The Impact of Government's Foreign Debt on Fiscal Sustainability of Indonesia

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ABSTRACT

The aim of the research is to analyze the impact of government's foreign debt on fiscal sustainability (FS) of Indonesia in 1979-2016. The model used in this research is a simultaneous equation model with the method of two stage least square. The simultaneous equation model regression results indicate that government foreign debt, FS which derives from the reduced-form equation and primary balance has a significant impact on the growth of economy in Indonesia positively. Government foreign debt lag and interest rate of Central Bank of Indonesia have a negative impact and it is significant toward the FS of Indonesia. However, the economic growth which comes from reduced form affect positively and have a significant impact on the FS of Indonesia.

Keywords: Government Debt, Economic Growth, Fiscal Sustainability, The Model Simultaneously
JEL Classifications: E62, F34

1. INTRODUCTION

Start from the New System Government of Indonesia as the process of country development, foreign debt has been used as one of the funding sources in order to ward off the rare financial capital problem. Besides, foreign debt is also used in order to overcome export-import gap and fiscal group problem. Data from Bank Indonesia (BI) shows that Indonesian foreign debt position in August 2016 is reaching US$323 milliard, or it is equal to IDR4.215.6 billion (rate IDR13.051/USD). In spite of that amount, 49.4% is government debt which reaches US$159.7 milliard or it is equal to IDR2.084 billion (BI Report, 2016).

Foreign debt is aimed to give impact to the sustainability of Indonesian fiscal. One of the simple interpretations of fiscal sustainability (FS) is showed if government can fulfill the outcome with their own earnings without depending on the debt (Hanni, 2006). Fiscal condition is classified as sustainable as if the primary balance (PB) gap (PB) is evaluated positively. On the other hand, fiscal condition is classified as unsustainable as if the gap PB is evaluated negatively.

FS has become an international important issue because the dynamics of international economy often creates a lot of controversies which can distract FS (European Commission, 2012). Research from Brondolo et al. (2001) about administration reformation and fiscal adoption in Indonesia shows that economy reformation program in 2000 is to achieve high economy development, maintain the inflation, and reach the FS which has produced the reduction of debt ratio towards gross domestic product (GDP) as it is from 25% to 65%.

There are various efforts have been done in order to evaluate, measure, an early warning and also solution to maintain the FS, such as using currency composition evaluation system from the country in which the government lay the debt, as it is stated by Calvo et al. (2003) and Housmann and Panizza (2003). A research of Bussiere et al. (2004) on 28 markets in developing countries shows that currency fluctuation which is often happening in creditor country will interfere the economical stabilization of debitur country.

Baldacci and Petrova (2011) develop some indicators for FS and fiscal emphasis by referring to the risk cycle framework which is

developed by Cottarelli (2011). The result of the research shows that developing countries have higher fiscal susceptibility than new born countries. Jedrzejowicz and Kozinski (2012) say that there are five elements which need to be examined in order to evaluate a country fiscal position, such as public debt level, government liquidity position, and the fiscal regulation of finance institution. A research of Sriyana and Hakim (2017) show that the FS in Indonesia is in a secure position with the 95% of credibility and there is no deviation in estimation period.

Foreign debt indicates negative consequences towards state budget (Soelistianingsih, 2003). It is because of the foreign debt is used as one of the ways to cover government estimation deficit. This government foreign debt seems like the government revenue because it has a role to cover the deficit of state budget. However, on the other hand, the remittance of the debt becomes burdens to state budget which is noted in expulsion post. Therefore, a measuring about FS is needed to be done as the consequence of foreign debt of Indonesia's government. Based on the background above, the aim of this research is to analyze the impact of foreign debt towards FS of Indonesia in 1979-2016.

There are two key variables in this research which are FS and government debt to foreign country. First, FS - One of the interpretations of FS is when government can fulfill their expulsion with their own earnings without depending on debt (Hanni, 2006). The main indicator from fiscal which is sustainable or not is the amount of the deficit and the elements of the deficit, whether it is lower or higher in the future (Slack and Bird, 2004).

Greene (1993) in Ulfa (2004) defines FS as the ability to maintain the economy macro policy without any threat of crisis, such as hyper inflation, depreciation or devaluation of the great amount of domestic currency, and the unemployment level which cannot be tolerated anymore. On the other hand, according to Quanes and Thakur (1997. p. 66), the definition of FS is while there is no generally accepted definition of what constitutes a sustainable fiscal policy, there is a broad agreement that fiscal policy is not sustainable if the present and prospective fiscal stance results in a persistent and rapid increase in the public debt-to-GDP ratio. Thus, a key indicator of sustainability is based on the size and growth ratio of the debt-to-GDP ratio.

Based on the definition above, there are two indicators which need to be noted in order to evaluate the government finance position, they are: (1) The amount of debt which is stated in debt-to-GDP ratio; (2) the escalation and growth of loan. One of the indicators which can be used as the level approach debt to GDP ratio which is safe is the Maastrict Treaty provision in 1991, which requires some countries in Europe – which they will join in European Monetary Union – with Euro currency; they have to get ratio debt to GDP <60%. Another requirement in deficit ratio budget must be <3%, and the country should ensure the stability of the rate, additionally, they have to maintain the exchange rate as it is required in exchange rate mechanism (Directorate of State Finance and Monetary Analysis, 2004).

There are two approaches which can be used in order to determine the FS; they are accounting approach and present value constraint (PVC) approach (Hanni, 2006. p. 23-24). In accounting approach, FS is defined in sustainability from surplus on PB with a formula as follow:

$$\text{GAB PB} = \text{PB} - \frac{r - \text{growth}}{1 + \text{growth}} \text{DEBT}_{t-1}$$

Fiscal condition is determined as sustainable if GAP PB is positive, on the other hand, fiscal condition is determined as unsustainable if GAP PB is negative (Hanni, 2006. p. 25). Another approach, PVC approach is measured with a formula as follow:

$$\text{DEBT}_{t-1} = \sum_{j=0}^{N} \frac{\text{SURPB}_{t+j}}{(1+r)^{j+1}}$$

The formula above is also known as intertemporal government financing constraint. The formula above shows that the amount of government debt in the meantime should be equal to present value from surplus PB in the future. If the formula above is fulfilled, the fiscal policy will be determined as sustainable. In this research, the sustainability fiscal determination is determined by accounting approach.

Second, government foreign debt - The Indonesia government's foreign debt is a debt from some foreign countries such as associated countries, international institution (IMF, World Bank, Asian Development Bank), and the other foreign colleagues. Foreign debt is divided into two, which are bilateral debt and multilateral debt. Bilateral debt is a loan from the government of a country through a financial institution or body which is established by the government of the country concerned in order to implement the provision of debt to be paid back with certain requirements. In the other hands, multilateral debt is a loan from the international financial institutions and also regional institutions, where Indonesia has became a member of the financial institution (Syaparuddin, 2005).

A research by Hanni (2006), shows that PB is the main indicator for FS. The other indicators which are also important are economic growth, the level of interest rate, and government financial. The economic growth is affected by the amount of GDP, household and government consumptions, investment, rate interest, inflation, foreign investment, export, import, exchange rate, tax, household consumption lag, investment lag, government consumption lag, Japan GDP and Japan rate interest. Interest rate is affected by the money supply, the rate growth and exchange lag. The stock of government debt is affected by the overall balance and GDP.

In order to evaluate whether the fiscal policy which is done is sustainable or not, it can be seen from PB surplus. PB is a reception difference between government spending outside without interest payments and debt repayments. If the surplus of PB is positive, the FS is sustainable. However, if the surplus of PB is negative, the FS is unsustainable.

2. RESEARCH METHOD

This research is an explanatory research because it aims to analyze some factors that influence various values from dependent variable to get meanings and problem implications which will be solved in systematic, actual, and reliable way (Wagiyono, 1994). This research investigates the effect of foreign debt on Indonesia's FS. The data comes from data time series with the time period ranging from 1979 to 2016. The main data sources are from the International Financial Statistics, BI, and Central Bureau of Statistics, Ministry of Finance, and Director General of Debt Management.

Operational definitions of various variables used in this study are: (1) FS which is positive value of the PB surplus; (2) economic growth, the growth of real GDP per year expressed in a percentage; (3) debt government foreign namely Indonesian government debt to foreign parties such as neighbor countries, international agencies, and others who are not Indonesia residents, which must be paid back with its interest; (4) PB is the difference between government revenues and expenditures outside interest payments and repayments of debt and; (5) the interest rate is a weighted average of interest rates on savings BI expressed in percentage.

The model used in this research for analyzing data is simultaneous equation model. Simultaneous equation model is used to analyze the effects of foreign debt toward the government's FS. To avoid confusion and inconsistency of the regression results, the stages of testing is done in accordance with the requirements of the use of simultaneous equations (Intriligator et al., 1996. p. 318). The model of simultaneous equations used is:

$$GROWTH_t = \beta_{1.0} + \beta_{1.1} DEBT_{t-1} + \beta_{1.2} PB_t + \beta_{1.3} FS_t + e_1$$

$$FS_t = \beta_{2.0} + \beta_{2.1} DEBT_{t-1} + \beta_{2.2} GROWTH_t + \beta_{2.3} r_t + e_2$$

Growth = Real gross domestic product (%),

FS = Fiscal sustainability (%),

DEBT = Ratio of government foreign debt toward real GDP (%),

PB = Ratio of primary balance toward real GDP (%),

r = Weighted average interest rate of BI (%),

t = Time.

Based on the method of identification through order condition and rank conditions, it can be seen that the simultaneous equation model in this study is over-identified as K−k > m−1 (3−2 > 1−1) and rank matrix A is M−1. Therefore, simultaneous equation model in this study is completed by the two stage least square method (TSLS) or two-step method of OLS. TSLS method is used to avoid the inefficient estimation because structural equation models 1 and 2 are over-identified equation (Gujarati, 2003. p. 770-774; Widarjono, 2009).

To determine the fiscal condition of Indonesia whether it is sustainable or unsustainable, accounting approach is used with the following identity equation:

$$GAB\,PB = PB - \frac{r - growth}{1 + growth} DEBT_{t-1}$$

The sustainable fiscal condition occurs when GAP PB is positive. On the other hand, the unsustainable fiscal condition occurs when the GAP PB is negative.

3. RESULTS AND DISCUSSION

The correlation among government foreign debt, economic growth and FS's Indonesia period 1979-2016, can be observed in Figure 1.

Figure 1 shows that the increase of foreign debt from 1979 to 2016 period in line with the increase of the GDP of Indonesia in the same period. When the government's foreign debt period 1979-2016 shows an increase, PDB also shows an increase very well in the same period. But on the other hand, the increase of foreign debt period 1979-2016 is in the opposite side of the value of the PB gap which becomes an indicator of the FS of Indonesia period 1979-2016. When the government's foreign debt (DEBT) period 1979-2016 shows an increase, the gap PB which becomes an indicator of the FS of Indonesia in the same period shows a trend that continues to decline. Thus, the Figure 1 in line with the results of simultaneous equation model. The results of the first simultaneous equation model can be observed in the Table 1.

The regression equation of the first simultaneous equation model as follows:

$$Growth = 3.797814 + 0.207010\ debt(-1) + 0.315753\ \widehat{KF} + 0.628143\ PB + e_{1t}$$

$$(0.0000)^* \quad (0.0000)^* \quad (0.0000)^* \quad (0.0000)^*$$

$R^2 = 0.948287$

- Number in parentheses is the P value
- *Significant at the 0.01 alpha ($\alpha = 1\%$).

Based on the above equation, it can be seen that the value of R^2 is 0.948287. The R^2 means that 94.83% of economic growth can

Figure 1: Foreign debt of the government, the gross domestic product and Fiscal Sustainability's Indonesia in 1979-2016 (IDR M)
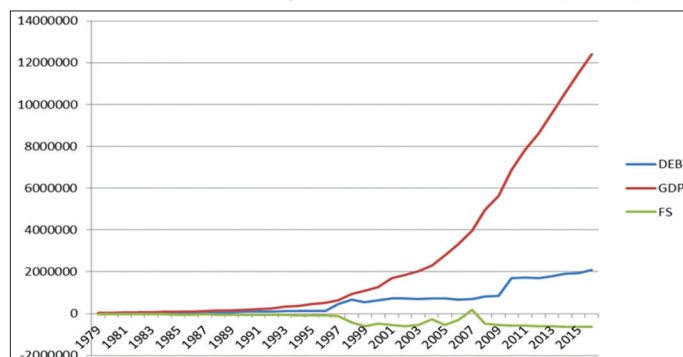
Source: Bank Indonesia and International Financial Statistics, processed 2016

Table 1: Results of the first simultaneous equation regression models

Variable	Coefficient	SE	t-statistic	P	Conclusion
Dependent variable: GROWTH
Method: TSLS
Date: 11/19/16; time: 18:01
Sample (adjusted): 1979, 2016
Included observations: 38 after adjustments
C	3.797814	0.585337	6.488252	0.0000*	Positive and significant
DEBT(−1)	0.207010	0.018121	11.42360	0.0000*	Positive and significant
FS_F	0.315753	0.015526	20.33691	0.0000*	Positive and significant
PB	0.628143	0.087542	7.175359	0.0000*	Positive and significant
R^2	0.948287	Mean dependent variable		4.619667	
Adjusted R^2	0.942320	SD dependent variable		3.814729	
SE of regression	0.916167	Akaike information criterion		2.786330	
Sum squared residual	21.82342	Schwarz criterion		2.973156	
Log likelihood	−37.79495	Hannan–Quinn criterion		2.846097	
F-statistic	158.9259	Durbin–Watson statistics		1.529297	
P (F-statistic)	0.000000				

*Significant at the α=0.01 (1%). Source: Bank Indonesia and International Financial Statistics, processed 2016. SD: Standard deviation, SE: Standard error, TSLS: Two stage least square

be explained by the lag of government foreign debt (debt (−1)), FS derived from the equation of reduced form (FS_F), and the PB, while the remaining 5.17% is explained by other variables outside the model.

Simultaneous equation model first shows that the lag of government foreign debt (debt (−1)) has positive and significant effect on economic growth with a correlation coefficient of 0.207010 and P = 0.0000. This occurs because of the additional foreign debt causes heading "acceptance" of the government is increased, so the stock of government that can be used for investments is also increased.

In addition, the characteristic of the government's foreign debt which is mostly long term and in the form of soft loans allow the government more freely utilizes these loans for the sake of Indonesian development. The government's foreign debt is also accompanied by a letter of intent (LoI) which regulates the use of Indonesia's foreign debt. The LoI provides the utilization of foreign debt to build infrastructure and public facilities such as schools, health centers, hospitals, roads, and bridges. In addition, the government or institutions that give loan also arranges the utilization of foreign debt so that it can used for poverty alleviation programs such as direct cash assistance, rice for the poor and social safety nets.

The conditions above are in line with research results from Quazi (2005) which shows that foreign debt significantly increases GDP growth in Bangladesh in the period 1973-1999. Moreira (2003) shows that foreign debt is a positive influence on economic growth. The results of the study of Svensson (2000) shows that foreign debt has a positive impact on the economy and people's welfare, if the money is used for development and there is no moral hazard problem associated with the use of debt. Different results comes from Syaparuddin (2005), that demands of foreign debt of government give positive effects but not significant toward the growth of Indonesia's GDP in the period 1980-2002.

FS derived from the equation of reduced form has positive and significant effect on economic growth, with a correlation coefficient of 0.315753 and P = 0.0000. FS happens when the surplus of PB is positive. The surplus of PB is positive when there is an increase in the value of the PB which implies that there is an increase in the ratio of government revenue and government spending toward outside interest payments and repayments of government debt. An increase of the value of the PB leads the government to have more budget stock that can be used to make an investment. An increase of government investment stimulates the real sector, which also can boost economic growth in Indonesia.

PB gives positive and significant impact on economic growth, with a correlation coefficient of 0.628143 and P = 0.0000. This happens because of an increase in the PB indicates an increase in the ratio of government revenue to government spending outside interest payments and repayments of government debt. The increase in the PB can be achieved through increasing government revenue and optimizing state expenditure in an efficiently and appropriately. The second simultaneous equation model, can be observed in the Table 2.

Second simultaneous equation model can be observed on the following equation:

$$FS = 8.146881 - 0.717757 \, debt(-1) + 1.249630 \, \widehat{GROWTH} - 1.083289 \, r + e_{2t}$$

$$(0.3461)^{ns} \, (0.0000)^* \qquad (0.0951)^{***} \, (0.0078)^*$$

$$R^2 = 0.801670$$

- Number in parentheses is the P value
- * and *** respectively significant at the alpha 0.01 (α = 1%) and 0.10 (α = 10%)
- ns = Not significant.

Table 2: Results of the second simultaneous equation model regression second

Dependent variable: FS					
Method: TSLS					
Date: 11/19/16; time: 18:54					
Sample (adjusted): 1979, 2016					
Included observations: 38 after adjustments					
Variable	Coefficient	SE	t-statistic	P	Conclusion
C	8.146881	8.490008	0.959585	0.3461[ns]	Not significant
DEBT(−1)	−0.717757	0.106485	−6.740454	0.0000*	Negative and significant
R	−1.083289	0.375417	−2.885559	0.0078*	Negative and significant
GROWTH_F	1.249630	0.721362	1.732320	0.0951***	Positive and significant
R^2	0.801670	Mean dependent variable		−32.08333	
Adjusted R^2	0.778786	SD dependent variable		15.52148	
SE of regression	7.300286	Akaike information criterion		6.937270	
Sum squared residual	1385.649	Schwarz criterion		7.124096	
Log likelihood	−100.0591	Hannan–Quinn criterion		6.997037	
F-statistic	35.03152	Durbin–Watson statistics		2.090900	
P (F-statistic)	0.000000				

* and *** respectively significant at the alpha 0.01 (α=1%) and 0.10 (α=10%). Source: Bank Indonesia and International Financial Statistics, processed in 2016. ns: Not significant, SD: Standard deviation, SE: Standard error, FS: Fiscal sustainability

Based on the equation above, it can be seen that the value of R^2 = 0.801670. The R^2 means that 80.17% of the FS can be explained by the lag of government foreign debt (debt (−1)), economic growth that derives from the equation reduce form (GROWTH), and the savings interest rate of BI (r), whereas the remaining 19.83% is explained by other variables outside the model.

From the second simultaneous equation model can be seen that the lag of government foreign debt (debt (−1)) has a negative and significant toward Indonesia's FS. It happened because the foreign debt is used as a way to cover the budget deficits. Government foreign debt as if the government "reception" because it is functioned as a cover of the budget deficit, on the other hand installment payments on the debt principal and interest on debt become a burden on the Indonesian budget that is recorded in expenditure. The government's foreign debt is more in the form of long-term loans which led to the state's obligation to pay the debt principal and interest repayments become a heavy burden in the long term.

Primary surplus balances which are negative, and occur in the long term provide a serious indication that Indonesia fiscal situation facing unsustainable problems. Unsustainable fiscal circumstances are compounded by the guarantee and recapitalization program in order to rescue the banking system during an economic crisis in 1998. The debt burden of foreign governments increasingly overwhelmed due to depreciation because of the economic crisis of 1998 and its effects are felt many years after that. Thus, the government's foreign debt in the previous period has a negative impact on FS Indonesia.

The results of the study are in line with the findings of Soelistianingsih (2003) that the government's foreign debt has negative impact towards the Indonesia's government budget performance and sustainability of Indonesia fiscal year 1983-2000. Hanni (2006) research results indicate that the stock of government debt has a significant influence toward the FS of Indonesia in 1991-2003. The study results Edwards (2003) shows that the initial stock of government debt, the availability of soft loans in the future, and

parts that was obtained from grants and donations had significant effect on FS in Nicaragua in 2002. The study results of Moraga and Vidal (2004) shows that the public debt had significant effect on the public of the FS in the European Union (Germany, France, Italy and United Kingdom) in 1995-2000.

Savings interest rate of BI (r) has a negative and significant effect on the FS of Indonesia with a correlation coefficient of −1.083289 and the P = 0.0078. This condition occurs due to an increase in savings interest rate of BI that happened for a long time that will lead to the increasing of domestic savings but investment in real sector is generally declining. The interest rate is a function of investment and both have a negative correlation. When the global economic crisis in 1998, the average of interest rates on BI savings amounted to 38.44%. The average savings interest rate BI is the highest in the period 1979-2016. The increase in deposit rates sharply indicates a serious disruption of the macroeconomic stability in Indonesia. The threat to macroeconomic stability shows that Indonesia's fiscal situation unsustainable because one indicator that a sustainable fiscal situation is that the government can maintain macroeconomic stability without the threat of a crisis. Thus, the savings interest rate BI has a negative and significant effect on Indonesia's FS.

The economic growth that comes from reduced-form ($\overline{GROWTH}$) has positive and significant impact on Indonesia's FS at the level of significance of α = 10%, with a correlation coefficient of 1.249630 and P = 0.0951. The increased of economic growth indicates that the real sector was expansive and employment opportunities available to job seekers. The rapid economic growth indicates that the macro economy is stable and there is no threat of a crisis so that Indonesia's FS can be maintained. Hence, the economic growth has a significant effect on of the FS.

4. CONCLUSION

Based on the findings it can be concluded that there are three factors that affect the economic growth, the PB is the factor that had

the most positive and significant impact on the economic growth in Indonesia. FS and lag foreign debt also have a positive impact on economic growth in Indonesia period 1979-2016. Economic growth has positive and significant impact on FS Indonesia. Lag foreign debt government and BI interest rate savings have a significant and negative effect on Indonesia's FS.

There are some suggestions related to the findings in this study. First, the Government of Indonesia are advised to focus on selection and long-term soft loans. The Indonesian government should avoid high-interest loans and loans with a LoI that can be detrimental to Indonesia. On the other hand, utilization of foreign debt the government should really be based on efforts to increase the economic growth and its use is really directed to productive activities. The government needs to pursue the optimization of state revenues, especially revenues from the taxpayer who has not fulfilled its obligations, primarily through the optimization of tax amesty policy. The government should control the operating costs and streamline routine operational expenses in order to make the FS and the PB become better.

Second, the government should immediately inventoried components of the government's foreign debt that has high interest and try to pay off the foreign debt component of high-interest in order to not interfere the Indonesia's FS. The government needs to pursue breakthrough steps to reduce the burden of foreign loans through: (1) The redemption of debt (debt swap) program; (2) intensive communication with multilateral institutions (World Bank and UNDP) regarding the assessment of debt sustainability (debt sustainability); and (3) economic diplomacy in every international forum in order to seek a decrease in foreign debt stock therefore it will not disturb Indonesia's FS. Government needs to strive for foreign loans, not only on the exchange rate to reduce the risk of exchange rate changes. Government, BI and the business community need to strengthen the coordination and make a comprehensive policy in order to pursue a steady economic growth and consistent positive impact on Indonesia's FS.

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