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Macroprudential Intermediation Instruments Policy on Mitigating Risk Management Sharia Bank in Indonesia

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ABSTRACT

Sharia banks must face various operational risks, including shifting from macroeconomic, regulatory factors. The central bank has set minimum policies that must be met by sharia banking in managing risk management so that bank operations can run consistently and prudently under sharia principles. Previous studies stated that macroprudential policies could reduce banks' risk level, but lack of research on Islamic banks. So this study aims to examine the Effectiveness Macroprudential Intermediation Instruments Policy on Mitigating Risk Management Sharia Bank. Using Vector Autoregression and Impulse Response to capture short and long-term impacts along with a causal relationship from 2015 to 2021. This study indicates that the Macroprudential Intermediation Policy effectiveness affects financing and liquidity risks. There's a causal relationship between the Macroprudential Intermediation Policy and financing risk and vice versa, but not in liquidity risk. The response due to shocks between the Macroprudential Intermediation Policy, financing risk, and liquidity risk are not convergent except in the short-term mismatch ratio. So, managing Effectiveness Macroprudential Intermediation Instruments Policy on Mitigating Risk Management Sharia Bank is vital for Islamic banking, because if a shock occurs in this process, the impact will occur in the long term and can lead to bankruptcy.

Kata Kunci:
Kebijakan Makroprudensial, Risiko Pembiayaan, Risiko Likuiditas, Risiko Perbankan Syariah.

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ABSTRAK

Bank syariah harus menghadapi berbagai risiko operasional, termasuk pergeseran dari faktor makroekonomi, regulasi. Bank sentral telah menetapkan kebijakan minimal yang harus dipenuhi perbankan syariah dalam mengelola manajemen risiko agar operasional bank dapat berjalan secara konsisten dan prudent berdasarkan prinsip syariah. Penelitian sebelumnya menyatakan bahwa kebijakan makroprudensial dapat menurunkan tingkat risiko bank, namun penelitian tentang bank syariah masih kurang. Sehingga penelitian ini bertujuan untuk mengkaji Efektivitas Kebijakan Instrumen Intermediasi Makroprudensial dalam Mitigasi Manajemen Risiko Bank Syariah. Menggunakan Vector Autoregression dan Impulse Response untuk menangkap dampak jangka pendek dan jangka panjang beserta hubungan sebab akibat dari tahun 2015 hingga 2021. Kajian ini menunjukkan bahwa efektivitas Kebijakan Intermediasi Makroprudensial berpengaruh terhadap risiko pembiayaan dan likuiditas. Terdapat hubungan sebab akibat antara Kebijakan Intermediasi Makroprudensial dengan risiko pembiayaan dan sebaliknya, namun tidak pada risiko likuiditas. Respons akibat guncangan antara Kebijakan Intermediasi Makroprudensial, risiko pembiayaan, dan risiko likuiditas tidak konvergen kecuali pada rasio mismatch jangka pendek. Jadi, pengelolaan Kebijakan Efektivitas Instrumen Intermediasi Makroprudensial dalam Mitigasi Manajemen Risiko Bank Syariah sangat penting bagi perbankan syariah, karena jika terjadi guncangan dalam proses ini, dampaknya akan terjadi dalam jangka panjang dan dapat menyebabkan kebangkrutan.

INTRODUCTION

Sharia banks hold different business concepts which make their corporate governance more challenging than conventional banking. Currently, the development of sharia bank in Indonesia is still constrained, especially at the level of public literacy. The lack of business model diversification

and the emergence of digital banks that offer convenience to their customers are causing more significant challenges for Sharia banks to develop, especially during the current pandemic. Banks must face various operational risks, including macroeconomic and regulatory factors, politics, law and infrastructure. The challenge in managing this business aligns with how risk management can be carried out prudently by Sharia banking.

The bank function is an intermediary institution that collects funds and then distributes them back the in the form of credit or loans. One of the challenges Sharia banks face how to meet their level of liquidity when funding instruments are still limited or if sources of funds are needed to fulfil their function as intermediary institutions but can be accessed at high costs. For this reason, the risk management process in Sharia banking becomes more unpredictable, which, if not appropriately managed, can negatively impact bank income and capital.

As a regulator, Indonesia's central bank has set minimum policies that must be met by sharia banking in managing risk management so that bank operations can run consistently and prudently under sharia principles. Bank Indonesia and Otoritas Jasa Keuangan have issued stimuli during the pandemic to maintain stability in the financial services industries, one of which is through a financing restructuring policy for the increase in defaults in the economic recession in Indonesia. In addition, Bank Indonesia also issued a policy to regulate the Macroprudential Intermediation Ratio (MIR) to mitigate the impact of increasing risks on the domestic economy. Research was also conducted by Popoyan et al (2017), who studied the macroeconomic impact of macroprudential regulations, the aim was to clarify the most appropriate policy mix to achieve banking sector resilience and promote macroeconomic stability, but the implementation of macroprudential policies contributed to a decline in credit growth (Zhang et al., 2016; Tillmann et al., 2015). This also happened in Brazil (Glocker et al., 2015) and Britain (Aiyar et al., 2014) where policy tightening resulted in a decrease in credit, bank credit distribution as the main transmission mechanism for the minimum reserve requirement policy. In other words, macroprudential policies are more effective in managing financing risk.

Macroprudential Intermediation Ratio (MIR) is a policy used to limit the risks and costs of a systemic crisis (Galati and Richhild, 2011) and is used to maintain financial stability. For Sharia banking, this policy was implemented in October 2018, being carried out due to the economic crisis. According to Bank Indonesia, the Macroprudential Intermediation Ratio (MIR) is an instrument used in managing the banking intermediation function to align with the capacity and target of economic growth and maintain the precautionary principle (www.bi.go.id). There is a policy on the level of fulfilment of the Macroprudential Intermediation Ratio (MIR) that every bank must meet to show the level of bank intermediation is working optimally. The policy issued in 2022 states that the Macroprudential Intermediation Ratio (MIR) range is 84% - 94%. If the bank cannot meet the above provisions, there is a disincentive in the form of a sharia MIR demand deposit or higher reserve requirement (RR).

The macroprudential Intermediation Ratio (MIR) describes how the bank's intermediation function can run optimally. When viewed from the side of risk management in banking, it relates to how banks manage the risk of raising funds and distributing funds, namely liquidity risk and financing risk. However, research conducted by Raksmey et al. (2022) states that there is a negative influence on macroprudential regulations that have an adverse impact on the use of banking services.

Graph 1 shows that although there has been a decrease in the level of credit risk seen from the NPF ratio over the last five years and liquidity risk represented by the short-term mismatch ratio is in robust liquidity capacity. Still, the function of the bank as an intermediary institution has yet to run optimally, as seen from the decline in the FDR ratio every year. This decrease in the FDR ratio indicates that the collection of funds is greater than the distribution of funds in the form of financing. This condition does not only occur during the pandemic but has begun to decline from 2017 to 2021.

Graph. 1.FDR, NPF, Shorterm Mismatch and MIR Ratio in Sharia Bank

Several previous studies have analyzed how macroprudential policies can limit banking vulnerability and, for debtors, are pretty effective in reducing bank risk (Claessens et al., 2013; Beck et al., 2020; Altunbas et al., 2018). In addition, policymakers generally rely on macroprudential policies to address financial stability issues. However, our understanding of this policy and its efficacy is limited (Akinci et al., 2018). In addition, if it is seen that the fulfilment of the Macroprudential Intermediation Ratio (MIR) has increased every year since 2018, the level of MIR fulfilment has been above the provisions of Bank Indonesia. For this reason, Sharia banks still need help maintaining their function as intermediary institutions. Research by Kristiyanto and Widodo (2020) states that the management of credit risk positively influences the Macroprudential Intermediation Ratio (MIR). However, does this apply to sharia banking when viewed from the characteristics of Sharia banking different from conventional banking? Therefore, this research aims to examine the effectiveness of Sharia bank risk management mitigation on macroprudential intermediation instruments policy in Indonesia.

LITERATURE REVIEW

The main task of the banking industry is maximizing profit, minimizing risk, and ensuring the availability of sufficient liquidity (Zainul Arifin, 2002). Activities that run in Sharia banking must not violate sharia principles, which makes risk management in Sharia banking have different characteristics compared to conventional banks.

The risks that arise in the banking industry are both anticipated and unanticipated events that can harm bank income and capital. The risks that arise cannot be avoided but can be managed and controlled. The risks that arise cannot be avoided but can be managed and controlled (Karim, 2004). The risk in the banking industry is a variation in profits, sales, or other financial variables that are affected by economic risk, political uncertainty, and industry problems. Risk requires a series of procedures and methodologies to identify, measure, monitor and control risk. Arising from business activities or commonly referred to as risk management.

To ensure liquidity availability, the Sharia banking industry requires a tool or instrument to be used in its management. Meeting the need for bank liquidity is one of the main tasks of bank management. Besides maximising profits or profits, another thing that is no less important is mitigating the risks that will arise. Ensuring the fulfilment of liquidity needs effectively and efficiently in banking operations is one of the mitigations for the occurrence of risk of liquidity needs. This mitigation depends on the funding strategy of banks; according to research conducted

by Demirgüç-Kunt et al. (2010), expansion into non-interest income-generating activities increases the rate of return on assets and can offer some of the benefits of risk diversification at shallow levels, because if banking sector supplies deposits, has excessive risk taking incentives (Begenau, 2016).

The financing-to-deposit ratio (FDR) and the short-term mismatch ratio (STM) can be used to measure the level of bank liquidity risk. STM is used to see liquidity risk in the short term; the higher the ratio value, the more the bank can manage its liquidity risk. There are five ratings on the STM ratio, namely very strong (ratio > 25%), strong (20% ratio < STM 25%), adequate (15% ratio < STM 20%), weak (10% ratio < STM 15%) and very weak (ratio 10%). FDR is the ratio between the financing disbursed to the funds raised. The higher the FDR ratio owned by Sharia banks, the more optimally a bank functions as an intermediary institution; Indonesia's central bank sets the FDR rate of 80% - 100%. Meaning that the bank must have an FDR rate of 80% - 100% if it is said that the bank has good liquidity risk management

NPF is a ratio used to show the ability of bank management to manage the risk of non-performing financing. The greater the NPF ratio, the worse the bank's risk management level. According to Greening and Bratanovic (2011), credit risk also referred to as counterparty risk, is a condition when the debtor cannot make a return on principal and others by the agreed agreement. It is said that banks are able to manage financing risk well when they have a low NPF ratio.

The function of banking as an intermediary institution has a goal, one of which is financial stability. The banking industry can contribute to the economy so that any risks that occur in banks can have a systemic impact or have systemic risks (Wijoyo, 2015). For this reason, Bank Indonesia carries out macroprudential regulation and supervision by issuing a macroprudential intermediation ratio (MIR) policy. This ratio is used to regulate the management of the banking intermediation function by the capacity and target of economic growth while maintaining the prudential principle. The MIR range depends on macroeconomic conditions and the financial system. BI will lower the MIR upper limit if the financial system is too high. On the other hand, if there is a slowdown in economic growth, BI will increase the MIR lower limit (Wijayanti et al., 2020). The impact of macroprudential policies on the possibility of a banking crisis is more pronounced in developing market economies compared to developed countries (Belkhir et al., 2022).

Several studies have been conducted regarding the influence of risk management in banking on the effectiveness of the macroprudential intermediation ratio (MIR) policy (Meuleman & Vennet, 2020; Altunbas et al., 2018; Zhang et al., 2018; Mirzaei & Samet, 2022; Ely et al., 2021; Benbouzid, et al., 2022; Apergis et al., 2022). It is known that macroprudential policy instruments move opposite to interest rate monetary policy so that the NPL ratio can be reduced (Wijayanti et al., 2020); implementation of macroprudential policy instruments was effective in reducing the NPL ratio. In addition, according to (Wijayanti et al., 2020; Kumar et al., 2022; Carreras et al., 2018), the impact of macroprudential policy instruments on reducing the NPL ratio will be more pronounced in banks with significant assets due to good risk mitigation management. In other words, a good risk management process can reduce a bank's risk level and the effectiveness of the macroprudential intermediation ratio (RIM) policy. The macroprudential policy also successfully protected the economy from volatile cross-border capital flows (Aysan et al., 2015). But, Macroprudential policies are more successful when they complement monetary policy by strengthening monetary tightening (Bruno et al., 2017; Lee et al., 2015),.

However, other research states that the macroprudential intermediation ratio (MIR) policy does not affect the level of lending to banks listed on the BEI (Rosdiana, Bambang, Waskito, 2021) because debtors only see the loan interest rate (Panuntun, 2018). Meanwhile, Utami and Restu (2020) stated that tightening macroprudential policies have significantly reduced the NPL ratio and vice versa. In addition, it does not have a significant effect on LDR.

In this study, we will also look at the response that occurs when there is a shock to the effectiveness of macroprudential policies and how they affect the process of managing financing

and liquidity risks or vice versa. Due to the effectiveness of the macroprudential policy instrument in response to most of the shocks considered acting on the shock and persistence (Akram, 2014) and also there is an influence on the policy response to credit shocks and the macroeconomic impact of macroprudential policies (Kim et al., 2022).

Hypotheses

Macroprudential policy instruments move opposite to interest rate monetary policy make the NPL ratio can be reduced (Wijayanti et al., 2020); implementation of macroprudential policy instruments was effective in reducing the NPL ratio. In addition, according to (Wijayanti et al., 2020; Kumar et al., 2022; Carreras et al., 2018), the impact of macroprudential policy instruments on reducing the NPL ratio will be more pronounced in banks with significant assets due to good risk mitigation management.

H1: The effectiveness of the macroprudential intermediation ratio (MIR) policy has an effect on financing risk.

The effectiveness of macroprudential policies and how they affect the process of managing financing and liquidity risks or vice versa. Due to the effectiveness of the macroprudential policy instrument in response to most of the shocks considered acting on the shock and persistence (Akram, 2014).

H2: The effectiveness of the macroprudential intermediation ratio (MIR) policy has an effect on liquidity risk.
H3: Response due to shocks between the effectiveness of the management of Macroprudential Intermediation Instruments Policy and Mitigating Sharia Bank Risk Management is convergent

METHODOLOGY

This research is quantitative research with numbers as research data and analysis through statistical calculations used to answer research hypotheses (Sugiyono, 2018). In addition, this research is causal by the research objective, namely to see the relationship between variables (Bougie & Sekaran, 2017). The object of research or unit of analysis is all data on NPF, FDR, STM, and MIR of Sharia banking obtained through the sharia banking statistics report issued monthly by the financial services authority in 2015-2021 on the official website www.ojk.go.id. The type of research used is quantitative research with secondary data. Operational variables used in this study can be seen in the following table:

Table 1. Operational Variable

Operational Variable	Variable Concept	Indicator	Scale
MIR (Macroprudential Intermediation Ratio)	Macroprudential instruments aimed at managing the banking intermediation function to match the capacity and target of economic growth while maintaining the principle of prudence.	$MIR = \frac{Loan + Securities\ Owned}{Deposit + Securities\ Issued} x\ 100\%$	Ratio
NPF (Non Performing Loan Ratio)	Non-performing financing ratio is used as a measure of the failure rate of credit or financing by banks as creditors	$NPF = \frac{Total\ non-performing\ financing}{Total\ financing} x100\%$	Ratio

Operational Variable	Variable Concept	Indicator	Scale
STM (Short Term Mismatch Ratio)	Used to reflect the ability of bank liquidity to anticipate liquidity needs and the implementation of liquidity management	$STM = \frac{Short\ term\ assets}{Short\ term\ liabilities} x100\%$	Ratio
FDR (Financing to Deposit Ratio)	The bank's ability to repay the withdrawal of funds made by depositors, relying on the financing provided as a source of liquidity	$FDR = \frac{Total\ Financing}{Total\ third\ party\ funds} x100\%$	Ratio

According to Sugiyono (2018), the data analysis technique is to group, tabulate, present, and calculate data from all variables used in this study to answer the problems raised. The technique used is to use the VAR (Vector Autoregressive) model. There are several analyzes in the VAR model used in this study, namely the impulse response, which serves to see the impact of changes from a variable on other variables; the causality test or what is called the Granger causality test, is used to determine the causal relationship between variables in the VAR model.

There are several VAR models. According to Juanda and Junaidi (2012), the unrestricted VAR model is divided into two forms, namely VAR in level if the data is stationary and VAR in difference if the data is not stationary and not cointegrated. However, if the resulting VAR model is not stationary but cointegrated, then the VECM (Vector Error Correction Model) is used, where VECM restricts the long-term relationship of endogenous variables so that it converges on the integration relationship while still allowing the existence of short-term dynamics. The equations in this study are as follows:

$$MIR_t = \alpha_{11} + \alpha_{12}MIR_{t-1} + \alpha_{13}FDR_{t-1} + \alpha_{14}STM_{t-1} + \alpha_{15}NPF_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 2.1$$

On the other hand, this study will reveal that risk management mitigation in sharia banks, both in financing and liquidity, also affects the effectiveness of the MIR policy, resulting in the following equation:

$$NPF_t = \beta_{21} + \beta_{22}MIR_{t-1} + \beta_{23}FDR_{t-1} + \beta_{24}STM_{t-1} + \beta_{25}NPF_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 2.2$$

$$FDR_t = \gamma_{31} + \gamma_{32}MIR_{t-1} + \beta_{33}FDR_{t-1} + \beta_{34}STM_{t-1} + \beta_{35}NPF_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 2.3$$

$$STM_t = \delta_{41} + \delta_{42}MIR_{t-1} + \delta_{43}FDR_{t-1} + \delta_{44}STM_{t-1} + \delta_{45}NPF_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 2.4$$

A stationarity test was carried out to get the best model using the augmented data fuller test. If the data is not stationary at the level, it is converted into a VAR difference model. The VAR difference model will be tested again to determine whether the model used is the best so that it is tested whether the resulting model is cointegrated or not. If the data used is not stationary but is cointegrated through testing using the cointegration test, the model used is the VECM model.

RESULT

The initial stage in this research is to see whether each variable is stationary by using a unit root test at the level using Augmented Dickey-Fuller. It can be seen from table 4.1 that only the STM variable is stationary with the ADF value > critical test at the 5% level, namely |3,12| > |2,89|. So when viewed from the explanation of the types mentioned above of VAR models, they are converted into VAR in different models. The variable used is the first difference where all the data is stationary.

Table 2. Variable Stationary Value

Variable	ADF	Test Statistic	
MIR	1.647302	3.511262	Non-stationary data
FDR	0.352294	3.511262	Non-stationary data
STM	3.128099	2.896779	Stationary at level 5% and 10%
NPF	0.711430	3.511262	Non-stationary data

The analysis of the first VAR model used in this study was to determine the causality relationship between variables. To answer the first Hypothesis that can be seen from table 3, it can be concluded that the effectiveness of the macroprudential intermediation ratio (MIR) policy affects financing risk and vice versa, as seen from the probability value < 5% with values of 0.0080 and 0, 00181 This result also answers the first hypothesis question that The effectiveness of the macroprudential intermediation ratio (MIR) policy affects financing risk.

Table 3. Pairwise Granger Causality Tests

Null Hypothesis:	Obs.	F-Statistic	Prob.
MIR does not Granger Cause STM	83	0.40084	0.5285
STM does not Granger Cause MIR		0.67612	0.4134
NPF does not Granger Cause STM	83	0.48347	0.4889
STM does not Granger Cause NPF		0.01802	0.8935
FDR does not Granger Cause STM	83	1.27763	0.2617
STM does not Granger Cause FDR		0.16317	0.6873
NPF does not Granger Cause MIR	83	7.39330	0.0080
MIR does not Granger Cause NPF		5.82792	0.0181
FDR does not Granger Cause MIR	83	7.53824	0.0075
MIR does not Granger Cause FDR		1.18095	0.2804
FDR does not Granger Cause NPF	83	3.06126	0.0840
NPF does not Granger Cause FDR		1.88272	0.1739

From the management of liquidity risk, it can be seen from the short-term mismatch ratio the effectiveness of the macroprudential intermediation ratio (MIR) policy has no effect on short-term mismatch and vice versa; it can be seen from the value > 5%, which is 0.5285 and 0.4134. However, the FDR ratio has an influence on the effectiveness of the macroprudential intermediation ratio (MIR) policy but vice versa, with a value of < 5%, which is 0.0075. This also answers the second hypothesis that the effectiveness of the macroprudential intermediation ratio (MIR) policy has an effect on liquidity risk, but the quality of management in managing liquidity risk, in this case, the FDR ratio, has an impact on the effectiveness of the macroprudential intermediation ratio (MIR) policy.

In addition, it can also be concluded that liquidity risk management affects financing risk management. Namely, the FDR ratio has a causal relationship with NPF $\alpha = 10\%$, which is 0.0840 but not vice versa. However, the STM ratio has absolutely no causal relationship with the NPF ratio and vice versa, with a probability value of > 5%, which are 0.4889 and 0.8935, respectively. So it can be concluded that financing risk management is only related to liquidity risk ratio management, namely the FDR ratio.

The second analysis used in the VAR model is the impulse response which is used to see if a shock occurs in one of the variables and whether it will have an impact on other variables, as shown in Figure 1. To answer the third hypothesis, namely, the Response due to shocks between the

effectiveness of the management of Macroprudential Intermediation Instruments Policy and Mitigating Sharia Bank Risk Management is convergent, as shown in the image below. If there is a shock to the effectiveness of the management of the Macroprudential Intermediation Instruments Policy, the impact on the STM ratio is convergent, meaning that the impact will disappear in the short term.

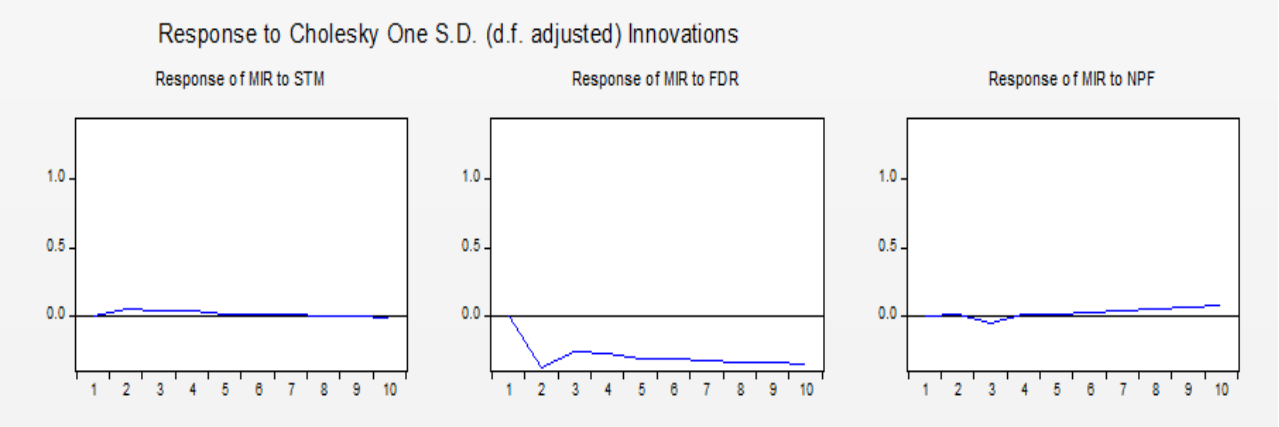

Fig 1. Impulse Response

Table 4. VECM Model

Error Correction:	D(LOG(MIR))	D(LOG(NPF))	D(LOG(FDR))	D(LOG(STM))
CointEq1	-0.117868	-0.160072	-0.005458	-2.150677
	(0.07542)	(0.31061)	(0.07730)	(0.58270)
	[-1.56283]	[-0.51534]	[-0.07061]	[-3.69085]
D(LOG(MIR(-1)))	-0.012737	0.288306	0.225171	-0.164147
	(0.13772)	(0.56720)	(0.14116)	(1.06405)
	[-0.09248]	[0.50830]	[1.59514]	[-0.15427]
D(LOG(NPF(-1)))	0.019386	-0.196591	0.046288	0.274502
	(0.02719)	(0.11198)	(0.02787)	(0.21008)
	[0.71297]	[-1.75553]	[1.66087]	[1.30667]
D(LOG(FDR(-1)))	-0.276441	-1.032752	-0.361288	1.162982
	(0.13698)	(0.56417)	(0.14041)	(1.05836)
	[-2.01805]	[-1.83058]	[-2.57315]	[1.09885]
D(LOG(STM(-1)))	0.000770	-0.083484	-0.004236	-0.222355
	(0.01338)	(0.05509)	(0.01371)	(0.10336)
	[0.05754]	[-1.51528]	[-0.30896]	[-2.15134]
C	0.000593	-0.014723	-0.003765	0.009621
	(0.00165)	(0.00680)	(0.00169)	(0.01276)
	[0.35915]	[-2.16492]	[-2.22441]	[0.75408]
R-squared	**0.145529**	**0.131348**	**0.110011**	**0.268090**
Adj. R-squared	**0.089314**	**0.074200**	**0.051459**	**0.219938**

However, if there is a shock to the effectiveness of the management of the Macroprudential Intermediation Instruments Policy, the impact on financing risk management will be non-convergent. This means that ineffective management of the management of Macroprudential Intermediation Instruments policy will have a long-term impact on financing risk, and the shock will not disappear in the short term. Likewise, if there is a shock to the effectiveness of the management of the Macroprudential Intermediation Instruments policy, the shock will not disappear in the short term. In other words, the effectiveness of the management of the Macroprudential Intermediation Instruments Policy will cause long-term shocks to risk management in Sharia banks.

From the resulting VAR model, it can be seen that the data is not stationary, and after cointegration testing, it is found that the VAR model through the cointegration test data test is not stationary but cointegrated, then the appropriate model in this study is to use the VECM model as shown in table 4. From this model, it can be concluded that the effectiveness of the management of the Macroprudential Intermediation Instruments Policy is influenced by the NPF period t-1, namely α = 5%, namely with a value of 0.02719 as well as the STM period t-1 affects the effectiveness of the management of Macroprudential Intermediation. Instruments Policy at = 5% with a value of 0.01338. However, the FDR ratio in the t-1 period does not affect the MIR ratio. It means that the effectiveness of the management of the Macroprudential Intermediation Instruments Policy will be influenced by the management of financing and liquidity risks in the previous period.

In addition, from the VECM model, the effectiveness of the management of the Macroprudential Intermediation policy in period t-1 will each affect the management of financing risk through an NPF ratio of 0.05509 at = 10%. Likewise, liquidity risk management through the FDR ratio is influenced by the effectiveness of the management of the Macroprudential Intermediation policy in period t-1 of 0.01371 at = 5%. However, not with the STM ratio, the effectiveness of the management of the Macroprudential Intermediation policy in period t-1 will not affect the STM ratio in line with the results on the impulse response, which states that the impact of the shock will disappear in the short-term and will not cause its effect to disappear. If there is an increase of 1 unit in MIR in period t-1, there will be a decrease in financing risk management and liquidity risk by 0.083484 and 0.004236, respectively.

The function of banking as an intermediary institution has a goal, one of which is financial stability. The banking industry can contribute to the economy so that any risks that occur in banks can have a systemic impact or have systemic risks (Wijoyo, 2015). The risks that arise in the banking industry are both anticipated and unanticipated events that can harm bank income and capital. The risks that arise cannot be avoided but can be managed and controlled; the risks that arise cannot be avoided but can be managed and controlled (Karim, 2004).

Based on the results above, the answer to the first hypothesis (H1) is that the effectiveness of the macroprudential intermediation ratio (MIR) policy affects financing risk and vice versa. All the results of this study align with the research conducted by Wijayanti et al. (2020) on the impact of macroprudential policy instruments on the decline in the NPL ratio. A good risk management process in banks can reduce the level of risk in banks and the effectiveness of the macroprudential intermediation ratio (MIR) policy and also align with research conducted by Richter et al. (2018).

This research also found that the effectiveness of the macroprudential intermediation ratio (MIR) policy does not affect short-term mismatch and vice versa. Still, however, the FDR ratio influences the macroprudential intermediation ratio (MIR) policy's effectiveness and vice versa. The management of bank liquidity affects macroprudential intermediation policy in line with the results of Meuleman & Vennet's (2020) research about the effectiveness of macroprudential policy in containing the systemic risk of European banks, which states that the tools and liquidity measurements used can increase bank resilience and reduce the level of banking linkage risk. This result also answers the second hypothesis (H2) in this study.

Answer the third hypothesis (H3), it can be concluded that ineffective management of the Macroprudential Intermediation Instruments policy will have a long-term impact on financing risk, and the shock will not disappear in the short term, these results are in line with research conducted by (Kim et al., 2022). Likewise, if there is a shock to the effectiveness of the management of the Macroprudential Intermediation Instruments policy, the shock will not disappear in the short term. In other words, the effectiveness of the management of the Macroprudential Intermediation Instruments Policy will cause long-term shocks to risk management in Sharia banks.

This result also occurs in Sharia banks where the management of financing risk and liquidity risk will help the effectiveness of macroprudential instruments policy. Both have a two-way and

one-way causal relationship. Maintaining the effectiveness of macroprudential policies is very important to avoid other sustainability impacts, such as distressed or bankrupt bank.

CONCLUSION AND RECOMMENDATION

The results of this study indicate that the effectiveness of the management of Macroprudential Intermediation Instruments Policy t-1 period affects the process of mitigating financing risk and liquidity risk, which is seen in the management of the financing to deposit ratio but has no effect on the short-term mismatch ratio. There is a causal relationship between the effectiveness of the management of the Macroprudential Intermediation Instruments Policy and the process of mitigating financing risk and vice versa, but not in liquidity risk. Also, the response due to shocks between the effectiveness of the management of the Macroprudential Intermediation Instruments Policy, financing risk, and liquidity risk are not convergent, except in the short-term mismatch ratio. If there is a shock to macroprudential intermediation policy instruments, the impact on liquidity risk and financing risk will remain in the short term. Macroprudential policies can limit banking vulnerabilities and reduce risk Macroprudential policies can limit banking vulnerabilities and reduce risk. Management of financing and liquidity risks is vital because if shocks occur in the risk mitigation process, it will have a long-term impact on Islamic banks.

The recommended results of this study are as follows. First, In the banking industry, especially Islamic banks, the effectiveness of macroprudential policies issued by the government is very important in mitigate financing risks. The more effective the macroprudential policies issued by the authorities, the lower the financing risk ratio, both of which have a causal relationship.

Second, the effectiveness of the macroprudential intermediation ratio (RIM) policy does not have an impact on managing short-term liquidity risk but has an impact on managing the financing-to-deposit ratio bank. So it's not how quickly Islamic banks meet their short-term liquidity needs but through the risk of distributing funds to the number of funds that have been collected.

Third, managing the Macroprudential Intermediation Instrument Policy will cause long-term shocks to risk management in Islamic banks, particularly in terms of financing and liquidity risks. Management of financing and liquidity risks is very important because if there is a shock to the effectiveness of macroprudential policies, it will have a long-term impact on the risk mitigation process of Islamic banks.

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