 p-ISSN 2827-8585
e-ISSN 2827-8062

International Journal of Multidisciplinary Research and Literature
IJOMRAL
Vol. 1, No. 5, September 2022 pp. 481-600
Journal Page is available at http://ijomral.esc-id.org/index.php/home

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

Maulidina Nur Budiastuti[1*], Harya Kuncara Wiralaga[2], Siti Fatimah Zahra[3]
[1,2,3]Universitas Negeri Jakarta, Indonesia
Correspondent Author: *maulidinanurbudiastuti60@gmail.com*[1]

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—instances where macroprudential policies are employed to relax limits on liquidity. The government's goal, which is to foster increased economic growth, is to increase the amount of money lent to people in debt. On the other hand, this easing of liquidity is thought to help maintain bank operations solvent. This easing of liquidity during the pandemic carries out by reducing the reserve requirement, followed by an increase in the MPLB ratio. In addition, Bank Indonesia strengthened RIM by adding an export money order in its calculation. This research aims 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. To evaluate the three hypotheses, the researchers employed a multiple linear regression approach utilizing EViews 10 software. 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, it discovers that three separate elements influence the liquidity of commercial banks.

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

INTRODUCTION

One of the most important risks to be mitigated in the banking business is liquidity risk. Banks have the main task of collecting or collecting funds from the public in the form of savings; then, after the funds are collected, they will be re-distributed in the form of financing to the public. The nature of the funds obtained by the bank is short-term because these funds can withdraw at any time. The collected funds are redistributed in the form of credit by the bank. Credit is the right to receive payments or obligations and intends to make payments at the time requested or in the future due to the delivery of funds or goods.

One of the problems in the banking business is matching the term of ability for funding with financing (kemenkeu.go.id). This problem in banking is called a *maturity mismatch*. Therefore, banks in maintaining business continuity must be good at managing liquidity and ensuring the availability of funds when customers withdraw funds.

LDR is used as an indicator to measure the extent to which the intermediation function carried out by financial institutions can be achieved; besides that, it can also assess a bank's

soundness and liquidity level. Where when the LDR level is 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 state that the bank's increasingly liquid condition indicates that there are a lot of *idle funds*. In other words, the bank intermediation function is not carried out properly(Agustina & Wijaya, 2013).

The inability of a bank to manage liquidity risk has been a problem in major banking cases. One of the cases that hit Indonesia was *the bank rush* during the 1998 crisis. Although started by exchange rate risk, liquidity risk was the main cause of bank failure. In response to the financial crisis that occurred that year, Bank Indonesia developed a framework for Indonesia's financial system stability and established the Financial System Stability Bureau (BSSK). Bank Indonesia has implicitly utilized the macroprudential aspect through these two frameworks to maintain the financial system's integrity. Previously, the term macroprudential had been introduced in 1979, but macroprudential policies became very popular after the global financial crisis. Bank Indonesia has contributed to the macroprudential sector as stipulated in the Law (UU) of the Republic of Indonesia No.21 of 2011, dated 22 November 2011, concerning the Financial Services Authority (OJK). It is in line with the shift in the function of bank regulation and supervision (macroprudential) to the Financial Services Authority.

During the Covid-19 pandemic, Indonesia's economic growth declined, and credit growth reached minus. To overcome the presence of this pandemic, the government uses liquidity as one way to support economic growth by easing liquidity. One of the policies implemented to ease liquidity is the macroprudential policy. Where 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 continues to maintain its operations by being able to provide liquid funds if customers withdraw their deposits at any time.

The 2008 Global Financial Crisis impacted the decline in rupiah liquidity in banks due to the decline in the growth of Third-Party Funds (DPK). These conditions threaten financial stability and require prioritizing steps that can take to reduce negative impacts on financial system stability and maintain the sustainability of the national economy. Bank Indonesia took various steps as the monetary authority to reduce pressure on the banking industry, one of which was lowering the Statutory Reserves (GWM). The reserve requirement is used further to increase the flexibility of liquidity management by banks, encourage the intermediation function, and support efforts to recover financial markets(Lupita & Lestari, 2020).

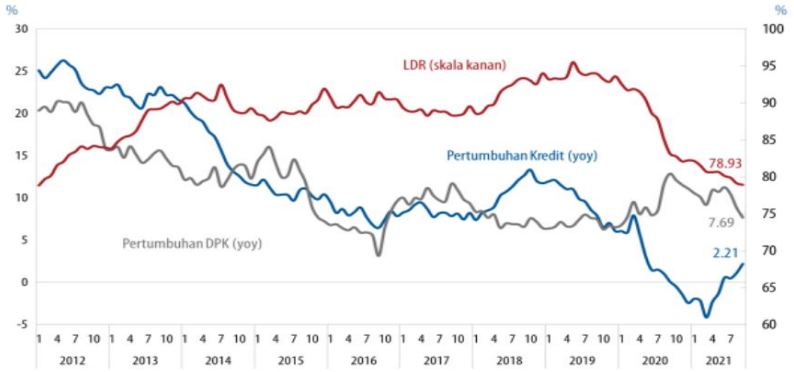

Figure 1 Development of Credit and TPF
Source: Bank Indonesia

During the Covid-19 pandemic, Indonesia's economic growth had declined, and even credit growth reached minus. As a form of response to overcome the presence of this pandemic, the government uses liquidity as one way to support economic growth through easing liquidity with macroprudential policies. Where 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 continues to maintain its operations by being able to provide liquid funds if customers withdraw their deposits at any time.

From the start, BI has used macroprudential instruments in dealing with the economy affected by the pandemic. One example is the implementation of integrated macroprudential policies, including a reduction in the Statutory Reserves and an increase in PLM to increase the bank's liquidity resilience. (Abubakar & Setiawan, 2022) . At the same time, these two instruments support fiscal sustainability with a program to purchase government securities by banks whose funds come from a reduction in the Statutory Reserves requirement to meet the increase in the PLM ratio. In addition, RIM was also strengthened by BI by adding a component of export notes in its calculations to encourage lending and development. From the outset, BI has used macroprudential instruments in overcoming the economy affected by the pandemic. One example is the implementation of integrated macroprudential policies, including a reduction in the Statutory Reserves and an increase in PLM to increase the bank's liquidity resilience. (Abubakar & Setiawan, 2022) . At the same time, these two instruments support fiscal sustainability with a program to purchase government securities by banks whose funds come from a reduction in the Statutory Reserves requirement to meet the increase in the PLM ratio. In addition, RIM is also strengthened by BI by adding an export note component in its calculation to encourage lending and financing.

Various kinds of literature found several factors that can affect liquidity. This research will focus on the Statutory Reserves, Macroprudential Intermediation Ratio, and one other variable, Macroprudential Liquidity Buffer. The formulation and implementation of macroprudential policies focus on encouraging intermediation, maintaining financial system resilience, and promoting economic and financial inclusion. In addition, in the banking sector in Indonesia, macroprudential policies also help maintain liquidity to achieve economic stability.

The purpose of this research is to find out:

1. The effect of the Statutory Reserves on the liquidity of commercial banks in Indonesia in the 2018-2021 period
2. Effect of Macroprudential Intermediation Ratio on the liquidity of commercial banks in Indonesia in the period 2018-2021
3. Effect of Macroprudential Liquidity Buffer on the liquidity of commercial banks in Indonesia in the period 2018

LITERATURE REVIEW

Commercial Bank Liquidity

The economic sector in its current development often encounters many management problems, especially in the management of liquidity in various financial institutions, both bank and non-bank or conventional or sharia. The problem of liquidity management is related to a bank's ability to meet its financial obligations and must be fulfilled immediately.

In the Big Indonesian Dictionary (KBBI), liquidity is defined as the cash position of a company and so on, as well as the ability to meet maturing obligations on time. Meanwhile, when it is associated with bank liquidity, it means the bank's ability to pay its short-term debt if suddenly

billed at any time. Thus, liquidity can say 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 the bank to provide sufficient and timely funds to fulfill its obligations, especially related to compliance with government or central bank regulations, creating a balanced balance due to good relations. with correspondent banks, as well as meeting the needs for withdrawal of funds by customers as savers, current account holders and debtors, and the ability to pay long-term obligations that have matured. (Ichsan, 2013).

In principle, liquidity management is meeting the demand for funds that must be met or paid immediately. Liquidity is needed primarily to meet the 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 obligations or have matured on time (Aprilia & Soebroto, 2020). In this study, the ratio used to measure liquidity is the *Loan to Deposit Ratio* (LDR). The amount and parameters for the 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 a policy that uses various prudential tools to limit systemic risk or the risk of financial system failure. In describing the macroprudential policy, there are three key sentences, and the first is that its implementation is aimed at maintaining financial system stability. Second, its implementation is oriented towards the overall financial or *system-wide perspective*. Third, its implementation is carried out through efforts to limit the development of systemic risk(Bank Indonesia, 2021).

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

According to *the European Risk Board* (2013) and *the Bank of England* (2009), macroprudential policies are policies 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 growing the economy can be ascertained(Rush, 2018).

Statutory Reserve Requirement

According to Dahlan Siamat in Fitriana's research (2011), banks are required to maintain a certain amount of liquidity derived from the total set of Third-Party Funds in conducting business activities, especially fundraising in a certain period. The amount of general liquidity that is maintained must be placed in the form of a checking account balance with Bank Indonesia. This minimum mandatory liquidity is known as the *Reserve Requirement* (RR) or the Minimum Statutory Reserve (GWM). (Fithriana, 2011).

According to Irsyad Zain & Y. Rahmat Akbar (2020), the Statutory Reserves amount must follow Bank Indonesia's provisions. This determination made by Bank Indonesia from time to time will always be adjusted to liquidity conditions so that the amount of Statutory Reserves follows

the banking conditions at that time as well as consideration of economic conditions and the direction of Bank Indonesia's policies. (Fithriana, 2011).

Liquidity became increasingly constrained during the 2008 financial crisis, and a reduction in the reserve requirement alleviated this situation. There were two more increases, one in 2010 and one in 2011. As a result, the statutory reserve requirement was cut to 6.5 percent on March 16, 2016. The Statutory Reserves were gradually reduced to 3.5 percent during the Covid-19 epidemic to increase bank liquidity.

In addition to maintaining banking liquidity, Statutory Reserves are also used to pursue monetary stability. This instrument is used as a tool to maintain the stability of the money supply. Therefore, the percentage must follow the country's economic conditions. Therefore, Bank Indonesia changed its provisions regarding the minimum bank reserves to influence the money supply.

Macroprudential Intermediation Ratio

The definition of RIM and sharia RIM by Bank Indonesia (www.bi.go.id) is one of the macroprudential instruments aimed at managing the banking intermediation function so that it follows the capacity and target of economic growth while maintaining the principle of prudence.

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

Bank Indonesia developed a RIM and Sharia RIM policy by adding a component of securities purchased into its calculation to encourage the banking intermediation function and liquidity management. It is intended to channel funding by banks not only through credit but also through the purchase of securities(Handayani, 2019). RIM/RIM Syariah is considered to encourage the creation of a quality and balanced intermediation function to reduce and prevent risks and banking behavior that tends to be procyclical.

The range of RIM determined by Bank Indonesia is in the form of a lower limit and an upper limit for the calculation of the RIM Current Account. The percentage amount is determined to fulfill the obligations of the Sharia RIM/RIM Current Account.

1. The lower limit of the target of RIM/RIM Syariah is 80%
2. The upper limit for the target of RIM/RIM Syariah is 92%

Macroprudential Liquidity Buffer

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

The amount of PLM is 4% of DPK BUK in rupiah, with the calculation formula being the percentage of ownership of securities owned by BUK from DPK 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 DPK, effective as of May 1, 2020.

Macroprudential Liquidity Buffer, abbreviated as PLM, is one of the macroprudential liquidity instruments launched by BI to prevent the emergence of systemic risk from the liquidity side. This PLM instrument functions as a buffer or liquidity reserve that will be nurtured when

liquidity conditions are abundant and when liquidity is tight to be used. Macroprudential supervision is also strengthened by the presence of PLM, considering the flexible nature of the instrument.

Framework

Based on the description of the literature review above, the following theoretical framework can draw:

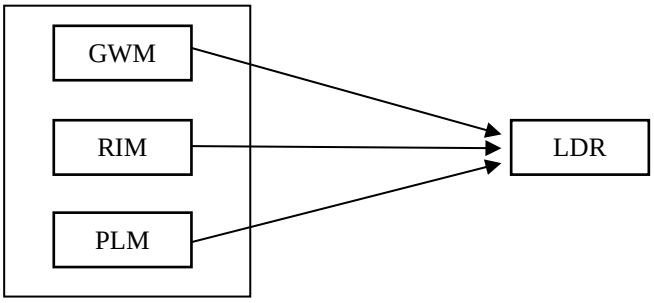

Figure 2 Thinking Framework
Source: Author (2022)

METHOD

This study uses secondary data with quantitative research methods and types of descriptive approaches. Quantitative research is empirical research where the data is in the form of numbers (Syahum and Salim, 2012:40). A descriptive approach is also used to describe the object of research and research results. Meanwhile, quantitative research methods are used to test the research hypotheses that have been established. The data analysis technique used is data regression.

This study has three variables determined as the object of research: the liquidity of commercial banks as the dependent variable (Y). In addition, the independent variables in this study consist of Statutory Reserves (X_1), Macroprudential Intermediation Ratio (X_2), and Macroprudential Liquidity Buffer (X_3).

Each research variable uses monthly data for 2018-2021 (4 years), from January 2018 to December 2021. The data for each research variable was obtained from the Financial Services Authority (OJK). The 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
RIM	0.692957	*0.0000
PLM	-0.032701	*0.0000
R-Squared	0.920638	
adj. R-Squared	0.917933	
F-Statistics	340.2833	

Prob(F-Statistic)	0.000000	
Obs	183	

Source: Results of data processing on Eviews 10

The results of the above equation show that the effect of Statutory Reserves on the liquidity of commercial banks is -0.0059% and not significant with the value of sig. 5%, meaning that every 1% increase in Statutory Reserves causes a decrease in liquidity of 0.0059%. The effect of RIM on the liquidity of commercial banks is 0.6929% and is significant with the value of sig. 5%, meaning that every 1% increase in RIM will increase liquidity by 0.6929%. The effect of PLM on the liquidity of commercial banks is -0.0327% and is significant, meaning that an increase in PLM by 1% at a significant 5% will decrease the liquidity of commercial banks by 0.6 9%

Based on table 1. The minimum Statutory Reserves variable has a regression coefficient of -0.005969 with a *probability* value of 0.4358 > 0.05 (alpha). Therefore, based on the proposed hypothesis, H0 is accepted, and H1 is rejected, which means that the Statutory Reserves variable has no significant effect on the liquidity of commercial banks in Indonesia. Theoretically, the Statutory Reserves are a minimum amount of funds maintained by banks, and the amount is determined by Bank Indonesia and serves to provide flexibility in liquidity management. The results of research conducted by(Samsurin, 2017) stated that the Statutory Reserves instrument did not significantly affect bank liquidity due to relatively small liquidity reserves owned by small banks, so the tendency for changes in Statutory Reserves to have an effect on the bank. On the other hand, for large and medium-sized banks, the Statutory Reserves policy has no significant effect due to the liquidity reserves owned by these banks being far above the liquidity requirement for operational activities and being able to be used as *a buffer*. However, the estimation results of the regression coefficient number show negative. Therefore, it is concluded that any increase in the reserve requirement will reduce the liquidity of commercial banks in Indonesia. And vice versa, where every decrease in the reserve requirement 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 proposed hypothesis, H0 is rejected, and H1 is accepted, which means that the Macroprudential Intermediation Ratio variable has a significant positive effect on the liquidity of commercial banks in Indonesia. From the regression coefficient of the RIM variable, it can say that every 1% increase in RIM will increase liquidity by 69.29%. The results of research conducted by(Handayani, 2019) stated that RIM is not healthy, which exceeds the upper limit of RIM's target above 92% due to the ability of liquidity to anticipate needs, and the implementation of liquidity risk management is very weak. Theoretically, RIM has a *countercyclical* characteristic, accelerating growth when the economy is contracting. 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). Therefore, based on the proposed hypothesis, H0 is accepted, and H1 is rejected, which means that the Macroprudential Liquidity Buffer variable has a significant negative effect on the liquidity of commercial banks in Indonesia. Furthermore, the PLM variable's regression coefficient shows that every 1% increase in PLM will decrease liquidity by 0.032%.

The results of research (Lupita & Lestari, 2020) show that to maintain Bank BRI liquidity during the Covid-19 pandemic, Bank Indonesia's role cannot separate from the role of Bank Indonesia, namely by increasing the Macroprudential Liquidity Buffer (PLM) ratio. In addition, the increase in the PLM ratio is considered capable of strengthening banking liquidity management

by purchasing securities. In this case, the application of PLM allows for additional access to bank funding if needed in liquidity management. Therefore, what is clear is that the policy towards this regulation must support even in tight liquidity conditions such as during the Covid-19 pandemic.

CONCLUSION

Based on the results of the study, conclusions can draw, namely: (1) Statutory Reserves do not significantly affect the liquidity of commercial banks in Indonesia for the period January 2018 - December 2021, which means that the increase in Statutory Reserves will reduce the liquidity of commercial banks in Indonesia, in line with BI's policy to strengthen bank liquidity. public during the Covid-19 pandemic. (2) The easing of RIM is carried out to maintain and relax bank liquidity, as evidenced by a significant positive effect on the liquidity of commercial banks in Indonesia. (3) Macroprudential Liquidity Buffers significantly negatively affect commercial banks' liquidity 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 effect of macroprudential policy on the liquidity of conventional commercial banks. It is hoped that further research will also use Islamic Commercial Banks (BUS) to show the effect of macroprudential policies on commercial banks. In addition, the test of the Statutory Reserves variable in this study is expected to be material for further consideration based on the classification of banks in influencing the liquidity of commercial banks. Further research is expected to examine the classification of commercial banks using different timescales so that more accurate results can be obtained and provide better and more comprehensive results.

REFERENCES

Abubakar, A., & Setiawan, Y. (2022). Central Bank Policy Mix: Issues, Challenges, and Policy Responses. In *Central Bank Policy Mix: Issues, Challenges, and Policy Responses*. Springer Singapore. https://doi.org/10.1007/978-981-16-6827-2

Agustina, & Wijaya, A. (2013). Analisis Faktor-Faktor Yang Mempengaruhi Loan Deposit Ratio Bank Swasta Nasional di Bank Indonesia. *Jurnal Wira Ekonomi Mikrosil*, *3*(2), 101-109.

Aprilia, A., & Soebroto, N. W. (2020). Analisis Pengaruh Rasio Likuiditas Efisiensi Operasi, dan Rasio Solvabilitas Terhadap Kinerja Keuangan pada PT Bank Maybank Indonesia Tbk Periode 2010-2018. *Keunis*, *8*(2), 167. https://doi.org/10.32497/keunis.v8i2.2115

Bank Indonesia. (2021). Mengupas Kebijakan Makroprudensial. Retrivied from https://www.bi.go.id/id/edukasi/Documents/Mengupas-Kebijakan-Makroprudensial.pdf/ Retrieved Okt 19. 2021, from Bank Indonesia https://www.bi.go.id/id/edukasi/Documents/Mengupas-Kebijakan-Makroprudensial.pdf

Converse, N. (2018). Uncertainty, capital flows, and maturity mismatch. *Journal of International Money and Finance*, *88*, 260-275. https://doi.org/10.1016/j.jimonfin.2017.07.013

Dwiningsih, N. (2020). Analisa Penggunaan Metode Penelitian Regresi Data Panel Pada Studi Kasus Skripsi Mahasiswa Bimbingan Prodi Manajemen Universitas Trilogi. *Laporan Penelitian*.

Ecb. (2008). Financial Stability Review. *Intellectual Property*, *110*(February), 1-190. http://www.eestipank.info/pub/en/dokumendid/publikatsioonid/seeriad/finantsvahendus/_2004_1/fsy_504.pdf

Fithriana. (2011). Peraturan Bank Indonesia Mengenai Giro Wajib Minimum Dikaitkan Dengan Fungsi Intermediasi Perbankan. Universitas Indonesia, Depok (skripsi). Retrieved from https://library.ui.ac.id/detail?id=20234436&lokasi=lokal

Handayani, A. S. (2019). Pengaruh Rasio Intermediasi Makroprudensial (RIM) terhadap Return on Asset (ROA) pada Perbankan yang Terdaftar di Bursa Efek Indonesia (BEI*). 5*, *No 1*.

Ibnudin. (2016). Prinsip Pengelolaan Likuiditas Bank Syariah. *Risâlah, Jurnal Pendidikan Dan Studi Islam*, *3*(1), 70-77.

Ichsan, N. (2013). Pengelolaan Likuiditas Bank Syariah. Nurul Ichsan 1. *Dr. Hamka (Uhamka), Jl. Limau II*, 82-103.

International Monetary Fund. (2011). *Macroprudential Policy: What Instruments and How to Use them? Lessons From Country Experiences* (Volume 2011: Issue 238). https://doi.org/https://doi.org/10.5089/9781463922603.001

Kristiyanto, S., & Widodo, S. (2020). Analisa Intermediasi Makroprudensial Pada Bank Berdampak Sistemik di Indonesia. *3*(1), 40-53.

Lekshmi, P., & Ganesh, C. (2015). *Macroprudential Regulation and Bank Performance: Evidence from India. Cloud Systems in Supply Chains*, 150-166. London: Palgrave MacMillan. https://doi.org/10.1057/9781137324245_9

Lesmana, I. (2007). Risiko Likuiditas Bank dan Asset Liabilities Management. *Universitas Gunadarma*.

Lupita, V., & Lestari, W. A. (2020). " Strategi Bank BRI DalamMenjagaL ikuiditas di Masa Pandemi Covid-19 " " BRI ' s Strategy in Maintaining Liquidity in the Pandemic Covid-19 ". *Jurnal Kompetitif Bisnis Edisi Covid-19*, *1*, 35-43.

Manarung, Mandala & Prathama Rahardja. (2004), *Uang, Perbankan, dan Ekonomi Moneter (Kajian Kontekstual Indonesia)*. Jakarta: Penerbit Fakultas Ekonomi Universitas Indonesia.

Crockett, Andrew. (2008). *Financial Stability Review: Market Liquidity and Financial Stability*. *Intellectual Property*, *110* (February). No. 11. http://www.eestipank.info/pub/en/dokumendid/publikatsioonid/seeriad/finantsvahendus/_2004_1/fsy_504.pdf.

Pandiangan, H. J. (2019). Lembaga Penjamin Simpanan Dalam Likuidasi Bank Di Indonesia. *To-Ra*, *5*(2), 49. https://doi.org/10.33541/tora.v5i2.1198

Pangestika, S. (2015). *Analisis estimasi model regresi data panel dengan pendekatan common effect model (cem), fixed effect model (fem), dan random effect model (rem)*. Universitas Negeri Semarang.

Purwanto, H. (2001). *Aspek-aspek risiko manajemen perbankan ditinjau dari hukum perbankan indonesia* (Tesis). Universitas Indonesia, Depok. Retrieved from https://library.ui.ac.id/detail?id=20267517&lokasi=lokal

Radiyanti, R. (2020). Analisis Tingkat Kesehatan Bank dengan Menggunakan Metode RBBR pada Bank MANDIRI Tahun 2015 - 2019. *Ilmiah Politeknik Piksi Input Serang*, *7*(1), 19-34.

Rush, P. (2018). Macroprudential Policy. *Real Market Economics*, 105-119. https://doi.org/10.1057/978-1-349-95278-6_6

Sakti, I. (2018). *ANALISIS REGRESI DATA PANEL*.

Santoso, A. L., & Sukihanjani, T. (2012). Faktor-Faktor yang Mempengaruhi Likuiditas Perbankan Syariah di Indonesia. *Jurnal Ekonomi Universitas Sebelas Maret*, 221-231.

Samsurin, U. (2017). *Pengaruh Sertifikat Bank Indonesia Syariah, Giro Wajib Minimum, dan Pembiayaan Bagi Hasil Terhadap Likuiditas Bank Umum Syariah di Indonesia (Periode 2011-2015)*. Universitas Islam Negeri Syarif Hidayatullah Jakarta.

Singagerda, F. S. (2018). Model Regresi Panel Data dan Aplikasi Eviews. *2*, 1-19. https://doi.org/10.31227/osf.io/vkx2t

Salim and *Syahrum*, (2012). Metodologi penelitian Kualitatif. Citapustaka Media, Bandung. ISBN 979-3216-66-2

Tovar, C. E., Escribano, M. G., & Martin, M. V. (2012). Credit Growth and the Effectiveness of Reserve Requirements and Other Macroprudential Instruments in Latin America. *IMF Working Papers*, *12*(142), 1. https://doi.org/10.5089/9781475503999.001

Wijayanti, R., Adhi, N. M. P., & Harun, C. A. (2020). Effectiveness of Macroprudential Policies and Their Interaction with Monetary Policy in Indonesia. *Ssrn*, *110*, 31-50.

Wuryandani, G., Ginting, R., Iskandar, D., & Sitompul, Z. (2014). Pengelolaan Dana Dan Likuiditas Bank. *Buletin Ekonomi Moneter Dan Perbankan*, *16*(3), 247-276. https://doi.org/10.21098/bemp.v16i3.45

Yoel, Eric Matheus Tena. (2016). Pengaruh Kebijakan Makroprudensial Terhadap Siklus Kredit: Sebuah Studi atas Penggunaan Instrumen CAR dan GMW Perbankan Indonesia 2006-2013. *Jurnal Ekonomi Fakultas Ekonomi Universitas Katolik Parahyangan*.

Yustina, W., Suryanto, T., Noviarita, H., & Anggraeni, E. (2021). Analysis of Factors Affecting Liquidity of Islamic Banking Listed on the Indonesia Stock Exchange. *Al-Kharaj : Jurnal Ekonomi, Keuangan & Bisnis Syariah*, *4*(1), 47-61. https://doi.org/10.47467/alkharaj.v4i1.414