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# Budget Deficit and Debt:

## Descriptive Analysis of Indonesia's Case

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**Abstract**—The purpose of this paper is to examine Indonesia's state budget and debt deficits. Using the descriptive methodology analysis. The secondary data collected from 1998 – 2014. The finding is deficit that occurs due to inadequate income from taxes and non-taxes that the deficit is forced to pay off the debt. This debt becomes very burdensome to the state budget because it must be repaid in principal and interest but the budget is still deficit. The peak occurred in Jokowi's era. Some implications are deficit must be financed by new debt therefore more burden will be increased. In the other hand current account as well as capital account are also deficit.

**Keywords**—budget deficit, debt, principal and installments

### I. INTRODUCTION

The budget deficit experienced by Indonesia has occurred since this country's independence. When state expenditure is greater than the revenue, the state budget experiences a deficit, this occurs because the lack of income from taxes as the main component of income and from other sources of income that are recognized by the state. The usual deficit is financed from domestic and foreign debt [1-5].

When deficits are financed by debt, then foreign debt will have a negative impact on economic growth, domestic savings rates and investment levels. Empirical studies conducted by several researchers proved this [6-11]. Even though debt is not something that is prohibited, it must take into account as its use for productive matters as the efforts to repay interest and instalments do not experience difficulties, although in reality this debt often cannot be fully utilized because of leaks that has occurred [12].

There are two schools of thought regarding government debt in influencing the country's economy [13]. First, the traditional view of government debt will drain national savings and have an effect - crowding out (CO) - on capital accumulation. Second, the view - Ricardian equivalence - which believes that government debt does not affect national savings and capital accumulation.

### II. LITERATURE REVIEW

#### A. Budget Deficits and Causes

There are several factors that cause the budget deficit [14]. the most important of these factors is the government's efforts to accelerate the process of economic growth and development so that large investments and large funds are needed. But when domestic funds are insufficient, the state makes choices by borrowing foreign funds abroad or domestic loans.

During the New Order (Orba), actions taken by the government related to the budget can be explained: First, the State Budget is maintained in balance between revenues and expenditures. Second, government savings are sought to increase to reduce dependence on foreign aid. Third, the tax base is expanded. Fourth, the priority of expenditure is given to the "productive" sector. However, these efforts did not show adequate results. Data since the year 2008 shows that the annual budget deficit shows an increase. In 2008, for example, a large deficit of Rp. 4.1 trillion or 0.08% of GDP, but five years later (2013) the percentage has increased by more than 400% of GDP, which is 2.38% and if seen nominal value is far more fantastic, which is Rp. 224.2 trillion. The peak is 2017, which is Rp. 342.0 trillion or equal to 2.51% of GDP.

### III. METHODS

This study uses descriptive analysis of secondary data from Bank Indonesia and the Ministry of Finance of the Republic of Indonesia to support the analysis carried out. The main objective is to analyse what is the reason for the large government budget deficit and how much the budget deficit is, how much debt is there and how much debt and instalments the state must pay. Population and sample taken from time series data from 1998 to 2014

### IV. RESULTS AND DISCUSSION

#### A. Results

1) *Source of revenue in the budget*: The efforts made by the government to increase domestic revenues have not produced sufficient results. Because the absolute number of

receipts is also followed by a significant increase in expenditure, so that clearly the magnitude of the deficit each year experiences an increase. The balanced budget applied by the government is actually pseudo, because there is always a deficit from revenues, as expenditure is covered with foreign and domestic debt. In the New Order era at the reception post, the government always included foreign loans on the revenue side, which is actually a reflection of the deficit suffered by the government and must be financed from loans. Thus the structure of a balanced budget that is "applied" to the state is more appropriately referred to as the deficit budget structure, then revised by the Habibie government, Abdurrahman Wahid and finally Megawati [15].

2) *Budget deficit and "barro-ricardian equivalence"*: There are 3 ways economists view the impact of budget deficits on the country's economy, namely the Ricardian, Neoclassical (Neo Classical) and Keynesian groups. The first group with the theory of Ricardian Equivalence (RE) assumes that the budget deficit does not affect the country's economy. The concept is often called the Ricardian Equivalence Hypothesis (REH), a theory originating from David Ricardo's Funding System which was reiterated so that it was named the Ricardo-Barro Preposition [14]. The assumption is: intergenerational altruism or immortality, perfect capital markets, lump sum taxation, and the condition that the level of debt is not higher than economic growth. The preposition implies that financing the government budget deficit and government debt has a neutral impact on economic activity.

They also argue that tax changes and financing of the budget deficit will have the same impact on macro variables (especially private consumption). REH's premise is that the issuance of state bonds is now accompanied by plans to raise taxes in the future. So that government debt financing is assumed to undergo changes such as changes in taxation so that aggregate consumption will remain. Within the framework of REH's thought that individuals will assume impending tax is as large as the government debt burden [14].

The REH model is as follows. Suppose that each individual has access to the capital market in perfect competition. They maximize the utility function so that the equation becomes

$$U(t) = \sum_{i=0}^{\infty} u(C_{t+i})\delta^i \tag{1}$$

with the following budget constraints

$$\sum_{i=0}^{\infty} Y_{t+i} R^i = \sum_{i=0}^{\infty} C_{t+i} R^i \tag{2}$$

U as a utility function between times, u utility functions in the same time, C consumption, Y total income, time preference factor  $1 / (1 + \rho)$  where  $\rho$  time preference level and R is discount factor  $1 / (1 + r)$  with r is the real interest rate (which is assumed to be constant). The above model can be enriched by dividing income into human components so that the wage rate will vary over time.

Maximizing each individual's problem with the increase in income can be described with Langrage:

$$L = U(t) + \lambda(\sum_{i=0}^{\infty} Y_{t+i} R^i - \sum_{i=0}^{\infty} C_{t+i} R^i) \tag{3}$$

And maximize it to C, where  $\lambda$  is the Langrage product. The first derivative condition (with Euler's equation) is:

$$u'(C_{t+i}) = (\delta/R)i\lambda \tag{4}$$

Where consumption can be issued as a function of  $\lambda$  and r; specifically, when C increases, or stays or decreases every time where  $\lambda$  is less than, or equal to or greater than r.

If there is no government debt, G (government purchases) is equal to T (tax revenue) for each period. Also happens if the tax is lum sum, then the amount of the tax will vary every time. This situation will make each individual budget constraint become like the following equation

$$\sum_{i=0}^{\infty} (Y_{t+i} - T_{t+i})R^i = \sum_{i=0}^{\infty} R^i C_{t+i} \tag{5}$$

By replacing (2) and (5) the equation below will be obtained:  $u'(C_{t+i}) = (\delta/R)i\lambda$  (6)

The same as equation (4).

3) *Neo classical*: The second is the neoclassical group with the assumption that each individual has sufficient information, so that he can plan his lifetime consumption level. Their opinion of the budget deficit will increase consumption because the budget deficit will also increase long-term consumption patterns and taxes charged for the next generation. If resources are fully used, then an increase in consumption will reduce the savings rate so that interest rates will increase. This increase in interest will encourage a decline in private investment so that private investment is displaced (crowding-out effect). The Neo-classics argue that budget deficits are detrimental to economy [13].

Third, Keynesian believes that budget deficits affect the economy where economic actors have a short-term view (myopic), relations between generations are not tight, and not all markets are always in a position of balance [13]. According to them, the budget deficit will increase income, welfare and then consumption. The debt-financed budget deficit means that the tax burden in the present is relatively lighter, causing an increase in income that is ready to spend which will then trigger consumption increases and the demand side as a whole.

4) *Budget deficit and "crowding out effect"*: The impact of crowding out comes from decreasing investment and appreciating currency values, as a result of rising interest rates due to fiscal stimulus. Thus, the magnitude of the decrease in multiplier effects depends on the following matters: 26: First, the sensitivity of the investment to the interest rate. Second, the relationship between money demand and interest and income. In relation to this second factor, the greater the influence of the interest rate on the demand for cash, the

greater the impact of multipliers, but the higher the income. The three levels of economic openness and exchange rate system are used. Another factor that also affects crowding out is rational expectation.

The crowding out mathematical model can be described as follows using the model whose composition is like the following equation [4]:

$$\text{(Market Equilibrium)} Y \equiv NNP = C + I + G \quad (7)$$

$$\text{(Consumption Function)} C = C(Y - T, W) \quad (8)$$

$$\text{(Net Investment Function)} I = I(r) \quad (9)$$

$$\text{(Tax Function)} T = T(Y) \quad (10)$$

$$\text{(Demand for real balance)} M^d / P = L(r, Y, W) \quad (11)$$

$$\text{(Exogenous money supply)} M^s = M \quad (12)$$

$$\text{(Money Market Equilibrium)} M^s = M^d \quad (13)$$

$$\text{(Wealth)} W = K + M/P + V(r)/P \quad (14)$$

$V(r)$  here is the nominal market value of bonds that are supplied by the government. Which is often exchanged with government deficits, so it becomes

$$P[G - T(Y)] = \dot{B} + \dot{M} \quad (15')$$

Where  $B$  is the number of bonds. If it is assumed that each bond is paid \$ 1 each year, then the interest payment rate will be  $B$  so that the market value of the bond will be  $B / r$ . Thus the government budget can be written like the following equation

$$P[G + B - T] = \dot{B}/r + \dot{M} \quad (15)$$

The two processes in this model that need to be considered are first, the definition of wealth, namely  $B / r$  for  $V(r)$ . Second, consumption variables and taxes depend on personal income, which includes interest paid and benefits of the State; thus (2') and (4') become:

$C = C(Y + B - T, W)$  in equation (8) becomes  $T = T(Y + B)$  in equation (10).

So the first model discussed consists of equation (7) - (15) because the price level for all equations is fixed. But if the price level is made  $P = 1$  then the nine equations above will be reduced to just three equations, namely:

$$Y = C[Y + B - T(Y + B), M + B/r + K] + I(r) + G \quad (16)$$

$$M = L(r, Y, M + B/r + K) \quad (17)$$

$$\dot{M} + \dot{B}/r = G + B - T(Y + B) \quad (18)$$

Equations (16) and (17) are static IS and LM equations while equation (18) is an equilibrium model in which the money and bond stock changes.

**B. Discussion**

1) *Study of foreign debt:* The thoughts that support the foreign capital have a positive effect on domestic savings and import financing, have many challenges from other development economists. They concluded, that only a small portion of foreign capital had a positive effect on savings and economic growth, while most were used to increase

consumption [16]. In studies of the effect of foreign debt on savings and investment levels, there are several explanations but of all the explanations, the most important is the payment of installments and foreign debt interest has been burdensome, every installment payment and foreign debt interest clearly diverts funds that can be used as domestic investment due to this payment [16,17]. Meanwhile, uncertainty and declining incentives among private investors arise if, together with this, there is also a massive accumulation of foreign debt and awaiting payment in the years to come. This contains the absolute implications needed to warn the foreign debt burden. Then the massive payment of installments and foreign debt interest has pushed the government in developing countries with large debts to intensify tax revenues which is likely to hamper investment activities and cause capital flight. In the case of Indonesian debt, the principal installments and debt interest clearly show that the figure shows an upward trend since 2010 despite declining in 2011 and 2012. In 2014 the debt principal and interest were the highest paid by the government at 10.9 billion dollars. But then in the period of 2015 - 2017 the principal and interest paid slightly decreased, which was between 8.6 - 9.6 billion dollars.

Study by Sritua and Adi who took the study period between 1970 and 1986/87 by using Hojman's model to see the effects caused by the net flow of foreign capital coming in to fertilizing domestic investment and savings [1]. The results show that the net flow of foreign capital entering Indonesia does not have a large effect on overall domestic investment. This small positive role is solely due to the use of foreign capital to finance the import content of investments carried out, especially in the area of the country and the modern sector which is highly dependent on imports. [7,16,17]. This happens because the influx of foreign capital takes over the most profitable activities in the economy so that investment opportunities that can generate high profits become relatively scarce. Then there is a crowding-out effect that does not encourage the potential for domestic savings for investment purposes. Thus from the above explanation it is clear that foreign capital does not play a positive role in fertilizing domestic savings in Indonesia.

Another study using the logit model by Djatun, shows that the probability of scheduling Indonesia's foreign debt in 1988 reached 0.96, or slightly improved compared to 1987 which reached 0.97. This improvement was due to factors that showed the solvency of the Indonesian economy in financing debt payments having improved, although the debt service ratio (DSR) that reflected Indonesia's economic liquidity deteriorated. DSR Indonesia shows a trend that has always been increasing since 2005, from 17% up to 24% in 2006 and the highest lift was 46% in 2014 after previously touching 34.9% and 30.1% in 2012 and 2013 respectively. However, for the period 1980-1987, the debt-output ratio tended to increase. There is a positive correlation between the increase in the ratio of output debt and the state budget deficit. The APBN deficit encourages an increase in the need for financing deficits that

generally come from foreign debt. The APBN deficit has been clearly seen since 2008 at 0.08% of GDP and then increased to 1.58% in 2009. The peak is in 2016 and 2017 to become 2.49% and 2.51% of GDP respectively and this is the highest record since Indonesia's independence.

Another study was carried out by Radenet. In his study he suggested the existence of "triple shock" scenario that caused "negative external shock". These three factors are, first, the decline in the export growth rate of 4%, second, the increase in interest rates by 2%, and third, the appreciation of the yen against the dollar by 20%. He also projects that DSR will increase from 33% in 1993 to 45% in 1998. He estimates that Indonesia will experience a severe foreign debt crisis in the near future. And from the findings above Radelet suggested that the government take steps in overcoming the problem, which among other things was to prevent the government from investing in certain industrial sectors, especially in industries that use high-tech and capital intensive levels. However, this study received a rebuttal from who refused that Indonesia would experience a severe foreign debt crisis. Research conducted by Lana [2] shows that after the economic crisis of 1997-1998 the movement of public debt tended to be increasingly explosive so that the situation caused the government budget to become unsustainable.

Newer studies, not directly referring to foreign debt but are related to public debt and bonds and their relation to fiscal deficits can be seen as findings who see the impact budget deficit on interest rates. The budget deficit here of course must be financed by debt whether domestic or foreign debt. In line with this the findings from Lana [2] is also worth checking. Their findings reveal that an increase in the budget deficit of 1% of GDP will cause a rate increase of 2 to 7 basis points.

2) *Indonesian debt*: Jokowi rose as the 7th President (2014-2019) to replace SBY. At the end of 2015, central government debt rose to Rp 3,165.2 trillion or US \$ 229.44 billion. The debt to GDP ratio increased to 27.4 percent. The total outstanding government debt in 2016 rose again to Rp. 3,466.9 trillion, equivalent to US \$ 258.04 billion. The debt ratio is 27.5 percent of GDP. If we look at the debt history from the New Order era to the present, even though the value of debt rises, the ratio of Indonesian government debt to GDP is still far from the maximum limit stipulated in Law No. 17 of 2003 on State Finance of 60 percent, to GDP. Increased government debt due to intensified infrastructure development but low employment in the sector. That is, additional debt that will burden future generations has not been productive in terms of job creation. During the three years of President Joko Widodo's administration, only 134.6 thousand people were employed to work, even though infrastructure development was very intense.

Additional residents working in the construction sector in the first three years of SBY-Boediono (2010-2012) totalled 483.6 thousand people and in the first three years of SBY-JK (2005-2007) there were 94.9 thousand people. The construction

of toll road infrastructure for urban facilities, such as the construction of culverts, sidewalks, flat towers, and public facilities that absorb a lot of labour is not maximized. Bank Indonesia recorded in the final quarter of 2017, Indonesia's external debt reached 352.2 billion US dollars (around Rp. 4,769 trillion based on the JISDOR exchange rate of Rp. 13,541) or grew 10.1 percent compared to the same period in 2016 (yoy).

The largest increase in debt occurred in the period 2005-2009 and 2010-2014, which was 296.33% from Rp. 182.4 trillion rose to Rp. 722.9 trillion (SBY's period) in the period (2010-2014) and (2015-2018) the increase was 75.28%, from Rp. 722.9 trillion rose to Rp. 1,271.1 trillion (Jokowi era) and the total debt of the Republic of Indonesia until 2018 is Rp. 5,642 trillion. While based on remaining maturity, the total short-term external debt is higher at 15.96% compared to original maturity (9.8%) due to long-term external debt maturing in 2009. However, the debt service payment (DSP) of private external debt is 2009 was only 3.6% of GDP or lower than DSP 2008 which reached 6.95% of GDP<sup>2</sup>. In 2009, payment of Government and Private External Debt was made at 27.5 billion US dollars, consisting of principal and interest. In 2010 the total debt and interest principal payments amounted to 8.09 million US dollars and then decreased in 2011 and 2012 to 5.59 million dollars. But in 2013 and 2014 it rose again to 8.23 million dollars and 10.90 million dollars which was the peak of its payments. From 2015 to 2017 the numbers range from 8 to 9.5 million dollars. There was a slight decline from 2014.

## V. CONCLUSION

The main cause of the government budget deficit is due to an imbalance between state income and expenditure. Taxes on the one hand as sources of income are not sufficient to finance the country's economic activities as well as other sources of income. Every year the government must look for sources of deficit financing that occur and are usually carried out through state debt to both foreign (bilateral and multilateral) parties and by issuing securities in the form of domestic debt.

This debt then feels burdensome because the principal and the instalments must be paid while the income from the tax still remains inadequate. Finally, the government will add new debt in the days of Jokowi regime it reached its peak.

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The REH model is as follows. Suppose that each individual has access to the capital market in perfect competition. They maximize the utility function so that the equation becomes

$$U(t) = \sum_{i=0}^{\infty} u(C_{t+i})\delta^i \tag{1}$$

with the following budget constraints

$$\sum_{i=0}^{\infty} Y_{t+i} R^i = \sum_{i=0}^{\infty} C_{t+i} R^i \tag{2}$$

U as a utility function between times, u utility functions in the same time, C consumption, Y total income, time preference factor  $1 / (1 + \rho)$  where  $\rho$  time preference level and R is discount factor  $1 / (1 + r)$  with r is the real interest rate (which is assumed to be constant). The above model can be enriched by dividing income into human components so that the wage rate will vary over time.

Maximizing each individual's problem with the increase in income can be described with Langrage:

$$L = U(t) + \lambda (\sum_{i=0}^{\infty} Y_{t+i} R^i - \sum_{i=0}^{\infty} C_{t+i} R^i) \tag{3}$$

And maximize it to C, where  $\lambda$  is the Langrage product. The first derivative condition (with Euler's equation) is:

$$u'(C_{t+i}) = (\delta/R)i\lambda \tag{4}$$

Where consumption can be issued as a function of  $\lambda$  and r; specifically, when C increases, or stays or decreases every time where  $\lambda$  is less than, or equal to or greater than r.

If there is no government debt, G (government purchases) is equal to T (tax revenue) for each period. Also happens if the tax is lump sum, then the amount of the tax will vary every time. This situation will make each individual budget constraint become like the following equation

$$\sum_{i=0}^{\infty} (Y_{t+i} - T_{t+i})R^i = \sum_{i=0}^{\infty} R^i C_{t+i} \tag{5}$$

By replacing (2) and (5) the equation below will be obtained:  $u'(C_{t+i}) = (\delta/R)i\lambda$  (6)

The same as equation (4).

3) *Neo classical*: The second is the neoclassical group with the assumption that each individual has sufficient information, so that he can plan his lifetime consumption level. Their opinion of the budget deficit will increase consumption because the budget deficit will also increase long-term consumption patterns and taxes charged for the next generation. If resources are fully used, then an increase in consumption will reduce the savings rate so that interest rates will increase. This increase in interest will encourage a decline in private investment so that private investment is displaced (crowding-out effect). The Neo-classics argue that budget deficits are detrimental to economy [13].

Third, Keynesian believes that budget deficits affect the economy where economic actors have a short-term view (myopic), relations between generations are not tight, and not all markets are always in a position of balance [13]. According to them, the budget deficit will increase income, welfare and then consumption. The debt-financed budget deficit means that the tax burden in the present is relatively lighter, causing an increase in income that is ready to spend which will then trigger consumption increases and the demand side as a whole.

4) *Budget deficit and "crowding out effect"*: The impact of crowding out comes from decreasing investment and appreciating currency values, as a result of rising interest rates due to fiscal stimulus. Thus, the magnitude of the decrease in multiplier effects depends on the following matters: 26: First, the sensitivity of the investment to the interest rate. Second, the relationship between money demand and interest and income. In relation to this second factor, the greater the influence of the interest rate on the demand for cash, the

greater the impact of multipliers, but the higher the income. The three levels of economic openness and exchange rate system are used. Another factor that also affects crowding out is rational expectation.

The crowding out mathematical model can be described as follows using the model whose composition is like the following equation [4]:

$$\text{(Market Equilibrium)} Y \equiv \text{NNP} = C + I + G \quad (7)$$

$$\text{(Consumption Function)} C = C(Y - T, W) \quad (8)$$

$$\text{(Net Investment Function)} I = I(r) \quad (9)$$

$$\text{(Tax Function)} T = T(Y) \quad (10)$$

$$\text{(Demand for real balance)} M^d / P = L(r, Y, W) \quad (11)$$

$$\text{(Exogenous money supply)} M^s = M \quad (12)$$

$$\text{(Money Market Equilibrium)} M^s = M^d \quad (13)$$

$$\text{(Wealth)} W = K + M/P + V(r)/P \quad (14)$$

$V(r)$  here is the nominal market value of bonds that are supplied by the government. Which is often exchanged with government deficits, so it becomes

$$P[G - T(Y)] = \dot{B} + \dot{M} \quad (15^*)$$

Where  $B$  is the number of bonds. If it is assumed that each bond is paid \$ 1 each year, then the interest payment rate will be  $B$  so that the market value of the bond will be  $B/r$ . Thus the government budget can be written like the following equation

$$P[G + B - T] = \dot{B}/r + \dot{M} \quad (15)$$

The two processes in this model that need to be considered are first, the definition of wealth, namely  $B/r$  for  $V(r)$ . Second, consumption variables and taxes depend on personal income, which includes interest paid and benefits of the State; thus (2') and (4') become:

$C = C(Y + B - T, W)$  in equation (8) becomes  $T = T(Y + B)$  in equation (10).

So the first model discussed consists of equation (7) - (15) because the price level for all equations is fixed. But if the price level is made  $P = 1$  then the nine equations above will be reduced to just three equations, namely:

$$Y = C[Y + B - T(Y + B), M + B/r + K] + I(r) + G \quad (16)$$

$$M = L(r, Y, M + B/r + K) \quad (17)$$

$$\dot{M} + \dot{B}/r = G + B - T(Y + B) \quad (18)$$

Equations (16) and (17) are static IS and LM equations while equation (18) is an equilibrium model in which the money and bond stock changes.

## B. Discussion

1) *Study of foreign debt:* The thoughts that support the foreign capital have a positive effect on domestic savings and import financing, have many challenges from other development economists. They concluded, that only a small portion of foreign capital had a positive effect on savings and economic growth, while most were used to increase

consumption [16]. In studies of the effect of foreign debt on savings and investment levels, there are several explanations but of all the explanations, the most important is the payment of installments and foreign debt interest has been burdensome, every installment payment and foreign debt interest clearly diverts funds that can be used as domestic investment due to this payment [16,17]. Meanwhile, uncertainty and declining incentives among private investors arise if, together with this, there is also a massive accumulation of foreign debt and awaiting payment in the years to come. This contains the absolute implications needed to warn the foreign debt burden. Then the massive payment of installments and foreign debt interest has pushed the government in developing countries with large debts to intensify tax revenues which is likely to hamper investment activities and cause capital flight. In the case of Indonesian debt, the principal installments and debt interest clearly show that the figure shows an upward trend since 2010 despite declining in 2011 and 2012. In 2014 the debt principal and interest were the highest paid by the government at 10.9 billion dollars. But then in the period of 2015 - 2017 the principal and interest paid slightly decreased, which was between 8.6 - 9.6 billion dollars.

Study by Sritua and Adi who took the study period between 1970 and 1986/87 by using Hojman's model to see the effects caused by the net flow of foreign capital coming in to fertilizing domestic investment and savings [1]. The results show that the net flow of foreign capital entering Indonesia does not have a large effect on overall domestic investment. This small positive role is solely due to the use of foreign capital to finance the import content of investments carried out, especially in the area of the country and the modern sector which is highly dependent on imports. [7,16,17]. This happens because the influx of foreign capital takes over the most profitable activities in the economy so that investment opportunities that can generate high profits become relatively scarce. Then there is a crowding-out effect that does not encourage the potential for domestic savings for investment purposes. Thus from the above explanation it is clear that foreign capital does not play a positive role in fertilizing domestic savings in Indonesia.

Another study using the logit model by Djatun, shows that the probability of scheduling Indonesia's foreign debt in 1988 reached 0.96, or slightly improved compared to 1987 which reached 0.97. This improvement was due to factors that showed the solvency of the Indonesian economy in financing debt payments having improved, although the debt service ratio (DSR) that reflected Indonesia's economic liquidity deteriorated. DSR Indonesia shows a trend that has always been increasing since 2005, from 17% up to 24% in 2006 and the highest lift was 46% in 2014 after previously touching 34.9% and 30.1% in 2012 and 2013 respectively. However, for the period 1980-1987, the debt-output ratio tended to increase. There is a positive correlation between the increase in the ratio of output debt and the state budget deficit. The APBN deficit encourages an increase in the need for financing deficits that

generally come from foreign debt. The APBN deficit has been clearly seen since 2008 at 0.08% of GDP and then increased to 1.58% in 2009. The peak is in 2016 and 2017 to become 2.49% and 2.51% of GDP respectively and this is the highest record since Indonesia's independence.

Another study was carried out by Radenet. In his study he suggested the existence of "triple shock" scenario that caused "negative external shock". These three factors are, first, the decline in the export growth rate of 4%, second, the increase in interest rates by 2%, and third, the appreciation of the yen against the dollar by 20%. He also projects that DSR will increase from 33% in 1993 to 45% in 1998. He estimates that Indonesia will experience a severe foreign debt crisis in the near future. And from the findings above Radelet suggested that the government take steps in overcoming the problem, which among other things was to prevent the government from investing in certain industrial sectors, especially in industries that use high-tech and capital intensive levels. However, this study received a rebuttal from who refused that Indonesia would experience a severe foreign debt crisis. Research conducted by Lana [2] shows that after the economic crisis of 1997-1998 the movement of public debt tended to be increasingly explosive so that the situation caused the government budget to become unsustainable.

Newer studies, not directly referring to foreign debt but are related to public debt and bonds and their relation to fiscal deficits can be seen as findings who see the impact budget deficit on interest rates. The budget deficit here of course must be financed by debt whether domestic or foreign debt. In line with this the findings from Lana [2] is also worth checking. Their findings reveal that an increase in the budget deficit of 1% of GDP will cause a rate increase of 2 to 7 basis points.

2) *Indonesian debt*: Jokowi rose as the 7th President (2014-2019) to replace SBY. At the end of 2015, central government debt rose to Rp 3,165.2 trillion or US \$ 229.44 billion. The debt to GDP ratio increased to 27.4 percent. The total outstanding government debt in 2016 rose again to Rp. 3,466.9 trillion, equivalent to US \$ 258.04 billion. The debt ratio is 27.5 percent of GDP. If we look at the debt history from the New Order era to the present, even though the value of debt rises, the ratio of Indonesian government debt to GDP is still far from the maximum limit stipulated in Law No. 17 of 2003 on State Finance of 60 percent, to GDP. Increased government debt due to intensified infrastructure development but low employment in the sector. That is, additional debt that will burden future generations has not been productive in terms of job creation. During the three years of President Joko Widodo's administration, only 134.6 thousand people were employed to work, even though infrastructure development was very intense.

Additional residents working in the construction sector in the first three years of SBY-Boediono (2010-2012) totalled 483.6 thousand people and in the first three years of SBY-JK (2005-2007) there were 94.9 thousand people. The construction

of toll road infrastructure for urban facilities, such as the construction of culverts, sidewalks, flat towers, and public facilities that absorb a lot of labour is not maximized. Bank Indonesia recorded in the final quarter of 2017, Indonesia's external debt reached 352.2 billion US dollars (around Rp. 4,769 trillion based on the JISDOR exchange rate of Rp. 13,541) or grew 10.1 percent compared to the same period in 2016 (yoy).

The largest increase in debt occurred in the period 2005-2009 and 2010-2014, which was 296.33% from Rp. 182.4 trillion rose to Rp. 722.9 trillion (SBY's period) in the period (2010-2014) and (2015-2018) the increase was 75.28%, from Rp. 722.9 trillion rose to Rp. 1,271.1 trillion (Jokowi era) and the total debt of the Republic of Indonesia until 2018 is Rp. 5,642 trillion. While based on remaining maturity, the total short-term external debt is higher at 15.96% compared to original maturity (9.8%) due to long-term external debt maturing in 2009. However, the debt service payment (DSP) of private external debt is 2009 was only 3.6% of GDP or lower than DSP 2008 which reached 6.95% of GDP. In 2009, payment of Government and Private External Debt was made at 27.5 billion US dollars, consisting of principal and interest. In 2010 the total debt and interest principal payments amounted to 8.09 million US dollars and then decreased in 2011 and 2012 to 5.59 million dollars. But in 2013 and 2014 it rose again to 8.23 million dollars and 10.90 million dollars which was the peak of its payments. From 2015 to 2017 the numbers range from 8 to 9.5 million dollars. There was a slight decline from 2014.

## V. CONCLUSION

The main cause of the government budget deficit is due to an imbalance between state income and expenditure. Taxes on the one hand as sources of income are not sufficient to finance the country's economic activities as well as other sources of income. Every year the government must look for sources of deficit financing that occur and are usually carried out through state debt to both foreign (bilateral and multilateral) parties and by issuing securities in the form of domestic debt.

This debt then feels burdensome because the principal and the instalments must be paid while the income from the tax still remains inadequate. Finally, the government will add new debt in the days of Jokowi regime it reached its peak.

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