Assessing Sharia Monetary Instruments Against Country Economic Growth

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Abstract

This study aims to examine the effect of Islamic monetary instruments on Indonesia’s economic growth. Statutory Reserves, Bank Indonesia Syariah Certificate (SBIS) and Outstanding Deposit Facility Syariah (FASBIS) are used as sharia monetary instrument variables in observations. This study is a quantitative study using monthly time series data obtained from the publication of Bank Indonesia and the Indonesian statistical agency in 2015-2019 using ARDL analysis. The results of this study indicate that both short-term and long-term modeling, instrument variables Islamic monetary does not have a significant relationship on economic growth. Although it has a very small effect, the Demand Deposits variable has an effect on the Indonesian economy, while the other variables observed have an inverse relationship with the variable of Indonesia’s economic growth. The achievement of monetary stability through sharia monetary instruments can be optimized using policies on the minimum statutory reserves in banks that are useful for controlling the circulation of the amount of money in society so that it is more stable and the Indonesian economy can grow through the middle income trap.

Key words: Sharia Monetary Instruments, Indonesian Economy, ARDL analysis

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INTRODUCTION

Success in development is the main target of a country’s government program to bring its country towards progress, in which a country that experiences optimal development can be seen in terms of how successful the government is in promoting changes in economic growth in the country. Economic growth of a country is characterized by output in the form of goods or services produced has increased from the previous period that is equal to delta Y which can be seen from the acquisition of the country’s Gross Domestic Product (GDP) (Sahputra, 2017). This economic growth can illustrate that during a period of economic activity, has the State succeeded in increasing the welfare level of a nation or actually reduced welfare, through income, from the previous year (Romi & Umiyati, 2018). Indonesia’s central statistical agency (BPS) noted that Indonesia’s economic growth projected through GDP over the 2014-2019 period experienced a stagnation in growth at an average rate of 5%. The results of this growth place Indonesia in the position of middle-income trap or five percent growth trap where this position is a trap of economic growth of a country that is undergoing a transition from the agriculture sector to the industrial era.

Based on the table which shows that the fluctuations in economic growth from 2014-2019 where in 2015 became the lowest trend of economic growth ever recorded for Indonesia and began to improve in 2018 which reached growth reached 5.17%. Whereas at the end of the calculation period, the economic growth rate in Indonesia has declined. If compared to the rapid population growth rate which is projected to reach 270 million by the end of 2019, the level of community welfare will be far from the nation’s expectations. Based on the classical growth theory that this increasing number of population has the potential to support the factors of labor production and high consumption and will increase the rate of economic growth itself (Sahputra, 2017).

Economic growth is almost inseparable from the role of banking institutions that mediate every transaction of the State’s development activity where there is a causal relationship between the development of the financial sector and the growth of the country’s economy when the real economy experiences growth, the use of financial services will increase. This is in line with Harrod-Domar’s growth theory which states that economic growth requires adequate investment or capital stock to finance the country’s development. Adequate investment in development financing will increase significantly if the economic conditions of a country tend to be stable. As in law no. 6 of 2009 article 7 concerning Indonesian banks that monetary stability is the main objective of Indonesian banks to create more stable economic conditions.

Some efforts to realize a stable condition in the economy, the Indonesian bank as a central bank that acts as a monetary authority has two sides of regulations that must be issued where Indonesia itself adheres to the banking system of dual banks so that the policy to be issued will involve conventional banking and Islamic banking (Bayuni, & Srisusilawati, 2018), each of these banks has a strategy or tool to

Source: BPS Indonesia’s Economic Growth

Figure 1. Indonesia’s Economic Growth (%)
control the Indonesian monetary system, including using open market operations and standing facilities. The following are monetary operations instruments carried out by the central bank, namely:

![Monetary Operations Diagram](image)

Source: BI, Sharia Monetary Operations

**Figure 2. Indonesian Monetary Operations**

As the results of the study Bayuni & Ascarya (2010) which proves that Islamic monetary instruments are better than monetary control systems in conventional economies, it means that the Islamic economic system can contribute greatly to Indonesia's monetary stability. There are slight differences in the results found by Ramadhan & Beik (2013) that between conventional and sharia monetary instruments have a significant influence. But the results are different from the research conducted by Septindo, Novianti, & Lubis, (2016) which states that conventional monetary instruments apparently have a greater influence when compared to Islamic monetary instruments, in line with the study Bayuni & Srisusilawati (2018) states that Islamic monetary instruments are still relatively small in contributing to the Indonesian economy. Based on the previous research above, there are several research results debates that show the differences in the existence of Islamic monetary instruments, so that the application of this system is interesting to discuss related to its contribution to changes in the country's economic growth rate, namely whether the instruments in the Islamic monetary system affect Indonesia's economic growth?

**METHOD**

The nature of this research is quantitative using secondary data in the form of monthly time series obtained from Bank Indonesia publications in 2014-2019 analyzed using vector autoregression, whether Islamic monetary instruments have a significant influence on economic growth or not. In this study the operational definitions of the variables used include;
Economic growth is the goal of national development, therefore economic growth is used as a variable that is influenced by monetary policy in monetary control instruments.

Bank Indonesia Sharia Certificate (SBIS) as an instrument for sharia monetary operations. Deposit Facility at Bank Indonesia Syariah (FASBIS) is a facility provided to Islamic banks to place their funds at Bank Indonesia in rupiah, hereinafter referred to as FASBIS.

Minimum Mandatory Reserves or Statutory Reserves (GWM), which are Islamic bank obligations in the framework of supporting the implementation of banking prudential principles and acting as a monetary instrument that functions to control the amount of money in circulation, hereinafter referred to as GWMS.

Then the data will be conducted several tests based on the time series test. The initial step to determine which test is most suitable for getting the right forecasting results is to do a data stationarity test using the root data root. This test is a determinant test whether the data that has been tested using stationarity data will be stationary at level I (1), that is, it will be more appropriate to use the Ordinary Least Square (OLS) or Vector Auto Regression (VAR) method or will be stationary at the first different I (1), which is the right method to use, namely the method Vector Error Correction Model (VECM), where the variables of concern in research form a set of interrelated variables. It can even happen if the data that has been tested there are some variables that have been stationary at the level and other variables are stationary at the first different level which is a very relevant approach using the Auto Regressive Distributed Lag (ARDL) test method. In this study the method to be used is the ARDL test, which is a regression method that incorporates lags from both endogenous and exogenous variables simultaneously. This model will provide an overview of the analysis of long-term relationships provided that the variables used are stationary at the level and the other variables will be stationary at the first different level (not to stationary at the second different). This means that the variable used has experienced a mixture of the stationarity level of the data. Estimators in ARDL can produce consistent long-term coefficients. This is an advantage in the use of the ARDL method in research which is where the estimation results are consistent with the long-term coefficients without requiring the variables used to be stationary at the level or at the first different.

Several cases show that there is a long-term relationship that is trend stationary, through the ARDL method it can be detrending the series and modeling the detrended series as distributed lag which is stationary Fadhila, 2017). Based on the variables that are collected and categorized in the ARDL analysis model, it can be coupled with a number of deterministic regretor, namely intercept, time trend and regressor with fixed lag. ARDL model specifications are required based on the maximum lag order. The general model on ARDL described by Giles, (2015) is as follows:

\[
y_t = \beta_0 Y_t - 1 + \beta_1 Y_t - p + a_0 X_t + a_0 X_t - 1 + a_0 X_t - 2 + \ldots + a_0 X_t - q + \epsilon_t
\]  

(1)

Where \( Y_t \) is the dependent variable, \( X_t \) is the independent variable, \( \beta_k \) is the parameter for the autoregressive model, \( a_q \) is the parameter for the distributed lag model and \( \epsilon_t \) is the error value.

Some of the models contained in ARDL are formed from other deterministic regressors with fixed lag distributions. In this ARDL model offers alternative procedures including the AIC criteria and the Schwarz Bayesian Criterion (SBC) to provide choices on the model to be used, which provides accurate forecasting results for the future. So the results will be more
optimal and valid. The value of AIC in the ARDL model will greatly determine the goodness of the model, so the smaller the acquisition of AIC values, the better the ARDL model will be presented in the study. Therefore, in determining the order specifications lag with these criteria, it is through the process of determining the lag with the acquisition of the smallest AIC output. On the other hand, the SBC basically has a function commensurate with the AIC, but the difference is that the SBC will provide a greater penalty on the additional coefficient.

Description of the steps that will be the focus of testing the variables in research with ARDL method time series data that will pass the following things including: 1) Data stationarity test is done by testing the root of the root of each research variable which aims to determine that the variable is stationary at the degree level as well as at the first different level; 2) Cointegration test, where this test will use the Johansen Cointegrating test to see whether in the model used, the variables have been cointegrated or not; 3) ARDL estimation, which in this test is to estimate the ARDL model which will also choose a model and perform a diagnostic test to detect whether there are symptoms of basic assumptions that are not fulfilled in time series testing before going to the further steps of determining the model and forecasting assumptions; 4) ECM estimation, which is to estimate the error error in the model that will be used based on the ARDL model specified. On the other hand, this estimation is useful for analyzing output results to determine the short-term dynamics of the right model; (5) Estimation of the ARDL coefficient where this stage will involve estimating the coefficient in determining the long-term relationship of the selected ARDL model.

RESULTS AND DISCUSSION

Based on table 1, the results of the stationarity test are performed on the variables used in the model in order to avoid the problem of spurious regression in the time series data used in the research model. Time series testing to determine the stationarity of data is performed using the Augmented Dickey Fuller (ADF) test where the value will determine the stationary level of the data under study. It is said to be stationary when the ADF value is smaller than the alpha value (the critical value used in this study is 0.05). other than that the identification of variable stationarity can be expressed by the average value and variance of the data does not change systematically over time or can be said to be constant.

Table 1. Data Stationarity Test Results at Level

| Series | Prob. | Lag | Max Lag | Obs |
|--------|-------|-----|---------|-----|
| PDB    | 0.1410| 3   | 10      | 56  |
| GWM    | 0.6369| 0   | 10      | 59  |
| SBIS   | 0.2611| 1   | 10      | 58  |
| FASBIS | 0.0032| 0   | 10      | 59  |

Source: Data processed

Table 1 shows that from the unit root test used for data stationarity only on the FASBIS variable which experiences stationary on increasing the Level, where the P value is less than the critical value (P. Value <α), with a probability acquisition of 0.0032 (less from the critical value). While the other variables do not experience stationary at the level. In time series research requires stationary data so that variables are required to be stationary. When the data after testing the root unit does not experience stationary at the level of the level, then the way to stationary these variables is the stochastic difference process which is the
process of reducing the time series data sets with the root unit. Based on this process, it can be described as follows:

\[ Y_t = Y_{t-1} + \mu_t \]  

(2)

Where \( Y_t \) is a collection of random variables with \( t \) expressing the time index. \( Y_{t-1} \) is the dependent variable of the previous year which is regressed to become an independent variable, while \( \mu_t \) is the error correction on the model.

The stochastic difference process in question is:

\[ \Delta Y_t = Y_t - Y_{t-1} + \mu_t \]  

(3)

where \( \Delta Y_t \) changes from the difference in \( Y_t \), and \( Y_t \) also become the determining variable of the dependent variable.

In this stochastic difference process, it will change the stationarity of the data at the first different level which was previously not stationary at the level of level and has a fixed mean and variance in each period. So that all variables used in this study become stationary at the first difference. This is indicated by the acquisition of the first different level root test results with a very significant P-value (p < α). As in table 2 shown below.

| Intermediate ADF test results | Lag | Prob. | Lag | Max Lag | Obs |
|-------------------------------|-----|-------|-----|---------|-----|
| D(UNTITLED)                  |     |       |     |         |     |
| D(PDB)                       | 0.0000 | 2     | 10  | 56      |
| D(GWM)                       | 0.0000 | 0     | 10  | 58      |
| D(SBIS)                      | 0.0000 | 0     | 10  | 58      |
| D(FASBIS)                    | 0.0000 | 1     | 10  | 57      |

Source: Data processed

The lift after conducting a data stationarity test is the determination of the optimal lag, where the tested variable will be determined by the amount of lag that will be used, namely how long the data to be processed in determining the research model. So the results obtained will be a good and optimal model. Determination of lag in this study is to use the results of the acquisition of lag length criteria in VAR. The following shows the optimum lag determination test results in table 3 in the study as follows:

Table 3. Optimal Lag Test Results

| Lag | LogL | LR  | FPE | AIC  | SC  | HQ  |
|-----|------|-----|-----|------|-----|-----|
| 0   | 168.6| NA  | 3.0 | -6.0 | -5.8| -5.9|
| 1   | 306.7| 251.2*| 3.5*| -10.4*| -9.7*| -10.1*|
| 2   | 315.7| 15.0 | 4.7 | -10.2 | -8.9 | -9.7 |
| 3   | 329.7| 21.4 | 5.0 | -10.1 | -8.2 | -9.4 |
| 4   | 348.1| 25.6 | 4.8 | -10.2 | -7.7 | -9.2 |
| 5   | 362.9| 18.2 | 5.4 | -10.1 | -7.1 | -9.0 |

Source: Data processed

In addition, the optimum lag test is used in time series with the aim of showing how long the reaction between research variables. on the other hand, this test serves to eliminate the presence of autocorrelation symptoms in the Vector Auto Regression (VAR) system. To determine the optimal lag length test is determined based on the Akaike Information Criterion (AIC) and Schwarz Criterion (SC) criteria selected with the lowest value. The VAR model is estimated with various levels of lag which will then be compared with the AIC value on the test results in this study. The optimal lag that will be used as a reference is selected based on the smallest AIC value.

Based on testing the optimal lag shown in table 3 shows that the optimal lag is in lag 1 (first) which has the smallest AIC and SC values among the other values in each column. Optimal lag can also be viewed from the results of the statistical output which is characterized by the presence of the most asterisks in each row in the lag test results.
Table 4. Test Results for the ARDL Model Diagnosis Test

| Test Statistic | Value | Signif. | I(0) | I(1) |
|----------------|-------|---------|------|------|
| F-statistic    | 15.37 | 10%     | 2.72 | 3.77 |
| k              | 3     | 5%      | 3.23 | 4.35 |
|                |       | 2.5%    | 3.69 | 4.89 |
|                |       | 1%      | 4.29 | 5.61 |

Source: Data processed

Table 5. Error-Correction Model test results

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| CointEq(-1) | -1.57 | 0.19 | -8.077 | 0.0000 |

Source: Data processed

Based on Table 5 the Error-Correction Coefficient shows that the acquisition of CointEq value (-1) is -1.573546 (negative) with a probability value of 0.0000 (p < α), and from that value indicates that 157% error in data to be corrected at each time calculation.

Short-term modeling in ARDL can be determined from the estimation of the ECM model obtained by using general to specific starting from the maximum lag and then proceed with standard test procedures to eliminate variables in the ARDL model that p-values are less than alpha values, until the simplest results are obtained (parsimonious regression). The results of this ECM will have some significant lag, but will be taken the most appropriate for inclusion in short-term modeling. Based on table 6 the short-term ECM model shows that the results obtained for each variable are as follows:

Table 6. ECM short-term analysis

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| D(GWM)   | 0.032       | 0.024      | 1.304       | 0.198 |
| D(SBIS)  | -0.012      | 0.014      | -1.362      | 0.179 |
| D(FASBIS)| -0.004      | 0.005      | -0.825      | 0.413 |

Source: Data processed

Estimates marked positive will be significant but the value indicated in the reserve requirement variable is greater than alpha (p-value of 0.1982 > α) with the acquisition of
coefficient of 0.032115. While other variables in this study indicate that it has a negative sign and the p-value is more than the significance value. So that it can be described model patterns formed in the short term, as follows:

\[
D(PDB) = 0.032115 \times D(GWM) - 0.018997 \times D(SBIS) - 0.003988 \times D(FASBIS) - 1.573546
\]

The ECM short-term estimation, where PDB is Dependent Variable, and GWM, SBIS, FASBIS is independent variables which is the first derivative.

Based on the model equation formed from the ECM short-term estimation, it shows that the variable of Bank Indonesia Sharia Certificate and Savings Facility at Bank Indonesia Sharia have a negative value. This illustrates the inverse relationship between the two variables with the magnitude or growth of the Indonesian economy that is notated in this study using Gross Domestic Products. Whereas the Statutory Reserves variable has a positive coefficient but the effect is still too small for economic growth in Indonesia in the year of observation, namely in the 2015-2019 period. If viewed from the significance of the variables, then none of the three regressor variables significantly (p-value> α) affect Indonesia's economic growth.

The results of this study contradict the results of research conducted by Bayuni, (2010), which states that there is a positive influence on sharia monester instruments on monetary magnitude in Indonesia, while other studies state that there is no short-term relationship between instruments in sharia monetary which is used to control Indonesia's monetary conditions which ultimately has an impact on the state of the Indonesian economy. therefore the results of this study support this statement as in the previous research conducted by Septindo et al., (2016) which states that the variable sharia monetary instrument namely on the Bank Indonesia Sharia Certificate gives a negative and significant effect on the distribution of third party funds (DPK), which on the other hand Fadhilah, (2017) also agrees with this research, namely the SBIS variable which does not have a significant impact on one of the macroeconomic variables which will ultimately have an effect on the Indonesian economy and the country's economic growth.

Based on the estimation on the model, the sharia monetary instruments used in this study do not have an effect or impact on the Indonesian economy, meaning that sharia monetary operations carried out through sharia monetary instruments have not been running optimally and the impacts have not significantly impacted positively on the state of the Indonesian economy in the short term. so that the purpose of monetary stability through the circulation of money used by both banking institutions and the Indonesian central bank in the short term can not yet be reaped.

The long-term estimation of the ARDL analysis is an advantage in using time series data analysis models caused by analyzing long-term relationships that are not affected by the mixing of stationary variables, meaning that the variables are stationary at level I (0) and there are which was just stationary at the first different I (1) stage. This does not become an obstacle to the analysis of ARDL in determining long-term and short-term models. In the ARDL estimator will produce coefficients used for modeling long-term relationships that are consistent even though the regressor variable, the stationarity of the data is not a matter of consistency in the estimation. The following is a long-term estimation shown in table 7 of the ARDL analysis.
Table 7. ARDL Long-term Estimates

| Variable      | Coefficient | Std. Error | t-Statistic | Prob.* |
|---------------|-------------|------------|-------------|--------|
| D(PDB(-1))    | -0.044      | 0.121      | -0.364      | 0.7175 |
| D(PDB(-2))    | -0.010      | 0.116      | -0.086      | 0.9320 |
| D(PDB(-3))    | -0.519      | 0.116      | -4.472      | 0.0000 |
| D(GWM)        | 0.050       | 0.038      | 1.316       | 0.1942 |
| D(SBIS)       | -0.030      | 0.022      | -1.331      | 0.1894 |
| D(FASBIS)     | -0.006      | 0.007      | -0.836      | 0.4073 |
| C             | 0.001       | 0.002      | 0.396       | 0.6942 |

Source: Data processed

The estimation in the long-term ARDL analysis based on the table above shows that the regressors used in the study are only the Statutory Reserves variable (GWM) which has a positive marked coefficient but the acquisition of probability exceeds the alpha value so that it is not significant (p = 0.1942 > α). While the other variables indicate that the coefficient is negative and not significant. So the model equation that is formed from the table above is as follows:

\[
D(PDB) = 0.0000801 + 0.050534 D(GWM) - 0.029893 D(SBIS) - 0.006276 D(FASBIS) - 0.044190 D(PDB(-1)) - 0.009990 D(PDB(-2)) - 0.519366 D(PDB(-3))
\]

Where PDB is Dependent Variable, and GWM, SBIS, FASBIS, PDB-1 PDB-2 and PDB-3 are independent variables that is a result ARDL model for long term.

Based on the estimation of the ARDL model equation the results of statistical calculations using Eviews produce the equation as a proposed model to find out the relationship of Islamic monetary instruments to economic growth in the long run, where in this equation the positive coefficient is only on constants (not to touch the numbers 1%), which shows that in this equation, the effect of a constant that does not have a significant impact on changes in the magnitude of Indonesia’s economic growth in the period observed) and the value of the reserve requirement coefficient is around 5 percent, which means that the effect of the reserve requirement on economic growth is only 5% (it is assumed that in other variables the constant does not give value. Whereas the other variables in this study indicate that the coefficient sign that appears is negative. While for the acquisition of the probability value shown in table 7, there is nothing significant except for the third lag GDP variable (economic growth in the previous three years that significantly affects the magnitude of GDP in the present) in the long-term model equation.

Based on the description of the explanation shows that in this study reject the statement (Ismal, 2011, 2013) which states in his research that there are alternatives that can be used in solving monetary problems using Islamic monetary instruments, so that when monetary stability is achieved it is very possible economic conditions to stable and a country’s economic growth becomes significantly positive. Other research that is also a differentiator from the results of this study is the results of a study conducted by (Ramadhan, & Beik, 2013), where the results of his paper stated that there is a significant relationship, namely the Islamic monetary instruments to the Micro, Small and Medium Enterprises (SMEs) sector, so that the movement of the economy becomes more stable due to positive economic activity and the ability of the community or people’s purchasing power to increase, and in the end will increase GDP figures as a calculation that the economy is not recessive. This is in line with research conducted by Kinanti et al, (2018) which states that there is a long-term relationship in sharia monetary instruments and the total financial of Indonesia which empties into the economy. This research supports the research conducted by Bayuni & Srisusilawati, (2018), in her study which stated that the small contribution of Islamic monetary instruments in controlling macroeconomic...
problems such as inflation, so that the economy that occurs in a country becomes sluggish and the growth rate the economy becomes smaller because economic activity is not being excited.

Efforts to stabilize the monetary situation as the goal of Bank Indonesia as stipulated in Act No. 3 of 2014 concerning monetary stability by Bank Indonesia, namely the implementation of several wrong steps such as monetary operations. The monetary operations carried out involve sharia instruments to help realize these objectives. as well as Islamic monetary instruments are also expected to contribute to the development of an increasingly advanced Indonesian situation that is by achieving a stable economic situation continues to develop from one period to the next. However, during the last five years the Indonesian economy has been depressed by the decline in Indonesia's economic growth, which has positioned the NKRI in the middle income trap or economic growth trap of a middle country. Through this Islamic monetary instrument, it is hoped to be able to resolve the obstacles being faced by Indonesia in economic problems. However, the results of this study indicate that the role of the banking world that was shed to be able to play an active role in the resolution of this issue did not have a significant effect, Islamic monetary instruments through the banking sector only made a small contribution and contribution to Indonesia's economic growth in the five years of research calculations. In the long run based on the ARDL model equation above, economic activity in banking institutions does not have a real impact on the real industry of Indonesia's economy, so the relationship formed between Islamic monetary instruments (SBIS and FASBIS) and economic growth (GDP) is an inversely proportional relationship. Only the reserve requirement contributed to the rate of economic growth, although it was very small.

CONCLUSION

Based on the analysis of research variables using the ARDL test time series, this study yields the conclusion that the ARDL modeling offered both in the short term and in the long term is used for forecasting and or to determine future policies namely on the minimum statutory reserve variable, Islamic Indonesia bank certificates and sharia banking bank deposit facility, which is then referred to as a sharia monetary instrument regressor on Indonesia's economic growth, shows that only the minimum statutory reserve variable can have an effect on the country's economic growth even though the value of its contribution is very low, whereas for other sharia monetary instrument variables in this study does not have a positive effect on the state of the Indonesian economy, even the form of relationships that are built is inversely proportional. Therefore, to achieve monetary stability through sharia monetary instruments, the use of policies on the minimum statutory reserve requirement in banks can be optimized to control the circulation of money in the community so that it is more stable and the Indonesian economy can grow past the middle income trap.

Suggestions for further research, in order to consider the following: 1) It is better to increase the amount of research time span to get the completeness of research data; 2) Further research can increase the number of variables that have an influence on economic growth used in research; 3) subsequent research should be able to use other more comprehensive test methods in the study, in order to get the validity of the research results.
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