Analysis of the Transmission of Conventional and Islamic Monetary Policy : Study on Inflation and Economic Growth

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Abstract

The empirical research aims to analyze the transmission of conventional and sharia monetary policies to inflation (CPI) and economic growth (GDP) using the SBI, PUAB, SBIS, and PUAS instruments from 2002 to 2020. This study applies the VAR/VECM approach to the E Views program. Based on the analysis, several findings were obtained: first, in the short-term and long-term, CPI is influenced by all variables in the conventional and sharia channels, except PUAS, which has no effect in the short term. Meanwhile, GDP is also influenced by all variables in the conventional channel and sharia channel, except for the SBIS and PUAB variables which have no effect in the long term. Second, in the IRF analysis, the variables of SBI, PUAB, and SBIS were responded negatively by the CPI, while PUAS responded positively. The variables PUAB, SBIS, and PUAS, responded positively to GDP, while GDP responded negatively. Third, from the results of the FEVD analysis, the conventional channel variable has a more significant contribution to influencing inflation (CPI) than the sharia channel variable. Meanwhile, the sharia channel variable contributes more to economic growth (GDP) than the conventional channel variable. The results of this study provide valuable new insights into the implementation of dual monetary policy on inflation and economic growth.

1. Introduction

Bank Indonesia (BI), as the Indonesian monetary authority, has a vital role in regulating monetary policy and achieving the expected growth in economic activity. Regular economic activities include macroeconomic stability, as seen from price stability (low inflation), good economic growth, and adequate employment opportunities (Warjiyo & Solikin, 2003).

A stable economy can be seen from the stable prices of goods. If the price of goods is stable, economic actors can easily make various plans, whether planning production, buying raw materials for production, paying labor wages, etc. However, if economic activity is volatile and impacts continuous price increases, it can lead to inflation. Inflation that lasts long enough can lead to economic chaos, where all goods and services will decrease.

If looking at the impact of inflation, it is necessary to control inflation for a country's economy. To that end, central banks in several countries began implementing the Inflation Targeting Framework (ITF) in 1990, starting with New Zealand, followed by Canada, the UK, Sweden, and Australia (Bernanke & Mishkin, 1997). In addition to directing public expectations regarding controlled low inflation rates, the ITF aims to increase the central bank's credibility as an actor in monetary policy (Mendonça & Souza, 2012).

Meanwhile, in Indonesia, BI began to adopt inflation targeting in 1999 and began to determine and announce its first inflation target in early 2000. However, BI officially informed about the implementation of the ITF on July 1, 2005 (Kenward, 2013; Setiawan & Karsinah, 2016). The inflation target is the amount the central bank must realize. Meanwhile, inflation targeting is regulated by the Minister of Finance Regulation (PMK).

In addition to maintaining price stability (low inflation), economic activity expected from monetary policy is good economic growth. The government targets economic growth yearly, as stated in the State Budget (APBN). After one year, the target will be corrected whether the economic growth has been as expected or has not been able to achieve the set target. In practice, the government can change the target figure in the middle of the current period if the economic growth goals set at the beginning of the period are considered difficult to achieve in the current period due to economic conditions.

Gross Domestic Product (GDP) is a proxy for economic growth because GDP can calculate two things simultaneously: an economy's total income and expenditure. Therefore, although GDP is not a perfect and absolute measure of welfare, it is a good indicator of economic growth (Atika, 2018).

The central bank uses monetary policy to control inflation and influence economic growth as proxied through GDP. To achieve this goal, the central bank will transmit monetary policy through five channels: credit channels, interest rates, exchange rates, asset prices, and inflation expectations. The Monetary Policy Transmission Mechanism (MPTM) reflects how monetary policy can impact various economic and financial activities to achieve the final policy target (Warjiyo, 2004). Because it involves interactions between the central bank, the financial sector, economic actors, the government, and other authorities both at home and abroad, the MPTM process is relatively complicated (Warjiyo & Juhro, 2020).

Because the process is complex, MPTM is often known as the 'black box' in economic theory (Bernanke & Gertler, 1995). The MPTM process, until it impacts the final target (inflation and economic growth), can occur in varying and quite long periods (Friedman & Schwartz, 1963). The effect can occur for 6-8 quarters (Warjiyo & Juhro, 2020).

The complexity of monetary policy transmission was further complicated by the enactment of new banking law in 1998, in which Indonesia officially adopted a dual banking system, namely conventional and sharia (Sugianto et al., 2015). Since the establishment of

Bank Muamalat as the first Islamic bank in 1992, Indonesia has had two banking systems: interest and profit-sharing. The profit-sharing system is based on the principle of calculation which is more flexible in terms of profit-sharing returns. An increase in the volume of money supply will match the increase in output level under this system (Rusydiana, 2009).

This study focuses on the transmission of monetary policy through the interest rate channel because the interest rate channel emphasizes prices on the financial market for various economic activities in the real sector. In this sense, monetary policy will affect financial interest rates, which can affect inflation and economic growth (Warjiyo, 2004).

Since implementing the dual banking system, Indonesia has used a dual monetary system; an interest rate-based system practiced in conventional monetary and profit-sharing principles in Islamic monetary. Therefore, Islam introduced a sharia monetary system based on Islamic sharia principles to solve the interest rate system attached to usury. As regulated in BI Regulation No. 10/36/PBI/2008 that BI can use sharia principles in implementing monetary policy. This sharia principle has its role in the economic development of a country (Kebede, 2021).

To achieve the final policy target, the monetary control instrument in sharia monetary policy does not have a significant difference from the instruments used in conventional monetary policy. In the Islamic monetary economy, there is one transmission channel called the pass-through policy rate using the principle of profit-sharing, margin, or fee (Acharya, 2012). This path is a modification of the interest rate path in the conventional monetary system. Some instruments used in this route are Bank Indonesia Sharia Certificates (SBIS) and Sharia Interbank Money Market (PUAS). SBIS are securities adopted from Bank Indonesia Certificates (SBI), where the SBI interest rate is changed using the SBIS yield rate based on the ju'alah contract. Meanwhile, PUAS was adopted from the Interbank Money Market (PUAB), where the PUAB interest rate was replaced by using an IMA Certificate device.

The instruments (SBI interest rate, PUAB interest rate, SBIS yield, and PUAS yield) are short-term money market instruments. These are often used in monetary control to achieve the final target: inflation and actual output (economic growth) as proxied by GDP. SBI is used as Bank Indonesia's policy rate for transmitting monetary policy. Meanwhile, before using the SBIS, Indonesia implemented a Bank Indonesia Wadiah Certificate (SWBI) with a wadi'ah contract as the basis. Like SBI, SWBI represents short-term placements of Bank Indonesia funds, with additional repaid bonuses that are repaid at maturity based on PUAS yields. Both instruments were issued to absorb excess liquidity from the market (Wahyudi & Sani, 2014).

However, because SWBI has several weaknesses, SWBI was changed to SBIS using a sale agreement starting in April 2008. Through these two instruments (SBI and SBIS), Bank Indonesia can influence the tendency of bank financing and funding through the interbank money market, both in the conventional money market (PUAB) as well as the Islamic money market (PUAS) and, ultimately the cost of funds and the price of financial assets (Azizi, 2018). Acharya (2014) shows that in a dual financial system, an increase in SBI tends to increase inflation and decrease economic growth, while an increase in SBIS has an insignificant effect. Bawono et al. (2021) showed that the Islamic interbank money market does not significantly affect on inflation and economic growth.

Several studies have been carried out on the transmission of monetary policy influencing the economy. Research (Acharya, 2012) found that SBI and SBIS harmed inflation in achieving the final inflation target, while research (Magdalena & Pratomo, 2014; Pratama, 2013) shows a positive impact. Research by (Setiawan & Karsinah, 2016) found that PUAB

and PUAS harmed inflation, while (Magdalena & Pratomo 2014) got the opposite result. Meanwhile, in achieving the ultimate goal of economic growth, research by (Wibowo & Mubarok (2017) found that SBI and SBIS hurt economic growth, while (Pratama, 2013; Zelina 2018) got the opposite result. Research (Acharya, 2012; Imaduddin, 2019) showed that PUAB and PUAS were negatively related to economic growth, while (Maharani, 2017; Setiawan & Karsinah, 2016) found that PUAB and PUAS had a positive impact on economic growth.

Based on the previous research, there are still gaps in research results. Therefore, this study will review the topic of monetary policy transmission through the interest rate channel. However, the difference between this research and previous studies is the final target variable used. In most previous studies, the industrial production index is used as a proxy for economic growth, while this study uses GDP. In addition, as far as the author is aware, there are no previous studies analyzing the transmission of dual monetary policy on inflation and economic growth as proxied by GDP.

2. Method

The study uses a quantitative approach to analyze the transmission of conventional and Islamic monetary policies on inflation and economic growth. The population of this study is data published in Indonesian Economic and Financial Statistics and the Central Statistics Agency. Meanwhile, the samples involved in this study include Bank Indonesia Certificates (SBI), Interbank Money Markets (PUAB), Bank Indonesia Sharia Certificates (SBIS), and Sharia Interbank Money Markets (PUAS) from 2002 to 2020.

The analytical tool used is Vector Autoregression (VAR)/Vector Error Correction Model (VECM) to determine the relationship between variables in the model. To use the VAR model, the data must be stationary at the level. Meanwhile, if the level is not stationary, it can be reduced to the first difference. Thus, VAR modeling can be done with the first difference data or with the VECM model if cointegration exists. The mathematical model in this equation is as follows:

$CPI_{yt} = C + a1i\Sigma CPI_{yt-k} + a1i\Sigma SBI_{yt-k} + a1i\Sigma PUAB_{yt-k} + et$

$PDB_{yt} = C + a1i\Sigma PDB_{yt-k} + a1i\Sigma SBI_{yt-k} + a1i\Sigma PUAB_{yt-k} + et$

and

$CPI_{yt} = C + a1i\Sigma CPI_{yt-k} + a1i\Sigma SBIS_{yt-k} + a1i\Sigma PUAS_{yt-k} + et$

$PDB_{yt} = C + a1i\Sigma PDB_{yt-k} + a1i\Sigma SBIS_{yt-k} + a1i\Sigma PUAS_{yt-k} + et$

This study's testing steps are as follows: First, the cointegration test is used to determine the long-term balance between the observed variables. The determination of cointegration is observed through the trace statistic score. Second, analyze the VECM test to see the short-term and long-term significance. Third, an Impulse Response Function (IRF) analysis was conducted to determine the direction of the relationship and how much influence one endogenous variable had on other endogenous variables in the model formed, as well as to observe how the variables responded to shocks. Fourth, Forecast Error Variance Decomposition (FEVD) analysis is used to determine how much influence certain variables have on endogenous variables and to find out how strongly between variables influence each other in the long term.

3. Result and Discussion

Cointegration Test

The cointegration test follows the Johansen Cointegration Test stage. There is a cointegration equation if the trace statistic value is higher than the critical value. Based on the cointegration test results, both the CPI and PDB models are cointegrated or have a long-term relationship. So, the appropriate method to analyze the short-term and long-term effects of the two models (CPI and GDP) is to use the VECM method.

Vector Error Correction Model (VECM) Test

The VECM model in this study uses a significance level of 0.05 with a critical value of t 1.99. Variables can be significant if the value of statistic > critical. The results of the VECM estimation on the CPI model are presented in Table 1 (for the long term) and Table 2 (for the short term). The short-term relationship in the conventional channel is shown to have an optimum lag of 7, while the sharia channel is 1.

The CPI model shows that both conventional and Islamic channels significantly influence the long-term coefficient. If the conventional channel, SBI, has a coefficient value of -0.114, which means that if there is an increase in the SBI interest rate of 1%, it will reduce inflation by 0.114%. While the PUAB coefficient is 0.133, which means that if the PUAB interest rate increases by 1%, it will increase inflation by 0.133%

Meanwhile, in the sharia channel, the SBIS coefficient value is 0.798. If the change in yield increases by 1%, inflation will increase by 0.798%. Meanwhile, the PUAS coefficient is -0.777. It means that if the return on PUAS increases by 1%, inflation will decrease by 0.777%. The long-term CPI equation can be written as follows:

LnCPI = -4.844 – **0.114SBI** + **0.133PUAB**

LnCPI = -5.657 + **0.798SBIS** – **0.777PUAS**

The cointegrated variables adjust towards equilibrium. This adjustment coefficient is from now on referred to as the Error Correction Term (ECT) to see the short-term equilibrium of cointegration equation 1 on both channels will correct the long-term adjustment. For conventional channels, the CPI's long-term equilibrium velocity is 90.1%. Meanwhile, in the sharia channel, the long-term equilibrium velocity is realized by the CPI and SBIS, which are -4.1% and -42.8%, respectively. The estimation results can be seen in Table 1.

Table 1. Long-Term Coefficient (CPI Model)

Long-Term VECM and Adjustment of Conventional Variables			
Long-Term Coefficient			
Variable	LnCPI	SBI	PUAB
CointEq1	1.000	-0.114 [-4.526]	0.133 [4.304]
C	-4.844		
Coefficient of Adjustment			
CointEq1	-0.901 [-9.570]	-1.000 [-1.501]	-0.784 [-1.024]
Long-Term VECM and Sharia Variable Adjustment			
Long-Term Coefficient			
Variable	LnIHK	SBIS	PUAS
CointEq1	1.000	0.798 [5.039]	-0.777 [-4.647]

C	-5.657		
Coefficient of Adjustment			
CointEq1	-0.041	-0.428	0.267
	[-2.168]	[-2.600]	[1.337]

Source: Secondary data processed, 2022.

The short-term estimation results are presented in Table 2. In the conventional channel, the CPI model shows that four variables have a significant effect, namely the SBI variable in the past period, SBI in the past two periods, PUAB in the past period, and PUAB in the last two periods. It means that if the SBI interest rate during the 1 and 2 previous periods increases by 1%, it will affect inflation by 0.115% and 0.081%, respectively. Then, changes in interbank rates in the first and second periods ago by 1% will affect inflation by 0.126% and 0.077%, respectively.

Meanwhile, CPI was only influenced by SBIS in the past period, with a coefficient value of -0.040. That is, if the SBIS yield rate during the previous period increased by 1%, it would cause the current change in inflation to decrease by 0.040%. In total, the results of the short-term estimation of the CPI model are presented in Table 2.

Table 2. Short-Term Coefficient (CPI Model)

Conventional Variable Short Run VECM	
	D(LnCPI)
D(SBI(-1))	-0.115
	[-4.146]
D(SBI(-2))	-0.081
	[-2.844]
D(PUAB(-1))	0.126
	[4.394]
D(PUAB(-2))	0.077
	[2.725]
Sharia Variable Short-Term VECM	
	D(LnIHK)
D(SBIS(-1))	-0.040
	[-2.135]

Source: Secondary data processed 2022.

The results of the VECM estimation of the GDP model are presented in Table 3 (for the long term) and Table 4 (for the short term). For conventional channels, the optimal lag is displayed up to lag 5. Meanwhile, the optimal lag on the sharia channel is displayed up to lag 4.

In the conventional, in the long run, the variable that significantly affects GDP is the SBI variable with a coefficient value of 0.318. If the SBI interest rate increases by 1%, GDP will increase by 0.318%. Meanwhile, in the sharia channel, only the PUAS variable has a significant long-term effect on GDP, with a coefficient of 1,913. It means that if there is a 1% change in the PUAS yield, it will increase GDP by 1.913%. For the long-run equation model, GDP is shown in the following equation:

LnPDB = -17.209 + **0.318SBI** + 0.149PUAB

LnPDB = -18.623 − 0.929SBIS + **1.913PUAS**

Based on the adjustment coefficient, the velocity of long-term equilibrium in the conventional channel is carried out by the SBI interest rate and the interbank money market

interest rate at -82.3% and -71.4%, respectively. Meanwhile, GDP and PUAS were 3.1% and -29.2% in the sharia channel, respectively. The estimation results can be seen in Table 3.

Table 3. Long-Term Coefficient (GDP Model)

Long-Term VECM and Adjustment of Conventional Variables			
Long-Term Coefficient			
Variable	LNPDB	SBI	PUAB
CointEq1	1.000	0.318 [2.129]	0.149 [0.877]
C	-17.209		
Coefficient of Adjustment			
CointEq1	-0.043 [-1.162]	-0.823 [-4.427]	-0.714 [-3.426]
Long-Term VECM and Sharia Variable Adjustment			
Long-Term Coefficient			
Variable	LNPDB	SBIS	PUAS
CointEq1	1.000	-0.929 [-1.881]	1.913 [3.833]
C	-18.623		
Coefficient of Adjustment			
CointEq1	0.031 [2.254]	-0.128 [-1.274]	-0.292 [-2.986]

Source: Secondary data processed 2022.

Furthermore, the short-term estimation results are presented in Table 4. In the conventional channel, in the GDP model, three variables have a significant effect: SBI in the previous four periods, SBI in the previous five periods, and PUAB in the previous period. Changes in the SBI interest rate in the past four periods of 1% will cause changes in the current GDP to decrease by 0.114%. Next, changes in the SBI interest rate in the previous five periods by 1% will cause changes in the current GDP to increase by 0.111%. Then, the change in the interbank money market rate in the past period of 1% will increase the current GDP by 0.088%.

In the sharia monetary channel, the GDP model shows that in the short term, only the variables of SBIS 4 in the previous period and PUAS 1 in the previous period have a significant effect. If the change in yield on SBIS for the previous four periods increases by 1%, it will cause changes in GDP to decrease by 0.044%. Also, if the PUAS yield had changed by 1% in the past period, GDP would have fallen by 0.072%. In total, the results of the short-term estimation of the GDP model are presented in Table 4.

Table 4. Short-Term Coefficient (GDP Model)

Conventional Variable Short Run VECM	
	D(LnPDB)
D(SBI(-4))	-0.114 [-3.358]
D(SBI(-5))	0.111 [3.277]
D(PUAB(-1))	0.088

	[2.754]
Sharia Variable Short-Term VECM	
	D(LnPDB)
D(SBIS(-4))	-0.044
	[-2.027]
D(PUAS(-1))	-0.072
	[-2.342]

Source: Secondary data processed, 2022.

Impulse Response Function (IRF) Analysis

Figure 1 is the result of the Impulse Response Function (IRF) for the inflation model (CPI) which shows that all variables in the conventional channel (except CPI), namely SBI and PUAB, have an impact on reducing inflation and are also permanent. The CPI variable is a variable that has a long-term influence on the CPI response itself, the shock occurred for 30 periods, the next period began to stabilize and permanently positively affect the increase in the CPI itself. Meanwhile, the shock effect of conventional variables (SBI and PUAB) on inflation began to subside and stabilize in the period 33 to 43.

On the other hand, in the sharia channel, the CPI shocks last for 5 periods, and the next period the CPI will be responded positively by the CPI itself permanently. The CPI began to respond negatively to the SBIS variable shock in periods 2-4, and the CPI response to the SBIS shock began to stabilize in the 5th period. The CPI began to respond positively to the PUAS variable in periods 2 to 10, and in the 11th period it started to stabilize and become permanent.
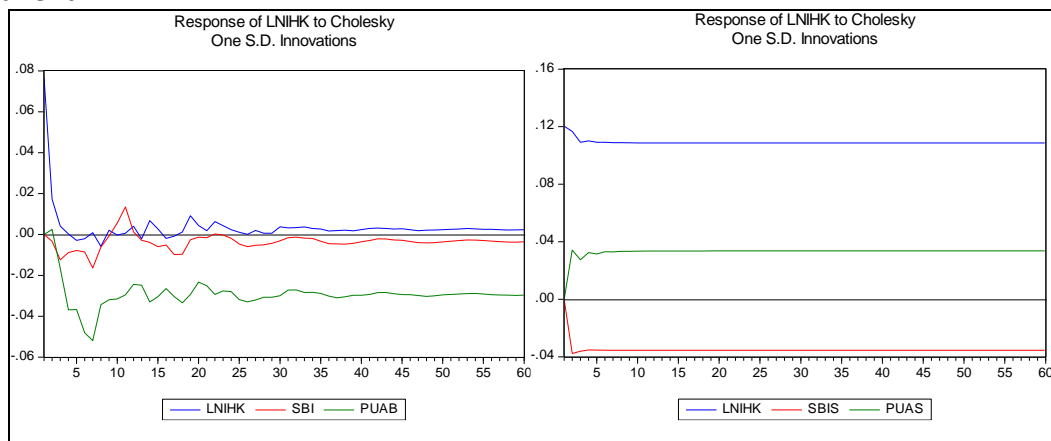

Figure 1. CPI Model IRF Test

Source: Secondary data processed, 2022

In the GDP model (see Figure 2), the conventional channel shows that GDP responds positively to shocks in the variables of GDP and PUAB. GDP shocks began to stabilize after the 23rd period, and PUAB stabilized in the 32nd period. Meanwhile, fluctuations in the SBI variable lasted for up to 30 periods, and so on, and GDP consistently reacted negatively to SBI.

IRF analysis on the GDP model, sharia variables (SBIS and PUAS) have a positive impact in terms of increasing GDP and are also permanent. The influence of the shocks of sharia variables on GDP began to subside and stabilize in the period 18 to 24.
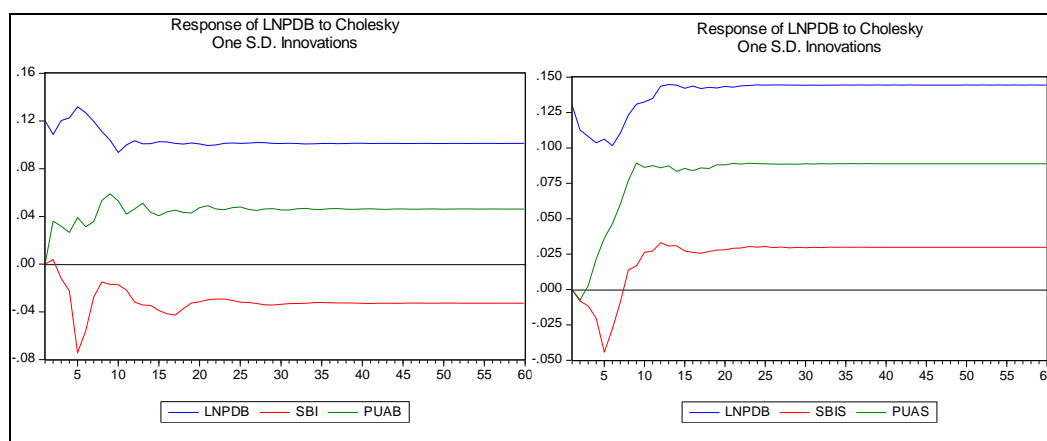
Figure 2. GDP Model IRF Test
Source: Secondary data processed 2022.

Forecast Error Variance Decomposition (FEVD) Analysis

Table 5 is the result of FEVD analysis on the CPI model, both conventional and Islamic channels. In the conventional channel, the most significant contribution to the change in CPI is itself by 100% in the first period and then decreases until the end of the period. The most significant contributor to changes in the CPI apart from itself was PUAB of 86.6% at the end of the period. Meanwhile, SBI contribution only ranges from 0-4%.

Next, in the sharia channel, the most significant contributor to changes in the CPI is itself at 100% at the beginning of the period, it decreases at the end of the period. Meanwhile, the contribution of SBIS and PUAS actually increased until the end of the period. Apart from himself, the next most significant contributor to changes in CPI was SBIS at 8.7% in the final period and PUAS at 7.7% in the final period.

Table 5. FEVD Test of CPI Model

Conventional Variable CPI Model FEVD Test				
Period	S.E.	LnCPI	SBI	PUAB
1	0.076588	100.0000	0.000000	0.000000
10	0.134738	34.32738	3.961670	61.71095
20	0.164492	23.70341	4.381641	71.91495
30	0.190396	17.92890	3.676936	78.39416
40	0.211975	14.61888	3.229778	82.15134
50	0.231820	12.34260	2.900843	84.75656
60	0.250092	10.70479	2.664722	86.63049
FEVD Test of Sharia Variable CPI Model				
Period	S.E.	LnCPI	SBIS	PUAS
1	0.120321	100.0000	0.000000	0.000000
10	0.379828	85.46474	7.961415	6.573841
20	0.534929	84.34942	8.399345	7.251231
30	0.654235	83.97017	8.547177	7.482657
40	0.754915	83.77972	8.621406	7.598873
50	0.843665	83.66520	8.666044	7.668760
60	0.923929	83.58874	8.695844	7.715416

Source: Secondary data processed, 2022.

The results of the FEVD analysis on the conventional and sharia channel GDP models

are presented in Table 6. In the conventional channel, the most significant contribution to changes in GDP is GDP itself by 100% in the initial period, decreasing in the second to the last period. The next most significant contributor to changes in GDP was PUAB at 14.5% in the final period and SBI at 7.8% in the final period.

Meanwhile, in the sharia channel, the most significant contribution to changes in GDP is the GDP itself at 100% at the beginning of the period, the next period decreases until the end of the period. The decrease in GDP contribution was followed by an increase in the contribution of sharia variables, namely SBIS and PUAS. PUAS is the variable that has the second contribution that affects changes in GDP, which is 25.5% in the final period. Then, the contribution of SBIS was 2.9% at the end of the period.

Table 6. FEVD GDP Model Test

Conventional Variable GDP Model FEVD Test				
Period	**S.E.**	**LnPDB**	**SBI**	**PUAB**
1	0.120195	100.0000	0.000000	0.000000
10	0.402895	83.49218	6.701149	9.806669
20	0.545525	80.12904	7.811983	12.05898
30	0.657041	78.92944	7.736592	13.33397
40	0.752292	78.27995	7.782557	13.93750
50	0.836869	77.87345	7.819542	14.30701
60	0.913654	77.59987	7.842525	14.55761
FEVD Test of Sharia Variable GDP Model				
Period	**S.E.**	**LnPDB**	**SBIS**	**PUAS**
1	0.130061	100.0000	0.000000	0.000000
10	0.411446	80.17972	2.714528	17.10575
20	0.674093	74.51259	2.790693	22.69671
30	0.865959	72.87237	2.870800	24.25683
40	1.022793	72.16731	2.906626	24.92607
50	1.158631	71.77401	2.927012	25.29898
60	1.280141	71.52255	2.940139	25.53731

Source: Secondary data processed, 2022.

Discussion

Based on the results of the study, the following discussions were carried out: first, The results of the analysis show that short-term inflation (CPI) is influenced by SBI in the first and second lags, where for every 1% increase in the SBI interest rate, inflation for that period decreases by 0.115% and 0.081%. Meanwhile, in the long term, SBIs also have a significant effect on inflation (CPI). This finding is consistent with the existing theory that an increase in interest rates can reduce inflation. An increase in the SBI interest rate can encourage economic actors and the public to invest in securities for speculative purposes rather than for consumption so that the inflation rate will decrease.

Based on the IRF analysis, the SBI interest rate has a permanent impact on reducing the inflation rate. These results support the research conducted by (Acharya, 2012) and (Zulfa & Suseno, 2018). SBI interest rate shocks are able to contain inflation, so this reinforces the conventional economic premise that the SBI interest rate is the primary monetary instrument that can be used to control inflation.

Meanwhile, the FEVD analysis shows that the contribution of the SBI interest rate in

restraining inflation (CPI) is 0-4%. The contribution of SBI interest rates is still meager, and this condition is understandable because the contribution that affects the CPI is not only influenced by economic phenomena such as core inflation but also non-core inflation, which tends to be highly volatile so that non-core inflation has a higher contribution to changes in CPI.

Second, short-term interbank rates have an effect on rising inflation (CPI). Likewise, in the long term, interbank rates significantly affect inflation. This result can be understood that when the central bank raises the SBI interest rate, it will be followed by an increase in the interbank money market interest rate, which will have an impact on the inflation rate.

IRF analysis shows that the shocks that occurred in the interbank rate were responded to negatively by inflation (CPI). These results support research from (Setiawan & Karsinah, 2016), (Saputro & Sukmana, 2018), and (Zulfa & Suseno, 2018). When interbank rates increase, banks will respond by increasing deposit and credit interest rates which will then have an impact on reducing the money supply, thereby reducing the public consumption and reducing inflation.

Then, the results of the FEVD analysis show that the contribution of interbank rates in influencing inflation (CPI) is 86.6%. The contribution of interbank rates up to the end of the period tends to increase, even being the variable with the highest contribution in influencing the inflation rate. This shows that the higher the interbank money market interest rate, the more outstanding its contribution to influencing inflation.

Third, referring to the VECM results, the SBIS variable has a significant effect on inflation in the short term. Then, in the long term, SBIS yields also have a significant effect on inflation. This indicates that if the rate of return increases, Islamic banking will get a more significant profit from its financing, so it has an impact on the consumption sector.

Meanwhile, the results of the IRF analysis show that SBIS yields have a negative impact on inflation (CPI). These results are in the channel with research conducted (Ascarya, 2012) and (Sudarsono, 2017). If there is an increase in SBIS yields, Islamic banks will respond by channeling funds in the form of SBIS. This is done by Islamic banks because SBIS is considered more profitable when compared to channeling in the form of financing. If Islamic banks channel more funds to passive income in SBIS, then financing will tend to decrease, and funding in the business sector will be low, so it has a low impact on the inflation rate.

The FEVD results explain that the contribution of SBIS yields in influencing inflation (CPI) until the end of the period is 8.7%. This contribution is still relatively low because, currently, inflation is still heavily influenced by other factors outside the financial sector.

Fourth, in the short term, the effect of the PUAS yield on inflation (CPI) is not significant. Meanwhile, in the long term, the PUAS yield has a significant impact on inflation. In the long term, PUAS has a negative effect on inflation, which means that if there is an increase in the PUAS yield, it will reduce inflation.

Furthermore, based on the IRF analysis, the CPI responded positively to the PUAS yield shock. In this case, Islamic banks have begun to prioritize transactions in the money market to encourage the consumption sector. These results support the study conducted by (Magdalena & Pratomo, 2014) and (Hadi et al., 2020). Although in the initial period, PUAS experienced a shock that had a fluctuating impact on inflation, it finally experienced a balance until the end of the period. Occurs when PUAS experiences a shock, it will increase inflation.

Meanwhile, from the results of the FEVD analysis, the shock that occurred in the PUAS yield contributed 7.7% to inflation (CPI). When the imbalance in PUAS results from increases,

the financing channeled to the community will also increase. This is because the funds available in the money market will be purchased with an IMA certificate by Islamic banks and then channeled as financing so that it will encourage the consumption sector.

Fifth, in the short term, the SBI interest rate has a significant effect on economic growth (GDP). On the other hand, SBI also has a significant impact on GDP in the long term. In this case, the increase in the SBI interest rate will affect changes in GDP.

Based on the IRF analysis, an increase in the SBI interest rate has a negative effect on economic growth. These results are in accordance with the findings of previous research conducted (Julaihah & Insukindro, 2004), (Acharya, 2012), and (Wibowo & Mubarok, 2017). This indicates that an increase in SBI interest rates will affect interest rates on financial markets, such as lending rates. An increase in loan interest rates will reduce investment, and the growth rate will also decrease. Meanwhile, from the FEVD analysis, it was found that shocks to the SBI interest rate variable contributed to GDP, which was entirely satisfactory, although still relatively small, at 7.8% in the final period.

Sixth, in the short term, the interbank rate variable significantly affects economic growth (GDP). Meanwhile, in the long term, the interbank rate does not have a significant effect on GDP. The interbank rate can be understood as a short-term instrument used to meet banking liquidity. Therefore, changes in the interbank money market interest rate will only affect banking behavior in the short term, while to affect the economy in the real sector, the transmission must be in the form of credit.

Next, the results of the IRF analysis show that the shocks that occur in the interbank rate variable show a positive reaction from GDP. This finding confirms the results of studies that have been carried out (Maharani, 2017). These results indicate that the increase in the interbank rate by the monetary authority can improve economic performance. In addition, from the FEVD analysis, it was found that the interbank rate variable had a higher contribution than the SBI interest rate in influencing GDP by 14.5%.

Seventh, from the short-term estimation results, it is known that SBIS yields have a significant effect on economic growth (GDP). Meanwhile, in the long term, SBIS yields have no significant effect on GDP. The effect of SBIS on GDP is not significant because, in calculating GDP, it is more directly related to investment in the real sector than investment in the financial sector.

Based on IRF analysis, GDP responds positively to PUAS yields. The results of this study confirm the previous findings of (Acharya, 2012) and (Bawono et al., 2021). In short, it can be said that the increase in SBIS yields carried out by the monetary authority is quite effective in improving economic performance, in this case, economic growth (GDP).

Then, the results of the FEVD analysis show that the contribution of SBIS to GDP is 2.9%. It can be seen that this condition has a substantial impact on changes in banking behavior where the high and low yields of SBIS are used both for funding and investing in SBIS instruments.

Eighth, based on the VECM analysis, in the short term, PUAS has a significant effect on economic growth (GDP). In the long term, PUAS has also been shown to have a significant effect on GDP. This result can be understood that the increase in PUAS yields will affect the level of profit sharing in Islamic banking so that it will attract public interest in making productive loans at Islamic banks, which will ultimately increase economic growth.

Furthermore, the results obtained from the IRF analysis show that GDP responds positively to the shock on the PUAS variable. The results of this study confirm the results of the study (Acharya, 2010) (Setiawan & Karsinah, 2016) and (Bawono et al., 2021). It shows

that the increase in PUAS yields carried out by the monetary authority is effective in increasing economic growth.

Next, based on the FEVD test, it can be seen that the PUAS variable has a higher contribution than the SBIS variable to changes in GDP, which is 25.5%. Overall, the sharia channel variable has a significant role in encouraging economic growth.

4. Conclusion

This study analyzes the effect of conventional and sharia monetary policy transmission using the SBI, PUAB, SBIS, and PUAS instruments on inflation and economic growth (GDP). By using the VAR/VECM analysis tool, in the short term and long term, all variables in the conventional channel and the sharia channel affect inflation (CPI), except PUAS, which has no effect in the short term. Meanwhile, economic growth (GDP) in the short and long term is influenced by all variables in the conventional channel and the sharia channel, except for the SBIS and PUAB variables which have no effect in the long term. Based on IRF analysis, the shock that occurred in SBI, PUAB, and SBIS was responded negatively by inflation (CPI), while PUAS responded positively. Then, economic growth (GDP) responded positively to shocks that occurred in the PUAB, SBIS, and PUAS variables, while SBI responded negatively. Furthermore, from the results of the FEVD analysis, the conventional channel variable has a higher contribution to changes in inflation (CPI) than the sharia channel variable. Meanwhile, the sharia channel variable has a higher contribution to changes in economic growth (GDP) compared to the conventional channel variable.

Based on the results, we suggest that policymakers evaluate policies regarding the transmission of Islamic monetary policy that does not refer to conventional interest rates, especially the SBIS instrument. Thus, it is expected to be able to control inflation and encourage maximum economic growth. Meanwhile, this research is limited to the transmission of dual monetary policy on the interest rate channel with SBI, PUAB, SBIS, and PUAS instruments. Therefore, further research that analyzes the interest rate path is expected to consider other economic variables such as credit interest rates, total conventional bank loans, financing yields, and total Islamic bank financing. The hope is to further clarify the flow of transmission of monetary policy; both conventional and sharia can provide more comprehensive information regarding the mechanism of double monetary policy transmission.

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