Asy Syar'iyyah: Jurnal Ilmu Syari'ah dan Perbankan Islam – ISSN 2089-7227 (p) 2598-8522 (e)
Vol. 9, No. 2, Desember 2024, pp. 149 - 166

BANKING MODEL AND MONETARY TRANSMISSION MECHANISM IN INDONESIA: ARE ISLAMIC BANKS MORE EFFECTIVE?

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Abstract

Economic growth, both global and national, is slowing down, prompting monetary authorities to issue effective monetary policies through credit lines to encourage economic growth. In the dual banking system where there are Islamic banks and conventional banks, it is a challenge for the monetary authorities to see the effectiveness of the two banks in transmitting monetary policy. To find out the difference in effectiveness levels, the researcher used quarterly data from Bank Indonesia interest rate variables, gross domestic product (GDP), Islamic bank financing, and conventional bank loans for the period 2014 to 2024. Using VAR-ECM analysis, it was found that Islamic banks have a lower response than conventional banks in transmitting monetary policy through credit channel. In addition, Syrian banks also have lower effectiveness than conventional banks in encouraging economic growth in Indonesia.

Keyword: monetary policy transmission, VAR-ECM, dual banking system

A. Introduction

Indonesia is facing a global economic slowdown where economic growth has declined to only 2.8% in 2024. This is due to the geopolitical fragmentation of the economy and is marked by the divergence of growth that occurs between developed and developing countries. In addition, the current global inflation rate of 6.8% is still far above the estimated inflation target.

Bank Indonesia, in this case as the monetary authority in Indonesia, has issued a loose macroprudential policy aimed at encouraging economic growth through banking credit channels. This is a challenge for Bank Indonesia to

optimize all monetary instruments so that they can encourage economic growth and maintain price stability.

The banking credit channel is one of the monetary policy transmission mechanisms that can be related to macroeconomic variables, especially economic growth. The impact of this channel cannot be separated from the configuration of the financial sector in a country. So that the effectiveness of monetary policy can be identified from the significant relative impact through the banking credit channel.[1]

The credit channel in theory has a direct response to monetary policy with its interest rate instruments. This is inseparable from the strengthening of endogenous changes in the external finance premium, which is the difference in cost between funds raised externally (issuing equity or debt) and funds generated internally (retained earnings). The size of this external finance premium reflects imperfections in the credit market due to the overlap between the expected returns for creditors and the costs faced by prospective debtors. So that the impact of the policy on borrowing costs will increase real spending and real activity due to the additional effects of the external finance premium policy.[2]

There are two possibilities that occur through the credit channel from the policy taken by the monetary authority. The first is the balance sheet channel which emphasizes the potential impact of changes in monetary policy on the balance sheet and income statement of the debtor, including the debtor's net worth, cash flow, and liquid assets. The second is the bank credit channel which

[1] A Rafay, "Islamic Banking System: A Credit Channel of Monetary Policy–Evidence from an Emerging Economy," *Economic Research-Ekonomska Istrazivanja* 32, no. 1 (2019): 742–54, https://doi.org/10.1080/1331677X.2019.1579662.

[2] Ben S Bernanke and Mark Gertler, "Inside the Black Box: The Credit Channel of Monetary Policy Transmission," *Journal of Economic Perspectives* 9, no. 4 (1995): 27–48.

focuses more narrowly on the possible effects of changes in monetary policy on the supply of loans by banks.[3,4]

The bank credit channel increases the important role of banks in transmitting monetary policy to the real sector. This increases the importance of banks for the effectiveness of monetary policy. There are three determining factors for efficient banks in responding to monetary policy through monetary transmission, including: 1) dependence on deposits; 2) sensitivity to monetary policy shocks through credit expansion; 3) dependence of investors and consumers on lending banks.[5,6,7,8]

Interestingly, in countries that implement a dual banking system such as Indonesia, the roles of conventional and Islamic banking will differ in responding to monetary policy. The two systems have different philosophical and theoretical foundations, but are interrelated because they are in the same monetary environment. Likewise, the differences in the responses of Islamic banks and conventional banks when transmitting monetary policy to the real sector due to their asset-based nature.[9]

Studies comparing conventional and Islamic banking responses to monetary policy in Indonesia still have room for discussion. Previous studies have discussed more about the role of conventional and Islamic banking on macroeconomic variables such as economic growth in countries that implement

[3] Bernanke and Gertler.

[4] Rafay, "Islamic Banking System: A Credit Channel of Monetary Policy–Evidence from an Emerging Economy."

[5] Rafay.

[6] Silu Muduli and Harendra Behera, "Bank Capital and Monetary Policy Transmission in India," *Macroeconomics and Finance in Emerging Market Economies* 16, no. 1 (2023): 32–56.

[7] Ousmane Dieng and Babacar Sene, "The Transmission Mechanism of Monetary Policy in West African Economic and Monetary Union (WAEMU): Evidence from Bank Balance' Sheet," *Cogent Economics & Finance* 12, no. 1 (December 31, 2024): 2312373, https://doi.org/10.1080/23322039.2024.2312373.

[8] Javier Bianchi and Saki Bigio, "Banks, Liquidity Management, and Monetary Policy," *Econometrica* 90, no. 1 (2022): 391–454.

[9] A Kabir, "The Transmission Mechanism of Monetary Policy via Bank' Balance Sheet: An Empirical Study of Dual Banking System in Pakistan," *Jurnal Ekonomi Malaysia* 56, no. 2 (2022): 129–40, https://doi.org/10.17576/JEM-2022-5602-9.

a dual banking system. [10,11,12] The novelty of this study lies in the low economic growth conditions in Indonesia and the challenges for Bank Indonesia to use monetary instruments to encourage economic growth through credit channels. So the results of this study will show how effectively Islamic banks and conventional banks respond to monetary policy through credit channels.

B. Literatur Review

This section will discuss the literature review that focuses on the transmission of monetary policy through the credit channel. Studies that discuss the response of conventional banks to monetary policy have been widely discussed. Meanwhile, the comparison of the effectiveness between Islamic banks and conventional banks in responding to monetary policy is still rarely discussed, especially in Indonesia.

Since the monetary policy transmission mechanism began to be known, how the effectiveness of the monetary policy transmission channel drives the sector still leaves debate in an empirical approach. This is what causes the study of the monetary policy transmission mechanism through the credit channel, especially in the dual banking system, to still have gap for research.[13]

The monetary policy transmission approach through the credit channel is based on the assumption that public savings stored in banks are not immediately channeled entirely by banks in the form of credit to economic sectors. Banking as an intermediary institution does not always run effectively in transmitting

[10] E R Kismawadi, "Contribution of Islamic Banks and Macroeconomic Variables to Economic Growth in Developing Countries: Vector Error Correction Model Approach (VECM)," *Journal of Islamic Accounting and Business Research*, 2023, https://doi.org/10.1108/JIABR-03-2022-0090.

[11] Guglielmo Maria Caporale and Mohamad Husam Helmi, "Islamic Banking, Credit, and Economic Growth: Some Empirical Evidence," *International Journal of Finance & Economics* 23, no. 4 (2018): 456–77.

[12] M A Ledhem, "Islamic Finance and Economic Growth: The Turkish Experiment," *ISRA International Journal of Islamic Finance* 14, no. 1 (2022): 4–19, https://doi.org/10.1108/IJIF-12-2020-0255.

[13] Ilhamdi Ilhamdi and Deni Nugraha, "ANALISIS TINJAUAN BIBLIOMETRIK PADA LITERATUR SISTEM MONETER ISLAM," *ASY SYAR'IYYAH: JURNAL ILMU SYARI'AH DAN PERBANKAN ISLAM* 8, no. 2 SE-Articles (November 28, 2023), https://doi.org/10.32923/asy.v8i2.3754.

monetary policy that drives the growth of the real sector.[14] So the strength of the monetary policy transmission channel through the credit channel to be able to drive the real sector depends on the extent to which the policy instrument can be passed on to bank interest rates.[15]

In countries that implement a dual monetary system, every monetary policy issued by the monetary authority is responded to differently between Islamic and conventional banking.[16,17]

Every shock from changes in monetary policy will affect aggregate spending by affecting demand for consumer goods and investment spending, which then affects the unemployment rate, production, wages and prices. [18]

Islamic banking operationally has a different system from conventional banking where Islamic principles prohibit the practice of interest or usury. The profit sharing system adopted by Islamic banking is based on the debtor's business profit/loss report. There are three categories of sharia-based transactions, namely debt-based financing, lease-based financing and profit sharing from financing. These practices are characteristic of Islamic banking which depends on the real sector and reduces creditors and debtors in times of uncertainty. Although Islamic banks are assumed to be interest-free, the response

[14] Reza Jamilah Fikri, "Monetary Transmission Mechanism under Dual Financial System in Indonesia: Credit-Financing Channel," *Journal of Islamic Monetary Economics and Finance* 4, no. 2 (2018): 251–78.

[15] S Triwibowo, "Policy Rates Pass-Through in Indonesia's Dual Banking System: Does Business Cycle Matter?," *Journal of Islamic Monetary Economics and Finance* 8, no. 1 (2022): 1–24, https://doi.org/10.21098/jimf.v8i1.1424.

[16] Syed Muhammad Abdul Rehman Shah et al., "Interbank Rate & Monetary Policy: Evidence from Dual Banking System of Developing Countries," *ISRA International Journal of Islamic Finance* 16, no. 2 SE-Academic Articles (June 30, 2024): 131–53, https://doi.org/10.55188/ijif.v16i2.553.

[17] Salma Drissi and Wafa Guerguer, "The Effects of Interest Rates on Islamic and Conventional Banks: A Comparative Study of Monetary Policy Transmission Channels," *European Journal of Islamic Finance* 10, no. 3 (2023): 28–44.

[18] A Rashid, "On the Role of Islamic and Conventional Banks in the Monetary Policy Transmission in Malaysia: Do Size and Liquidity Matter?," *Research in International Business and Finance* 52 (2020), https://doi.org/10.1016/j.ribaf.2019.101123.

of debtor behavior to changes in interest rate policy is similar to conventional tires.

The operational differences between Islamic banks and conventional banks can be reflected in how the two banks transmit monetary policy from monetary variables to real economic variables. Conventional banks affect the economy by adjusting interest rates in managing the amount of money in circulation. While Islamic banks with sharia principles avoid using interest rates in their business operations. So the level of sensitivity of Islamic and conventional banking to monetary policy varies.[19]

Monetary policy through regulating the availability of nominal money or nominal interest rates, in the short term affects the real sector such as output and labor absorption. Factors that influence the transmission of monetary policy include, (1) the behavior of economic actors in the financial market such as central banks, banks, and other economic actors, (2) the existence of a time lag in the transmission of monetary policy shocks to the economy, (3) the evolution of monetary policy transmission channels related to economic and financial developments.[20]

The relationship between monetary policy instruments and aggregate demand in an economy in developing countries is not as good as in developed countries, where the banking sector in most developing countries dominates the financial market. So that the transmission of monetary policy is very dependent on banking credit channels.[21]

Very important things for monetary policy to be effective include identifying transmission channels, speed of adjustment, and intensity of change.

[19] Drissi and Guerguer, "The Effects of Interest Rates on Islamic and Conventional Banks: A Comparative Study of Monetary Policy Transmission Channels."

[20] S Tenreyro, "Pushing on a String: Us Monetary Policy Is Less Powerful in Recessions," *American Economic Journal: Macroeconomics* 8, no. 4 (2016): 43–74, https://doi.org/10.1257/mac.20150016.

[21] Rashid, "On the Role of Islamic and Conventional Banks in the Monetary Policy Transmission in Malaysia: Do Size and Liquidity Matter?"

The existence of monetary policy channels makes it easier for the central bank to choose a set of effective policy instruments with certain constraints faced by the central bank. Weak monetary policy transmission will hamper the effects of monetary policy on the economy, so that the objectives planned by the central bank are not achieved.

Research implemented in Pakistan and Malaysia shows differences in monetary policy responses to Islamic and conventional banking. Islamic banks are less responsive to monetary policy than conventional banks. [22,23] This also happened in Saudi Arabia where Islamic banks were slower than conventional banks in responding to monetary policy. The slow response of Islamic banks was due to excess liquidity. [24] In addition, the lack of response of Islamic banks to monetary policy was also due to the absence of Islamic money market infrastructure in the country. [25]

Other factors such as bank size also affect the level of banking responsiveness to monetary policy shocks. Both Islamic banks and conventional banks, the larger and more liquid the bank, the lower its response to monetary policy compared to banks that are small and less liquid.[26]

Research related to the comparison of the effectiveness between Islamic and conventional banks is carried out using time series data regression analysis and panel data. Research conducted in Saudi Arabia using the Panel approach (VAR) where the interaction of endogenous variables such as monetary shocks and

[22] Shah et al., "Interbank Rate & Monetary Policy: Evidence from Dual Banking System of Developing Countries."

[23] G M Caporale, "The Bank Lending Channel in the Malaysian Islamic and Conventional Banking System," *Global Finance Journal* 45 (2020), https://doi.org/10.1016/j.gfj.2019.100478.

[24] J Boukhatem, "The Bank-Lending Channel of Monetary Policy Transmission in a Dual Banking System: Empirical Evidence from Panel VAR Modeling," *Cogent Economics and Finance* 10, no. 1 (2022), https://doi.org/10.1080/23322039.2022.2107765.

[25] A Ali, "Economic Output, Monetary Policy Transmission And The Role of Islamic Banks: Evidence From Pakistan Dual Banking System," *Journal of Islamic Monetary Economics and Finance* 8, no. 4 (2022): 535–50, https://doi.org/10.21098/jimf.v8i4.1486.

[26] Maha Radwan and Salma Drissi, "Analysis of the Transmission Asymmetry of Monetary Policy in a Dual Banking System: Econometric Modelling (Case of Turkey)," *European Journal of Islamic Finance*, 2020.

credit can be determined. This approach also takes into account the lag effect of monetary shocks on savings which ultimately credit is understood as a determinant of whether credit provides feedback into monetary shocks. In addition, panel Granger causality analysis allows the direction of the complex relationship between monetary changes and credit to be determined, allowing for a two-way relationship. Then the impulse-response functions (IRFs) help evaluate the dynamic relationship between monetary shocks and credit. The results of the analysis show that there are positive changes in monetary policy that trigger statistically significant positive responses in Islamic and conventional bank financing.[27]

Other studies that test monetary policy use two-step Error Correction Model (ECM). The data used are money market interest rates, both conventional and Islamic, conventional and Islamic bank savings interest rates, and conventional bank loan interest rates and Islamic bank financing. The results of the study show the inability of Islamic banking to support counter-cyclical policy measures to smooth the economy or accelerate economic recovery from recession in Indonesia.[28]

C. Research Method

This study uses four variables, namely gross domestic product (GDP) which describes the amount of output, interest rates (IR) as a proxy for monetary policy, financing (PLS) channeled by Islamic banks and credit (KRE) channeled by conventional banks. The data used are quarterly data from 2014 to 2024. This study was conducted using the VAR-ECM estimation method of cointegrated variables to see the long-term and short-term relationships between endogenous and exogenous variables.

[27] Shah et al., "Interbank Rate & Monetary Policy: Evidence from Dual Banking System of Developing Countries."

[28] Triwibowo, "Policy Rates Pass-Through in Indonesia's Dual Banking System: Does Business Cycle Matter?"

D. Research Finding and Discussion

1. Stationary Test

The stages that must be carried out before the VAR-VECM model estimation test is carried out include data stationarity test with unit root test, model stability test, optimum lag test, and cointegration test. In the stationarity test, it is used to see if there is data that still has a trend. The method used for the data stationarity test is the ADF (Augmented Dickey Fuller) test. In this test, a tolerance value of 5% is used with the parameter if the calculated t value is smaller than the t table, then the data is said to be stationary. It can be seen in table 1 which shows that the data used in this study is stationary in First Different.

Table 1 ADF Stationarity Test

Variables	ADF Probability Value	
	Level	First Different
PDB	0.8609	0.0000
IR	0.2370	0.0036
PLS	0.9997	0.0000
Murab	0.9953	0.0005
Ijarah	0.0438	0.0659
KRE	0.5684	0.0000

Source: Researcher's processed results

2. Cointegration Test

The cointegration test is used when the data to be estimated is stationary at first differences and has a long-term balance. This test is a requirement in VECM estimation where the cointegration relationship is contained in the estimation. The results of the cointegration test in Table 2 show a probability value below

0.05 which illustrates that the variables used have a long-term relationship with each other. So that the VECM estimation can be used in this study

Table 2 Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.550226	64.63966	47.85613	0.0006
At most 1 *	0.390671	34.27729	29.79707	0.0143
At most 2	0.246176	15.45219	15.49471	0.0507
At most 3 *	0.116656	4.713527	3.841465	0.0299

Source: Researcher's processed results

3. Granger Causality

The results of the granger causality test in Table 2 show that most variables do not have a causal relationship. The monetary policy issued by Bank Indonesia in the form of changes in interest rates does not have a direct impact on either credit or output. The same thing also happens with financing which does not have a causal relationship with interest rates. However, the credit variable has an effect on increasing output, conversely financing has no effect on output.

Table 3 Granger Causality Test

Hypothesis	Probability Granger
Interest rates affect GDP	0.6770
GDP affects interest rates	0.9988
Interest rates affect credit	0.3988
Credit affects interest rates	0.9381
Financing affects interest rates	0.9312
Interest rates affect financing	0.8946
Credit does not affect GDP	7.E-06
GDP does not affect credit	0.7521

Financing does not affect GDP	0.4512
GDP does not affect financing	0.1925

Source: Researcher's processed results

4. Impulse Response Function (IRF) and Forecast Error Varrriance Decomposition (FEVD)

The results of the impulse response shown in the following five figures show that changes in monetary policy through interest rate instruments are responded negatively by GDP. The same thing happens in the response of conventional bank credit and Islamic bank financing which respond negatively to changes in interest rate instrument policies.

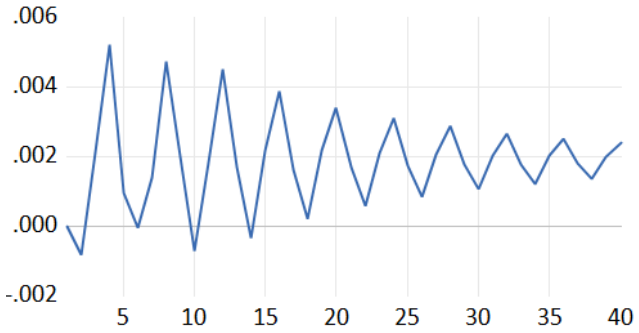

Figure 1. Response of PDB to IR

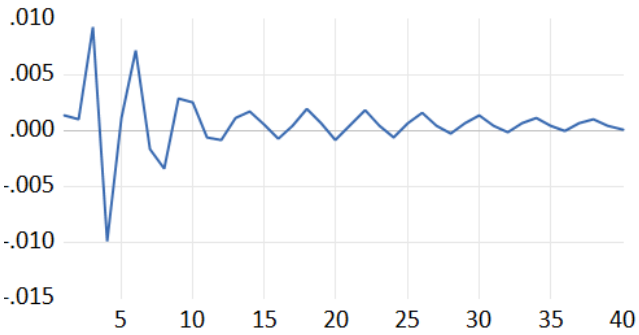

Figure 2. Response of PLS to IR

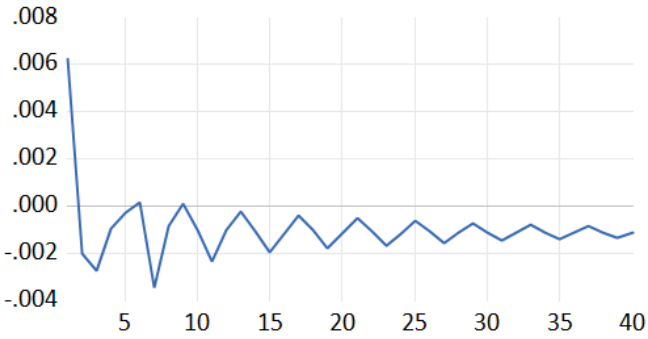

Figure 3. Response of Kredit to IR

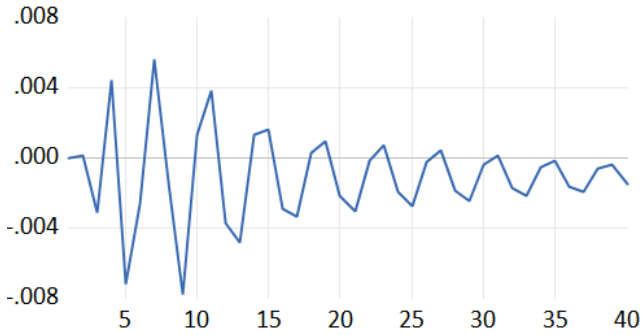

Figure 4. Response of PLS to PDB

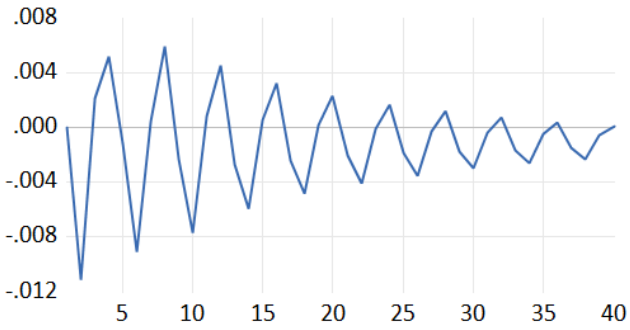

Figure 5. Response PDB to Kredit

The magnitude of the influence of interest rate instruments on GDP, Islamic bank financing and conventional bank credit can be seen in the FEVD results shown in Table 4. The results of the decomposition analysis in VECM show that changes in the interest rate instrument (IR) will be explained by the interest rate variable itself by 99.07% and 0.93% by the GDP variable. Meanwhile, the PLS (financing) variables of Islamic banks and conventional bank credit only

responded to interest rate shocks in the second period by 0.62% and 0.08% respectively.

Table 4. Variance Decompositon Analysis

Period	S.E.	PDB	IR	PLS	Kredit
1	0.515076	0.933599	99.06640	0.000000	0.000000
2	0.609908	0.860485	98.43827	0.618820	0.082423
3	0.722458	0.616535	98.83580	0.488667	0.058996
4	0.811059	0.645617	98.87018	0.423850	0.060353
5	0.891350	0.539811	98.70512	0.610051	0.145018
6	0.966951	0.460818	98.80405	0.533957	0.201170
7	1.039606	0.399630	98.83027	0.594370	0.175735
8	1.101697	0.396459	98.91255	0.534424	0.156569
9	1.162875	0.355903	98.92344	0.567025	0.153636
10	1.221322	0.322654	98.93683	0.587121	0.153394

Source: Eviews processed results

5. Result of ECM Model

The results of the VAR-ECM test produced the existence of long-term and short-term relationships. Table 5 shows the long-term relationship between GDP, interest rates (IR), financing (PLS), and credit. In the long term, only the credit variable has a significant influence on output development. It can be seen that the calculated t is greater than the t-table value of 2.028094. Meanwhile, other variables have a calculated t value less than the t table value, so it can be concluded that the interest rate and financing variables do not have a significant influence on output growth.

Tabel 5 Long Term ECM Model

Persamaan kointegrasi	Koefisien	Stand. Err	t-hitung
Suku bunga	-0.091739	(0.09419)	[-0.97398]
Pembiayaan	0.651129	(0.78385)	[0.83068]

Kredit	-28.47130	(5.76504)	[-4.93861]

Source: Processed results

While the short-term relationship can be seen in table 6. Only the credit variable has a t-value of 2.05925 which is greater than the t-table value of 2.028094. This shows that the credit variable has a significant effect on output growth. While other variables such as interest rates and financing have a t-value smaller than the t-table value which shows that there is no significant effect on GDP.

Table 6 Short Term ECM Model

Persamaan kointegrasi	Koefisien	Stand. Err	t-hitung
Suku bunga (-1)	0.011497	(0.00771)	[1.49135]
Suku bunga (-2)	-0.001061	(0.00807)	[-0.13136]
Pembiayaan (-1)	-0.006721	(0.02887)	[-0.23275]
Pembiayaan (-2)	-0.051250	(0.03691)	[-1.38852]
Kredit (-1)	-0.761550	(0.36982)	[-2.05925]
Kredit (-2)	-0.156660	(0.25288)	[-0.61949]

Sumber: Processed results

6. Analysis

The estimation results shown in the time series regression indicate that the monetary policy taken by Bank Indonesia through the interest rate instrument does not have a direct impact on increasing output or indirectly through the credit channel. This can be seen in the results of the granger causality test where monetary policy has no impact on increasing Islamic bank financing and conventional bank credit. Meanwhile, in the ECM model, monetary policy is not responded to in the short term by increasing output, Islamic bank financing and conventional bank credit. The same thing also happens in the long term. This shows that the transmission of monetary policy through the credit channel for both Islamic and conventional banks has not been effective in the last decade.

When viewed from the IRF, the response of Islamic banking to monetary policy looks less responsive compared to conventional banking. This can be seen in Figures 2 and 3 which show an amplitude that is not too large until the second quarter compared to the amplitude in the credit channel which is very large until the second quarter. These results are in line with research conducted in Malaysia, where the low financing response to interest rate changes illustrates the independence of Islamic banks from interest rate fluctuations.[29]

Meanwhile, the ECM model analysis shows that Islamic banking does not have a significant impact on output development compared to conventional bank credit. In addition, it can be seen in the IRF that the amplitude of the output response through the financing channel is smaller than the conventional bank credit channel. This shows that Islamic banks are not more responsive and effective than conventional banks in driving economic growth in Indonesia in the last decade. This ineffectiveness is thought to be due to the global economic growth being slow.[30,31] In addition, there are other factors such as Islamic bank assets being relatively smaller than conventional banks and their liquidity levels are also relatively low.[32,33]

E. Conclusion

The monetary policy taken by Bank Indonesia through the credit channel has not been effective in the last decade, both in the short and long term. This is due to the response of Islamic banks and conventional banks not being very

[29] Caporale, "The Bank Lending Channel in the Malaysian Islamic and Conventional Banking System."

[30] Nathan Berg and Jeong-Yoo Kim, "Prohibition of Riba and Gharar: A Signaling and Screening Explanation?," *Journal of Economic Behavior & Organization* 103 (2014): S146–59, https://doi.org/https://doi.org/10.1016/j.jebo.2014.02.016.

[31] M T Audah, "Does Islamic Banking Matter in Transmitting Monetary Policy? Empirical Evidence from Indonesia and Malaysia," *Pertanika Journal of Social Sciences and Humanities* 28, no. 1 (2020): 679–94, https://api.elsevier.com/content/abstract/scopus_id/85082085264.

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[33] Shah et al., "Interbank Rate & Monetary Policy: Evidence from Dual Banking System of Developing Countries."

significant in transmitting the policy to encourage economic growth. Islamic banking in this study showed a lower response compared to conventional banks, indicating that currently developing Islamic banks have shown their independence from interest rate fluctuations issued by monetary authorities. In conditions of economic growth that are experiencing a slowdown, Islamic banks cannot be used as effective growth drivers compared to conventional banks because their role depends on real economic conditions and their dependence on the size of assets and their level of liquidity.

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