The Impact of the COVID-19 Pandemic on Banking Liquidity: A Case Study of Various Bank Types in Indonesia

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Abstract

This study aims to examine the condition of banking liquidity in Indonesia during the COVID-19 pandemic, utilizing linear regression to analyze factors influencing the liquidity of commercial banks in Indonesia from March 2020 to June 2023. The dependent variable used is the Loan Deposit Ratio (LDR), while the independent variables include Capital Adequacy Ratio (CAR), Return on Assets (ROA), Non-Performing Loans (NPL-gross), and Credit Restructuring Ratio to total Credit. The results reveal that CAR has a significant negative effect on the liquidity of Regional Development Banks (BPD), State-Owned Enterprises (BUMN), Private Banks, and Overseas Bank Branch Offices (KCBLN). Conversely, ROA has a positive and significant impact on state-owned banks but is not significant for BPD, private, and KCBLN banks. The NPL ratio does not significantly influence liquidity across all types of banks. Credit Restructuring Ratio negatively affects BPD and positively affects KCBLN, but it does not have a statistically significant effect on State-Owned and Private Banks. This research is unique as it is the first to examine commercial banks in Indonesia during the pandemic, providing valuable insights into the factors affecting bank liquidity during this period. The findings highlight the importance of maintaining adequate capital and profitability to support bank liquidity, especially during economic crises.

Keyword: Liquidity, Loan Deposit ratio, Capital Adequacy Ratio, Return on Assets, Non-Performing Loans, Credit Restructuring Ratio.

Introduction

In 2019, WHO declared the emergence of a pandemic in the world, named Corona Virus Diseases 2019 (Covid-19). The country of Indonesia began to be exposed to COVID-19 since the declaration by the government in the first

quarter of 2020. Restrictions on activities in all sectors were implemented by the Indonesian government and even throughout the world. Restrictions cover all population activities in all economic, social, and educational fields. The impact in the aviation sector (as an illustration), in 1950 or the beginning of the jet era, it was recorded that around 25 million people had traveled abroad. Then, in 2019 the number of airplane passengers increased to 1.5 billion passengers. However, with the pandemic, aviation activities suddenly had to stop, and this had consequences for many areas of society's economy. The World Bank and IMF (International Monetary Fund) stated that this pandemic brought the world into a severe economic crisis, there was an economic setback marked by 42 countries entering a recession. It is no exception that the Indonesian economy also experienced a recession in the fourth quarter of 2020 it was negative 2.19%, in the first quarter of 2020 was negative 3.49% and in the second quarter of 2020 it was negative 5.32% (Central Bureau of Statistics, 2023).

The Indonesian economy is also experiencing a slowdown and this has an impact on all sectors. To anticipate this, the government (including the Financial Services Industry regulator/IJK) has taken policies, including reducing loan interest rates, providing relaxation of regulations (including, among other things, simplifying requirements for non-performing assets, and strengthening liquidity provision for the financial services sector. Core Indonesia Research Director Piter Abdullah said that liquidity in Indonesia (in 2019) was quite tight, which was reflected in the ratio of the money supply to the country's economy (M2/GDP) in the 2014-2019 period which had reached 39%-40% (the minimum is 100%). Malaysia, China, and Japan have reached 125%, 199% and 300% respectively.

Banking liquidity ratios as indicated by the ratio of Bank Liquid Assets to Third Party Funds (AL/DPK) are maintained, although in a downward trend. At the end of the first semester of 2023, the AL/DPK ratio experienced a downward trend which occurred in the majority of bank groups. Maintaining banking liquidity is also supported by the growth of Third-Party Funds (DPK).

During the COVID-19 pandemic, banking liquidity in the BUMN group decreased 7.66% from 94.17% in December 2019 to 86.51% in December 2023. Meanwhile, in the Private Bank group, banking liquidity decreased by 10.28% from 92.18% to 81.90%. For banks in the BPD group, banking liquidity in the Regional, Development Bank group experienced the smallest decline of 4.19% from 87.26% to 83.07%. Overseas Bank Branch Offices (KCBLN), which

represent foreign banks in Indonesia, experienced the sharpest decline, 52.18%, from 126.46% to 74.28%.

Research related to banking liquidity still shows differences. Pavla Vodova's (2013) study found that commercial bank liquidity in Hungary positively influences profitability and share of Capital on total assets. On the other hand, liquidity has a negative influence on NPL and the size of the bank. Bramantya and Arfinto (2015) found that the profitability variable positively influenced liquidity, and conversely, the CAR and NPL variables negatively influenced liquidity. Harjum Muharam and Hasna Penta Kurnia (2013) revealed that for conventional banking, liquidity has a negative influence on CAR and ROE and a positive influence on ROA and RLA. Handayani, Rahmizal, and Aswan (2022) reveal that ROA negatively and significantly affects liquidity. Astari and Dewi (2022) showed that credit restructuring provided a negative signal (bad news) to BPRs and decreased BPR cash ratios. Based on their research results, Widyastuti and Mariani (2023) concluded that credit restructuring hurts banking liquidity. In contrast, if restructuring increases, banks will look for new sources of income to cover delayed interest income due to credit restructuring.

The phenomenon of gaps and research gaps is the basis for the importance of conducting further research. In this study, we combine the CAR ratio, ROA ratio, gross NPL ratio, and Credit Restructuring ratio as independent variables to examine their effect on the Liquidity ratio as the dependent variable. We then compare the differences between state-owned banks, regional government-owned banks, privately owned banks, and banks belonging to a foreign country.

Relation Between Variables

The Effect of Bank Capital on Liquidity

Banks with adequate capital levels can better meet regulatory requirements such as the capital adequacy ratio (CAR), which requires banks to have a minimum amount of capital based on risk-weighted assets. With sufficient capital, banks can maintain adequate liquidity buffers, allowing them to meet short-term obligations without selling assets at a potentially detrimental discount. Research by Muharam and Kurnia (2013) argues that CAR has a negative relationship with liquidity. There are two theories that explain the relationship between capital creation and liquidity. First, risk absorption predicts that increasing capital strengthens a bank's ability to create liquidity, which in turn reduces bank liquidity. Research by Bunda and Desquilbet (2008), Delechat et al.

(2012), Al-Khouri (2012), Distinguin et al. (2013), and Ghosh (2016). Second, financial vulnerability states that higher capital hinders liquidity creation thereby increasing liquidity risk in the covid 19 pandemic. Delechat et al. (2012) and Fungáčová et al. (2010) emphasize that capital has a negative impact on liquidity. Based on this, the hypothesis is formulated as follows:

H-1 : CAR has a negative effect on bank liquidity.

The Effect of Bank Profitability on Liquidity

Bank profitability is an important factor that influences liquidity. High profitability indicates a bank's ability to generate profits consistently. With the profits generated, banks can strengthen their liquidity by increasing liquidity reserves or reinvesting in liquid assets. Profitable banks are also more trusted by the market and depositors, improving the bank's access to lower-cost funding sources. Research by Muharram and Kurnia (2013) shows that ROA has a positive and significant relationship with conventional banks and a negative and significant relationship with Sharia banks. In this research, it was also revealed that ROE has a negative and significant relationship in conventional banks and vice versa in Islamic banks it has a positive relationship. Based on this, the hypothesis is formulated as follows:

H-2 : ROA has a positive effect on liquidity.

The Effect of Credit Quality on Liquidity

Credit quality is the main factor influencing bank liquidity, with good credit quality estimated to have a positive influence on liquidity. When customers repay loans on time, banks receive consistent interest and principal payments, which ensures stable cash inflow and supports bank liquidity. In addition, good credit quality reduces the need for banks to set aside funds as reserves for credit losses so that more funds are available for liquidity and other operational needs. Research from Edo (2020), Agustuty et al. (2020), Costin & Escu (2018), Sarnawiah (2019), and El-chaarani (2019) in their research state that NPLs have a negative and significant influence on bank liquidity. Based on this, the hypothesis of the relationship between NPL and bank liquidity is formulated as follows:

H-3: Gross NPL has a negative effect on bank liquidity.

The Effect of Bank Credit Restructuring on Liquidity

During the COVID-19 pandemic, credit restructuring has become one of the main strategies used by banks to maintain liquidity and support customers experiencing financial difficulties. Governments and financial authorities in many countries, including Indonesia, have issued various policies to encourage credit restructuring as a mitigation measure against the economic impact of the pandemic. Credit restructuring is carried out in various ways, such as extending the loan term, reducing interest rates, deferring principal and interest payments, as well as modifying other credit terms and conditions. The aim is to ease the debtor's payment burden so that they can remain afloat during times of crisis and reduce the risk of default. According to research from Khaliq & Rahmawati (2020), the policy taken by the Bank to carry out restructuring can result in disruption of the bank's liquidity level because the receipt of installment payments is delayed due to the restructuring. Similar results were also found in research conducted by Ahmad et.al (2020), which stated that credit restructuring had a negative impact on bank liquidity if the bank did not pay attention to the bank's capital adequacy. Based on this, the hypothesis is formulated as follows:

H-4   Credit restructuring has a negative effect on bank liquidity.

Comparison of Liquidity Risk between Bank Ownership Groups

Viverita, Yosman, and Dwi in Liquidity Creation by Islamic and Conventional Banks during the Covid-19 Pandemic (2023) state that bank ownership has a certain role in influencing liquidity creation. For example, research on banks in Russia argues that bank ownership has a strong relationship with bank lending behavior, and that different types of bank ownership will react differently to business cycle fluctuations.

H-5: There are differences in liquidity risk between bank groups based on ownership (BUMN, Private, BPD and KCBLN).

Methods

This research uses a linear regression estimation model. Regression is the main estimation method in econometrics. In regression analysis, a regression equation is formed to explain the pattern of relationships between variables. The equation then makes an estimate of a variable if the value of the other variable is known. Next, a model selection test was carried out by carrying out the Hausman test, a classic assumption test that includes the normality test, autocorrelation test, multicollinearity test, and heteroscedasticity test using STATA software. Data

collection is in the form of a time series, which includes secondary data from the independent variable and the dependent variable. The dependent variable used is the LDR ratio, with the independent variables being CAR, ROA, gross NPL, and restructured credit ratio.

All data was obtained from the Financial Services Authority (OJK). The data collection method used in this research was carried out through an official data request to the OJK Institute at the Financial Services Authority. The research population was 105 banks consisting of 4 state-owned banks, 67 private banks, 27 regional government-owned banks (BPD), and 7 Banks are Overseas Bank Branch Offices (KCBLN). Control of bank assets in Indonesia based on ownership shows that 42.6% of assets are controlled by state-owned banks, 44.30% of assets are controlled by private banks, 8.44% of assets are controlled by BPD Bank, and 4.71% of assets are controlled by KCBLN Bank.

Result and Discussion

General Description of Research Objets

This research uses financial data from state-owned banks, private banks, regional government-owned banks, and foreign bank branch offices during the period from March 2020 to June 2023. The analysis was carried out using several financial ratios that are relevant to liquidity, namely the Loan Deposit Ratio (LDR), to assess the effectiveness of liquidity. Meanwhile, factors that influence liquidity include the Capital Adequacy Ratio (CAR) variable to assess capital adequacy to cover the risk of loss. Then, Return on Assets (ROA) is used to measure profitability. Other ratios include Non-Performing Loans (NPL) to measure credit quality and Credit Restructuring Ratio (Restructuring Ratio) to measure the proportion of credit that has been restructured. This research aims to identify factors that influence bank liquidity during the COVID-19 pandemic.

This descriptive provides an overview of the distribution of the variables used in regression analysis, including the average, variation, and minimum and maximum values. This information helps in understanding the basic characteristics of the data used in the analysis.

Tabel 9. Statistik Deskriptif

Variable	Obs	Mean	Std. dev.	Min	Max
LDR	160	0.8175	0.0986	0.6591	1.2276
CAR	160	0.3121	0.1535	0.1739	0.6290
ROA	160	0.0214	0.0062	0.0093	0.0406

NPL	160	0.0271	0.0056	0.0136	0.0362
Restrukturisasi	160	0.2829	0.3552	0.0107	0.9275

From the data presented, it can be seen that various performance and financial health indicators are used to evaluate bank conditions. First is the Loan Deposit Ratio (LDR), the average ratio of bank credit disbursed compared to third-party funds received, which is an average of 81.7%. Furthermore, the Capital Adequacy Ratio (CAR) with an average of 31.2% shows how strong the bank's capital is in facing risks that may arise. Furthermore, the return on assets (ROA), with an average of 2.1%, reflects the large profit margin from operational activities.

Non-performing loans (NPL) describe the level of non-performing loans (Collectibility 3.4 and 5) with an average of 2.7%. In addition, credit restructuring shows the amount of credit restructuring of total credit with an average of 2.83% and credit restructuring with Current quality (Collectibility 1 and 2) with an average of 71.3%, depicting the amount of credit restructured and the amount of credit restructured with Current quality to the total restructured credit.

Regression Model Selection
Hausman Test

Based on the results of the Hausman test carried out, there is a significant difference between the fixed effect and random effect models because the probability value is 0.000, which is lower than the significance threshold value of 0.05. Therefore, in this case, the fixed effect model was chosen because it is more suitable for estimating the parameters in the LDR model.

Hypothesis test

Panel data regression tests with robust standard errors become important when classical assumptions such as normality, multicollinearity, heteroscedasticity, and autocorrelation tests are not met. This often happens in regression analysis involving panel data, where the independent variables often do not meet these assumptions. First, non-normality in the distribution of independent variables or errors can affect the inferential statistical validity of the regression model. In this situation, robust standard errors can provide more consistent and efficient estimates of parameter variance, even if the data distribution is not normal. Second, multicollinearity, heteroscedasticity, and autocorrelation are common problems in regression analysis that can affect the

reliability of parameter estimates. By using robust standard error, the regression model can be more resistant to the effects of these problems, so that the estimation results can be more accurate and reliable.

In the context of panel data, robust standard errors provide more consistent estimates of variability in measurements between units and across time and increase the validity of statistical inference from regression models. Thus, the use of robust standard errors in panel data regression tests helps ensure that the results of regression analysis remain reliable even if classical assumptions are not met.

	Panel Data Regression Test with Robust Standard Error				
	(1)	(2)	(3)	(4)	(5)
	LDR	LDR (BPD)	LDR (BUMN)	LDR (KCBLN)	LDR (Swasta)
CAR	-1.621***	0.839	-2.043***	-2.910**	-2.692***
	(-4.80)	(0.80)	(-6.58)	(-2.47)	(-7.84)
ROA	4.614***	-2.844	3.568***	-1.199	3.414
	(2.85)	(-0.71)	(3.10)	(-0.25)	(1.43)
NPL	3.275	4.318	1.486	6.199	-4.314
	(1.45)	(1.26)	(0.96)	(1.22)	(-1.45)
Restru	0.147	-1.888***	0.0338	8.972***	-0.165
	(0.53)	(-4.57)	(0.15)	(5.67)	(-0.90)
_cons	1.094***	0.658*	1.105***	2.207***	1.547***
	(6.06)	(1.97)	(5.21)	(2.96)	(11.64)
r2	0.279	0.412	0.567	0.646	0.765
N	160	40	40	40	40

t statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: in models 2, 3, 4, and 5, OLS regression is used because it does not use panel data.

Significance Test of the Effect of T and Test of the Coefficient of Determination (R2)

Model 1 (Entire Sample)

Model 1 includes the entire sample of banks analyzed. In this model, the CAR (Capital et al.) variable shows a significant negative influence on the dependent variable (LDR), with a coefficient of -1.621, which is significant. The

ROA (Return On Assets) variable has a significant positive influence with a coefficient of 4.614 and is significant. The NPL (Non-Performing Loan) variable shows a positive but not significant influence. Meanwhile, the restructuring variable is not significant, with a coefficient of 0.147. This model has an R-squared value of 0.279, indicating that 27.9% of the variability in the dependent variable can be explained by the independent variables in this model.

Model 2 (Regional Development Bank/BPD Sample):

Model 2 focuses on the Regional Development Bank (BPD) sample. In this model, the CAR variable is not significant, with a coefficient of 0.839. The ROA variable is also not significant, with a coefficient of -2.844. The NPL variable has a positive coefficient of 4,318 but is not significant. Meanwhile, the restructuration variable shows a significant negative effect with a coefficient of -1.888. The R-squared value of this model is 0.412, indicating that 41.2% of the variability in the dependent variable is explained by the independent variables.

Model 3 (BUMN Bank Sample):

Model 3 only includes a sample of state-owned banks. In this model, the CAR variable shows a significant negative effect with a coefficient of -2.043. The ROA variable has a significant positive influence with a coefficient of 3.568. The NPL variable has a coefficient of 1,486 but is not significant. The restructuration variable is not significant, with a coefficient of 0.0338. This model has an R-squared value of 0.567, which means 56.7% of the variability in the dependent variable can be explained by the independent variable.

Model 4 (Overseas Bank Branch Offices/KCBLN):

Model 5 focuses on the Overseas Bank Branch Offices (KCBLN) sample. The CAR variable shows a significant adverse effect with a coefficient of -2.910. The ROA variable is not significant, with a coefficient of -1.199. The NPL variable has a positive coefficient of 6,199 but is not significant. Meanwhile, the restructuration variable shows a significant positive influence with a coefficient of 8.972. The R-squared value of this model is 0.646, indicating that the independent variable explains 64.6% of the variability in the dependent variable.

Model 5 (Private Banks)

Model 4 includes a sample of private banks. In this model, the CAR variable shows a significant adverse effect with a coefficient of -2.692. The ROA

variable is not significant with a coefficient of 3.414. The NPL variable has a negative coefficient of -4,314 but is not significant. Meanwhile, the restru variable is not significant with a coefficient of -0.165. This model has the highest R-squared value of 0.765, indicating that the independent variable can explain 76.5% of the variability in the dependent variable

Discussion

The Effect of CAR on Liquidity during the Pandemic.

In the analysis covering the entire bank sample (Model 1), the CAR variable significantly negatively influences the Loan-to-Deposit Ratio (LDR) with a coefficient of -1.621. This shows that an increase in the capital adequacy ratio tends to reduce the LDR. In general, this means that banks with higher capital are more cautious in providing loans or have more funds invested in other, safer assets rather than providing higher-risk loans.

When analyzed by bank type, the effect of CAR remains consistently significantly negative in several models. In the model that only includes state-owned banks (Model 3), CAR shows a significant adverse effect with a coefficient of -2.043, indicating the same trend as the entire sample. In the KCBLN model (Model 5), CAR also shows a significant adverse effect with a coefficient of -2.910. These results indicate that state-owned banks and Overseas Bank Branch Offices (KCBLN), which have high capital adequacy ratios, tend to reduce their LDR. These banks may be more focused on maintaining stability and complying with strict regulations regarding capital.

However, it's important to note that the BPD model (Model 2) presents a different picture. The effect of CAR on LDR is not significant with a coefficient of 0.839. This suggests that for Regional Development Banks (BPD), the capital adequacy ratio does not have a clear influence on LDR. In the case of private banks (Model 4), although CAR demonstrates a significant negative effect with a coefficient of -2.692, this still aligns with the general trend that private banks with higher capital tend to have lower LDR. These variations could be attributed to differences in risk management strategies, local regulations, and operational priorities among different types of banks, adding a layer of complexity to the analysis.

The Effect of ROA on Liquidity during the Pandemic

In the model that includes the entire bank sample (Model 1), the ROA variable significantly influences the Loan-to-Deposit Ratio (LDR) with a

coefficient of 4.614. This shows that increasing the profitability of bank assets tends to increase LDR. Generally, banks with higher returns on assets have more profits that can be allocated to additional loans. This reflects operational efficiency and management's ability to generate profits from owned assets, so banks are more confident in expanding their loans.

In the model that focuses on state-owned banks (Model 3), the ROA variable continues to show a significant positive influence on LDR with a coefficient of 3,568. This suggests that more profitable state-owned banks tend to provide more loans relative to their deposits. However, in the private bank model (Model 4), the story is different. Despite a positive coefficient of 3.414, the effect of ROA on LDR is not significant. This suggests that profitability is not always the main determining factor in lending decisions in private banks, indicating the influence of other factors such as business strategy and risk policies.

In a model that only includes Regional Development Banks (BPD) (Model 2) and Overseas Bank Branch Offices (KCBLN) (Model 5), ROA shows an insignificant effect on LDR. In the BPD model, ROA has a negative coefficient of -2,844, while in the KCBLN model, ROA has a negative coefficient of -1,199. This insignificance indicates that asset profitability needs to impact the loan-to-deposit ratio in these two types of banks. Differences in operational structure, business focus, or applicable regulations can cause this. For example, BPD may be more tied to regional development mandates than maximizing profitability, while KCBLN may face different regulatory and operational challenges in international markets.

The Effect of NPL on Liquidity during the Pandemic

In the model that includes the entire bank sample (Model 1), the NPL variable positively influences the Loan-to-Deposit Ratio (LDR) with a coefficient of 3,275, but this influence is not statistically significant. This suggests that an increase in non-performing loans tends to be accompanied by an increase in LDR because banks attempt to offset the risk of non-performing loans by providing more loans. However, because the effect is insignificant, this relationship cannot be confirmed statistically, and other factors may influence the relationship between NPL and LDR.

The impact of NPLs is not a one-size-fits-all scenario, but rather varies depending on the type of bank. In the model that includes BPD banks (Model 2), NPL shows a positive direction with a coefficient of 4,318, but it is not

significant. The same thing happens in the state-owned bank model (Model 3), where NPL has a positive coefficient of 1,486 and is not significant. In the KCBLN model (Model 4), NPL also shows a positive influence with a coefficient of 6,199 but is still not significant. These results indicate that although there is a tendency that an increase in non-performing loans in these banks is accompanied by an increase in LDR, the effect is not strong enough to be considered statistically significant, highlighting the complexity of the relationship.

In the private bank model (Model 5), the NPL variable shows a negative direction with a coefficient of -4.314, but this effect is also insignificant. This differs from the trend in other types of banks, where NPLs tend to have a positive influence. This negative direction may indicate that private banks may be more careful when providing loans with a high level of non-performing loans. Private banks may focus on stricter risk management and have more robust risk mitigation strategies than other banks. However, because the effect is insignificant, this conclusion must be investigated further to confirm the relationship.

The effect of Restructuring on Liquidity during Pandemic

In the model that includes the entire bank sample (Model 1), the restructuring variable (restart) shows no influence on the Loan-to-Deposit Ratio (LDR) with a coefficient of 0.147. This suggests that loan restructuring efforts, usually undertaken to help debtors experiencing difficulties, do not have a clear and significant impact on the overall loan-to-deposit ratio. This could be because loan restructuring may not directly affect the amount of new loans banks provide.

The effects of restructuring vary significantly among different types of banks. In the Regional Development Bank (BPD) model (Model 2), restructuring significantly negatively affects LDR with a coefficient of -1.888. This suggests that restructuring efforts at BPD reduce the loan-to-deposit ratio, perhaps because banks are more cautious and focus more on stabilizing their credit portfolios after restructuring. In contrast, in the Overseas Bank Branch Office (KCBLN) model (Model 4), restructuring has a significant positive effect with a coefficient of 8.972. This suggests that KCBLN, which carried out loan restructuring, may have been more aggressive in increasing new loan disbursement, perhaps due to their different business strategies or market conditions that allowed them to be more active in lending after restructuring.

In a model that only includes state-owned banks (Model 3) and private banks (Model 5), the restructuring variable does not significantly affect LDR. For

state-owned banks, restructuring has a coefficient of 0.0338, while for private banks, the coefficient is -0.165, both of which are insignificant. This shows that restructuring efforts in these two types of banks do not clearly impact the loan-to-deposit ratio. State-owned banks may have more conservative restructuring policies or face strict regulations so that restructuring does not significantly impact lending. On the other hand, private banks may have more diversified and flexible strategies in loan management so that the impact of restructuring is less visible on the loan-to-deposit ratio.

Practical Implications

The theoretical implications of the findings in these regression models provide valuable insights into understanding bank lending behavior, especially in the context of the COVID-19 pandemic. The finding that the Capital Adequacy Ratio (CAR) has a significant negative influence on the Loan-to-Deposit Ratio (LDR) indicates that banks tend to prioritize capital security. This means that when the capital adequacy ratio increases, banks tend to be more cautious in lending or prefer to keep capital in safer assets rather than providing riskier loans. This aspect becomes increasingly relevant when facing the economic uncertainty caused by the pandemic.

On the other hand, the positive influence of Return on Assets (ROA) on LDR illustrates banks' ability to expand lending in response to credit demand. This indicates that more profitable banks have more profits that can be allocated to additional loans, reflecting operational efficiency and management's ability to manage assets and liabilities. This ability is crucial when the economy begins to recover from the pandemic's impact, where credit demand is likely to increase. However, the inconsistent and insignificant findings from Non-Performing Loans (NPL) indicate that bank credit risk management is a complex process. The unstable economic conditions during the pandemic can exacerbate this relationship, making it difficult to draw strong conclusions about the influence of NPL on LDR. This suggests that other factors might play an essential role in determining bank liquidity and credit risk management during periods of economic uncertainty.

Finally, the importance of credit restructuring in response to the economic impact of COVID-19 may have significant practical implications in credit risk management and bank lending decisions during the economic recovery period. Effective credit restructuring can help reduce the number of non-performing loans, improve cash inflow, and support bank liquidity. This indicates

that appropriate credit restructuring policies can be an essential tool in maintaining financial stability and supporting overall economic recovery.

Conclusion

This research aims to analyze the impact of the COVID-19 pandemic on banking liquidity in Indonesia, using linear regression to evaluate the factors affecting bank liquidity during the period from March 2020 to June 2023. The dependent variable used is the Loan Deposit Ratio (LDR), while the independent variables include the Capital Adequacy Ratio (CAR), Return on Assets (ROA), Non-Performing Loans (NPL), and Credit Restructuring Ratio. The results show that CAR has a significant negative influence on bank liquidity for Regional Development Banks (BPD), state-owned banks, private banks, and Overseas Bank Branch Offices (KCBLN). ROA has a significant positive influence on state-owned banks but is not significant for BPD, private banks, and KCBLN. NPL does not have a significant effect on all types of banks, while the Credit Restructuring Ratio has a significant negative effect on BPD and a significant positive effect on KCBLN, but no significant effect on state-owned and private banks.

This study also compares the differences in liquidity among banks based on ownership type. The results indicate that BPD banks experienced the smallest decline in liquidity during the pandemic, while KCBLN saw the sharpest decline. Liquidity also decreased for state-owned and private banks. This research provides important insights into bank liquidity behavior during the pandemic, highlighting the significance of capital adequacy and profitability ratios in influencing liquidity. The study also shows that credit restructuring plays a crucial role in credit risk management during periods of economic crisis. These findings are relevant for bank management in developing effective liquidity strategies for the future.

References:

Achmad, Kuncoro, 2001, *Cara Menggunkaan dan Memaknai Analisis Asumsi Klasik,* Cetakan pertama, Bandung, ALFABETA.

Agustina, R.S., (2021) *The Credit Restructuring as a Form of Protection Againts Customers During the Covid-19 Pandemic.* International Journal of Law Reconstruction.

Ahmad, Lubis., F.Lica Kristiya, A., Putri N.O., Pratiwi., B., Bisnis.,IA & Lampung (2020) "Pengaruh Restrukturisasi Kredit terhadap Likuiditas Bank Jangkar selama Pandemi Covid-19.

Akhtar, M., Ali,,K & Sadaqat S (2011). Liquidity Risk Management: *A Comparative study between Conventional and Islamic Bank of Pakistan.* Lahor: *Interdisciplinary Journal of Research in Business.*

Akbar, A., & Kartawinata, BR (2021). Analisis Non Performing Loan (NPL) Pada Bank Pembangunan Daerah Yang Terdaftar Di Bursa Efek Indonesia Sebelum Dan Selama Pandemi Covid-19.Jurnal E-Bis (Ekonomi-Bisnis),5 (1).

Al-Harbi, Ahmad (2017). *Determinants of bank liquidity: evidence from OIC countries.*

Bramantya,B., & Arfinto,E.D., (2015). *Analisis Pengaruh Size, Profitabilitas, Capital Adequacy dan Non-Performing Loan terhadap Likuiditas Bank Umum yang terdaftar di Bursa Efek Indonesia periode 2011-2014.* Diponegoro Journal of Management, Vol 4(3).

Case, Karl.E. dan Fair, C. Ray (1997). *Prinsip-Prinsip Ekonomi.* Jakarta: Erlangga.

Dias Satria., (2018). *Panel Data with Stata.*

Emilda, Meilin Veronica., (2022). *Analisis Dampak Kebijakan Stimulus Covid-19 melalui Restrukturisasi Kredit pada Permodalan dan Likuiditas Perbankan dan BPR.* Jurnal Ilmiah Ekonomi Global Masa Kini, Vol 13 (2).

Fadilah,E.N., & Aji, T.S., (2018) *Pengaruh Faktor Internal dan Inflasi terhadap Likuiditas pada Bank Pembangunan Daerah di Indonesia.* Jurnal Ilmu Manajemen (JIM).

Feyen, E., Alonso Gispert, T., Kliatskova,T., & Mare, D.S (2021). Financial Sector Policy Response to Covid-19 in Emerging Markets and Developong Economies. *Journal of Banking & Finance.*

Fraser, L.M & Ormiston A (2016), *Understanding Financial Statements (11ᵗʰ ed).* Perason Education Limited. www.pearsonglobaleditions.com.

Ghozali, Imam (2013). *Aplikasi Analisis Multivariate dengan program IBM SPSS 21: Update PLS Regresi:* Badan Penerbit Universitas Diponegoro Semarang

Gujarati, D.N., & Porter, D.C. 2009. *Basic Econometrics (fith edition).* New York:McGraw-Hill/Irwin.

Gautama BP., Annisa R., & Waspada I (2018) *Pengaruh kecukupan modal dan risiko kredit terhadap likuiditas pada Bank Umum Syariah* yang terdaftar di Bank Indonesia. Jurnal Pendidikan Akuntansi dan Keuangan.

Hastria Ningsih, S., Hari Risetiadi,A., Bangek,S., Gadang, B., Koto Tangah, K., & Padang, K., (N.D). *Efektifitas Restrukturisasi Kredit di Masa Pandemi.*

Hariyani, I. (2010).Restrukturisasi dan penghapusan kredit macet. Elex Media Komputindo.

Kholiq, A., & Rahmawati,R (2020). Dampak Impementasi Restrukturisasi Pembiayaan Terhadap Likuiditas Bank Syariah pada Situasi Pandemi Covid-19. *Journal of Islamic Economic and Business,3 (2).*

Kustina,K.T., Suryawan,I.G.M.N., & Utari,.I.G.A (2022), *Analisis Dampak Kebijakan Restrukturisasi Kredit Terhadap Laba dan Likuiditas BPR di Kabupaten Badung.* Wacana Ekonomi (Jurnal Ekonomi, Bisnis dan Akuntansi).

Mahyus, Ekananda (2018) *Analisis Ekonometrika Untuk Keuangan,* Penerbit Salemba Empat.

Masyhud Ali (2006), Manajemen Risiko, Rajawali Press.

Muharam, Harjum., Kurnia, Hasna Penta (2013) *The Influece of Fundamental Factors to Liquidity Risk on Banking Industry: Comparative Study between Islamic Bank and Conventional Bank in Indonesia.* Universitas Diponegoro.

Muchlis A., D & Suganda A (2021) *Restructuring of Banking Credit as a Safety Efforts to Improve Credits that are made in Notary,* European Scholar Journal.

OJK (2020), Laporan Keuangan Tahunan 2020, 2021 dan 2022

OJK (2021), Laporan Keuangan Tahunan 2021.

OJK (2022). Pertemuan Tahunan Industri Jasa Keuangan 2022.

Qua S Shah.A., Khan I Sadaqat,S & Shah A (2018) *Factors Affecting Liquidity of Banks Empirical Evidence from the Banking sector o Pakistan.* Colombo Business Journal.

Rahardja, Pratama dan Manurung, Mandal. (2008). *Teori Ekonomi Makro,* Jakarta: Lembaga Penerbit Fakultas Ekonomi Indonesia.

Sholihin, M., Anggraini, Puspita G, (2020). Analisis Data Penelitian Menggunakan Software STATA, Penerbit Andi.

Seto, AA., Susanto, Tolak., Miftahorrozi, Miftahorrozi., Simanjorang, Tienni Mariana., Moridus, Irwan., & Posumah, Nurcahya Hartaty,. (2022) *Restrukturisasi Kredit Saat Pandemi Covid-19: Apakah Konsisten dengan Prediksi?*

Santoso, A., Murni, S., & Nugrahining, P. (2012). Likuiditas Perbankan Syariah di Indonesia. *Seminar Nasional dan Call for Papers Ekonomi Syariah "Indonesia sebagai kiblat ekonomi syariah.".*

Thong, Truong Quang., (2014). Factors Affecting Liquidity Risk in the System of Vietnamese Commercial Banks, Jurnal of Economics Development, University of Economic Ho Chi Minh City.

Topbie, Joseph A, Ibiwari, Fiberesima, Nwankwo, Godgift A., Impact of Macroeconomic Behaviour on Deposit Money Bank Liquidity in Nigeria. *European Journal of Economic and Financial Research.*

Veithzal Rivai, & Andria Permata (2006), *Credit Management Handbook,* Rajawali Press.

Viverita, Yosman Bustaman, Dwi Nastiti Danarsari. (2023), Liquidity creation by Islamic and Conventional Banks during the Covid-19 pandemic. *Research*

Article in Science Direct.

Vodova, Pavla., "Determinants of Commercial Bank Liqudity in Hungary., *Financial Internet Quarterly "e-finance"* 2013.

Wooldridge, J.M. (2006). *Introductory Econometrics: A modern Approach (sixth edition).* Boston: Cengage Learning.

Widyastuti, Shinta., Mariani, Cindy., (2023). *Restrukturisasi Kredit dan Kecukupan Modal: Apakah mempengaruhi Likuiditas?* Jurnal Akuntansi, Vol.33 No.6.