

MONETARY AND FISCAL POLICY IN INTERNAL AND EXTERNAL BALANCE

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ABSTRACT: Stability in the economy can be grouped into three, namely the stability of the market for goods and services, the stability of the money market and the foreign market stability. The purpose of this study was to analyze the internal and external equilibrium model of the economy in the short-term preferences fiscal and monetary policy strategy. The analysis method in this research is using error correction model of Engle Granger (ECM-EG), which estimates the short-term equations. The results of analysis shows that fiscal policy and monetary policy provide significant multiplier effect to stimulate aggregate demand through increased consumption, investment, government consumption, exports and imports. Mundell-Fleming theory is an analytical framework that is used to explain the international transmission due to the influence of the global economy to a small open economy of the countries.

1 INTRODUCTION

Developments in the financial sector can be quite rapid if not offset by developments in the real sector, in turn, led to structural imbalances in the economy (Solikin, 2005). On the under-capacity economy, the fiscal and monetary expansionary policies effectively affect to real output. Simorangkir (2007) describes the optimal monetary policy response will be influenced by several shock scenarios on the impact of fiscal policy and monetary and fiscal policy interactions on social welfare will be positive if the fiscal policy is exogenous. Expansionary fiscal policy, through fiscal stimulus to increase aggregate demand through domestic consumption and investment, assuming constant prices, short term real output will increase, (Simorangkir & Adamanti, 2010). The study uses financial Computable General Equilibrium. The results show that under conditions of financial crisis or economic downturn, the combination of fiscal expansion policy and monetary expansion is very effective to boost economic growth. Developments in the real sector, in turn, led to structural imbalances in the economy (Solikin, 2005). Economic policy focuses on the management of macro-economic stability, fiscal policy will interact with monetary policy to control the macroeconomic balance. Fiscal policy aims to influence aggregate demand side of the economy short term. In addition, this policy can also affect the supply side in the long run through increased economic capacity. Monetary policy is generally analyzed two interre-

lated main scope, namely: first, the selection variable modeling and monetary policy. Secondly, related to the monetary policy in the economy. This study aims to develop the research results of Yunanto (2013), Yunanto and Henny Medyawati (2013) which expanded research data range to 2013, and the establishment of equality Reduce Form to complete the research. The purpose of this study is to analyze specifically the internal and external equilibrium model of the economy in the short-term preferences fiscal and monetary policy strategy. This study will formed a reduced form equation based on the previous model i.e. study of Yunanto (2013), and Henny Medyawati (2013). Contribution of this study is to contribute ideas for the implementation of macroeconomic policy both fiscal and monetary policy as well as provide an overview of internal and external balance of the economy in Indonesia.

2 LITERATURE REVIEW

Internal balance occurs when there is a balance in the domestic market, both market goods (including labor markets) and money market. External balance occurs when the balance of international payments balance. Government's objective has always wanted to achieve both a balance is reached together and if possible also in a state of full-employment. To achieve these objectives the government can take monetary policy, fiscal, exchange rate, or a combination (Nopirin, 2010).

2.1 Mundell-Flemming Model

The government's economic policy is a response to the events that occurred in the global economy. Characteristics of small open economies such as Indonesia is, (1) the economy with a very high level of dependence on the global economy; (2) a relatively stable economy, with high levels of vulnerability to shocks from abroad; and (3) the high degree of dependence on the international price changes. (Al Arif, and Tohari, 2006). Mundell-Fleming theory or a two-country model is an analytical framework that can be used to explain the international transmission due to the influence of the global economy on a small open economy, Borondo (2000). This theory explains that the expansion of monetary policy will result in an increase in a country's output and produce a negative output response to other countries. Transmission mechanism of the model can be viewed via trade, where a country will lower the interest rate, so the exchange rate depreciates and create competitive rivalry. With such a country will have a surplus in the trade balance as a result of increasing the products are exported, the case will reduce imports from other countries. Hsieh (2009) analyzed four models for the exchange rate IDR/USD. The four models are models of purchasing power parity, the uncovered interest parity models, monetary models and models of the Mundell-Fleming expanded. According to the empirical results, the model of purchasing power parity, the sign of the coefficients have the expected positive sign and is significant at the 1% level. The results of data processing show that the models which is can be used for the Indonesian case is a model of Bilson and Frenkel models.

3 METHODOLOGY

The data in this study are quarterly data from 1990:1 to 2013:4 in the form of time series data. Quarterly data based on constant values with base year in 2005, except for the data in the form of index values and percentages. The data comes from Financial Statistics (IFS) published by Bank Indonesia, Central Bureau of Statistics (BPS). Other data sourced from the Organisation for Economic Co-operation and Development (OECD). The model in this study is adopted from previous research models composed of 11 short-term structural equations, structural equation derived based on the assumption that the economy is represented by homogeneous economic actors (Yunanto & Henny Medyawati, 2013). Data is tested through unit root test and cointegration test, while the methods for estimating equations using the Error Correction Model (ECM-Granger). Selected year from 1990 to 2013 of the research is aims to ob-

tain a picture of the economic conditions in the presence of the 1997 financial crisis and the global financial crisis of 2008. This study also presents the form of the equations called the reduce form that has not done int the previous research by Yunanto and Henny Medyawati (2013).

4 RESULT AND DISCUSSION

4.1 Unit Root Test and Cointegration Test

The stationery test of data has been performed on 23 observation data with the test equation includes a constant (intercept) at the 5% critical value. Stationery test of data is done using the ADF (Augmented Dickey Fuller) Unit Root Test. The results of the unit root test shows that there are three variables that have been stationary at the level of the level, the variable BIRATE (Bank of Indonesia interest rate), PDDBE (Gross Domestic Product) and YD (Disposable Income). These results differ from previous research conducted by Yunanto and Henny Medyawati (2013) that there are six variables that have been stationary at the zero level. This is due to the addition of data as much as two years or 8 quarters. The cointegration test results indicate that all variables in the entire equation in this study have cointegration among those variables. It can be concluded that there is a long-term equilibrium relationship between the variables.

4.2 Reduce Form Equations Results

The Reduce Form result of the research equation using the data processing software E-views, shown below:

$$\begin{aligned} LOG(KONS)_t = & 1,426 - 0,003 * PPJK_{t-0,001} * SUBS_t + 0,002 \\ & * BIRATE_t + 0,083 * LOG(IHEKS)_t + 0,525 * LOG(IMPDN)_t \\ & + 0,083 * LOG(IHIMP)_t + 0,775 * LOG(M1)_t - 0,617 * LOG(IHKD)_t \\ & + 0,015 * LOG(HMMD)_t + 0,0003 * LIBOR_t \end{aligned}$$

$$\begin{aligned} LOG(INV)_t = & -0,0005 - 0,084 * PPJK_{t-0,005} * SUBS_t + 0,002 \\ & * BIRATE_{t-0,841} * LOG(IHEKS)_{t-0,479} * LOG(IMPDN)_t \\ & + 2,883 * LOG(IHIMP)_t + 1,048 * LOG(M1)_t + 0,022 * LOG(IHKD)_t \\ & - 0,002 * LOG(HMMD)_t + 0,002 * LIBOR_t \end{aligned}$$

$$\begin{aligned} LOG(KONP)_t = & -0,057 + 0,047 * PPJK_{t-0,005} * SUBS_t + 0,003 * \\ & BIRATE_{t-0,796} * LOG(IHEKS)_t + 0,132 * LOG(IMPDN)_t + \\ & 2,379 * LOG(IHIMP)_t + 0,014 * LOG(M1)_t + 0,007 * LOG(IHKD)_t \\ & - 0,379 * LOG(HMMD)_t - 0,720 * LIBOR_t \end{aligned}$$

$$\begin{aligned} LOG(EKSP)_t = & 3,858 - 0,005 * PPJK_t + 0,010 \\ & * SUBS_t + 0,014 * BIRATE_t + 1,358 * LOG(IHEKS)_t + 0,186 * \\ & LOG(IMPDN)_t + 0,013 * LOG(IHIMP)_t + 0,673 * LOG(M1)_t + 0,22 \\ & 2 * LOG(IHKD)_t - 0,123 * LOG(HMMD)_t - 0,023 * LIBOR_t \end{aligned}$$

$$\begin{aligned} \text{LOG(IMPR)}_t = & -1,321 - 0,002 * \text{PPJK}_t + 0,008 * \text{SUBS}_t \\ & + 0,011 * \text{BIRATE}_t + 1,206 * \text{LOG(IHEKS)}_t + 0,003 \\ & * \text{LOG(IMP DN)}_t + 0,042 * \text{LOG(IHIMP)}_t + 0,693 * \text{LOG(M1)}_t \\ & + 0,0002 * \text{LOG(IHKD)}_t - 0,345 * \text{LOG(HMMD)}_t - 0,006 * \text{LIBOR}_t \end{aligned}$$

$$\begin{aligned} \text{LOG(M2)}_t = & -4,537 - 0,008 * \text{PPJK}_t + 0,002 * \text{SUBS}_t + 0,004 * \\ & \text{BIRATE}_t + 0,009 * \text{LOG(IHEKS)}_t + 0,461 * \text{LOG(IMP DN)}_t \\ & + 0,150 * \text{LOG(IHIMP)}_t + 0,0007 * \text{LOG(M1)}_t + 0,097 * \text{LOG(IHK)}_t \\ & - 0,096 * \text{LOG(HMMD)}_t - 0,026 * \text{LIBOR}_t \end{aligned}$$

$$\begin{aligned} \text{LOG(KURS)}_t = & 24,788 - 0,013 * \text{PPJK}_t + 0,056 * \text{SUBS}_t + 0,010 \\ & * \text{BIRATE}_t + 0,631 * \text{LOG(IHEKS)}_t + 0,011 * \text{LOG(IMP DN)}_t - \\ & 0,092 * \text{LOG(IHIMP)}_t + 0,394 * \text{LOG(M1)}_t - \\ & 10,060 * \text{LOG(IHKD)}_t + 1,902 * \text{LOG(HMMD)}_t - 0,211 * \text{LIBOR}_t \end{aligned}$$

$$\begin{aligned} \text{LOG(IHK)}_t = & 3,799 - \\ & 0,005 * \text{PPJK}_t + 0,031 * \text{SUBS}_t + 0,165 * \text{BIRATE}_t - \\ & 0,412 * \text{LOG(IHEKS)}_t - 0,104 * \text{LOG(IMP DN)}_t - \\ & 0,075 * \text{LOG(IHIMP)}_t + 0,329 * \text{LOG(M1)}_t - \\ & 1,784 * \text{LOG(IHKD)}_t + 0,286 * \text{LOG(HMMD)}_t - 0,052 * \text{LIBOR}_t \end{aligned}$$

$$\begin{aligned} \text{LOG(KBLN)}_t = & - \\ & 12,124 + 0,027 * \text{PPJK}_t + 0,010 * \text{SUBS}_t + 0,105 * \text{BIRATE}_t - \\ & -0,070 * \text{LOG(IHEKS)}_t - 0,160 * \text{LOG(IMP DN)}_t + \\ & 1,245 * \text{LOG(IHIMP)}_t + 1,644 * \text{LOG(M1)}_t - 0,315 * \text{LOG(IHKD)}_t - \\ & 0,137 * \text{LOG(HMMD)}_t - 0,083 * \text{LIBOR}_t \end{aligned}$$

$$\begin{aligned} \text{LOG(PDBE)}_t = & 0,011 + 0,106 * \text{PPJK}_t + 0,724 * \text{SUBS}_t - 0,184 \\ & * \text{BIRATE}_t - 0,665 * \text{LOG(IHEKS)}_t + 0,128 \\ & * \text{LOG(IMP DN)}_t + 1,779 * \text{LOG(IHIMP)}_t + 0,608 * \text{LOG(M1)}_t - \\ & 0,195 * \text{LOG(IHKD)}_t + 0,140 * \text{LOG(HMMD)}_t + 0,005 * \text{LIBOR}_t \end{aligned}$$

$$\begin{aligned} \text{LOG(LK)}_t = & 0,017 - 0,014 * \text{PPJK}_t - 0,070 * \text{SUBS}_t + 0,001 * \text{BIRATE}_t \\ & - 0,451 * \text{LOG(IHEKS)}_t - 0,004 * \text{LOG(IMP DN)}_t + 0,997 \\ & * \text{LOG(IHIMP)}_t + 0,188 * \text{LOG(M1)}_t - 0,042 * \text{LOG(IHKD)}_t + 0,066 \\ & * \text{LOG(HMMD)}_t - 0,010 * \text{LIBOR}_t \end{aligned}$$

4.3 Model of IS, LM and BOP

Important assumption of the theory of Mundell and Fleming is a small open economy with perfect capital mobility so that the interest rate in the economy will be determined by the world interest rate (Mankiw, 2007). The economy is small and open economy that is only a fraction of the world economy, so it does not have a significant impact. In the long run, reaching the level of savings and high investment is one way to boost economic growth. In addition to savings and investment, economic growth in the small and open economy is also heavily influenced by the use of appropriate technology, trade policy and a healthy economic climate as a whole. Investment and domestic savings is determined by income, interest rates. In the world economy, the real interest rate is affected by the world financial markets. At the level of real interest rates are relatively high, domestic saving exceeds domestic investment, so

that the excess savings flowing in overseas investments more profitable.

4.4 Goods Market Equilibrium (IS Model)

After knowing the behavior of economic variables that shape commodity markets through the formation of the IS curve equation identity. The IS is the goods market equilibrium curve describes the relationship between real GDP to nominal interest rates. The equation for goods market as follows:

$$\begin{aligned} \text{LOG(PDBE)} = & 0,432 + 0,538 * \text{LOG(PDBE-PPJK+SUBS)} - 0,014 * \text{LOG(BIRATE)} \\ t\text{-stat} & \quad 5,674^{***} \quad \quad \quad 2,561^{**} \quad \quad \quad -1,256 \\ & + 0,2003 * \text{LOG}((\text{KURS} * \text{IHEKS}) / \text{IHK}) \\ & \quad \quad \quad 1,129 \\ & - 0,197 * \text{LOG}((\text{KURS} * \text{IHIMP}) / \text{IHK}) \\ & \quad \quad \quad -1,368 \\ & + 0,397 * (\text{KONS} + \text{INV} + \text{KONP}) - 0,018 * \text{LOG(KONP)} \\ & \quad \quad \quad 1,980^{**} \quad \quad \quad 0,955 \\ R\text{-squared} = & 0,997 \quad \quad \quad DW = 1,420 \end{aligned}$$

From the equation above, it is determined that the coefficient multiplier C, I, G and X is:

$1 / (1 - 0.538 + 0.002) = 2.115$. The coefficient multiplier for M is: $-0.014 / (1 - 0.538 + 0.397) = -0.030$. Multiplier coefficient of the real sector in the goods market is a positive impact of 1,527 injection into the national economy. The change in the value of the variable in the real sector, such as consumption, investment, government spending and exports will impact 1,527 -fold increase GDP. Multiplier of -0.070 imports negatively affect leakages of the value of GDP.

4.5 Money Market Balance (LM Model)

The equation for the balance of the Money Market as follows:

$$\begin{aligned} \text{LOG(M2)} = & 2,322 + 0,178 * \text{LOG(PDBE)} - 0,135 * \text{LOG(BIRATE)} - \\ t\text{-stat} & \quad 3,583^{***} \quad \quad 1,248 \quad \quad -2,208^{**} \\ & \quad \quad \quad 0,137 * \text{LOG(IHK)} + 0,763 * \text{KBLN} \\ & \quad \quad \quad -1,378 \quad \quad \quad 5,929^{***} \\ R\text{-squared} = & 0,894 \quad \quad \quad DW = 0,126 \end{aligned}$$

4.6 Balance in Balance of Payments (BOP)

Capital flow equation can be explained as follows:

$$\begin{aligned} \text{LOG(KBLN)} = & 1,794 - 2,226 * \text{LOG}((\text{KURS} * \text{IHEKS}) / \text{IHK}) + \\ t\text{-stat} & \quad 5,750^{***} \quad \quad -2,149^{**} \\ & \quad \quad \quad 3,435 * \text{LOG}((\text{KURS} * \text{IHIMP}) / \text{IHK}) + \\ & \quad \quad \quad 3,31^{**} \\ & \quad \quad \quad 0,002 * \text{LOG(KONS+INV+KONP)} - \\ & \quad \quad \quad 13,882^{***} \\ & \quad \quad \quad 0,077 * \text{LOG(BIRATE-LIBOR)} \\ & \quad \quad \quad - 0,755 \\ R\text{-squared} = & 0,789 \quad \quad \quad DW = 0,784 \end{aligned}$$

From the balance equation above, the BOP will surplus (positive) if the balance of trade is positive. The trade balance positive if the relative price increases and declining domestic revenues, while the balance of investment positive if domestic interest rate is greater than the interest rate of foreign capital inflows, which cause the exchange rate to appreciate. In the event of an increase in foreign interest rates relative to interest rates in the country, it will make the exchange rate depreciates, later influenced the increase in national income and rising inflation. Graphically the IS curve, the LM and BOP describes the slope of the curve obtained by differentiating each equation and calculate each interest rate change (Δi) to changes in gross domestic product (ΔY), assuming B_t and rate ($r = 1$) yield curve slope as follows:

Slope of curve IS = $(1-0.404+0.059)/(-0/070) = -9/36$ (elastic)
 Slope of curve LM = $(0.162/0.173) = 0.936$ (in-elastic)
 Slope of curve BOP = $(0.059/2.085) = 0.028$ (in-elastic)

Internal and external balance occurs when the goods market, the money market and the balance of payments was in a state of equilibrium. Based on the discussion of the equations above, it is show that the internal and external equilibrium condition, the relationship between interest rates and income, and exchange relationships and revenues in maintaining market balance on goods and money market floating exchange rate system (flexible). The elasticity of capital flows to certain interest rate affect the balance of payments has a positive direction. Every time there is an increase in domestic interest rates relative to foreign capital flows will result in the entry, and vice versa. The rapid advancement of technology and lower communication costs that arise various international financial institutions that can be easily interconnected, there is a tendency elasticity of capital flows to interest rate increases.

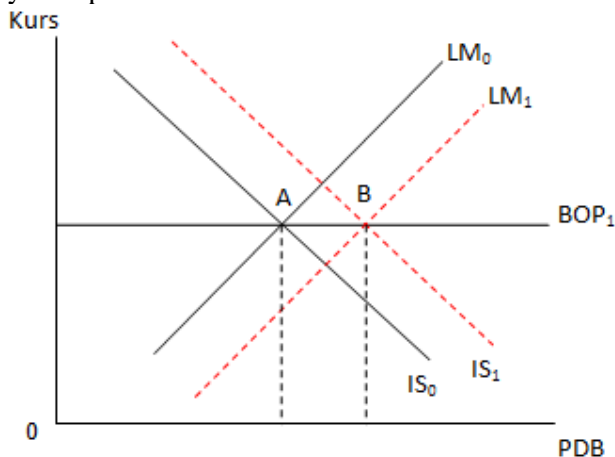


Figure. 1 Fiscal and Monetary Policy

4.5 Macroeconomic Policies to Achieve Internal and External Balance

Macroeconomic policy is the monetary and fiscal policy. Monetary policy covers all government actions aimed at influencing the course of the economy through the addition or reduction of the amount of money in circulation (money supply), it is said that the instrument is a variable M, which is the amount of money in circulation is called also offer money supply. Fiscal policy is all the actions taken by the government, aiming to influence the course of the economy through the addition or government subtraction and or tax expenditures, have tax or T_x , or the payment or transfer of T_r , and government spending, or G.

In theory, particularly in certain Keynesian theory, fiscal and monetary policy affects real output effectively. Expansionary of fiscal policy, through fiscal stimulus can increase aggregate demand through domestic consumption and investment. Under conditions of price stickiness, the short-term of real output will increase. Furthermore, the strong aggregate demand can influence many times or multiplier-effect and increase the aggregate supply in the real sector. In the end, the economy is below capacity o under-capacity economy which can increase output in the short run (Simorangkir and Adamanti, 2010). On the monetary policy side, there are also some studies on the effect of monetary policy on economic growth. Compared with fiscal stimulus that can immediately increase economic activity, monetary policy needs more time to show the impact on the economy. This is because the primary goal of monetary policy is to maintain a stable output gap and inflation. In developed countries, like the United States and some major European countries, there is substantial evidence of the effectiveness of monetary policy innovations on the parameters of the real economy, Miskhin (2002), Christiano et al. (1999), Rafiq and Mallick (2008) and Bernanke et al. (2005)

5 SUMMARY

Fiscal policy and monetary policy are significant multiplier effect to stimulate aggregate demand, through increased consumption, investment, government consumption, exports and imports. External and internal balance will occur when all three curves (IS, LM and BOP) intersect at one point. Mundell-Fleming model assumes flow (mobility) perfect capital with a floating exchange rate and analyzes the effect of the increase in the money supply on the exchange rate of goods market equilibrium positions and money markets are in equilibrium external payments. In short, the Mundell-Fleming models predict

that domestic monetary expansion causes the weakening currency. External balance is maintained primarily through the current account balance and equilibrium in the money market and the goods market is stabilized by a combination of lower interest rates and an increase in higher output. At the time when the economy is perceived to move too slowly, than it should be characterized by low growth and high unemployment, then the fiscal and monetary policy proper is expected to stimulate the economy grow faster and unemployment could be reduced. At the current rate of the economy is considered too are characterized by high growth and inflation rates are also high, fiscal and monetary policy is expected to reduce and redirect the economy in order to avoid negative.

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