Analysis of the Effectiveness of Monetary Policy Transmission through a Line of Credit and Inflation Expectations in Indonesia

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ABSTRACT

This study aims to determine the effectiveness of the transmission mechanism of monetary policy by reviewing the amount of the deadline that required the transmission mechanism of monetary policy in achieving the goals of the final form of the output gap and inflation by using the channel of credit and inflation expectations. In addition, this study also aims to determine the relationship long-term and short against the target output gap and inflation. This study uses a regression model Vector Error Correction Model (VECM) to estimate the influence of the transmission mechanism of monetary policy to the output gap and inflation through the channel of credit and the regression model of Vector Autoregression (VAR) to estimate the influence of the transmission mechanism of monetary policy to the output gap and inflation through the channel of inflation expectations. The Data used in this research is the data series time quarter from 2008 to 2018. Data penelitian used to estimate the influence of the transmission mechanism of monetary policy to the output gap and inflation through the channel of credit in the form of secondary data consisting of the benchmark interest rate of Bank Indonesia, inflation expectations. The secondary Data used is sourced from the annual reports that are published from the official website of the Bank of Indonesia, the data of the Central Bureau of Statistics and the International Monetary Fund. The results of this study showed that the effectiveness of the transmission mechanism of monetary policy through the credit channels require the deadline each of the 8 (eight) of the quarter and 10 (ten) quarter in achieving the goals of the end of the output gap and inflation. While the effectiveness of the transmission mechanism of monetary policy through the channel of inflation expectations require the deadline each of the 4 (four) quarter and 6 (six) quarter in achieving the goals of the end of the output gap and inflation. The results also showed only policy transmission mechanism built melalui credit lines that have long-term relationships against inflation while the transmission mechanism of monetary policy through the channel of inflation expectations have short-term relationship strong.

Keywords: The Transmission Mechanism Of Monetary Policy, Output Gap, Inflation

INTRODUCTION

The monetary crisis in 1997 caused the Indonesian Government to reform over the policies created during the new order, especially policies that influence the onset of the crisis that occurred at that time. One of the reforms carried out is to make the...
Bank of Indonesia became an Independent Institution in enforcing policies that are macro-prudential and micro prudential. One of the efforts of Bank Indonesia as an Independent Institution at the time of the reform is to publish a policy that contains a framework called Inflation Targeting Framework (IRF) to make the interest rate as the operational target. Monetary policy is carried out since 1 July 2005 where previously using primary money (base money) as the operational target. Since the implementation of the framework of the Inflation Targeting Framework in 2005 until 2019 only 7 years actual inflation on target in accordance with the target as presented in figure 1.1. This becomes for policy makers in particular with Bank Indonesia and other Central Banks in any country. This reality into the debate for academics that there is some reason for a Central Bank policy is not always appropriate for the target planned. This issue has always been a topic of interest and carried out continuous research on the role of Central Bank monetary policy on macro-economic indicators, in particular inflation and economic growth (output).

The ineffectiveness of the policies of Central Banks in achieving the inflation target due to the behavior of institutions and households (individuals) involved in a mechanism that leads to the inflation target is desired. In general, the countries categorized as emerging economy, a goal that is achieved in monetary policy is not running so well due to the behavior of the institution, especially the bank and the community in the country. Therefore, it required an understanding of the transmission mechanism of monetary policy describes a process in the achievement of the inflation and economic growth. More details, the monetary policy transmission mechanism is the process of monetary policy in influencing economic activity and financial eventually leading to inflation targeting and economic growth (output) (Warjiyo and Juhro, 2017).

The debate among academics happens again in the discussion of how the transmission mechanism of monetary policy affect the financial sector and economic rill which further affects inflation and economic growth. So in the end the academics build a mechanism into two viewing angles comprising the angle of view of money (money view) and the angle of view of credit (credit view). From the side of the money view, the transmission mechanism of monetary policy describes the process mechanism of monetary policy in
influencing consumption and investment in the short term through short-term interest rates and control the money primary, where through the long-term interest rates affect the price of the asset and the exchange rate (Warjiyo and Juhro, 2017). So in the side of the money view, the discussion of the transmission mechanism of monetary policy using a 4 channel which consists of the interest rate, the channels of asset prices, the exchange rate channel and the channel expectations. While from the side of the credit view explaining the inefficient financial system that affect the transmission mechanism of policy monter. More details, inefficiencies can be explained in two (2) channels consist of channel credited and channel balance sheet.

Special credit lines, inefficiency occurs in Indonesia due to the policy increase and decrease the interest rate of Banks Indonesia (BI) does not always affect the distribution of credit by the banking industry. This is because that the quantity of availability of funds the bank is affects the lending interest rates than the BI. This phenomenon is seen When in the year 2019, Bank Indonesia lowered its benchmark BI 7-Day Repo Rate by 4 times and the policy has not been followed by the Banking industry (https://financial.bisnis.com).

In theory, this phenomenon occurs because there is simetrinya between the liabilities and assets of banks where the liabilities of the bank has a role in determining aggregate demand for money (aggregate demand) (Bernanke and Blinder, 1988). While lending combined with the distribution of other securities that its distribution is restricted by regulations. Furthermore, according to Perry Warjiyo in the medcom.id (2020) that the decline in interest rates on deposits in Indonesia, depending on the preferences of the public in placing funds in the bank while the interest rates of credit depending on the condition of liquidity held by banks. This causes the presence of 2 alternatives for the banking industry to meet liquidity that increase the interest rate or receive an injection of funds likuiditas of the Central Bank. In line with that, Bernanke and Blinder (1988) describes as the increasing economic growth will make the Central Bank more likely to expand reserves in stabilizing credit compared to restrict the backup with the goal of stabilizing the money. So that stabilization policy credit is favored compared to stabilization policy the amount of money circulating due to the stabilization of the amount of money in circulation will be more likely to destabilize the Gross National Product. Therefore, the Central Bank has a role in injecting liquidity fund for the bank keep lending needs that can increase the activity of the economy. Evidence empirically can be seen from the research previously (Morris and Sellon, 1995 ; Bernanke and Blinder, 1992; Romer and Romer, 1990) showed the policy of tightening the money supply by a Central Bank will have an impact on the decrease in the number of third party deposits in the short term and the decline in lending in the long term and ultimately lower economic activity as measured by Gross Domestic Product.

On the other hand, inefficiencies of the transmission mechanism of monetary policy in influencing economic activity through the channel of credit raises the assessment of the credibility of the monetary policy set by Bank Indonesia in the eyes of society. Credibility this policy leads to the expectation of the condition of the economy in the future, in particular expectations for inflation in the next period. Because of this, the expectation is one of the channels of the transmission mechanism of monetary policy in influencing economic activity and inflation. More details, expectations influence the behavior of economic decision-making on consumption and investment which ultimately push aggregate demand and inflation (Natsir, 2009). In other words, expectations of inflation will tend to approach the target inflation when monetary policy transmission mechanism goes well. In line with it, according to Montes (2013) that the purpose
of the inflation target itself to ensure low and stable inflation, which serves as an anchor in the formation of expectations. Therefore, trust is the most important thing in the determination of inflation expectations so that the credibility of the higher required for changes in the benchmark interest rate that is small in controlling inflation. On the contrary, if the credibility of the policy is not good enough will give the impact of changes in the benchmark interest rate is greater in the control of inflation. In the end the control of inflation through changes in the benchmark interest rate that can provide you with lower volatility on output and employment.

Related to purpose than this study, there are several previous studies in Indonesia that examines the effectiveness of the transmission mechanism of monetary policy in achieving the ultimate goal, namely the Gross Domestic Product or output (the difference between actual and potential GDP) and inflation by using the channel of credit and expectations among them is the research conducted Rusydiana (2009) by using the channel of islamic financing where the variable is used to see the process of the monetary policy transmission mechanism is the total Islamic bank loans (minus SRB), the consumer price index (inflation), the interest rate on the PUAB money market, the interest rate of Bank Indonesia Certificates, the rate for the results of Certificate of Wadiah Bank Indonesia and SBI sharia as well as the PUAB Money Market Sharia. The results showed PUAB and SBI conventional contribute more to the financing of the banking syariag compared instrument sharia consisting of Satisfied and Swbis.

While the research on the transmission mechanism of monetary policy through the channel of the expectations that have been conducted in Indonesia is the research done Natsir (2009). Research using variable inflation, SBI interest rate, output gap, inflation expectations and the exchange rate. The results of his research show that the monetary policy transmission mechanism channels in inflation expectations effective to realize the ultimate goal of monetary policy but to realize it, it takes 12 of the quarter.

Based on previous studies, the researchers interested in doing research on the transmission mechanism of monetary policy on credit lines conventional banks by using variable working capital loans. This is done because the working capital credit is a credit that the loan does not exceed from 1 year so it is more realistic in the effectiveness of the mechanism compared to the long-term credit. For the next researchers using the BI rate variable 7 days repo rate, the interest rate on the PUAB money market, the interest rate on working capital loans and total loans of working capital distributed by the bank, the consumer price index and out of the gap (the difference between the actual and the Gross Domestic Product).

Furthermore, the problems of the process of the transmission mechanism of monetary policy in a channel expectations in developing countries such as Indonesia are also attracted researchers to use the channel of the expectations in this research because this research is expected can see that the credibility of monetary policy is an important factor in creating the stability of the macroeconomic environment, its ability to improve the effectiveness of monetary policy, and stimulate investment in the economy. For the next researchers using the BI rate variable 7 days repo rate, the interest rate on the PUAB money market, expectations of inflation, the consumer price index (actual inflation) and out of the gap (the difference between the actual and the Gross Domestic Product).

The use of the channels of credit and inflation expectations in this study, also due to that previous research with the use of the channel is still a bit done in Indonesia. Other than that, the use of credit lines and expectations can better answer the problems as outlined earlier that since the applied Inflation Targeting Framework in Indonesia 7 times the actual inflation reaches the
target that caused the economic behavior of people and institutions, especially banking.

**LITERATURE REVIEW**

**Inflation**

Inflation is defined as the tendency of prices to rise thoroughly and continuously in a certain period of time. The price increase is not from just one or two items, but the price increase is widespread or gives impact to the rise in prices on other goods. These conditions due to the presence of imbalance (disequilibrium) between the flow of money and goods flow which is characterized by the flow of money is greater than the flow of goods, causing the price level to rise (Boediono, 2005).

**Monetary Policy Transmission**

Monetary policy has the end goal to keep and maintain rupiah stability. In order to achieve these goals Bank Indonesia has set the policy rate BI Rate as an instrument of major policy to influence economic activity with the end goal the achievement of the inflation.

![Conceptual Framework](image)

**Hypothesis**

1. The transmission mechanisms of monetary policy through the credit channels have a deadline that is relatively short in achieving the operational targets and the end (the output gap and inflation).
2. The transmission mechanism of monetary policy through the channel of inflation expectations have a deadline that is relatively short in achieving the operational targets and the end (the output gap and inflation) medium and long-term effective through the channel expectations.
3. Interest rate of Bank Indonesia, the interest rates on the PUAB money market, money supply (M2), interest rates on credit and amount of credit, working capital can influence the output gap and inflation.
4. Bank Indonesia interest rate and inflation expectations, strong influence on the output gap and inflation.
MATERIAL AND METHODS

The research used in this research is research with descriptive method research quantitative. Research descriptive is the type of research that aims to find out the development of the means of physical or frequency of occurrence of something aspects of social phenomena specific, and to describe certain phenomena in detail. Whereas the methods of research quantitative are the method of scientific research that systematically against the parts and phenomena as well as relationships. Research quantitative done by collecting the data and the results of the analysis that aims to develop and use a mathematical models, theories and/ or hypotheses pertaining to natural phenomena.

The type of data used is secondary data which is the source of the research data obtained through the intermediary media or indirectly in the form of books, records, evidence has been, or archive the good that is published or not published in general. In this research the data used is the data PDB real, inflation, credit working capital real, quarter flower of credit, the supply of money (M2), quarter flower PUAB, exchange rate, BI rate, output gap, and expectations of inflation. This research uses data time series which is a data record based on the period of time daily, weekly, monthly, yearly, or a specific period of time the other in the span of time the same against an individual/object. Data taken in this research is the data of quarter from the years 2005-2018.

Methods of data collection using the method of documentation. The method of documentation is a method of data collection with a view or analyze the documents interpreted simply as a means of data collection obtained from the available documents or records kept, well it purports to record transcript made by the subject himself or by another person by the subject. The Data is worn in this research stylized direct from the secondary data were sourced from the data.

In this research data processing and hypothesis testing using Microsoft Office Excel365 and Stata 15. Processing and calculation of the secondary data will be reworked with the use of Microsoft Office Excel365. While Stata 15 is used as the governing data to test the use of the model ekonometrika, that is VAR (Vector Autoregression). If, however, in this research the data tested pregnancy unit root maka this research will use the VECM (Vector Error Correction Model).

RESULTS AND DISCUSSION

The Influence Of The Monetary Policy Transmission Mechanism Channel Credit

In reviewing the effectiveness of the Monetary Policy Transmission Mechanism Channels of Credit requires a calculation to determine the amount of increase needed from the response of interest rates PUAB1 months to shock (shock) BI rate, then the next response rate of credit interest rate to shocks that occur on the PUAB rate of 1 month and so on until the response of inflation to shock output gap. So can analyze the effectiveness of this it takes the Impulse Response Function (IRF) gradually starting from the response PUAB Rates (1 month) to shocks in the BI rate, response Rate Credit against shocks PUAB Rates (1 Month), response the Credit Amount of Working Capital the shocks of Credit Interest Rate, the response of the Output Gap against shocks the Amount of Working Capital Loans, response of Inflation to shocks to the Output Gap. In this study also added variable Amount of Money in Circulation so that it takes IRF gradually starts response is the Amount of Money Circulated against shocks BI rate, response the Credit Amount of Working Capital to shocks to the Money supply, the response of the Output Gap against shocks the Amount of Working Capital Loans, the response of Inflation to the Output Gap. Here is a picture of IRF to see the amount of time required.
Based on the Picture 2, it takes 2 (two) quarter PUAB rates (dOneMonth) in response to shocks (shock) BI rate (dBIrate) then it takes 2 (two) quarter for interest rate credit (dInterest_Loan) in response to shocks to the level of PUAB rates (dOneMonth). Furthermore, the amount of capital credit (dwC_Loan) requires two (2) quarter to respond to shocks in interest rates credit (dInterest_Loan) and output_gap (dgdp_hp) requires two (2) quarter to respond to shaking the amount of working capital loans (dInterest_Loan). Based on summation the order of the response variable against shocks variable before starting the BI rate to the output gap is 8 (eight) of the quarter.

Through the side of the money supply shows that the amount of money circulating (dMoney_Supply) respond to shocks in the BI rate (dBI_rate) requires 2
(two) quarter) which further the amount of working capital loans (dWC_Loan) requires 2 (two) quarter in response to shocks to the money supply (dMoney_Supply). At the end of the output gap (dgdp_hp) requires 2 (two) quarter in response to shocks to the amount of working capital loans (dWC_Loan). Based on p summation the order of the response variable against shocks variable before starting the BI rate to the output gap is 8 (eight) of the quarter.

The last stage in measuring the effectiveness of the Monetary Policy Transmission Mechanism in the channel of credit is to see the response of inflation to shocks to the output gap, the results show that inflation (dinflation) requires 2 (two) quarter to respond to shocks to the output gap (dgdp_hp). It can be concluded that the effectiveness of Monetary Policy Transmission Mechanism channel credit takes 10 (ten) quarter to achieve the target end of inflation and takes 8 (eight) of the quarter to reach targeting output gap or gross domestic product.

In view of the strength of the variables credit lines that are involved in the Transmission Mechanism of Monetary Policy in influencing inflation and the output gap then it can be reviewed based on the relationship between short-term and long term. Based on the long-term influence can be seen from the test results the analysis of Vector Error Correction Model shows that the variables in the Monetary Policy Transmission Mechanism channels the credit of having CET (Coefficient of Error Term) of -1,1892 with a significance level of 99% effect on inflation. So it can be said that the variables in the Monetary Policy Transmission Mechanism channels of credit has a relationship a long-term balance against inflation. But not thus with the output gap where the variables in the Monetary Policy Transmission Mechanism channels the credit does not have a relationship a long-term balance to the output gap. In the short term only the variables of inflation and the output gap have a significant effect on inflation with a significance level of 95%. While the short-term influence between the variables of the Monetary Policy Transmission Mechanism none of the variables that affect the output gap.

The Influence Of The Monetary Policy Transmission Mechanism Channels Expectations

![Graphs showing IRF Mechanism of Monetary Policy Transmission Channels Expectations](image)

*Picture 4: The results of the IRF Mechanism of Monetary Policy Transmission Channels Expectations*

*Source: Processed Data STATA 15.1, Attachment 17*
The determination of the effectiveness of the Monetary Policy Transmission Mechanism Channels Expectations required Impulse Response Function (IRF) gradually starting from the response of Inflation Expectations to shocks in the BI rate, the response of Output Gap to shocks in Inflation Expectations, the response of Inflation the shocks to the Output Gap. Here is a picture of IRF to see the amount of time required.

Based on the above Picture shows that Inflation Expectations (Expection_Inf) in response to shocks in the BI rate (dBI_rate) requires 2 (two) quarter which further output gap (dgdp_hp) requires 2 (two) quarter in response to shocks to Inflation Expectations (dExpectation_Inf). The last Inflation (dInflation) requires 2 (quarter) in response to the Output Gap (dgdp_hp). Based on summation the order of the response variable against shocks variable before starting the BI rate to the output gap is 4 (four) quarter, then to get to inflation is 6 (six).

The results of the testing of co-integration between before shows that the influence of the variables in the Monetary Policy Transmission Mechanism channels Expectations have only a short-term relationship where the results of the test of Granger Causality show bahwa output gap has a direct relationship to all of the variables while inflation expectations have only unidirectional against inflation.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Based on the explanation and analysis conducted in the previous chapter, the conclusions that can be drawn in this research, among others:

1. The effectiveness of the transmission mechanism of monetary policy through the credit channels in Indonesia in reach ultimate goal, namely inflation requires a 10 (ten) quarter and to achieve the output gap requires a time of 8 (eight) of the quarter. The effectiveness needed to achieve the operational targets between the variables used in this study sequentially from Bank Indonesia interest rate that leads to the inflation target is 2 (two) of the quarter.

2. The effectiveness of the transmission mechanism of monetary policy through the channel of inflation expectations in achieving the goal of the end of the inflation requires a period of 6 (six) quarter while to reach the output gap requires time 4 (four) of the quarter. The effectiveness needed to achieve the operational targets between the variables used in this study sequentially from Bank Indonesia interest rate that leads to the inflation target is 2 (two) of the quarter.

3. The presence of a long-term relationship significantly between the transmission mechanism of monetary policy through the channel of credit against inflation but does not have a significant relationship on a long term basis to the output gap. Short-term relationship only occurs between the variable output gap on inflation. Okay because it is just a variable output gap a strong influence on inflation both in the short and long term.

4. The test results also that the only relationship short-term strong influence between the variables used in the transmission mechanism of monetary policy channels expectations of inflation.

RECOMMENDATIONS

Suggestions of researchers from the research that has been done is as follows:

1. Jeddah is the time it takes policy transmission mechanism monter channels inflation expectations is brief compared to credit lines expected is to encourage the Government to have the credibility of the policy-setting so that it can give impact on the expectations of a community through efforts that do contribute to the achievement of the inflation target more effectively.
2. In reducing the transmission mechanism of monetary policy through the credit channels quite a long time it is advisable to make policies related to the banking industry to minimize break the time required to reach the ultimate goal.

3. For researchers selajut expected to use a dynamic stochastic general equilibrium in conducting research about the relationship of the transmission mechanism of monetary policy to target inflation because the model is more in discussing its influence on the behavior of households and firms associated with the inflation target.

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