THE EFFECT OF MONETARY POLICY AND FISCAL POLICY ON INFLATION IN INDONESIA

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Abstract

Inflation has been one of the biggest challenges for Indonesia's economic development. A stable and manageable inflation rate is important to create a healthy economic environment, increase people's purchasing power, and promote sustainable economic growth. In an effort to control inflation, the Indonesian government uses various policy instruments, including monetary policy and fiscal policy. The type of research used is a quantitative approach with secondary data from 1993-2022 obtained from the website of Bank Indonesia, Ministry of Finance, Central Bureau of Statistics, and several other library materials that researchers read. The data was then processed using Eviews 12 software and analyzed using the Autoregressive Distributed Lag (ARDL) analysis technique. The results showed that the money supply variable has a significant positive effect in the long term while in the short term the money supply variable has a significant positive effect on lag 0 and a significant negative effect on lag 2 on inflation in Indonesia. The interest rate variable has a positive significant effect in the long run while in the short term the interest rate variable has a positive significant effect on lag 0 and negative significant on lag 1 and 2 on inflation in Indonesia. The tax revenue variable has a positive significant effect in the long run while in the short term the tax revenue variable has a positive significant effect on lag 0, 1 and 2 on inflation in Indonesia. The government spending variable has a significant negative effect in the long run while in the short term the government spending variable has a significant negative effect on lag 0 and a significant positive effect on lags 1, 2 and 3 on inflation in Indonesia.

Keywords: Inflation; Money Supply; Interest Rate; Tax Revenue; Government Expenditure

INTRODUCTION

The economic stability of a country is always a priority to be achieved because economic stability creates an atmosphere that supports economic activities. Such economic stability can be measured by the existing macroeconomic stability. However, macroeconomic stability is highly variable. If there is a shock to one of the economic variables, it will affect other macro variables. Inflation is an economic problem and a major concern for governments and central banks in many countries including Indonesia. Inflation, a high general increase in the price of goods and services will be a burden for many parties.With inflation, the purchasing power of a currency becomes lower or decreases. With the declining purchasing power of the currency, the ability of people on fixed incomes to buy goods and services for their daily needs will be lower [1].

In an effort to control inflation, the Indonesian government uses various policy instruments, including monetary policy and fiscal policy. Monetary policy is conducted by Bank Indonesia using instruments such as discount policy, open market operations, mandatory reserves and appeals. Meanwhile, fiscal policy is conducted by the government through the state budget (APBN) to regulate public spending, taxes and subsidies that can affect the inflation rate. Policies that regulate the amount of money in circulation and keep the value of money stable are known as monetary policy. To promote economic growth, monetary policy prioritizes economic growth and income distribution, employment opportunities, balance of payments, and stability of the inflation

rate [2]. Interest rates and the regulation of money supply (JUB) are the tools used by Bank Indonesia as the monetary authority to ensure that the inflation rate remains stable. In a theoretical perspective, the actions or policies that the government takes to influence the economy are called fiscal policies. This type of action is used to influence the economy by affecting national revenue and expenditure to promote economic growth and stability. The theoretical basis of fiscal policy is the British economist John Maynard Keynes, who said that an increase or decrease in revenue (taxes) and spending levels affects inflation, employment and the flow of money through a country's economic system.

LITERATURE REVIEW

According to Miskin the quantity theory of money was developed by neoclassical economists in the 19th and 20th centuries. This theory explains that in a long-run equilibrium, the supply of money in the economy causes changes that are proportional to changes in the price level. Basically, the quantity theory of money is a hypothesis about the main cause of the price level [3]. The classical theory states that interest is the price of investment funds, thus interest is the price that occurs in the investment market. The interest rate is one of the indicators in deciding whether someone will invest or save money. Based on the Fisher effect, changes in interest rates are caused by two things, namely changes in real interest rates and changes in inflation rates. The Fisher Effect Theory explains that to maintain the real interest rate, the nominal interest rate must be linked to inflation. That is, if inflation occurs, the central bank must respond by raising nominal interest rates to reduce the inflation rate [4].

The classical Taxes in macroeconomics are a form of purchasing power of the community in the form of money given by the community to the government without direct services provided by the government to the community, the community will benefit from the development carried out by the government where the source of development is from taxes paid by the community. The role of tax revenue is currently very important because taxes are the most important source of state revenue financing development, so optimizing tax revenue is one way to mark development sourced from within the country.Government spending in a real sense can be interpreted as an indicator of the magnitude of government activities financed by government spending. The bigger and more government activities, the greater the government expenditure incurred. This spending is allocated for development projects in areas such as education, health, and infrastructure, as well as for repayment of the country's debt, internal interest, and external interest on the debt. Higher government spending can boost economic growth. According to Inflation is a very important macroeconomic indicator because it affects the value of money and thus has a direct impact on society. In fact, President Gerald Ford of the USA once said: "Inflation is the number one public enemy". From a macroeconomic perspective, inflation is defined as a general and continuous increase in the prices of goods and services.

RESEARCH METHOD

The type of data used is secondary data, which is data or information obtained from other parties, in the form of data that supports this research. The data used with a time frame of 30 years, namely 1993-2022 obtained from the website: Bank Indonesia; Ministry of Finance; Central Bureau of Statistics, World Bank as well as several other library materials that researchers readThis study uses one dependent variable and four independent variables. The dependent variable in this study is inflation (INF), while the independent variables in this study are Log money supply (LOGJUB), Log Interest Rate (LOGSBI), Log Tax Revenue (LOGPP) and Log Government Expenditure (LOGBP). The ARDL equation model in this study takes the Lin-Log model. The Lin-Log model, which is a model formed because the independent variable is transformed into logarithmic form, while the dependent variable is not transformed or remains in linear form. In determining the regression equation, each variable will be estimated by including long and short-term lags until finding the best model. The long-term relationship can be analyzed using the ARDL method equation, which is as follows:

$$INF_t = \beta 0 + \beta 1\ LOGJUB_t + \beta 2\ LOGSBI_t + \beta 3\ LOGPP_t + \beta 4\ LOGBP_t + et$$

If there is a long-term relationship between variables, then the short-term relationship between variables can be analyzed using ECM. The ARDL short-term equation model in this study is as follows:

$$\Delta INF_t = \propto + \sum_{i=1}^{p} \theta_{1i}\, \Delta INF_{t-1} + \sum_{j=1}^{q} \varphi 1j\, \Delta LOGJUB_{t-j} + \sum_{j-1}^{q} \varphi 2j\, \Delta LOGSBI_{t-j} + \sum_{j-1}^{q} \varphi 3j\, \Delta LOGPP_{t-j} + \sum_{j-1}^{q} \varphi 4j\, \Delta LOGBP_{t-j} + \gamma ECT_{t-1} + \epsilon_t$$

RESULTS AND DISCUSION

4.1 Unit Root Test

To conduct ARDL analysis, as a condition, the variables have been checked for stationarity at the level or first difference and the results are as follows:

Table 1. Results of Stationarity Test

Series	Level		First difference	
	t- statistics	Probability	t- statistics	Probability
INF	-3.052732	0.0448		
LOGJUB	-2.007946	0.2817	-3.459634	0.0171
LOGSBI	-0.543592	0.8674	-6.534418	0.0000
LOGPP	-3.144041	0.0351		
LOGBP	-1.75322	0.3946	-4.909095	0.0005

Source: Output Eviews 12

4.2 Optimal lag test

Following are the results of the AIC test to determine the maximum lag of ARDL, namely (1,3,3,3,4) for each of the five variables:

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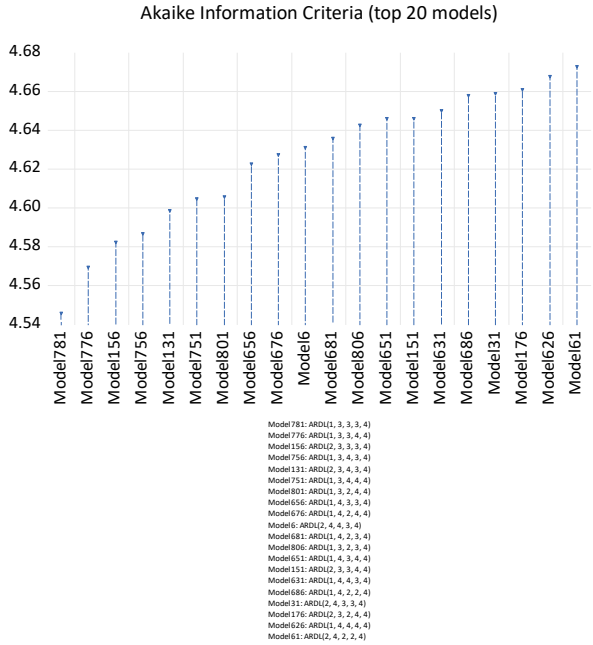

Figure 1. Results of Akaike Information Criteria

4.3 ARDL Cointegration Test Results

To see whether there is a long-term and short-term relationship, you can see the Cointegration Bound Test with the following results:

Table 2. Bound Test Results

Test Statistics	Value	Significant	I(0)	I(1)
F-Statistics	8.359093	10%	2,525	3.56
		5%	3,058	4.223
		1%	4.28	5.84

Source: Output Eviews 12

The Bounds Test results above show that the F-Statistic value (8.359093) is greater than I(0) and I(1) so that it can be said that there is a long-term and short-term relationship between the independent variable and the dependent variable.

4.4 Long Term and Short Term ARDL Outcomes

The following are the results of the estimation of the effect of the independent variables on the dependent variable which can be seen from the results of the ARDL Long-Term Form Test:

Table 3. Long Term Effects

Variables	Coefficient	t- statistics	Probability
LOGJUB	49.27106	6.865789	0.0002
LOGSBI	21.2993	4.113896	0.0045
LOGPP	28.06923	3.8856	0.006
LOGBP	-64.06016	-4.611237	0.0025
C	-487.4492	-7.852805	0.0001

Source: Output Eviews 12

Based on the ARDL estimation in the long run above, it can be described as follows:

1. The LOGJUB variable shows a probability value of LOGJUB is 0.0002 < alpha 5% with a coefficient value of 49.27106 so it can be interpreted that the money supply has a significant positive effect on inflation in the long run. The ARDL model shows that when the money supply increases by 1%, it is expected to increase inflation by 0.4927106% in the long run.
2. The probability value of LOGSBI is 0.0045 < 5% alpha with a coefficient value of 21.29930 so it can be interpreted that interest rates have a positive significant effect on inflation in the long run. The ARDL model shows that when interest rates increase by 1%, it is expected to increase inflation by 0.2129930% in the long run.
3. The probability value of LOGPP is 0.0060 < 5% alpha with a coefficient value of 28.06923 so it can be interpreted that tax revenue has a significant positive effect on inflation in the long run. The ARDL model shows that when tax revenue increases by 1%, it is expected to increase inflation by 0.2806923% in the long run.
4. The probability value of LOGBP is 0.0025 < 5% alpha with a coefficient value of -64.06016 so it can be interpreted that government spending has a significant negative effect on inflation in the long run. The ARDL model shows that when government spending increases by 1%, it is expected to reduce inflation by 0.6406016% in the long run.

The following are the results of the estimation of the effect of the independent variables on the dependent variable which can be seen from the short term results:

Table4. Short Term Effects

Variables	Coefficient	t- statistics	Probability
$\Delta LOGJUB_t$	198.2458	27.21886	0.0000
$\Delta LOGJUB_{t-1}$	18.15370	0.793009	0.4538
$\Delta LOGJUB_{t-2}$	-58.80598	-4.404892	0.0031
$\Delta LOGSBI_t$	14.95913	7.520550	0.0001
$\Delta LOGSBI_{t-1}$	-13.44418	-5.907436	0.0006
$\Delta LOGSBI_{t-2}$	-3.505402	-1.920991	0.0962
$\Delta LOGPP_t$	28.67292	9.271306	0.0000
$\Delta LOGPP_{t-1}$	24.24708	8.540228	0.0001
$\Delta LOGPP_{t-2}$	10.51055	2.517520	0.0400
$\Delta LOGBP_t$	-32.30597	5.597112	0.0006
$\Delta LOGBP_{t-1}$	44.89461	6.061951	0.0005
$\Delta LOGBP_{t-2}$	39.25095	6.061951	0.0003
$\Delta LOGBP_{t-3}$	24.76671	5.770637	0.0007
ΔECT_{t-1}	-1.303523	-9.272499	0.0000

Source: Output Eviews 12

Based on the ARDL estimation in the short run above, it can be described as follows:

1. The short-term estimation test results explain that the CointEq (ECT) value is -1.303523 and a probability of 0.0000. The Error Correction Term value is valid if the coefficient is negative with a significant probability at 5%, then the model has met the validity requirements. The greater the value of the ECT coefficient (-1), the faster the adjustment process of inflation to return to balance is less than one year unit time period.
2. The results of the short-term estimation test explain that the variable Money Supply (JUB) has a significant effect on inflation at lag 0 and 2 seen from the probability value <5% alpha with the coefficient (198.2458) and (-58.80598) respectively . This means that a 1% increase in money supply in that period will increase

current inflation by 1. 982458%, a 1% increase in money supply in the previous two periods will decrease current inflation by 0.5880598%.

3. The short-term estimation test results explain that the interest rate variable has a significant effect on inflation at lag 0, 1 and 2 seen from the probability value of each < alpha 10% with the respective coefficients (14.95913), (-13.44418) and (-3.505402). This means that a 1% increase in interest rates in that period will increase current inflation by 0.1495913%, a 1% increase in interest rates in one previous period will decrease current inflation by 0.1344418% and a 1% increase in interest rates in the previous period two periods will decrease current inflation by 0.03505402%.
4. The short-term estimation test results explain that the tax revenue variable has a significant effect on inflation at lag 0, 1 and 2 seen from the probability value of alpha 5% with the respective coefficients (28.67292), (24.24708) and (10.51055) . This means that a 1% increase in tax revenue in that period will increase current inflation by 0.2867292%, a 1% increase in tax revenue in one previous period will increase current inflation by 0.2424708% and a 1% increase in tax revenue in the previous period two periods will increase current inflation by 0.1051055%.
5. The short-term estimation test results explain that the government spending variable has a significant effect on inflation at lag 0, 1, 2 and 3 seen from the value <5% alpha with the respective coefficients (-32.30597), (44.89461), (39.25095) and (24.76671). This means that a 1% increase in government spending in that period will decrease current inflation by 0.32305972%, a 1% increase in government spending in one previous period will increase current inflation by 0.4489461%, a 1% increase in government spending in two previous periods will increase current inflation by 0.3925095%, and a 1% increase in government spending in three previous periods will increase current inflation by 0.2476671%.

4.4 Model Stability Test

In this ARDL model, CUSUM and CUSUMQ are used to test the stability of the model. The following are the results of CUSUM:

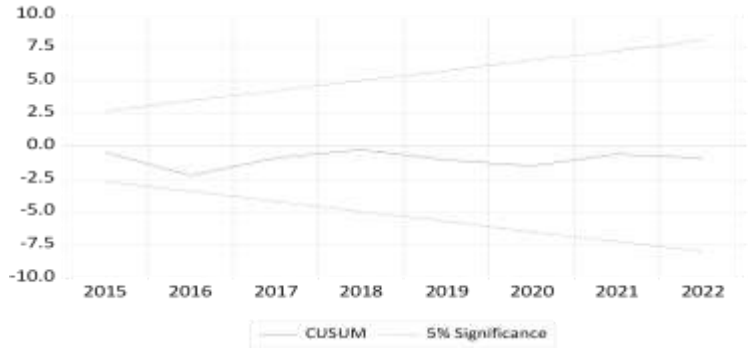

Figure 2. CUSUM Plot

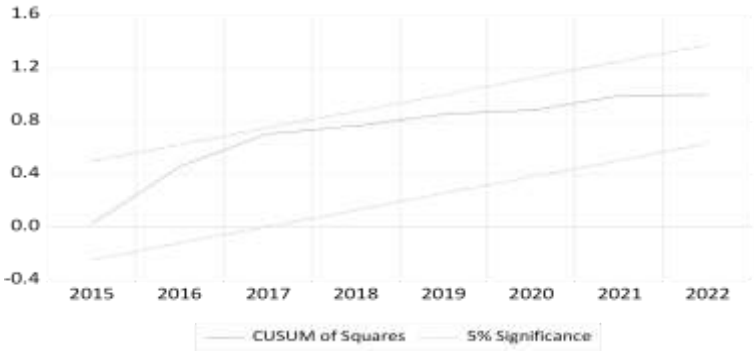

Figure 2. CUSUMQ Plot

During the observation period, it can be seen that the ARDL model tested has been stable and the coefficients can statistically explain the interaction between the dependent variable and the regressor. This is proven by the CUSUM graph above, as well as the CUSUMQ figure where the CUSUMQ plot still enters the critical interval below 5%

CONCLUSIONS

The results showed that the money supply variable has a significant positive effect in the long run while in the short term the money supply variable has a significant positive effect on lag 0 and a significant negative on lag 2 on inflation in Indonesia. The interest rate variable has a positive significant effect in the long run while in the short term the interest rate variable has a positive significant effect on lag 0 and negative significant on lag 1 and 2 on inflation in Indonesia. The tax revenue variable has a positive significant effect in the long run while in the short term the tax revenue variable has a positive significant effect on lag 0, 1 and 2 on inflation in Indonesia. The government spending variable has a significant negative effect in the long run while in the short term the government spending variable has a significant negative effect on lag 0 and a significant positive effect on lags 1, 2 and 3 on inflation in Indonesia.

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