IS DEBT MANAGEMENT MODEL MAASTRICHT TREATY STILL EFFECTIVE?

**Abstract**

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At the time of the economic crisis, the state requires large financing to get through those times of crisis. One of the efforts made is to increase government debt, but carelessness in managing debt has resulted in the economy being trapped in a debt trap. The concept of debt management and a steady state oriented budget deficit that is applied in Indonesia is a debt stabilizing deficit model, namely a model by setting the level of debt and budget deficits at a certain level. The question is how effective the debt management model being able to create long-term economic growth because empirically, countries that adopt this concept are experiencing fiscal problems and are also headed for economic instability. The New Concensus Economy is a general equilibrium model of thought that contains 6 markets in an open economy, all agents are rational and contain intertemporal choices and there are elements of policy rules in it. By incorporating the Debt Stabilizing Deficit (DSD) rule into the balance model, the results show that, in the long term, the application of DSD is able to reduce the level of output gap, there is an increase in general prices, lower interest rates, strengthening of the domestic exchange rate so that the balance sheet conditions of trade become better. Meanwhile, in the short term, the application of the DSD rule does not significantly affect the formation of prices, interest rates, exchange rates and variations in the trade balance. Another finding is that if the debt level is increased by a certain amount but still below 60% of GDP, this policy will still be able to improve economic performance. The price level is the variable that re-adjusts the fastest to the equilibrium, while the interest rate takes longer time to return to the original equilibrium.

**Keywords: Debt Management , Fiscal Rule, Maastricht Treaty, Mazhab MNC**

**Background**

The current economic crisis has brought the country to face fiscal problems, namely a high government debt burden and an uncontrolled budget deficit. Even some countries in the European Union, such as Portugal, Greece, Spain, Italy, tend to experience defaults, which so far have applied the concept of debt management and budget deficits at a certain amount with a long-term orientation (steady state).

This concept applies fiscal rules that maintain a level of budget deficit that is able to keep government debt stable. In this concept, it is agreed that the maximum limit for the ratio of government debt to GDP is of a certain amount, not exceeding 60 percent of GDP, while the maximum limit for the state budget deficit is 3 percent of GDP. The concept of Debt Stabilizing Deficit (DSD) is an implication of the application of fiscal rules. The purpose of implementing this concept is that the government is disciplined on the fiscal side and is able to restrain the government's aggressiveness in debt. The Fiscal Rule also aims to maintain fiscal stability and provide sufficient fiscal space so that the government is able to play a role and lead to fiscal sustainability.

Like developed countries, Indonesia also uses this concept as outlined in Law No. 17 of 2003 concerning State Finance which is operationalized by Government Regulation No. 23 of 2003 concerning Control of the Cumulative Amount of Deficits of the State Budget and Regional Budget and the Cumulative Amount of Central and Regional Government Loans as well as Minister of Finance Regulation No. 95/PMK.02/2007 concerning Guidelines for Implementation and Monitoring Mechanisms for Deficits of State Budget, Regional Budget, and Loans. In Government Regulations No. 23 of 2003 article 5, it is stated that the maximum limit of government debt is 60 percent of GDP with a budget deficit target of a maximum of 3 percent of GDP. This debt management model is an application of the Maastricht Treaty concept used in European Union countries which empirically are currently experiencing fiscal problems and also leading to economic instability. The question is whether the concept of debt stabilizing deficit is still effectively maintained, when the country is facing an economic crisis like today which maintains economic stability in all markets? The concept of keeping debt stable is known as a debt stabilizing deficit whose model was introduced by Favero and Monacelli (2005). The advantages of this concept according to Rahmany (2009) and Mitchell et al., (1999) one of which is being able to achieve fiscal sustainability.

Theoretically and empirically, it was found that the budget deficit had an effect on macroeconomic performance. Ballassone (2005), for example, found that an increase in the budget deficit will increase aggregate demand and encourage economic growth. Sargent and Wallace (1981) stated that in the long run, the budget deficit affects inflation, but not in the short term. Metin (1998) found in Turkey that when the budget deficit increases, it has increased inflation and decreased national income. Cebula (1997) explained that in the long run, the budget deficit affected interest rates, but not in the short term. In addition, Laubach (2005) found that an increase of 1 percent in the budget deficit would lead to an increase in long-term interest rates by 25-30 basis points. The relationship between the budget deficit and interest rates was investigated by Beare (1978). He found that the increase in budget deficit through bond sales would increase domestic interest rates. Burney (1992) and Bernheim (1988) found twin deficits, namely economic conditions where an increase in the budget deficit will encourage an increase in the real domestic exchange rate. The observation of the relationship between the budget deficit and several macroeconomic indicators so that the concept of the budget deficit can be applied to the economy in Indonesia. Then, it is necessary to conduct a research of the implications from applying the concept of a debt stabilizing deficit to macroeconomic performance in Indonesia.

Several studies on the effect of fiscal policy in Indonesia along this time have only applied discretionary debt models, including those conducted by Wijoyo, S. (2011), Maryatmo (2004), Rahutami (2003) but have not used the rule of fiscal policy. The influence of Fiscal Policy is more widely studied using the New Keynesian rationale, as conducted by Favero and Monocelli (2005), Hubbard, et al., (2012), Giese and Wagner (2005), Wijoyo (2011), Rahutami (2003), Maryatmo (2004) using 3 equations in a closed economy. Hshing, Y. (2018) by using the balance model of 3 markets of IS, MP, and AS proved that the expansionary fiscal policy is effective in stimulating the economy, caution needs to be exercised as there may be a debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic grow.

Indonesia has gone through several periods of economic crisis with different results and recovery times, but in general Indonesia's open economy has been able to get through it, although with the consequence that the amount of foreign debt continues to increase. According to Bank Indonesia, Indonesia's total foreign debt as of January 2020 was US$ 408.5 billion, which was mainly influenced by private external debt payment transactions. It is worried that debt which continues to increase will lead the country to a debt trap, a debt crisis. For this reason, it is necessary to evaluate the effectiveness of the debt management model through the general equilibrium model, which is when all markets work optimally in a general balance towards long-term economic stability.

However, Abdurohman and Ika (2012) found a weakness in the application of this fiscal rule model, namely that this rule was not sufficient to provide guidance to the government when the government budget should be in deficit, balanced or surplus. As long as a country's GDP increases, government debt can continue to increase, and this principle is justified as long as the government debt ratio does not exceed 60 percent of GDP. The problem is, if the government cannot control fiscal aggressiveness, it is feared that it will threaten fiscal sustainability and affect the economic performance in the long term. A high debt burden will reduce fiscal space or the government's discretion to allocate its budget. A stable economy is a condition in which all markets work optimally, including the goods market, money market, monetary rule policy, fiscal rule policy and also supported by a healthy trade balance and debt remains paid off.

One of the latest economic ideas in the analysis of an open economy covering 6 markets is the New Consensus Macroeconomics (MKB) thought. This idea was also chosen because in accordance with the conditions faced by the economy in Indonesia today where economic agents face conditions of prices and wages that are rigid (sticky), agents use their reasoning to make optimal decisions through intertemporal choices that are forward looking or model, dynamic and cointegrated and this model also uses the fiscal rules.

The Arestis model and the Tcerhvena model are models with 6 market equations. Modifying the existing model by adding the debt stabilizing deficit variable in each equation and adding the fiscal policy equation in the balance will generally be done. This combined debt management model is the latest model with the New Consensus Macroeconomics school approach which analyzes its general impact on six markets together. The Hsing, Y (2018) study which used the output gap variable to determine the economy finds that fiscal policy expansion through the implementation of a fiscal deficit stimulated the economy and the debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic growth.

**Purpose of the Research**

The purpose of this study is to evaluate the effectiveness of the debt management model in the New Consensus Macro Economics general balance model by applying the debt stabilizing deficit model and its effect on changes in macroeconomic indicators, namely the output gap representing the goods market, the domestic price level representing price policy, domestic interest rates representing money market and monetary policy, exchange rates and the current account balance represent foreign trade, and the primary budget deficit represents fiscal policy. A good model is when the pattern of response to shocks in macroeconomic indicators converges and returns to the initial model equation in a short time or recovers quickly.

**Literature Review**

One of the concepts of managing debt and budget deficits that are oriented in the long term (steady state) is the debt stabilizing deficit, namely the concept of fiscal rules that maintain the level of the budget deficit which is able to keep the government debt stable. This study uses the New Consensus Macroeconomics (MKB) thinking with 6 single equations applied in an open economy.

Although Wijoyo, S (2011) has used MKB thinking, Suhartoko used the Giese and Wagner (2005) equation model in only 3 markets, on the contrary, this research uses Arestis (2009) model which is modified in 6 markets in an open economy supported by rational agents implemented through intertemporal choices and expectations. The previous research analyzed models with multiple equations using the simultaneous equation method as done by Arestis (2009), Tcherneva (2008), Rahutami (2003), Maryatmo (2004), while in this dissertation, the usual OLS approach was used to analyze the model and a short-term model was formed using the Vector Error Correction Model (VECM). VECM according to Gujarati and Porter (2009:789) was one of the developments of the a-theory VAR and SVAR models, while VECM was built based on theory. Another advantage of the VAR, SVAR and VECM models is that apart from being easy, they can also be estimated using the Two Stage Least Square (TSLS) model.

The economic thinking that underlies in this study uses the New Consensus Macroeconomics (MKB) thinking. MKB is the latest development of the latest macroeconomic thought which is the convergence of two ideas, namely New Keynesian and Business Cycle Theory. In addition to the considerations above, other basic considerations uses this thinking models will be explained later in this paragraph.

The aspects inherent in the MKB thinking are relatively in line with the economy in Indonesia. First, current economic actors face an imperfectly competitive market where this concept is New Keynesian thought. Second, the economy in Indonesia often experiences shocks, especially from supply shocks, including natural disasters, changes in technology, disruptions in the distribution of goods, labor demonstrations which are the core of the Real Business Cycle Theory. Third, economic actors will make rational decisions as a reflection of optimization behavior by using all past experience and future information they have and this is one of the principles of Real Business Cycle Theory. Fourth, the phenomenon that we encounter today, economic actors face sticky prices, namely price conditions that can change but are slow. Fifth, the implementation of monetary policy in Indonesia is currently implementing a monetary policy policy to maintain price stabilization through setting interest rate targets (r) and inflation.

**New Consensus Macroeconomics (MKB)**

In principle, MKB's thinking contains two main elements in its analysis, namely optimization between time. The importance of the government's role in the form of fiscal policy stems from New Keynesian thought, while forward looking price setting is the essence of the Business Cycle Theory. These two elements are incorporated into a dynamic model to explain fluctuations in the real economy. Economic actors face imperfectly competitive markets or incomplete markets that face sticky prices. This rigid price indicates that the price is adjusting but slowly. Goodfriend and King (1997) explained this monetary policy-transmission mechanism through two channels. The first path is the aggregate demand path and the second path is through mark-up. First, through the path of the aggregate demand, when the monetary authority changes the stock of money, this policy will affect the price level of goods and additional costs. Even though the price is assumed to be in a rigid condition, it is not easy to change, the company will still change the price of its output. These price changes and additional costs will affect the aggregate demand. Second, through inflating. Once there is an increase in inflation there will be a price bubble, and this inflation is considered a tax that causes distortions in the economy.

**Arestis Model (2009)**

In the Arestis model, fiscal policy is only seen in the magnitude of the aggregate demand equation. In order to clarify the role of fiscal policy in the economy, the Arestis (2009) equation is modified by adding a debt stabilizing deficit variable that keeps debt stable and adding to the primary budget deficit equation. The primary budget deficit equation model formed by Favero and Monacelli (2005) was chosen because the model is dynamic, uses an output gap variable that indicates an unstable economy and applies a standard fiscal policy. The form of the primary budget deficit equation after adjustment is .

The earlier equation indicates that the primary budget deficit is positively influenced by the output gap and debt stabilizing deficit and the nuisance error due to fiscal policy shocks. Second, the monetary authority uses policy interest rate instruments to control market interest rates if actual inflation is higher or lower than the inflation target. To reduce inflation to approach the inflation target, the monetary authority will raise interest rates through changes in policy interest rates, or vice versa. When the inflation that occurs is the same as the targeted inflation, then there is no output gap. Arestis model (2009) consists of 6 reduced forms equations as follows:





3.

4.

5.

6. 

The variables in the Arestis (2009) equation are mentioned as follows:

 : is a constant representing the fiscal position

 : is domestic aggregate demand

 : is world aggregate demand

R : is the nominal domestic interest rate

 : is the world nominal interest rate

P : is the domestic inflation rate

 : is the world inflation rate

P\* : is the inflation target

 : is the real interest rate in equilibrium

 : is the real exchange rate



 : is the nominal exchange rate

CA : is the current account balance

E : is hope

: is a stochastic shock

**The Steady State Concept of Government Debt**

If the main objective of fiscal policy is fiscal sustainability, then government debt must be kept stable or , and this concept was explained by Favero and Monacelli (2005), Farmer (2002:311). The concept of a debt stabilizing deficit is a type of fiscal rule that is able to create sustainability, because the size of the deficit target is set at a controlled level in the long term that keeps the government debt ratio under control and even decreases throughout the year. The application of this rule will give investors confidence in the high commitment and capacity of the state in managing its state finances, increasing the stabilization of the government's financial fiscal performance, especially for the policy of adjusting revenues and expenditures (Farmer, 2002:312) and Blanchard et al., (2010).

To explain the steady state concept of government debt, Farmer (2002: 312) used a simpler government budget constraint equation. The budget deficit is financed through the sale of government bonds to the public. Government debt for this period ( is the same as last year's government debt ( added with interest payments due to last year's debt (i) and added with this year's primary deficit (The volume of the additional debt that the government might do to pay budget deficit that occurs is limited to the amount of the interest expense on debt payments made in the previous year (  ) added with the budget deficit that occurred this year, namely the difference in government spending  with tax  and/or can be written as follows:

 (2.48)

If it is assumed that the government uses the concept of debt in order to keep it stable every year, then the total debt of government in the current year is the same as the total debt.

**Research Methodology**

The method used in this study starts from incorporating a policy of debt stabilizing deficit (Dds\*) or fiscal rules into the Arestis (2009) model, then shock is given to the model. If the equation model returns to the initial model and returns in a relatively short time compared to other models, then the model is considered effective. Because the data is not stationary at the level degree, then the data transformation is carried out at the first degree or called the VAR in difference model. After all stationary data reach the level degree, then the cointegration test is proceed. Cointegration test is carried out using the Johansen Cointegration approach. In addition, because the data have different degrees of stationarity but have cointegration, the estimation chosen is to use Structure Cointegrated Vector Autoregression (SCVAR) (Garratt et al., 1999). The SCVAR estimation results produce an impulse response function and a meaningful variance decomposition which is used to explain the effect of one shock on another variable in one equation or between equations. **Stationarity Test**

The principle of data stationarity is a basic principle that must be met in econometric tests, especially for dynamic time series models and if the data is not stationary then it must be re-decremented, and re-estimated with new data. The stationary test was carried out using the Augmented Dickey-Fuller (ADF) and Phillips Perron approach.

**Augmented Dickey-Fuller (ADF) and Phillips Perron Approach**

The null hypothesis for both the ADF and Phillips Perron approaches is the same, that is, the data series contains a stochastic trend. The regression equation from the ADF test can be written as follows:

 (3.5)

The estimation results from the ADF test are then compared with the MacKinnon critical value to obtain conclusions from the ADF test. If the ADF test value is smaller than the MacKinnon critical value, the null hypothesis of the unit root test can be rejected, meaning that the variable is stationary (Enders, 2004: 181). Conversely, if the ADF test value is greater than the MacKinnon critical value in a certain statistical degree, the null hypothesis is accepted, meaning that the variable is not stationary.

**Cointegration Test**

Cointegration test aims to see whether a group of data that is at the same degree of integration represents the long-term relationship. In the SCVAR method, the existence of a cointegration test is important because the structure of the variables used first needs to be tested to see whether there is a long-term relationship. In this study, the Johansen's Cointegration Test method was used to analyze whether there was a long-term relationship between the variables studied. Gujarati and Porter (2010: 762) explained the cointegration between these variables using the purchasing power parity equation as follows:

 (3.9)

 (3.10)

Although  and  individually known as *I* (1), but both have a stochastic trend, a liner combination *I* (0). The equation (3.8) is the cointegration regression while the equation (3.9) is the cointegration parameter.  and  as the linear equations appear to be cointegrated or have a long-run relationship or equilibrium, but in the short run they may not reach equilibrium.

**Vector Error Correction Model (VECM)**

The vector error correction model (VECM) is also known as the cointegrated SVAR model. The VECM model requires stationary data on I (1) and cointegrated which is supported by a strong economic theory basis. The VECM model is used to observe aspects of short-term and long-term relationships. In the long run, the observed variables are in equilibrium, while in the short term, it takes time to adjust from one equilibrium to another. Thus, the VECM model is not only able to obtain an overview of cointegration between variables, observe the process towards equilibrium and can also observe the speed of adjustment to balance, in the event of a shock in the economy.

 (3.26)

 (3.27)

 is the error correction term (ECT), namely the stationary residual obtained from the cointegrated regression equation, which has a constant variance. If the cointegration regression equation has a stationary error or I (0), then the VECM equation is written as follows:

 (3.28)

 (3.29)

The VECM Model of each equation is written as follows:

The Aggregate Demand (IS)

is(3.30)

The Aggregate Supply (IA)

IA

 (3.31)

The Monetary Policy (MP)

MP

 (3.32)

The Exchange Rates (E)

E

 (3.33)

Current Account



 (3.34)

Primary Deficit of Budget (KF)

dt (3.35)

The definitions of the variables mentioned in the equation models are defined as follows:

 : is the output gap

 : is the deposit interest rate

 : is the policy interest rate

 : is the exchange rate of the rupiah against the euro

 : is the level of domestic prices

 : is the current account balance

 : is a debt stabilizing deficit

 : is the primary budget deficit

 : is the difference between domestic interest rates and European interest rates

 : is the difference between the domestic and European output gaps

 : is the expected output gap

 : is the expected price of goods in the country

 : is the expected exchange rate of the rupiah against the euro currency

 : is the difference between expected domestic prices

with expectations of prices in Europe

 : is the error correction term of each equation

 : are the respective constants of the equations, where >0

 : is the coefficient of elasticity of the independent variable to the dependent variable

**Results and Discussion**

Starting with the unit root test on time series data and there are 13 un-stationary data. In order to avoid the spurious regression, the un-stationer data are differentiated to get stationary by using the ADF and Phillip Platform test. After all stationary data in first difference, the result found that each equation in the model has at least one long term relation. Table 1 indicates that all the data variables are stationary and the regression technique can be continued to prediction.

**Table 1. Unit Root Test at Error Term using *ADF test***

|  |  |  |
| --- | --- | --- |
| **Equation** | **Symbol** | **ADF Test** |
| **I(0)** | **Prob** |
| Output Gap | $$y\_{t}^{d}$$ | -5.9494 | 0.0000 |
| Inflation Adjustment | $$p\_{t}^{d}$$ | -7.3768 | 0.0000 |
| Interest Rate (monetary policy) | $$r\_{t}^{d}$$ | -3.3493 | 0.0083 |
| Exchange Rate | $$er\_{t}$$ | -6.2113 | 0.0000 |
| Current Account | $$CA\_{t}$$ | -4.1010 | 0.0024 |
| Primary Budget Deficit (fiscal policy) | $$\overbar{d\_{t}}$$ | -3.8266 | 0.0053 |

In short term model, the changing of dependent variable is not only described by the changing of the independent variable but by the in-stability of the variable of the past as well. For this reason, a cointegration test was carried out and the results were that the entire equation model was cointegrated with an ECT value between 0 and 1 and was significant at d.f < 5%. It means that all short-term equation models in the 5 markets, namely the output market (real sector), balance in the money market, exchange rates, interest rate balances, trade balance balances, fiscal policy can represent the long-term model or the ECT rate coefficient is all significant (C5, C9, C14, C19, C23, C26). It indicates the speed of the adjustment of a variable is returning to its stability when countering shock. This condition also indicates that the prediction from the equation system is valid. The result of estimation in short and long terms might be seen in Table 2.

**Table 2. Estimation Result of Equation System Model**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
| Symbol | Variable | Coefficient | t-Statistic | Prob. |
|  |  |  |  |  |
| C(1) | Drd | 0.000281 | 0.967050 | 0.0003 |
| C(2)  | Dds | -0.009729 | -1.276224 | 0.0041 |
| C(3) | Dle | 0.604125 | 4.416884 | -1.1110 |
| C(4) | dydf | 0.000800 | 6.376350 | 0.0012 |
| **C(5)** | **ECT** | **-0.631834** | **-3.00985** | **0.000** |
| C(6) | Dyd | -0.560857 | -0.310940 | -7,7164 |
| C(7) | Dds | 0.000611 | 0.483559 | 0.1678 |
| C(8) | dpgapf | 1.350913 | 10.57740 | 1,1698 |
| **C(9)** | **ECT** | **-0.799272** | **-2.247073** | **0.0056** |
| C(10) | Dyd | -117.5666 | -2.657332 | -6,0861 |
| C(11) | dpdf | -0.514832 | -0.252241 | 0.7876 |
| C(12) | Dds | -0.024702 | -0.777399 | -0.1012 |
| C(13)  | Drs | 0.694354 | 8.772610 | 0.8749 |
| **C(14)**  | **ECT** | **-1,2187**  | **-7.885031** | **0.0000** |
| C(15) | drgap | 0.0040 | 1.820438 | -0.0101 |
| C(16) | Dds | 0.0021 | 8.259227 | -0.0002 |
| C(17) | Dca | -0.014557 | -2.551947 | 0.0015 |
| C(18) | Dlef | 1,0716 | 1.110989 | 1,0107 |
| **C(19)**  | **ECT** | **-0.439018** | **-1.993447** | **0.0474** |
| C(20)  | dygap | 26.78273 | 0.704742 | -4,55221 |
| C(21)  | Dds | 0.002684 | 0.044817 | 0.0226 |
| C(22)  | Dle | -12.74393 | -2.511621 | 0.3230 |
| **C(23)**  | **ECT** | **-0.485222** | **-1.560056** | **0.0201** |
| C(24)  | Dyd | -131.4610 | -0.744458 | 42.0545 |
| C(25)  | Dds | 0.400393 | 3.283851 | 0.0041 |
| **C(26)** | **ECT** | **-0.540523** | **-1.943347** | **0.0300** |
|  |  |  |  |  |
|  |  |  |  |  |

Based on the estimation results, it is found that when the concept of Debt Stabilizing Deficit (Dds\*) is applied in Indonesia, all macroeconomic variables in the five markets move according to their respective directions. The application of the concept of the Debt Stabilizing Deficit (Dds) model will significantly reduce the output gap, strengthen the exchange rate, increase the primary deficit and increase the trade balance transaction deficit, but will not affect the formation of general prices and interest rates. When debt stabilizing deficit is implemented in the economy, it will encourage an increase in government spending. The increase in government spending will push actual output and leaving potential output. As a result, actual output approaches potential output so that the output gap in the economy is reduced. The ect value in the output gap equation or C5 in Table I.6 is -0.6318, meaning that if there is a shock that causes the output gap level to be higher than the potential output level, it will cause an increase in the output gap. This condition causes the output gap to be adjusted by 0.63 percent of the past imbalance in each period. So it takes 1.58 periods to reach the new balance. Yu H (2017) found that when the Australian government implemented a budget deficit policy, there was an increase in output proxied by an increase in GDP, as a result, the country's output gap was reduced. According to Hshing, Y (2018) said that although expansionary fiscal policy is effective in stimulating the economy, caution needs to be exercised as there may be a debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic growth .

The increase in aggregate demand is due to an increase in government spending, although the study results show an insignificant effect, general prices have increased. This increase in the general price level causes the inflation gap to widen. However, this condition did not last long, because the Central Bank with its monetary authority immediately lowered interest rates to return prices to a reasonable level.

The application of Dds\* does not affect the general price level in the short term because the company cannot immediately change the price of its product when the government increases its budget deficit. The company is worried that if raising prices will create social costs that are greater than profits due to the increase in output prices. Variable consumer expectations of prices need to be considered in macro policy. The expectation of the price which is too high from the consumer will increase the actual price and it is found that if there is an increase in consumer expectations of prices by 1%, actual prices will increase by 1.16%. It was also found that if a shock occurs, the general price will react and make adjustments for 1.26 periods to return to its original balance. The Coefficient value on the price equation or C9 in Table 2 around -0,7992 means if there is a shock that makes the price level higher or lower than the equilibrium price level, then the price level will adjust by 0.79 or the price equation takes 1.26 periods to return to equilibrium after experiencing the shock.

Similarly, what happened in the foreign exchange market represented by the Curent Account equation showed that when the government added debt through the concept of Debt Stabilizing Deficit (Dds\*), domestic capital inflows were experienced. Capital inflow conditions pushed the rupiah exchange rate to strengthen (appreciation). This strengthening of the domestic exchange rate caused the prices of imported goods to be relatively cheaper than the prices of exported goods. This condition causes a decrease in export performance and an increase in imports. This decline in foreign trade performance causes net export performance to decrease, resulting in a decrease in foreign trade. This decline in export performance will push the current account into a deficit.

The interest rate equation applied in Indonesia adopts the application of the monetary rule. In order to control prices and exchange rates, the monetary authority sets certain interest rate targets. In the Arestis balance model, there are 4 variables that determine interest rates, namely the output gap, price expectations, fiscal policy and the monetary rule. The moment when the Debt Stabilizing deficit (Dds\*) policy is applied to the interest rate equation, the results show that this deficit policy does not affect interest rates in Indonesia and the value of the ECT rate is also in-significant. It indicates that the interest rate equation is shaped from the interest rate policy. When debt stabilizing deficit is implemented in Indonesia, it has no influence on interest rate and exchange rate. The central of bank will control interest rate by central bank rate (BI Rate) without considered budget deficit condition or other. It is a monetary rule concepts. This situation describes that there is lack of coordination between the central bank (Bank Indonesia) and the Ministry of Finance as fiscal authority to achieve their target goal variables. So, the Central Bank must build a good coordination with fiscal authority to make a better macro economic performance, economic growth, and fiscal sustainability. It also finds that, fiscal policy is less effectiveness than monetary policy, related to the time lag. This situation is different from the results of a study by Moh'd Mahmoud Ajlouni (2018) which found that the government budget deficit, short-term risk-free interest rate, capital inflows, money supply and business cycle are long-term determinants of the real interest rate. in Jordan.

The coefficient value  in the interest rate equation shown by C14 in Table I.6 is -0.4187 meaning that if there is a surprise that makes the interest rate higher or lower than the balance interest rate, the interest rate will make an adjustment of 0.41. Thus, the price equation takes 2.43 periods to return to equilibrium after experiencing a shock.

The balance of the exchange rate according to the Arestis Model is influenced by the current account, fiscal policy, exchange rate expectations, the difference between domestic and foreign interest rates. The estimation results show that the long-term behavior of the variables forming the exchange rate is consistent with the theory, except for the difference between domestic and foreign interest rates. The implementation of the Debt Stabilizing Deficit (Dds\*) concept in Indonesia will affect the balance of the exchange rate through the monetary sector and the real sector that will be described later. At the moment the government implements Dds\*, capital inflow as a source of domestic financing increases. This capital inflow will encourage the rupiah exchange rate to strengthen (appreciation). If there is an increase in the budget deficit of 1 percent, the rupiah exchange rate will strengthen by 0.0021 percent. This finding is in line with the study of Maryatmo (2004). Exchange rate also has negative effect on the output gap. Appreciation of exchange rate in the long term will significantly increase the production cost, particularly manufactured production industry in Indonesia that is still using imported raw materials. When the cost of production increased, the national production level will decrease, output actual will go far from potential output. This condition resulting the output gap increased. The exchange rate equation has a coefficient value  around -0,4390 meaning that if there is a shock that makes the exchange rate higher than the equilibrium exchange rate, there will be an exchange rate adjustment of 0.43 percent of the past imbalance in each period. In terms of the length of the adjustment period, it took 2.32 periods for the exchange rate to reach its new equilibrium.

The balance in the current account in Indonesia as represented in the Arsetic Model is influenced by the gap in output levels, exchange rates and fiscal policy. Based on the results of the study, it was found that when the government applied the concept of Debt Stabilizing Deficit (Dds\*) it would improve the condition of the current account balance in Indonesia to a surplus, but not significant in the short term. This is due to the long transmission mechanism that links fiscal policy and the current account balance. On the other hand, the short-term and long-term rupiah exchange rate affects the current account balance through net export volume. This finding is supported by Reisen (1997) that there is a negative relationship between the exchange rate and the current account balance when the concept of debt stabilizing deficit is included in the equation.

Meanwhile, the results of this study also found that there is a negative relationship between the output gap and the current account balance in Indonesia. When the level of output gap increases, the price gap at home and abroad widens as a result, the real exchange rate of the rupiah against the euro is depressed or depreciated. The depreciation of the rupiah exchange rate caused the prices of exported goods to be relatively cheaper than the prices of imported goods, thereby encouraging an increase in export volume. As a result, the current account balance in Indonesia experienced a surplus. The coefficient value in the current account balance equation shown by C 23 in Table 2 is -0.4852, meaning that if there is a shock that makes the current account balance in Indonesia higher than the current account balance in a state of balance, there will be an adjustment of the current account balance of 0.48 percent of that past imbalance in each period. So that it takes 2.08 periods to reach the new current account balance.

The fiscal policy equation proxied in the model is represented by the primary budget deficit influenced by the output gap and the debt stabilizing deficit (ds\*). The primary deficit is the difference between tax revenues and government spending before deducting the burden of debt payments. In the short and long term, the relationship between the output gap and fiscal policy is different. In the long term when the government increases the budget deficit but keeps debt stable, the primary deficit will increase by 0.4 percent. On the other hand, in the short term, when the deficit is increased by Rp. 1 trillion, it will encourage the primary deficit to increase by 131%. This condition indicates how important fiscal policy is to cover financing needs. The coefficient value  in the fiscal policy equation as shown by C26 in Table 2 is -0.5405, meaning that if there is a shock that makes the primary deficit higher than the equilibrium condition, there will be an adjustment to the primary budget deficit of 0.54 percent of the past imbalance in each period. It takes 1.85 periods to re-achieve the new primary deficit balance.

One of the advantages of the NMC equilibrium model is the expectation variable. The expectation variable is very dominant in the analysis of rational expectations. Expectations of the rupiah exchange rate for example against the euro in the long term have a positive and significant effect on the actual rupiah exchange rate. When people predict that the rupiah exchange rate will strengthen in period t, people's expectations of the exchange rate will increase. People will switch to holding the rupiah and releasing their foreign currency, as a result, demand for the rupiah increases and the rupiah exchange rate strengthens or vice versa when people's expectations of the exchange rate weaken, prompting people to sell their rupiah, so that the value of the rupiah currency is depressed. Thus, an increase in exchange rate expectations will encourage the actual exchange rate to follow the same direction as the expectation. Similarly, consumer expectations on the domestic goods price encourage instantly when the government just informs the media to increase debt stabilizing deficit (Dds\*) or increase the oil price, rationale of subsidize, increase civil servant salary.

When the expectation is too high, this expectation tends to encourage the economic actors to purchase goods real time that may trigger increase of the goods price. The increase of the goods price will encourage Central Bank (Bank of Indonesia) to play its role in stabilizing the price through interest rate policy that the market interest rate will increase. When the actual price increases, central bank will make some effort to hold the increase of this goods price by influencing that the interest rate decreases until the aggregate offering shifted to the right. To make a fiscal sustainability, it should be considered as the implementing of Fiscal Policy Rule. The expectation of the exchange rate has positive influence and significant on rupiah exchange rate on euro currency. The increase of the exchange rate expectation will encourage the actual exchange rate to follow the same direction of its expectation.In the long term there is negative relationship between domestic output gap and average output level in the European Union countries toward the current account in Indonesia. When the output gap is getting bigger and away from the potential output, the goods price tends to be even bigger. As the recovery economic crisis influence does not complete that spread in some parts of developed country and Indonesia, this resulting the domestic demand on imported goods is not automatically significant. Yet, in the short term it means the opposite. In the long term, debt stabilizing deficit has positive influence on budget primary, output gap has relationship with budget primary deficit. In the short term when the output gap increases 1 trillion IDR, this will resulting the increase of demand, which primary deficit will increase the deficit by 131%. This condition indicates how important is the fiscal policy to address the requirement of financing because of the increase of demand. From the simulation, it indicates that when the shock occurs in the form of adding and subtracting of the magnitude of 1 % of debt stabilizing deficit from data base line debt stabilizing deficit, response pattern of output gap equation, price, interest rate, exchange rate, current account, and budget primary deficit have the same pattern with response pattern before simulation is conducted which is return to the equilibrium. If debt stabilizing deficit is added 1 % those five equations indicate that the curve position is below the curve before simulation is conducted. When the magnitude of debt stabilizing deficit subtracted 1 % base line, curve position is above the curve position before simulation is conducted where the its coefficient higher compared to simulation earlier for all equations. It means that it is important for government to keep the debt stable.

Discussion

The additional amount of debt by applying the concept of Debt Stabilizing Deficit is still effectively done by the government, as long as the debt ratio and budget deficit requirements are maintained, which are below 60% and 3%, respectively. The increase in Debt Stabilizing deficit in debt management as long as debt utilization is allocated for development in the productive sectors. This increase in government spending will encourage aggregate demand so that the output gap is reduced. Another important thing is that the fiscal policy time lag causes fiscal policy to become ineffective.

When the government proposes a policy of increasing debt through a debt stabilizing deficit until it is determined by the House of Representatives (DPR), it takes quite a long time. Assuming that there is an agent who behaves rationally by carrying out the expectations for the fiscal policy plan, when the proposal is approved by the DPR, the public has already anticipated it. However, although this fiscal policy has been anticipated by the public, it will still reduce the output gap through an increase in aggregate demand. An increase in aggregate demand will encourage an increase in the price of goods. Similarly, the addition of development financing through the implementation of the Debt Stabilizing Deficit will increase the capital inflows into the country and encourage the appreciation of the domestic currency. The appreciation of the domestic currency causes the performance of foreign trade to decline, thus creating a trade balance deficit. The increase in the price of goods and the exchange rate will urge the Central Bank to take strategic steps to reduce the domestic interest rate through its monetary rule policy. A decrease in interest rates will return prices to their equilibrium and national output will return to its initial position.

**Conclusions**

First, the debt stabilizing deficit model is still effective if it is implemented in Indonesia. Second, if debt stabilizing deficit model is implemented, in the long run, it can reduce the output gap, strengthen the exchange rate, increase the primary deficit and increase the trade balance transaction deficit, but does not affect the formation of general prices and interest rates. Third, price level and interest rate are not significantly effected by fiscal policy which is implemented by Debt Stabilizing Deficit, because these variables are directly controlled by Central Bank as a monetary instrument variables. Government should build a good coordination between the central bank as conducted monetary policy and fiscal authority to make a better economic performance, economic growth, and fiscal sustainability. Fourth, increasing debt stabilizing deficit is still effective as long as still under 60% of GDP and this debt are allocated to the productive sectors, Fifth, inflation is the fastest variable in adjusting to the new equilibrium because there is no time lag, unlike fiscal variable.

**Reference**

Abdurohman dan Syahrir, Ika, 2012, Kebijakan Defisit Anggaran dan Utang Pemerintah,

Majalah Warta Fiskal, No.5, Kementrian Keuangan RI.

Arestis, Philip., 2009, New Consensus Macroeconomics: A Critical Appraisal, *Working Paper Collection,* No 564.

Arestis. Philip and Sawyer, Malcolm, 2003, Reinventing Fiscal Policy, *The Levy Economics*

*Institute Working PaperCollection*, No. 381.

Balassone, di Fabrizio and Monacelli, D., 2000, EMU Fiscal Rule : Is There A Gap? Politica

Fiscale Flessibilita Dei Mercati E Crescita.

Beare, B, John., 1978. *Macroeconomics Cycles, Growth and Policy in a Monetary Economy*.

Macmillan Publishing Co.

Bernheim, B, Douglas., 1988, Budget Deficits and the Balance of Trade, *Tax Policy and the*

*Economy,* Vol. 2,1-31.

Blanchard, O, Giovanni Dell’Ariccia and Mauro, Paolo., 2010, Rethinking

Macroeconomic Policy, *Journal of Money,Credit and Banking, Supplement,*Vol.42, 1-46.

Burney, A, Nadeem., 1992, Government Budget Deficits and Exchange Rate Determination:

Evidence from Pakistan, *The Pakistan Development Review*,Vol. 31, 4 Part II, 871- 882.

Cebula, J, Richard., 1997, An Empirical Note on the Impact of the Federal Budget Deficit Ex

Ante Real Long-TermInterest Rates, *Southern Economic Journal*, Vol. 63., 1094- 1099.

Enders, Walters., 2004, *Applied Economtric Time Series*, Second Edition, Wiley and Sons

Farmer, Roger E.A., 2002, *Macroeconomics,* Second Edition, South Western.

Favero, Carlo and Monacelli,Tommaso., 2005, Fiscal Policy Rules and Regime (In)

Stability: Evidence From the US,*NBER Working Paper*, No 282.

Garratt, A., Lee, K., Pesaran, M. H., dan Shin, Y., 1999. A Structural Cointegrating VAR

Approach to Macroeconometric Modelling, *ESE Discussion Papers 8,* Edinburgh School of Economics, University of Edinburgh.*.*

Giese, Guido and Wagner, Helmut., 2007,Graphical Analysis Of The New Neoclassical

Synthesis, *Diskussionsbeitrag*, Nr411, 1-26.

Goodfriend and King, 1997, Monetary Policy in the New Neoclassical Synthesis:A Primer,

*International Finance*, Vol. 5, 165-191.

Gujarati, D dan Porter., D.C 2009. *Basic Econometrics,* 5th Edition. New York: McGraw-Hill

Hsing, Y. 2018. Is Currency Appreciation or Depreciation Expansionary in Thailand? The

Journal of Asian Finance, Economics, and Business, 5(1), 5–9.

Hubbard, R Glenn; O’Brien, Rafferty Matthew and Patrick. Anthony., 2012, *Macroeconomics,*

PrenticeHall, New Jersey.

Maryatmo, Rogatianus., 2004, Dampak Moneter Kebijakan Defisit Anggaran Pemerintah dan

Peranan Asa Nalar Dalam Simulasi Model Makro-Ekonomi Indonesia.,*Disertasi*, Universitas Gadjah Mada, Tidak dipublikasikan.

Mitchell, Peter R, Joanenne E, Sault and Kenneth, F.W., 1999, Fiscal Policy Rules in

Macroeconomic Models: Principles and Practice, *ESRC Macroeconomic Modelling Bereau*, Vo. 17, 171-193.

Laubach, Thomas., 2009, New Evidence on the Interest Rate Effects of Budget Deficits and

Debt,.*Journal of the European Economic Association,* Vol 7, 858-885.

Metin, Kivilcim., 1998, The Relationship between Inflation and the Budget Deficit in Turkey,

*Journal of Business & Economic Statistics*, Vol.16, No 4, 412-422.

Moh’d Mahmoud Ajlouni .2018. Determinants of Real Interest Rates: The Case of Jordan

Long-Fe. Journal of Asian Finance, Economics and Business Vol 5 No 4. 35-44 35.

doi:10.13106/jafeb.2018.vol5.no4.35

Rahmany, A.Fuad, 2009, Ketahanan Fiskal dan Manajemen Utang Dalam Negeri Pemerintah,

*Era Baru Kebijakan Fiskal Pemikiran Konsep dan Implementasi*, BKF, Departemen

Keuangan RI.

Rahutami, Angelina Ika, 2007*,* Interaksi Sektor Moneter dan Fiskal di Indonesia Tahun 1980.1-2006.4: Pendekatan Sistem Ekonomi Simultan, *Disertasi* Universitas Gadjah Mada, Tidak Dipublikasikan.

Reisen, Helmut, 1997, Sustainable and Excessive Current Account–Deficits, *Working Paper*, No

133.

Sargent, Thomas J., Walace 1981,*Macroeconomics Theory*, Academic Press, 2 nd edition,

London, 362-417.

Tcherneva, Pavlina, R., 2008, The Return of Fiscal Policy: Can the New Developments in the New Economic Concensus Be Reconciled with the Post-Keynesian View, *The Levy Economics Institute Working Paper Collection,* No. 539.

Wijoyo. Santoso, 2011. Interaksi Kebijakan Moneter dan Fiskal di Indonesia,

*Disertasi,* Universitas Gadjah Mada

Yu, H. 2017. Impacts of the Real Effective Exchange Rate and the Government Deficit on Aggregate Output in Australia. Journal of Asian Finance, Economics and Business, 4(1), 19-23. doi:10.13106/jafeb.2017.vol4.no1.19.