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To :

Badara Shofi Dana, SE, Adhitya Wardhono, Ph.D, M. Abdul Nasir, SE, M.Sc
University of Jember

JEMBER

Re: 11th International Conference on Bulletin of Monetary Economics and Banking

Dear Badara Shofi Dana, SE, Adhitya Wardhono, Ph.D, M. Abdul Nasir, SE, M.Sc,

On behalf of the Scientific Committee of the Bulletin of Monetary Economics and Banking, we are delighted to invite you to participate in the 11th International Conference 2017. This event will be held on:

    Date: Thursday, August 24, 2017
    Time: 08.00 AM – 05.30 PM
    Place: Function Room, Thamrin Building, 4th Floor
            Bank Indonesia Head Office
            Jalan M.H. Thamrin No. 2, Jakarta, Indonesia

Along with this letter, we are attaching the Letter of Acceptance and Agenda of the event. We provide transportation for domestic airflight ticket (economic class) and 2 night (August 23–25, 2017) hotel accomodation in Millenium Hotel (Address: Jalan Haji Fachrudin No.3, Jakarta) for one presenter during the conference. Should you have further inquiries about the conference please do not hesitate to contact M. Setyawan Santoso (mssantoso@bi.go.id, phone 62-21 2981548C) and Nurhemi (emmy@bi.go.id, phone 62-21 2981//14).

We look forward to meeting you on August 24, 2017.

HEAD OF BANK INDONESIA INSTITUTE

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The Effectiveness of the Macroprudential and Monetary Policies in Indonesia: Financial Stability and Price Stability Approach

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ABSTRACT

Policy mixes by Bank Indonesia to promote sustainable economic growth not only through monetary policy in stabilizing prices but is also necessary for the stabilization of the financial system through the implementation of macroprudential policies in the financial system. This study can contribute to the development of the conceptual framework of monetary and macroprudential policy mixes as well as to provide an effective alternative transmission in achieving the main objective of Bank Indonesia. The data used in this study are monthly data in 2007M1 to 2016M9. The variables used were the nominal exchange rate, inflation, credit, real GDP, asset prices and Index Financial Stability (ISSK). Instruments used as macroprudential monetary policy mixes areBI rate and GWM primary, GWM secondary, GWM Valas, GWM+LDR, LTV, and CCB. Structural Vector Autoregression (SVAR)is applied to see the influence of variables through the restriction as well as instruments that have an effective influence. The results showed that the interest rate of Bank Indonesia which is accompanied by GWM primary, GWM secondary, GWM Valas, GWM+LDR, LTV, and CCB influence price stabilization through credit and economic growth, while in the stabilization of the financial system, interest rate instruments, secondary statutory reserves and statutory reserves Currency influence through credit, asset prices and exchange rates.

Key word: maroprudential policy, monetary policy, SVAR
JEL Classification: E58, E52, E44

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1. INTRODUCTION

The global crisis in 2008/2009 gives a new perspective on policies other than monetary policy-related risks of the financial system, because Bank Indonesia has a task to stabilize prices and exchange rates. Implementation of monetary policy based on Inflation Targetting Framework (ITF) is not interpreted as a failure, precisely it can lower the inflation at low levels, boost economic growth, and lowering interest rates in various countries (Riksbank, Berg, Hallsten, Heideken, & Söderström, 2013; Warjiyo, 2016). But the procyclicality of asset price rising and credit boom led to the crisis that cause economic activity declined dramatically (Claessens & Kose, 2013; Purnawan & M. Abd. Nasir, 2015; Warjiyo, 2016). The problem is the monetary policy which is focused on price stability does not consider the risk of a crisis caused by financial system, such as instrument of interest rates that are below inflation may increase the financial cycle and cause systemic risk which may cause in instability in the financial system and the economy (Warjiyo, 2016). Thus the need for a monetary policy framework and the stability of the financial system through wider mix of policy and operational procedures (Juhro, 2008; Penelitian, 2014; Wimanda et al., 2014). The global crisis gives knowledge on the need of new policies to overcome the risk of the financial system.

The implementation of the macroprudential policy framework for a solution to improve the resilience of the financial system and mitigating systemic risk (Baskaya, Giovanni, Kalemli-ozcan, Peydro, & Ulu, 2015.; Claessens, Ghosh, & Mihet, n.d.; Fendoğlu, 2015; Purnawan & M. Abd. Nasir, 2015). Based on research conducted by Hahm, Mishkin, Shin, & Shin, (2012) describes the macroprudential policy through the instruments of the Loan to Value (LTV), Loan to Deposit Ratio (LDR) and Statutory Reserves (GWM) is very effective to reduce the credit cycle. Meanwhile, research by Purnawan & M. Abd. Nasir, (2015) shows the policy application One Month Holding Period (OMHP) and the Net Open Position (NOP) gives procyclicality on the volatility of the exchange rate, and statutory reserves + LDR effectively raising bank loans but did not happen procyclicality, while GWM primary lowering liquidity in the economy given the current incoming foreign capital flows are very heavy. In contrast, the results are shown by research conducted by Gómez, Lizarazo, Mendoza, & Murcia, (2017)which describes the policy Loan to Value (LTV) is not effectively implemented in the country of Colombia.

Based on the above presentation concluded the necessity of monetary and macroprudential policy mix to achieve the main objective of Bank Indonesia in stabilizing price and financial system stability. Monetary and macroprudential policy mix be the best and effective combination (Wimanda et al., 2012). The line on these things Purnawan & M. Abd. Nasir, (2015) in his research stating the necessary monetary and macroprudential policy mix to cope with price stability and financial system stability. Therefore the aim of this study is to look at the effectiveness of monetary and macroprudential policy after the crisis in stabilizing prices and maintaining financial system stability in Indonesia. This study uses the methodology of Structural Vector Autoregression (SVAR) in view of the transmission of monetary policy and macroprudential policies in achieving the goals of Bank Indonesia.

2. THEORY

After the global crisis, the Central Bank is not only functioned to maintain price stability and exchange rates, but also has a role in maintaining financial system stability. (Rubio & Carrasco-gallego, 2014; Gomez-Gonzalez, Jose Eduardo et al. (2015);Warjiyo, 2016). Financial system stability relates to the performance of a system, which is capable of withstanding shocks from macroeconomics, especially the risks arising from the financial system (Warjiyo, 2016). The condition is based on the historical causes of the financial crisis in general which is caused by bubbles of assets (financial and housing), the credit boom and the accumulation of excessive debt and sudden stop capital flows (Claessens and Kose, 2013; Warjiyo, 2016) . Learning from this history, the central bank needs to be more flexible in responding to the instability of the world economy as well as strengthening monetary policy and financial system stability (Wimanda et al., 2014). This is in line with a statement by the Bank for International Settlements (BIS), (2011) that the central bank is involved in the formulation of a policy of financial stability. Thus, the central bank is mandate to implement macroprudential policies.

Under the dual mandate, the central bank made a change in the policy mixes before and after the crisis by adding the macroprudential in achieving the central bank's goals. The main concepts of monetary and macroprudential policy mixes to achieve the central bank's key objectives of price stability and supporting financial stability in overcoming financial system risks can be described as follows (Warjiyo, 2016).

1. METHODOLOGY AND DATA

The data used in this research is monthly time series data with period 2007M1-2016M9. Sources of data in this study were obtained from Bank Indonesia, the International Monetary Fund (IMF), Bank Indonesia, the Organization for Economic Co-operation and Development (OECD) and CEIC. In addition, the variables used in this study are inflation, interest rates, nominal exchange rate, economic growth, loan amount, Primary Minimum Reserve Requirement (GWM), Minimum Reserve Requirement (GWM) secondary, Statutory Reserves (GWM) Statutory Reserves (GWM) + Loan Deposit Ratio (LDR), Loan to Value (LTV) and Counter Cyclical Buffer (CCB) as well as the Financial System Stabilization Index (ISSK).

The effectiveness of monetary and macroprudential policy mixes in achieving the main objectives of Bank Indonesia, this study divides into two models used to achieve price stability and financial system stability. The first model is use to view monetary and macroprudential policy mixes in stabilizing prices. Meanwhile, the second model is mix of monetary and macroprudential policies in stabilizing prices in promoting financial system stability. Thus, Wimanda et al., (2014) base the specimen model used in this study on the research as follows.

- Specification Model of Price Stability

$$Inf_t = a_0 + a_1 GDP_t + a_2 ap_t + a_3 ner + a_4 credit_t + a_5 GWMPrimer_t + a_6 BIrate_t \qquad (1)$$
$$Inf_t = a_0 + a_1 GDP_t + a_2 ap_t + a_3 ner + a_4 credit_t + a_5 GWMvalas_t + a_6 BIrate_t \qquad (2)$$
$$Inf_t = a_0 + a_1 GDP_t + a_2 ap_t + a_3 ner + a_4 credit_t + a_5 GWMsekunder_t + a_6 BIrate_t \qquad (3)$$
$$Inf_t = a_0 + a_1 GDP_t + a_2 ap_t + a_3 ner + a_4 credit_t + a_5 GWMLDR_t + a_6 BIrate_t \qquad (4)$$
$$Inf_t = a_0 + a_1 GDP_t + a_2 ap_t + a_3 ner + a_4 credit_t + a_5 LTV_t + a_6 BIrate_t \qquad (5)$$
$$Inf_t = a_0 + a_1 GDP_t + a_2 ap_t + a_3 ner + a_4 credit_t + a_5 CCB_t + a_6 BIrate_t \qquad (6)$$

- Specification Model of Financial System Stability

$$ISSK_t = a_0 + a_1 ap_t + a_2 ner_t + a_3 credit + a_4 GWMPrimer + a_5 BIrate_t \qquad (7)$$
$$ISSK_t = a_0 + a_1 ap_t + a_2 ner_t + a_3 credit + a_4 GWMsekunder + a_5 BIrate_t \qquad (8)$$
$$ISSK_t = a_0 + a_1 ap_t + a_2 ner_t + a_3 credit + a_4 GWMvalas + a_5 BIrate_t \qquad (9)$$
$$ISSK_t = a_0 + a_1 ap_t + a_2 ner_t + a_3 credit + a_4 GWMLDR + a_5 BIrate_t \qquad (10)$$
$$ISSK_t = a_0 + a_1 ap_t + a_2 ner_t + a_3 credit + a_4 LTV + a_5 BIrate_t \qquad (11)$$
$$ISSK_t = a_0 + a_1 ap_t + a_2 ner_t + a_3 credit + a_4 CCB + a_5 BIrate_t \qquad (12)$$

2. RESULT AND ANALYSIS
2.1 Structural VAR Analysis Method Analysis
2.1.1 Monetary and Macroprudential Policy Mix on Price Stability

After the global crisis in 2008/2009 Bank Indonesia in achieving price stability does not only focus on monetary policy. However, there is a macroprudential policy that is equitable in maintaining price stability through its instruments. This dual mandate of Bank Indonesia is a lesson learned from the global crisis in 2008/2009 that occurred due to systemic risk on the financial system that led to price volatility. The use of Structural VAR approach in this study aims to see the effectiveness of monetary and macroprudential policy mix in maintaining price stabilization.

The result of monetary and macroprudential policy mixes through the instrument of interest rate of Bank Indonesia (BI rate) and Statutory Reserve (GWM) primary can be seen in Table 2. The instrument of interest rate of Bank Indonesia (BI rate) and Minimum Reserve Requirement (GWM) Effective in influencing price stability through credit lines and economic growth. This condition means that when

determination of Primary Statutory Reserves and Bank Indonesia rate (BI rate) interest rate will be received directly by credit and continued with response by economic growth to influence inflation as the final goal. The exchange rate variable can have an effect on inflation through the asset price line that gives effect to the economic growth and continued with the effect on inflation. Direct asset prices and economic growth have significant effect on inflation.

Table 2.
Estimation Results of SVAR on Primary GWM Policy Mixes and Interest Rate

Variable	Inflation	GDP	Asset Price	NER	Credit	Primary GWM	BI rate
Inflation	0.992*** [14.97] (0.000)	0.479*** [3.914] (0.000)	0.474** [2.435] (0.014)	0.106 [0.598] (0.550)	-	-	0.389 [0.449] (0.653)
GDP	-	0.685*** [14.96] (0.000)	0.098 [0.736] (0.461)	0.433*** [3.696] (0.000)	0.890*** [5.034] (0.000)	0.388* [1.858] (0.063)	0.616 [1.017] (0.309)
Asset Price	-	-	0.482*** [14.96] (0.000)	0.522*** [7.900] (0.000)	-	-	0.456 [1.116] (0.264)
NER	-	-	-	0.688*** [14.96] (0.000)	-	-	0.842 [1.455] (0.145)
Credit	-	-	-	-	0.366*** [14.96] (0.000)	0.740*** [8.498] (0.000)	0.905** [2.941] (0.003)
Primary GWM	-	-	-	-	-	0.397*** [0.265] (0.000)	
BI rate	-	-	-	-	-	-	0.112*** [14.96] (0.000)

* significant α=1%, ** significant α=5%, *** significant α=10%.
[...] = z-statistic, (...) = probability.

Table 3 is the result of estimation of the Minimum Statutory Reserve (GWM) secondary and the interest rate policy mixes in influencing price stability. The estimation results indicate Statutory Reserves (GWM) Secondary is effective in influencing inflation through credit line, which forwarded to the ultimate goal of economic growth with inflation. This condition means that through credit lines affecting economic growth and economic growth that have an influence on inflation can be an effective channel of secondary reserve requirement in achieving price stability. In addition, secondary GWM instruments can have a direct effect on economic growth in achieving price stability objectives.

Different results are shown in the instrument of the BI rate (BI rate) which has an effect on inflation directly. Therefore, the change in the interest rate of Bank Indonesia gives direct influence to inflation change without transmission of other variables. Interest rates also have an effect on asset prices, but cannot be a track in influencing inflation, which caused by asset prices do not effect on inflation.

3. CONCLUSION

This study analyzes the macroprudential and monetary policy mixes in stabilizing prices and financial system using Structural VAR analysis tools. The findings of this study by implementing Bi rate, Primary GWM, secondary reserve, GWM + LDR, LTV and CCB instruments through credit and economic growth can achieve price stability. Meanwhile, stability of the financial system can be achieved with credit lines, asset prices and exchange rates on the implementation of BI rate instruments, secondary reserves and foreign currency reserves. Other findings in influencing asset prices, exchange rates and economic growth

can also be found through macroprudential and monetary policy mixes. Based on these findings, macroprudential and monetary policy mixes instruments can be used as instruments to achieve Bank Indonesia's main objectives, but can also be used to achieve other goals such as maintaining exchange rate stability, asset prices and economic growth

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