ANALYSIS OF THE EFFECT OF MACROPRUDENTIAL POLICY INSTRUMENTS ON COMMERCIAL BANK LIQUIDITY IN INDONESIA IN THE 2018-2021 PERIOD

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Abstract

Liquidity is an important aspect that can be considered a bank's lifeblood. To maintain business continuity, banks must always manage liquidity effectively. Liquidity easing is one strategy to assist economic growth during the COVID-19 epidemic. Where macroprudential policies are used to ease liquidity restrictions. The government seeks to induce more outstanding lending to debtors to promote economic growth.

On the other hand, this easing of liquidity is thought to help maintain bank operations solvent. This liquidity easing during the pandemic was carried out by reducing the reserve requirement and increasing the MPLB ratio. In addition, Bank Indonesia strengthened RIM by adding an export money order in its calculation. The goal of this research is to look at how macroprudential policy, such as the Statutory Reserves instrument, the Macroprudential Intermediation Ratio, and the Macroprudential Liquidity Buffer, affects the liquidity of traditional commercial banks in Indonesia from 2018 to 2021. The monthly data comes from the Financial Services Authority website, specifically the Indonesian Banking Statistics section. The researchers employed a multiple linear regression approach utilizing EViews 10 software to evaluate the three hypotheses. First, the Statutory Reserves have a negative and minor influence on commercial bank liquidity, according to the findings. Second, RIM has a good and considerable impact on commercial bank liquidity. Third, PLM has a considerable negative impact on commercial bank liquidity. Simultaneously, the three independent factors are discovered to impact commercial bank liquidity.

Keywords: *Statutory Reserves, Macroprudential Intermediation Ratio, Macroprudential Liquidity Buffer, Bank Liquidity*

INTRODUCTION

One of the most critical risks to mitigate in the banking business is liquidity risk. The bank has the main task of collecting or collecting funds from the public in the form of deposits then after the funds are collected, they will be distributed again in the form of financing to the community. The nature of the funds obtained by the bank is short-term because the funds can be withdrawn anytime. The funds raised are redistributed in the form of credit by the bank. Credit is the right to receive payment or obligation and to make payment at the requested or future time due to the delivery of funds or goods now.

One of the problems in the banking business is to align the term of ability to finance with financing (kemenkeu.go.id). This problem in banking is called *maturity mismatch*. Therefore, banks in maintaining their business continuity must be good at managing liquidity and ensuring the availability of funds when withdrawing funds by customers.

LDR is used as an indicator to measure the extent to which the intermediation function carried out by financial institutions can be achieved, while also assessing a

bank's health and liquidity levels. Where when the LDR level gets higher, it indicates that the bank is increasingly illiquid. Vice versa, if the LDR level is lower, the bank can be said to be more liquid. However, it can be stated that the increasingly liquid condition of the bank indicates that there are many idle *funds.* In other words, the bank intermediation function is not carried out correctly (Agustina &; Wijaya, 2013).

The inability of a bank to manage liquidity risk has been a problem in significant banking cases. One of the cases that befell Indonesia was the *bank rush* during the 1998 crisis. Although it started with exchange rate risk, liquidity risk was the leading cause of bank failure. In response to the financial crisis that year, Bank Indonesia established the framework of financial system stability in Indonesia and established the Financial System Stability Bureau (BSSK). To maintain financial system stability, macroprudential aspects have been implicitly used by Bank Indonesia through both frameworks. Previously, the term macroprudential had been introduced since 1979, but after the global financial crisis, macroprudential policy became very popular. Bank Indonesia contributes to the macroprudential sector as stipulated in Law of the Republic of Indonesia No. 21 of 2011 dated 22 November 2011 concerning the Financial Services Authority (OJK). This aligns with the bank regulation and supervision functions (microprudential) shift to the Financial Services Authority.

During the Covid-19 pandemic, Indonesia's economic growth had declined and credit growth reached minus. As a form of response to overcome the presence of this pandemic, the government has made liquidity one of the ways to support economic growth through liquidity easing. One of the policies implemented to ease liquidity is macroprudential policy. By easing liquidity, banks are expected to be able to channel the excess funds to debtors as a form of encouraging economic growth. However, on the other hand, it still maintains its operations by being able to provide liquid funds if customers withdraw their deposits at any time.
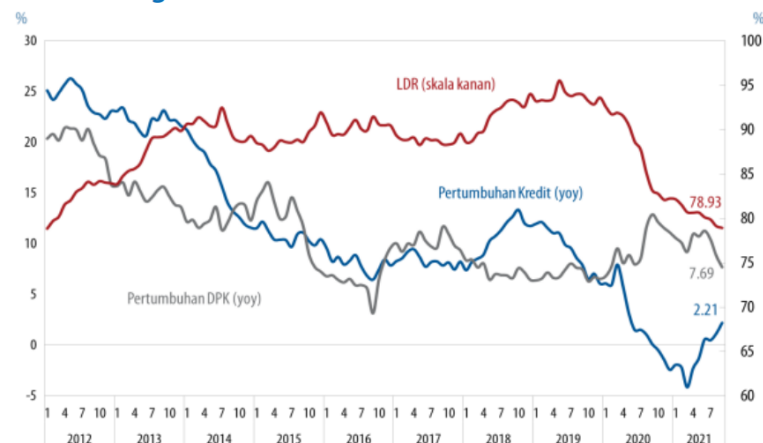
Sumber: Bank Indonesia

The 2008 Global Financial Crisis impacted decreasing rupiah liquidity in the banking industry due to lower deposit growth. Such conditions threaten financial stability and require prioritizing measures that can be taken to reduce the negative impact on financial system stability and maintain national economic sustainability. Bank Indonesia has taken various measures as the monetary authority to reduce pressure on the banking industry, including lowering the reserve requirement. Where reserve requirements are used to increase flexibility in liquidity management by

banks further, encourage the intermediation function, and support financial market recovery efforts (Lupita &; Lestari, 2020).

During the Covid-19 pandemic, Indonesia's economic growth had declined and credit growth reached minus. As a form of response to overcome the presence of this pandemic, the government has made liquidity as one of the ways to support economic growth through liquidity easing with macroprudential policy. By easing liquidity, banks are expected to be able to channel the excess funds to debtors as a form of encouraging economic growth. However, on the other hand, it still maintains its operations by being able to provide liquid funds if customers withdraw their deposits at any time.

Since the beginning, BI has used macroprudential instruments to overcome the economy affected by the pandemic. One example is the implementation of integrated macroprudential policies, including a decrease in reserve requirements followed by an increase in PLM to increase bank liquidity resilience (Abubakar &; Setiawan, 2022). At the same time, these two instruments support fiscal sustainability with the purchase program of government securities by banks whose funds come from lower reserve requirements to meet the increase in the PLM ratio. In addition, RIM was also strengthened by BI by adding an export money order component in its calculations to encourage lending and financing. From the beginning, BI has used macroprudential instruments to overcome the economy affected by the pandemic. One example is the implementation of integrated macroprudential policies, including a decrease in reserve requirements followed by an increase in PLM to increase bank liquidity resilience (Abubakar &; Setiawan, 2022). At the same time, these two instruments support fiscal sustainability with the purchase program of government securities by banks whose funds come from lower reserve requirements to meet the increase in the PLM ratio. In addition, RIM was also strengthened by BI by adding an export money order component in its calculations to encourage credit and financing.

From various literature, several factors are found that can affect liquidity. This research will focus on the Minimum Statutory Current Account, Macroprudential Intermediation Ratio, and one other variable, the Macroprudential Liquidity Buffer. The formulation and implementation of macroprudential policy focuses on efforts to stimulate intermediation, maintain financial system resilience, and promote economic and financial inclusion. In addition, in the banking sector in Indonesia, macroprudential policy also maintains liquidity to achieve economic stability.
The purpose of this study is to find out:
1. The effect of the Minimum Statutory Current Account on the liquidity of commercial banks in Indonesia in the 2018-2021 period
2. The effect of the Macroprudential Intermediation Ratio on the liquidity of commercial banks in Indonesia in the 2018-2021 period
3. The effect of the Macroprudential Liquidity Buffer on the liquidity of commercial banks in Indonesia on the liquidity of commercial banks in Indonesia in the 2018 period

LITERATURE REVIEW
Commercial Bank Liquidity
In its current development, the economic sector often encounters many management problems, especially in liquidity management in various financial institutions, both banks and non-banks or conventional and sharia. Liquidity management problems are related to a bank's ability to meet its financial obligations and must be met immediately.

In the Big Indonesian Dictionary (KBBI), liquidity is defined as a company's cash position and so on as well as the ability to fulfill obligations that mature on time. Meanwhile, when associated with bank liquidity, it means the ability of banks to pay their short-term debts if they are suddenly collected at any time. Thus, liquidity can be said to be with the ease with which assets can be realized or converted into a value in cash from the banks concerned (Crockett, 2008)

According to Leon and Ericson (2007), for a bank liquidity management refers to the ability of a bank to provide sufficient and timely funds to meet its obligations, primarily related to the fulfillment of government or central bank regulations, the creation of a balanced balance due to good relations with correspondent banks, and the fulfillment of fund withdrawal needs by customers as depositors, current account owners and debtors, and the ability to pay overdue long-term obligations (Ichsan, 2013).

In principle, liquidity management is meeting requests for funds that must be immediately met or paid. Liquidity is needed primarily to meet minimum statutory reserves, withdrawals of deposits or deposits by customers, and other obligations that have matured.

A liquidity ratio is needed to assess the bank's ability to meet short-term or maturing obligations in a timely manner (Aprilia &; Soebroto, 2020). In this study, the ratio used to measure liquidity is the *Loan to Deposit Ratio* (LDR). The amount and parameters for LDR calculation used by Bank Indonesia are as follows:
1. The lower limit of the target LDR is 78%.
2. The upper limit of the target LDR is 92%.

Macroprudential Policy

Bank Indonesia defines macroprudential policy as policy that uses various prudential tools to limit systemic risk or the risk of financial system failure. In describing the marcooperative policy, there are three key sentences, the first is that its application is aimed at maintaining financial system stability. Second, its application is oriented to the financial system as a whole or *system-wide perspective*. Third, its implementation is carried out through efforts to limit the development of systemic risks (Bank Indonesia, 2021).

In Indonesia, the macroprudential approach has been implemented as part of the economic recovery due to the Asian financial crisis in 1997/1998. After that, macroprudential policy was again actively used after 2008 due to the monetary crisis. Bank Indonesia assumes that macroprudential policy is the appropriate policy to maintain financial system stability.

According to the *European Risk Board* (2013) and the *Bank of England* (2009), macroprudential policy is a policy intended to maintain and maintain overall financial system stability, including strengthening financial system resilience and reducing the occurrence of accumulated systemic risks, so that the sustainability of the financial sector's contribution to economic growth can be ensured (Rush, 2018).

Minimum Statutory Current Account

According to Dahlan Siamat in Fitriana research (2011), banks are required to maintain a certain amount of liquidity derived from the total pool of Third-Party Funds in conducting business activities, significantly raising funds in a certain period. This amount of maintained general liquidity must be placed as a current account balance with Bank Indonesia. This minimum statutory liquidity is known as *Reserve Requirment* (RR) or Minimum Statutory Reserve (GWM) (Fithriana, 2011).

According to Irsyad Zain &; Y. Rahmat Akbar (2020), the reserve requirement must be by Bank Indonesia regulations. Determinations made by Bank Indonesia from time to time will always be adjusted to liquidity conditions so that the reserve requirement follows the banking conditions at that time and consideration of economic conditions and the direction of Bank Indonesia policy (Fithriana, 2011).

The reserve requirement was cut to loosen liquidity, tightening during the 2008 crisis to reach 5%. Then in 2010 it was raised again to 8%. After that, it was determined on March 16, 2016 that the reserve requirement was lowered to 6.5%. As a form of increasing bank liquidity during the Covid-19 pandemic, the reserve requirement was lowered to 3.5%.

In addition to maintaining bank liquidity, reserve requirements are also used to strive for monetary stability. This instrument is used as a tool to maintain the stability of the money supply. Therefore, the percentage must be by the country's economic conditions. Bank Indonesia amended its provisions regarding banks' minimum reserves to affect the money supply.

Maxrprudential Intermediation Ratio

The definition of sharia RIM and RIM by Bank Indonesia (www.bi.go.id) is one of the macroprudential instruments aimed at managing the bank intermediation function by the capacity and target of economic growth while maintaining prudential principles.

Previously, RIM's policy for conventional banks has been known through the GWM-LFR (*Loan to Funding Ratio*) policy. LFR itself is a refinement of the LDR formula by changing the calculation of LDR to include securities. The reserve requirement policy was changed by expanding the funding component to encourage the distribution of funds or credit to the larger Micro, Small and Medium Enterprises (MSMEs) sector.

Bank Indonesia has developed RIM and Sharia RIM policies by adding components of purchased securities to its calculations to stimulate the banking intermediation function and liquidity management. This is intended for the distribution of funding by banks through credit and the purchase of securities (Handayani, 2019). RIM Syariah is considered to be able to encourage the creation of a quality and balanced intermediation function to reduce and prevent risks as well as procyclical banking behavior.

The RIM range set by Bank Indonesia is in the form of lower and upper limits for calculating RIM Current Accounts. The percentage amount is determined with the intention of fulfilling the obligations of the Sharia RIM / RIM Giro.
 1. The lower limit of the Sharia RIM/RIM target is 80%
 2. The upper limit of the Sharia RIM target is 92%

Macroprudential Liquidity Buffer

According to Bank Indonesia (www.bi.go.id), the Sharia Macroprudential Liquidity Buffer (PLM) and Sharia Macroprudential Liquidity Buffer (Sharia Macroprudential Liquidity Buffer) are the minimum liquidity reserves that BUK and BUS must maintain in the form of securities in rupiah that can be used in Monetary Operations (OM) and Bank Indonesia determines the amount based on a certain percentage of BUK and BUS deposits collected in rupiah.

The amount of PLM is 4% of BUK's deposits in rupiah with the calculation formula being the percentage of ownership of securities owned by BUK from deposits in rupiah. In addition, according to PBI No.22/17/PBI/2020, the obligation to fulfill PLM for BUK is set at 6% of Rupiah deposits effective May 1, 2020.

The Macroprudential Liquidity Buffer or abbreviated as PLM is one of the macroprudential liquidity instruments launched by BI to prevent the birth of systemic risks in terms of liquidity. This PLM instrument functions as a buffer or liquidity reserve that will be fostered when liquidity conditions are abundant and tight liquidity will be used. Macroprudential supervision is also strengthened by the existence of PLM given the flexible nature of the instrument.

Frame of Mind

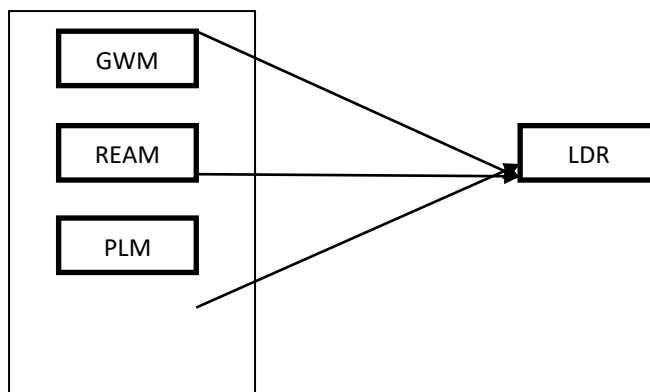Based on the explanation of the literature review above, the following theoretical framework can be drawn:

Figure 1
Frame of Mind
Source: Author (20 22)

METHOD

This study used secondary data with quantitative research methods and descriptive approach types. Quantitative research is empirical research where the data is in the form of numbers (Syahum and Salim, 2012: 40). In addition, a descriptive approach is used to describe the research object and the study results. As for quantitative research methods, they are used to test established research hypotheses. The data analysis technique used is data regression.

This study has three variables set as the research object: commercial bank liquidity as a bound variable (Y). In addition, the independent variables in this study consist of Minimum Statutory Current Accounts (X1), Macroprudential Intermediation Ratio (X2), and Macroprudential Liquidity Buffer (X3).

Each research variable used monthly data from 2018-2021 (4 years) from January 2018 to December 2021. Data on each research variable was obtained from the Financial Services Authority (OJK). Commercial banks used for research are Conventional Commercial Banks (BUK), classified as BUKU 1, BUKU 2, BUKU 3, and BUKU 4.

RESULTS AND DISCUSSION
Table 1. Regression Estimation Results

Dependent Variable: LOG(YLDR)		
Variable	**Coefficient**	**Probability**
C	4.773125	0.0000

GWM	-0.005969	*0.4358
REAM	0.692957	*0.0000
PLM	-0.032701	*0.0000
R-Squared	0.920638	
Adj. R-Squared	0.917933	
F-Statistic	340.2833	
Prob(F-Statistic)	0.000000	
Obs	183	

Source: Data processing results on Eviews 10

The results of the equation above show that the effect of reserve requirements on commercial bank liquidity is -0.0059% and is not significant with the sig value. 5%, meaning that every increase in the reserve requirement of 1% causes a decrease in liquidity by 0.0059%. RIM's influence on commercial bank liquidity is 0.6929% and significant with sig value. 5%, meaning that every 1% increase in RIM will increase liquidity by 0.6929%. The effect of PLM on commercial bank liquidity is -0.0327% and significant, meaning that an increase in PLM of 1% to a significant 5% will reduce commercial bank liquidity by 0.69%

Based on table 1. The minimum Statutory Current Account variable has a regression coefficient of -0.005969 with *a probability* value of 0.4358 > 0.05 (alpha). Based on the hypothesis proposed, H0 is accepted and H1 is rejected, which means that the variable Minimum Statutory Reserve does not significantly affect commercial banks' liquidity in Indonesia. Theoretically, the Minimum Statutory Reserve is the minimum amount of funds maintained by banks and the amount is determined by Bank Indonesia and serves to provide flexibility in liquidity arrangements. The results of research conducted by (Samsurin, 2017) stated that the Minimum Statutory Current Account instrument does not significantly affect bank liquidity because the liquidity reserves owned by small-sized banks are relatively small so that the tendency of changes in reserve requirements influences the bank. On the other hand, for large and medium-sized banks, the Minimum Statutory Reserve policy has no significant effect because the liquidity reserves held by these banks are far above the liquidity needs for operational activities and can be used as a *buffer*. However, from the estimated results the regression coefficient number shows negative. Therefore, it is concluded that every increase in reserve requirements will reduce the liquidity of commercial banks in Indonesia. Vice versa, where each decrease in reserve requirements will increase liquidity.

The estimation results on the Macroprudential Intermediation Ratio variable have a regression coefficient of 0.692957 with *a probability* value of 0.000 < 0.05 (alpha). Based on the hypothesis proposed, H0 is rejected and H1 is accepted, which means that the variable Macroprudential Intermediation Ratio has a significant positive effect on the liquidity of commercial banks in Indonesia. From the regression coefficient of the RIM variable, it can be said that every increase in RIM by 1% will increase liquidity by 69.29%. The results of research conducted by (Handayani, 2019) stated that unhealthy RIM exceeded the upper limit of RIM's target, which was above 92%, because liquidity's ability to anticipate needs and the application of liquidity risk management was fragile. Theoretically, RIM has a *countercyclical* characteristic, which will accelerate growth when the economy is contracting. And vice versa.

The estimation results on the Macroprudential Liquidity Buffer variable have a regression coefficient of -0.032701 with *a probability* value of 0.000 < 0.05 (alpha). Based on the hypothesis proposed, H0 is accepted and H1 is rejected, which means that the Macroprudential Liquidity Buffer variable significantly adversely affects commercial banks' liquidity in Indonesia. From the regression coefficient of the PLM variable, it can be said that every increase in PLM by 1% will decrease liquidity by 0.032%.

The results of research conducted by (Lupita &; Lestari, 2020) that to maintain Bank BRI's liquidity during the Covid-19 pandemic cannot be separated from the role of Bank Indonesia, namely by increasing the Macroprudential Liquidity Buffer (PLM) ratio. In addition, the increase in the PLM ratio can strengthen bank liquidity management by purchasing securities. In this case, implementing PLM allows for additional access to bank funding if needed in liquidity management. What is clear is that policies against this regulation must be supportive even in tight liquidity conditions such as during the Covid-19 pandemic.

CONCLUSION

Based on the results of the study, conclusions can be given, namely: (1) the reserve requirement does not have a significant effect on the liquidity of commercial banks in Indonesia for the period January 2018 - December 2021, which means that the increase in reserve requirements will reduce the liquidity of commercial banks in Indonesia, in line with BI policy to strengthen commercial bank liquidity during the Covid-19 pandemic. (2) RIM easing is carried out to maintain and relax bank liquidity, as evidenced by a significant positive effect on commercial bank liquidity in Indonesia. (3) The Macroprudential Liquidity Buffer has a significant adverse effect on the liquidity of commercial banks in Indonesia, where PLM allows for additional access to bank funding if needed in the context of liquidity management, especially during the Covid-19 pandemic.

The results of this study only show the influence of macroprudential policy on the liquidity of conventional commercial banks. It is expected that future research will also use Sharia Commercial Banks (BUS) so that it can show the influence of macroprudential policy on commercial banks as a whole. In addition, the results of the test of reserve requirement variables in this study are expected to be further considered based on bank classification in affecting commercial bank liquidity. The following research is expected to examine the classification of commercial banks using different time frames so that more accurate results can be obtained and provide better and comprehensive results.

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