ISLAMIC MONETARY POLICY AND ITS IMPACT ON REAL SECTOR

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Abstract

The essence of the Islamic economic system is strengthening the real sector. This research aims to analyze the effect of Islamic monetary instrument (such as SBIS, PUAS and Islamic bank financing in the real sector. This research uses the Vector Error Correction Model (VECM) as a method of analysis. The finding revealed that based on the VECM estimation test, in the long term SBIS and Islamic bank financing has a positive effect on the Industrial Production Index (IPI). Meanwhile, PUAS has an adverse effect toward Industrial Production Index (IPI). Besides, based on impulse response function (IRF) test, the shock of SBIS and PUAS responded positively by Industrial Production Index (IPI). Then based on the result of FEVD test, the variable of PUAS in the model of this research has the most significant contribution toward Industrial Production Index (IPI).

Keywords: SBIS; PUAS; islamic bank financing; industrial production index (IPI); VECM

INTRODUCTION

The development in the real sector should drive an economy. The monetary sector should be able to support the growth in the real sector (Wisandani et al., 2017). Sugianto et al. (2015) stated that in Islamic economics, the monetary sector must have a direct relationship to the real sector. On the Islamic economic system, there must be a balance between the real sector and the monetary sector. The real sector is a representation of economic activities that occur in society. The imbalance between these two sectors could lead to the bubble economy, which could have an impact on the economic crisis.

Currently, various Islamic monetary instruments are aimed to support the real sector. This study aims to test whether the Islamic monetary policy affects the real sector in Indonesia. This research will use the industrial production index as a proxy for the real sector. The industrial production index is one of the macroeconomic indicators that calculate real production output from mining, manufacturing, and other industries. Figure 1 shows the development of the industrial production index in Indonesia from 2011 to 2015. From Figure 1 that there is an increase in industrial production index from year to year.

The central bank (i.e., Bank of Indonesia) must maintain the stability of the rupiah. Monetary policy is intended to affect real economic activity and prices through the transmission mechanism. Warjiyo and Solikin (2004) state that the mechanism of changes in monetary policy to affect economic growth and the rate of inflation is called the monetary policy transmission mechanism. There are five monetary policy transmission lines, among others: interest rates, asset price lines, credit lines, exchange rate lines, and expectation lines. Interaction in the transmission of monetary policy takes place through two stages: the interaction between the monetary authorities and banks and financial institutions as well as the interaction between banks and financial institutions with economic actors in the real sector (Sangidi, 2014).

The development of the Islamic banking industry which continued to increase from year to year resulted in the transmission of monetary policy not only affecting conventional banking, but also affecting Islamic banking. Because of this, Bank Indonesia has the responsibility to carry out multiple monetary operations both conventionally and sharia principles (Setiawan and Karsinah, 2016). Although the monetary transmission works through Islamic banking channel is yet controversial (Uddin, 2016). In 2000, from the monetary side, Bank Indonesia introduced the first Sharia monetary instrument, i.e., The Wadi'ah Certificate of Bank Indonesia (SWBI), which uses the

wadi'ah contract. In 2008, Bank Indonesia replaced the SWBI with a better sharia monetary instrument, namely the Sharia Certificate of Bank Indonesia (SBIS).

The financial system in Indonesia dominated by banks. Therefore, transmission of dual monetary policy through credit channels in conventional banks or Islamic bank financing is considered very important. Islamic bank financing is intended for real sector economic activities. For this reason, Islamic bank financing channels are expected to be able to increase the economic growth of the real sector by increasing public productivity in goods and services. However, the financing disbursed by Islamic banking more distributed to consumptive financings, such as Murabahah financing (Haryoso, 2017).

There have been several studies on the effect of sharia monetary policy through Islamic bank financing channels. Ascarya (2012) that said that Islamic variables such as Islamic bank financing, inter-sharia bank money market (PUAS), and the Sharia Certificate of Bank Indonesia (SBIS) had a significant positive effect on the real sector represented by the Industrial Production Index (IPI). Meanwhile, research conducted by Setiawan and Karsinah (2016) shows that financing and PUAS variables have a positive effect on the real sector, while SBIS variables have an adverse effect on the real sector. In contrast to the previous results, Istiqomah (2012) in his research resulted that SBIS variables have a significant positive effect on the real sector represented by Gross Domestic Product (GDP).

The purpose of this study is to examine the impact of Islamic monetary policy through credit channels to the real sector represented by the Industrial Production Index (IPI). One of the contributions in this study is to examine the effect of Islamic monetary instruments on the real sector in the short and long-term.

METHOD

The type of data used in this study is secondary data in the form of a monthly time series. The data used are: (1) Industrial Production Index (IPI) level data obtained from the Central Bureau of Statistics as a proxy for economic growth or representation of the real sector; (2) The data of fees for the sharia certificate of Bank Indonesia (SBIS) obtained from BI SEKI, the yield rate data on inter-sharia bank money market (PUAS) were obtained from SEKI BI; (3) The total data on Islamic bank financing was obtained from Islamic Banking Statistics.

The data analysis method used in this study is the VECM method to analyze the role of Islamic bank financing and sharia monetary instruments, namely SBIS and PUAS on output represented by the Industrial Production Index (IPI) level. VECM analysis is used to see the long-term and short-term relationship between the dependent variable and the independent variable. The VECM model in general can be written as follows:

$$\Delta y_t = \mu_{0x} + \mu_{1x} t + \alpha\beta y_{t-1} + \sum_{i=1}^{k-1} \tau_\kappa \Delta y_{t-1} + \varepsilon_t$$

Where
y_t : Vector that include all of the variables
μ_{0x} : Vector of intercept
μ_{1x} : Vector of regression coefficients
t   : Time trend
α : Coefficient of speed of adjustment
β : Cointegration vectors
y_{t-1} : Variable in level
τ_k : Matrix of regression coefficients
k-1 : ordo VECM fromVAR
k   : lag
ε_t : Error term

There are several stages in VECM testing, namely VECM estimation, impulse response function (IRF), forecast error decomposition variance (FEVD), and causality test. However, before estimating VECM, there are several steps that must be done, namely pre-estimation testing. These tests include data stationary test, determination of optimal lag, and cointegration test. The stationary data in this research is using the Augmented Dickey-Fuller test.

RESULT AND DISCUSSION

The stationary data testing method used in this study is using the Augmented Dickey-Fuller (ADF) test with a 5% real level. If the ADF test statistic value is smaller than the MacKinnon critical value or if the probability value of the ADF Statistic Test is smaller than Alpha 0.05 then it can be said that the data used is stationary (there is no unit root). Based on the ADF Test, not all data used in this study are stationary at the level. All the data is stationary is significant at the first difference level. Based on the results of the ADF test in this study, only the financing variables of Islamic banks are stationary at the level. While the SBIS, PUAS, and IPI variables are stationary at the level of the First Difference (for detail see Table 1).

Optimal Lag Determination in this study based on the Schwarz Criterion (SC) value, where the lowest lag value with the Schwarz Criterion (SC) value shows optimal lag. In this study testing, the length of the lag is done from lag 1 to lag 8. The test results show that the model in this study has an optimal lag of 1, where the lowest Schwarz Criterion (SC) value is -7.319159 is at lag 1.

The estimation results of the VAR equations that have formed must test for stability. The VAR equation is said to be stable if the modulus value is smaller than 1. Based on the VAR stability test, the modulus value of all roots has a modulus value less than 1 or less than 1

in lag 2, so the model is stable in the lag. This condition indicates that the results of IRF and FEVD are valid.

Cointegration test is used to determine the existence of cointegration between variables and to determine what method will be used. If there is no cointegration between variables, the method used is a VAR model that can only estimate short-term relationships. If there is cointegration between variables, the right method for analyzing long-term and short-term relationships is the VECM method. VECM can estimate long and short-term relationships between variables.

The cointegration test in this study uses Johansen Trace Statistics Test. If the Trace Statistics value is higher than the critical value that is used in this study by 5%, then there is cointegration between variables. The results in Table 2 show that in the model there are three cointegrated equations. Therefore, the VECM method is the right method to be used in this study.

The Granger causality test in this study used to see the relationship between variables whether it has a one-way relationship, two-way or no relationship between the two. Based on the results of the Granger Causality test, it found that there was a one-way relationship between the SBIS variables and PUAS variables. This is in line with the theory which states that the SBIS fee level acts as a rate of sharia monetary policy which will affect the rate of return on the Sharia Interbank Money Market (PUAS). Besides, the results show that there is a one-way relationship between the variables of Islamic bank financing and the Industrial Production Index (IPI) variable. There is a one-way relationship between Islamic bank financing and the Industrial Production Index (IPI) because the financing activities carried out by Islamic banks are directed to encourage the real sector.

However, based on the Granger Causality test, there is no relationship between the PUAS variable on the financing variable. Whereas what should be the rate of return on PUAS can affect the amount of financing channeled by Islamic banking, so that it will make a sustainable transmission mechanism of sharia monetary policy. The result of the Granger Causality in this study is consistent with the research conducted by Ascarya (2012), which the flow of sharia monetary policy transmission with the final goal of output (IPI) shows that there is no continuity of the yield path from the SBIS fee level to the output, where the flow is interrupted at PUAS. SBIS only affects financial markets (PUAS), while Islamic bank financing affects output (IPI).

The absence of continuity in the transmission mechanism of sharia monetary policy in influencing output due to the period of 2011 - 2016 the number of Islamic banking transactions in PUAS is still small. The number of sharia banking transactions in PUAS is always lower than Islamic banking transactions on SBIS instruments. This fact could be due to the higher

yield of SBIS than the yield rate on PUAS.

Based on the VECM estimation test in Table 3, in the short term, only SBIS variables influence the Industrial Production Index (IPI). This result is consistent with research conducted by Setiawan and Karsinah (2016). According to Setiawan and Karsinah (2016), this shows that Islamic monetary policy requires a time lag to reach the final goal to achieve. Ramadhan dan Beik (2013) said that when there is a monetary shock, the financing of Islamic bank could be recovered and stabilized better that the credit of conventional bank. Rafsanjani and Sukmana (2014), El Ayyubi et al. (2017) also conclude that Islamic banking can affect the economic growth of Indonesia. Besides that, they also found that the impact of SBIS on financing is more significant than SBI. Whereas in the long term the variables of sharia monetary instruments namely SBIS and PUAS as well as Islamic bank financing variables are significant in influencing the Industrial Production Index (IPI).

The Impulse Response Function (IRF) test is used to see how the Industrial Production Index (IPI) response is due to the shock or dynamics of financing variables, SBIS, and PUAS (the detail shows at appendix). Based on the results of the Impulse Response Function (IRF) analysis involving financing variables, SBIS, and PUAS as impulses that were shocked by economic behavior, we can see that the shock of the financing variable appears to have not been responded to by the Industrial Production Index (IPI) variable in the first period. This shock began to be responded negatively by the Industrial Production Index (IPI) in the second period of 0.00017% and began to experience an increase in the 3rd period. The response of the Industrial Production Index (IPI) to shocks that occur in the financing variable starts to stabilize in the 8th period.

The negative response of the Industrial Production Index (IPI) to shocks or shocks that occur in Islamic bank financing variables in this study following research conducted by Sukmana and Kassim (2010). In a study conducted by Sukmana and Kassim (2010), it shows that the total financing variable responds positively to the shock or shock that occurs in the total deposit variable. In the context of the monetary policy transmission mechanism, this can explain when there is an increase in interest rate policies which will then have an impact on the total depreciation of deposits. This movement will then have an impact on reducing total financing, which will then have the same impact on the decline in real output, which indicated by the negative response of the Industrial Production Index (IPI) variable to total financing. According to Sukmana and Kassim (2010), the contractive monetary policy will reduce the ability of banks to channel loans or financing to customers which will then lead to the impact of depreciation in the real sector.

The shocks that occur in the SBIS variable appear to have not been responded to by the Industrial Production

Index (IPI) variable in the first period. This shock began to be responded positively by the Industrial Production Index (IPI) variable in the second period of 0.006%. The response of the Industrial Production Index (IPI) variable decreased in the 3rd period and began to stabilize in the 7th period. On the other hand, the shock or shock that occurs in the SBIS variable is responded positively by the Industrial Production Index (IPI) variable.

These results are consistent with the research conducted by Pratama (2014) and Ascarya (2012). The Changes in SBIS yields have a positive impact on the Industrial Production Index (IPI). According to Ascarya (2012), the reciprocal behavior of the reference of Sharia monetary policy (SBIS) shows the same behavior as other sharia variables such as financing and yields on PUAS which have a positive character in inhibiting and reducing inflation and in encouraging and increasing output or economic growth.

Shocks that occur in the PUAS variable appear to have not been responded to by the Industrial Production Index (IPI) variable in the first period. The shock of PUAS variables began to be responded positively by the variable Industrial Production Index (IPI) in the second period of 0.005% and experienced an increase in the 5th period and began to stabilize in the 8th period. The shock on PUAS variable which was responded positively by the Industrial Production Index (IPI) variable. This result is following the research conducted by Ascarya (2012). According to Ascarya (2012), returns on the sharia money market have a positive impact regarding impacting to increase output and also be permanent. This fact can explain when profit sharing rises; it will cause investment to rise so that it will be able to increase output.

The dynamic structure between variables in a VAR show through the Forecast Error Variance Decomposition (FEVD) analysis, where the pattern of the FEVD tells the nature of multivariate causality among the variables in the VECM model. This sorting of variables in the FEVD analysis based on Cholesky factorization. Based on the FEVD test results in Figure 2, we obtained information that variables that have a significant contribution to the Industrial Production Index (IPI) in the first order are PUAS variables followed by financing variables, and SBIS has the smallest contribution to the Industrial Production Index (IPI).

In the first period, the Industrial Production Index (IPI) fluctuations were still influenced by the Industrial Production Index (IPI) variable by 100%. Then in the final period, fluctuations in the Industrial Production Index were more influenced by PUAS variables of 17.95%. Then followed by financing variables that have a contribution of 13.98%. The SBIS variable has a contribution of 2.51% to the Industrial Production Index (IPI).

This fact shows that the transmission of the financing channel Islamic sharia monetary policy has not yet contributed significantly to the Industrial Production Index (IPI) as a proxy of output in the real sector. This fact can be caused by Indonesia having five channels of monetary policy transmission in influencing output, namely the path of interest rates, exchange rates, expectations, asset prices, and financing channels.

The small influence of financing path variables in the transmission of sharia monetary policy is the ultimate goal of output by the research conducted by Setiawan and Karsinah (2016). According to Setiawan and Karsinah (2016), conventional lane variables have a more significant influence on economic growth compared to sharia lane variables due to the sizeable conventional banking share in Indonesia, where the conventional banking share reaches 95%.

Asnuri (2013), Wisandani, et al. (2017) concludes that today's monetary policy does not get along with the real sector. The economy (including in Indonesia) dominated by the virtual transaction. Although, Widodo (2017) stated that the Islamic monetary policy capable of promoting price stability. Mansur (2013), Permatasari et al. (2013) states that there must be a synergy between monetary and fiscal policy to support the growth of the real sector.

CONCLUSION

This study aims to examine the impact of Islamic monetary instruments to the real sector. Based on the Granger causality test, it can show that the flow of Islamic monetary policy transmission through the financing way has not been following the theory. This fact is due to the interrupted transmission path in the PUAS variable. According to the VECM test, we can see that in the short-run only SBIS variable that had an impact on the industrial production index. This result proves that the monetary policy transmission needs a time lag to achieve the target. In the long run, the variable of Islamic bank's financing and SBIS had a positive effect on the industrial production index, but the PUAS's variable had a negative impact on the industrial production index.

Besides, the IRS's test shows that the industrial production index positively responds to the shocks that occur in the SBIS and PUAS variables. However, the shock in the variable of Islamic bank's financing is negatively responded by industrial production index. Besides that, the FEVD result shows the fluctuation of the industrial production index at the end of the period is still more influenced by the industrial production index variable itself. This fact indicates that the transmission of Islamic monetary policy on the financing channel still has not contributed significantly to the industrial production index.

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Table 1. Summary of Stationarity Test

Variable	Level	First Difference
Ln_IPI	Not Stationer	Stationer
Ln_Financing	Stationer	Stationer
SBIS	Not Stationer	Stationer
PUAS	Not Stationer	Stationer

Table 2. The Result of Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.333690	68.32135	55.24578	0.0023
At most 1 *	0.314186	41.11932	35.01090	0.0099
At most 2	0.138274	15.85035	18.39771	0.1097
At most 3 *	0.084014	5.879556	3.841466	0.0153

Table 3. The Estimation Result of VECM

Short-term		
Variable	Coefficient	t-stat
SBIS	0.038294	2.01853
Long-term		
Variable	Coefficient	t-stat
Financing	0.218332	3.09877
PUAS	-0.097313	-4.23735
SBIS	0.069852	3.49409

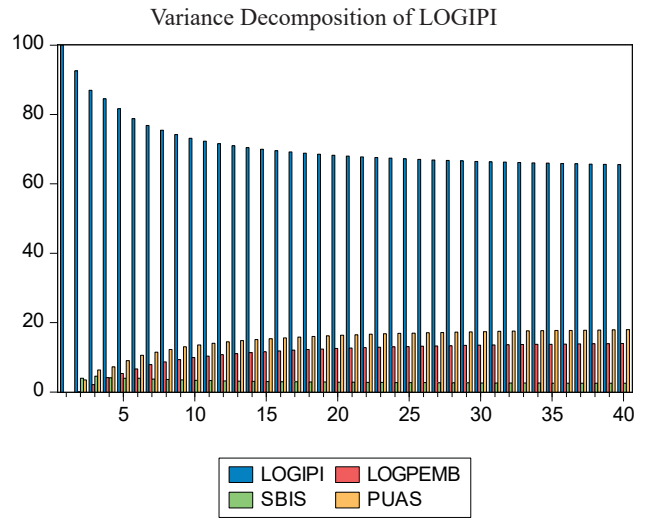Source: Central Agency on Statistics

Figure 1. The Development of Industrial Production Index

Figure 2. The FEVD Result