bad loans. These reserves reduce the bank's net profit, which will also lower ROA.
- Lower interest revenue: This has a negative impact on earnings and depreciates returns on assets.

### 4.7 Differences in the Effect of Liquidity on Profitability in the period before the Covid-19 Pandemic and during the Covid-19 Pandemic

Regarding the results of this study, it was found that there was a difference in the effect of LDR on ROA in the period before the Covid-19 pandemic and during the Covid-19 pandemic. In the period before the Covid-19 pandemic, LDR did not affect ROA in the banking industry, while during the Covid-19 pandemic, LDR had a negative and significant effect on ROA. Based on these findings, the banking industry must extend credit to the industrial sector during the current Covid-19 pandemic. However, even though during the Covid-19 pandemic, all businesses were exposed to risk, some sectors have low risks, such as lending to state civil servants (ASN) and employees of State-Owned Enterprises (BUMN).

# 5 Conclusion

Regarding the outcomes and differences of this study, the following are known:

- There is a significant difference in liquidity in the banking industry during the period before and during the Covid-19 pandemic. During the Covid-19 pandemic, liquidity was looser than before the Covid-19 pandemic because during the Covid-19 pandemic, credit distribution experienced a slowdown.
- There is a significant difference in profitability in the banking industry before the Covid-19 pandemic and during the Covid-19 pandemic. During the Covid-19 pandemic, lending was constrained by the high risk of non-performing loans due to customers' decreased ability to pay.
- In the period before the Covid-19 pandemic, the liquidity of the banking industry did not affect the profitability of the banking industry.
- During the COVID-19 pandemic, the liquidity of the banking industry had a significant negative effect on the profitability of the banking industry.
- There is a difference between the impact of liquidity on the banking industry's profitability in the pre-COVID-19 period and during COVID-19 where during COVID-19, increased lending is impacting lower returns on assets.

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