Indonesian government's primary balance and debt

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui kondisi keberlanjutan fiskal di Indonesia dengan menganalisis pengaruh hutang pemerintah terhadap keseimbangan primer untuk periode 1980 sampai 2018. Untuk itu, penelitian ini menganalisis data dengan menggunakan metode Autoregressive Distributed Lag (ARDL). Hasil penelitian menunjukkan bahwa dalam jangka panjang, hutang pemerintah berpengaruh positif pada keseimbangan primer. Hal ini dapat terjadi karena pemerintah cenderung mempertahankan suku bunga pinjaman pada tingkat yang rendah untuk merangsang ekonomi demi mempercepat peningkatan pendapatan pajak. Selain itu, berdasarkan kondisi Bohn, kebijakan fiskal di Indonesia tergolong dalam kebijakan yang berkelanjutan. Namun demikian, dalam jangka pendek ditemukan efek hutang pemerintah yang negatif pada keseimbangan primer karena beberapa faktor, seperti upaya dan pendapatan pajak yang tidak optimal, penggunaan utang yang tidak produktif, dan pengeluaran modal yang relatif rendah. Secara keseluruhan, hasil penelitian ini menyarankan pemerintah Indonesia untuk mengkompensasi kurangnya faktor penyeimbang utang yang semakin meningkat dengan berbagai langkah, seperti intensifikasi dan ekstensifikasi perpajakan atau meningkatkan pengeluaran pemerintah di sektor-sektor yang produktif.

ABSTRACT

This study aims to determine the Indonesian fiscal sustainability condition by analyzing the impact of government debt on primary balance for the 1980-2018 period. Accordingly, we analyze the research data by using the Autoregressive Distributed Lag (ARDL) method. The results show that government debt has a significant and positive effect on primary balance, likely because the government intends to stimulate the economy and boost tax revenues by keeping debt interest rates low. Therefore, based on Bohn's condition, Indonesia exhibits sustainable fiscal policies. However, in the short run, government debt negatively affects primary balance due to several factors, such as suboptimal tax efforts and revenue growth,

unproductive use of debts, and relatively low capital expenditures. In sum, our research results recommend that the Indonesian government considers various policies that likely offset increased debts, such as intensifying and extending tax efforts to increase tax revenues and increase government spending in various productive sectors.

INTRODUCTION

Debt is frequently an alternative for countries' economic development. However, debt also potentially leads to economic crises as experienced by some European Union member countries (Greece, Portugal, Ireland, Spain, and Cyprus) when they could not pay or refinance their government debt due to unsustainable fiscal policies. At certain debt levels, their primary balances stopped adjusting because countries could no longer improve their primary balances in response to rising debt. The notion of fiscal sustainability demonstrates the government's ability to finance its budget without excessive debt accumulation in the long-run. Governments must be able to pay their debts in the future (Camarero et al., 2015).

Unsustainable fiscal policies potentially harm countries' welfare through large fiscal deficits and excessive government debt accumulation, resulting in inefficient resource allocation and excessive government debt, which can burden future generations. Poor fiscal policy performance and high fiscal risk-taking behavior result in declining fiscal quality, budget bankruptcy, and the possibility of a financial crisis (Bostan et al., 2018). Buiter (2004) also emphasized possible consequences of fiscal unsustainability: government spendings (tax revenues) that are lower (higher) than expected, higher inflation rate, and sovereign debt default. Implementing unsustainable fiscal policies can exacerbate economic conditions and increase vulnerability to unexpected shocks. Therefore, from a macroeconomic stability perspective, countries need to pursue sustainable fiscal policies in the long-run.

A time-series analysis of government debt data as developed by Hamilton and Flavin (1986) or by Trehan and Walsh (1991) through cointegration analysis for the government income and expenditure variables is an approach to investigate fiscal sustainability. In its development, Bohn (1998) proposed an alternative approach based on the fiscal reaction function to the relationship between primary balance and the debt ratio to GDP. The basic idea was to verify fiscal authorities' response to the marginal effect of debt ratio on GDP in the formation of primary balance. Bohn's approach further suggests that a positive reaction of primary balance to a debt increase is sufficient for governments to meet intertemporal budget constraints and ensure fiscal policy sustainability. Additionally, Bohn's approach is considered flexible because it includes other variables into its basic function as the control variables (Campos & Cysne, 2019).

Mendoza and Ostry (2008) emphasized three main features of Bohn's

approach. First, it does not require assumptions about debt management, due date or debt denomination structure, and debtholders' residence. Second, it is valid regardless of either debt and primary balances are measured at constant or current prices, in levels, or as a part of GDP. Also, it does not require explicit knowledge of fiscal policy rules or the portfolios of public debt instruments, and it disregards the nationality of debtholders (domestic vs. foreign). Third, it does not require knowledge of specific government policies on debt, taxes, and expenditures. The framework of Bohn's approach focuses on whether countries actually reduce the likelihood of a future debt crisis or simply riding benign growth waves. Baldi and Staehr (2016) argued that a fiscal reaction function is an important instrument to ensure governments' fiscal attitude patterns. The fiscal reaction function analysis measures long-run fiscal sustainability more usefully and reliably based on actual objective data (Sarangi & El-Ahmadieh, 2017).

Several empirical studies on fiscal sustainability have been carried out for various countries, in Europe such as France, Germany, Ireland, Portugal, Spain, Italy, and Greece (Fincke & Greiner, 2011), then in Asia such as Japan (Doi et al., 2011; Sakuragawa & Hosono, 2011), China (Cuestas & Regis, 2018), India (Pradhan, 2014), Vietnam (Hoai et al., 2015) and Indonesia (Kurniawan, 2015; Lestari, 2014; Solikin & Choirunnisah, 2019). Fincke and Greiner (2011) adopted the strategy proposed by Bohn (1998) by investigating how the primary balance responded to debt ratio changes. Among the seven European countries in the sample (France, Germany, Ireland, Portugal, Spain, Italy, and Greece), only Italy and Greece's fiscal policies were sustainable. Similarly, Kurniawan (2015) and Solikin and Choirunnisah (2019) found a positive relationship between primary balance and debt in Indonesia. In Japan's case, it was indicated that the primary balance did not respond to the debt ratio increase (Doi et al., 2011). If the Japanese government did not take corrective actions against the country's fiscal crisis, the debt ratio experienced a significant spike (Sakuragawa & Hosono, 2011). In China, the government needed to remain cautious of the possible fiscal unsustainability after 2014 (Cuestas & Regis, 2018). Similarly, Vietnam's fiscal policies were identified as unsustainable for 1990–2013 (Hoai et al., 2015).

Indonesia's fiscal sustainability deserves special attention because the actual data of the ratio of primary balance and government debt to national income (GDP) exhibits interesting trends in recent years (see Figure 1a and Figure 1b). Figure 1a describes the value of the ratio of government debt to GDP, which appeared to have an increasing trend, especially in the last ten years. Meanwhile, Figure 1b presents the value of the ratio of primary balance to GDP, which tended to fluctuate in the last five years when the value had reached a negative number. Although the ratio of government debt to GDP in Indonesia was still around 30 percent and lower than other countries, it could still threaten fiscal sustainability (Reinhart et al., 2003). This situation would reduce the usable debt limit due to a weak fiscal structure and financial system (Bui, 2019).

(a) Government Debt to GDP Ratio

(b) Primary Balance Ratio to GDP

Figure 1**The ratio of Government Debt and Primary Balance to Indonesia's GDP**

Source: International Monetary Fund, compilde (2020a and 2020b)

This study examines Indonesia's fiscal sustainability by applying Bohn's fiscal reaction function. The primary balance response was investigated by including the effects of debt fluctuation and several other macroeconomic variables in the analysis as the control variables. Indonesia relies heavily on debt as the development fund source and exhibits increasing debt ratio growth and less stable primary balance ratio growth. Hence, it offers an interesting research setting to understand better the relationship between debt and primary balance in developing countries.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Primary Balance and Fiscal Sustainability

Primary balance becomes the focus of fiscal sustainability. It is derived by deducting total state income with state spending (excluding debt interest payments). Primary balance will be positive (surplus) when total state income is greater than state expenditures, excluding debt interest payments, implying sufficient funds available to pay debt interest. Contrariwise, when total state income is smaller than its expenditures excluding debt interest payments, primary balance will be negative (deficit), suggesting insufficient funds available to pay debt interest. In other words, part of or all debt interests is paid by making new debts.

Fiscal sustainability confirms government budget constraints that suggest that an economy's current debt levels must equal the surplus-value of future primary balance. Bohn (1998) suggests an alternative model-based approach to fiscal sustainability. Governments need to take corrective steps to respond to deteriorated debt positions and increased debt ratios that lead to higher primary surpluses relative to GDP, indicating a trend toward average returns. Thus, feedbacks from using stable debts and the positive effect of debt on primary balance are ideal conditions for fiscal sustainability. Bohn's fiscal reaction function is a simple form of the government's budget constraint function with the following formula:

$$s_t = \alpha d_{t-1} + \varepsilon \dots\dots\dots 1$$

The equation exploits the relationship between debt (d_t) and primary surplus (s_t), where government debt must equal tax revenues minus non-interest government spending. When estimating the fiscal reaction function, the main tested hypothesis is that the government should respond to an increase in its debt by adjusting its primary surplus or, equally, reducing its deficit. The positive coefficient of d_{t-1} implies that the presence of negative shocks increases the debt-to-GDP ratio, leading to an increase in primary surplus, ensuring compliance with inter-time budget constraints. Thus, fiscal policy is considered to be sustainable.

Hypothesis Development

The Relationship between Debt and Primary Balance

A large debt increase can ultimately lead to suppressed economic activities because of increased counterproductive activities to finance debt-related expenditures, including excessive tax revenue increase targets and reduced government investments to facilitate repayments (Reinhart et al., 2012). Ofori-abebrese and Pickson (2018) argue that current debt use always implies increased future taxation activities.

According to Elmendorf and Mankiw (1999), increased debts will reduce national income in the long-run and can have a certain effect on primary balance. Increased government debts result in higher interest rates, thereby increasing the

returns required for personal loans and reducing capital investment. Further, lower capital stocks reduce the economy's productive capacity and eventually reduce future state income (Bohn, 2011).

H1: Government debt affects the primary balance.

Bohn's Condition

Bohn (1998) concludes that governments should respond to the debt increase by increasing primary balance to cover the excess caused by real interest rates higher than real growth rates to prevent excess debt accumulation. Fincke and Greiner (2011) adopt the strategy by investigating how primary balance responds to debt ratios changes. Their analysis of seven European countries (France, Germany, Ireland, Portugal, Spain, Italy, and Greece) reveals that Greece and Italy's fiscal policies are unsustainable. Mendoza and Ostry (2008) analyze developed and developing countries' fiscal reaction functions and find that primary balance reacts more strongly to government debt changes than developed ones. The research of fifteen European countries by Afonso (2005) shows that most of these governments experience unsustainable fiscal policies, although their debt ratios have been relatively stable since the late 1990s. In particular, Germany, the Netherlands, Finland, Austria, and the UK have the most unsustainable policy problems.

Kurniawan (2015) and Solikin and Choirunnisah (2019) examines the sustainability of Indonesia fiscal policy and found a positive relationship between primary balance and debt in Indonesia. Baharumshah et al. (2017) analyze the sustainability of Malaysia's fiscal policy during 1980-2014. The results demonstrate that policymakers have followed a sustainable fiscal policy scheme. Burger et al. (2012) document that the South African government has reacted to increased debt levels by reducing its primary deficits and implementing sustainable fiscal policies. Based on the above descriptions, the following hypothesis can be formulated:

H2: The government debt coefficient > 0 (sustainable fiscal policy).

The Relationship between Exchange Rate and Primary Balance

Obeng (2018) explains that exchange rate fluctuations will increase the risk of inter-country trade, leading to decreased tax revenues. Consequently, monetary authorities need to stabilize prices to reduce tax revenues (Ofori et al., 2018). According to Kitessa and Jewaria (2018), exchange rate appreciation directly affects goods or services exports and imports and eventually reduces tax revenues from international trade activities. Kitessa and Jewaria (2018) add that exchange rate fluctuations also indirectly affect tax revenues through (i) reducing the incentives to produce goods for exports, (ii) increasing capital flight and currency substitution, (iii) weakening payment balance position, (iv) creating black markets, and (v) increasing

trade restrictions. Meanwhile, exchange rate appreciations will decrease the future production of exported goods and reduce income tax on exported goods Kitessa and Jewaria (2018). Thus, exchange rate appreciations will negatively affect countries' primary balance positions.

H3: Exchange rate affects primary balance.

The Relationship between Inflation and Primary Balance

Inflation refers to continuous and general price increases. Ghosh et al. (2011); Berti et al. (2016) and Fournier and Fall (2017) find that inflation positively affects primary balance, and increased inflation has a stronger impact on tax revenues than on government spendings. In this respect, higher inflation rates are often associated with wage increases that enable governments to increase income and value-added taxes because of household consumption growth.

H4: Inflation affects primary balance.

The Relationship between Current Account Balance and Primary Balance

Current account balance is the sum of total net exports of goods and services, net primary income, and net secondary income. The scarcity of domestic resources will encourage countries to rely on foreign financing in funding their economic growth (Lonevskiy & Klimaitis, 2019). The depressed position of current account balance indicates reduced funds available in the country, which can hold back the domestic economic growth and stimulate primary balance decline (Afonso & Opoku, 2018). Severe current account balance positions arguably disrupt economic growth or increase debt which will burden government budgets and lead to budget deficits (Kalou & Paleologou, 2012).

H5: Current account balance affects primary balance.

The Relationship between Total Investments and Primary Balance

Total investments refer to the total value of fixed asset addition and net changes in inventory levels. Taraki and Arslan (2019) argue that capital formation will increase job opportunities and accelerate technological development that will eventually help the economy to achieve economies of scale in production activities. Total investment growth will significantly affect production specialization's development activities and improve the quality of human resources. Hence, income level and ability to pay taxes will arguably increase. These consequences of increased total investments will positively affect primary balance.

H6: Total investments affect primary balance.

The Relationship between the Asian Financial Crisis and Primary Balance

The 1998 Asian financial crisis shock the Asian economy. This crisis likely reduced Indonesia's primary balance. Capital flight, tight banking liquidity, and increased interest rates easily reduced primary balance and increased the financing costs of government debt securities issuance. Checherita-Westphal and Žďárek (2017) empirically demonstrates that financial crises negatively affect primary balance.

H7: The Asian financial crisis affects primary balance.

RESEARCH METHODS

Data Types and Sources

This study used the 1980-2018 annual secondary data (time series) from the World Bank, International Monetary Fund (IMF), and Indonesian Ministry of Finance. The variables investigated were Primary Balance (PB), Government Debt (Debt), Current Account (CAB), Inflation, Total Investment (TI), and the Asian Financial Crisis (AFC).

Estimation Method

We used the Autoregressive Distributed Lag (ARDL) Bound. ARDL Bound is a cointegration approach to test the presence of a long-term balance in the economic system. Widarjono (2018) and Guan et al. (2015) propose the following procedure to apply ARDL Bound: first, ensuring that the variables are integrated into I (0) or I (1) and cannot be more than I (1) to reduce the possibility of obtaining biased results; second, performing a bound test to check the existence of a cointegration relationship between variables by comparing the F-statistic value with the critical value of lower and upper limits. The F-statistical value that is higher than the upper limit indicates a cointegration relationship and vice versa. However, the cointegration relationship cannot be concluded if the F-statistical value is between upper and lower limits. Lastly, the final step develops the long and short-run estimations on the research variables.

This study analyzes the relationship between government debt ratio, transaction balance, inflation, total investments, and the Asian financial crisis and Indonesia's primary balance by referring to Schoder (2014) with the following general form of the ARDL equation:

$$\begin{aligned} \Delta PB_t = & \beta_0 + \sum_{i=1}^p \beta_{1i} \Delta PB_{t-i} + \sum_{i=1}^p \beta_{2i} \Delta Debt_{t-i} + \sum_{i=1}^p \beta_{3i} \Delta CAB_{t-i} + \sum_{i=1}^p \beta_{4i} \Delta TI_{t-i} + \\ & \sum_{i=1}^p \beta_{5i} \Delta ER_{t-i} + \sum_{i=1}^p \beta_{6i} \Delta Inflation_{t-i} + \beta_7 PB_{t-1} + \beta_8 Debt_{t-1} + \beta_9 CAB_{t-1} + \\ & \beta_{10} TI_{t-1} + \beta_{11} ER_{t-1} + \beta_{12} Inflation_{t-1} + \beta_{13} AFC_t + \varepsilon_t \dots\dots\dots 2 \end{aligned}$$

where Δ is a form of the first difference, β_1 to β_6 coefficients are short-run dynamic relationship models, and β_7 to β_{13} coefficients are long-term dynamic relationship models. The long-run equilibrium relationship is tested by the F-statistic of the long-

run variable parameters in Equation (2). The p symbol indicates the lag length, where the optimal lag in the model is determined by Schwartz Information Criterion (SIC). Following Chandio et al. (2019), we formulate the following error correction model from equation (2) to obtain short-run coefficients:

$$\Delta PB_t = \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta PB_{t-i} + \sum_{i=1}^p \alpha_{2i} \Delta Debt_{t-i} + \sum_{i=1}^p \alpha_{3i} \Delta CAB_{t-i} + \sum_{i=1}^p \alpha_{4i} \Delta TI_{t-i} + \sum_{i=1}^p \alpha_{5i} \Delta ER_{t-i} + \sum_{i=1}^p \alpha_{6i} \Delta Inflation_{t-i} + \alpha_7 AFC_t + \alpha_8 ECT + \varepsilon_t \dots\dots\dots 3$$

where PB is primary balance, ER refers to Rupiah/US\$ exchange rate; Debt is government's debt ratio; CAB is current account; TI represents total investments, AFC is the Asian Financial Crisis, ECT is the error correction term, and ε_t is the error term.

Operationalization of Variables

Our dependent variable is primary balance (PB) that refers to realized state revenues minus realized state expenditures, excluding the payment of debt interest expense and the principal installments of government debts. The data for this variable was obtained from the State Budget Financial Note of the Indonesia Republic and deflated with GDP.

The main independent variable in this study was government debt (Debt), as the source of additional government funds, both domestic and foreign, in the form of state debt. Governments use this funding source because they fail to generate sufficient funds. Data were divided by GDP. Bohn's condition suggests that the coefficient values of government debts to primary balance measure fiscal sustainability. Fiscal policies are considered sustainable when the coefficient of debt to GDP (β_2) > 0.

We used five additional independent variables: inflation, current account balance, exchange rates, total investments, and the Asian financial crisis. Inflation was measured with the average inflation growth in one period and expressed in percent units. Current account balance (CAB) represented the total amount of net exports regarding goods and services, net primary income, and net secondary income. This variable was measured as GDP percentage. Next, exchange rates (ER) referred to legally approved exchange rates and was measured on an annual average basis. Further, total investments (IT) represented the total values from the addition of economic fixed assets with the net changes in inventory levels. In this study, fixed assets included land improvements; purchases of factories; machinery; equipment; road construction, railways; and other assets, including schools, offices, hospitals, private residences, commercial or industrial buildings; and inventory changes. The investment variables were divided by GDP. Lastly, the Asian financial crisis (AFC) represents the shocks experienced by the Asian economy in 1998. In this study, the financial crisis was a dummy variable that equals one if the observation year is 1997-1998 and zero otherwise.

ANALYSIS AND DISCUSSION

Applying the ARDL method does not require time-series data to be fully integrated into $I(0)$ or $I(1)$. However, the level of data stationarity should not exceed $I(1)$ as the results may be biased to $I(2)$. Consequently, the stationarity test must be applied to all time-series data before using the bound cointegration test. In this respect, the data stationarity test was performed with the Augmented Dickey-Fuller (ADF) test. Table 1 displays the findings of the stationarity test. All variables in the study were not stationary at the level stage and stationary at the first difference level except for the inflation variable. Based on the stationary test, it was found that the variables underlying this study were stationary at levels $I(0)$ and $I(1)$, so the ARDL model could be applied.

We then ensured that there was a cointegration relationship in the model by using the Bound Cointegration test. The Bound Cointegration Test was used to examine the existence of long-term associations between government debt, the balance of transactions, inflation, total investments, the Asian financial crisis, and Indonesia's primary balance. The null hypothesis of no cointegration relationship will be supported when the F-statistical value is smaller than the lower bound and will be rejected when the F-statistical value is greater than the upper bound. The results were inconclusive when the F-statistic was between the upper and lower limits. As shown in Table 2, the bound cointegration test results in an F-Statistical value of 18.08 that was greater than the upper bound at a 1 percent significance level. These results rejected the null hypothesis and empirically demonstrated long-term relationships between government debt, the balance of transactions, inflation, total investment, the Asian financial crisis, and Indonesia's primary balance.

Table 1
Stationarity Test

Variable	Prob.	Result
<i>PB</i>	0.000	Stationary at $I(1)$
<i>Debt</i>	0.003	Stationary at $I(1)$
<i>ER</i>	0.000	Stationary at $I(1)$
<i>TI</i>	0.000	Stationary at $I(1)$
<i>CAB</i>	0.001	Stationary at $I(1)$
<i>Inflation</i>	0.001	Stationary at $I(0)$

Source: processed data (2020)

Table 2
Bound Cointegration Test

<i>F-Bounds Test</i>		<i>Null Hypothesis: No level relationship</i>		
<i>Test Statistic</i>	<i>Value</i>	<i>Sig.</i>	<i>I(0)</i>	<i>I(1)</i>
<i>F-statistic</i>	17.424	10%	2.26	3.35
		5%	2.62	3.79
		2.5%	2.96	4.18
		1%	3.41	4.68

Source: processed data (2020)

After passing the bound cointegration test, long-term estimates and short-run

adjustments could be made. Before further analysis (both short and long-run), an important indicator had to be considered, namely the error correction term (ECT). The error correction term value was negative and significant (-0.905), implying that the difference between the actual primary balance (PB) value and equilibrium value of 0.905 would be adjusted in about one year.

Table 3 presents the estimation results. This table shows that the government debt variable had a significant negative effect on Indonesia's primary balance in the short and long-run. Similar research results occurred in several countries in Asia, such as Japan (Doi et al., 2010; Sakuragawa & Hosono, 2011), China (Cuestas & Regis, 2018), India (Pradhan, 2014), and Vietnam (Hoai et al., 2015). According to Adrangi and Easton (1993), governments' decision to finance countries' deficits by increasing debt (assuming that loan supply is fixed) is risky because it increases interest rates. Higher interest rates will reduce private investments and, in turn, can suppress economic growth. Consequently, governments may not realize their potential revenues optimally. In general, slower economic growth will also worsen fiscal challenges because declining revenues in various sectors will pressure tax revenue sources and make the budget more unbalanced in the following period. Governments' tendency to focus more on consumptive rather than productive expenditures also causes unsustainable fiscal policies (Hakhu, 2010).

Table 3
Estimation Results of ARDL Model (Dependent Variable: PB)

<i>ARDL Short-Run</i>			
<i>Variable</i>	<i>Coefficient</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	-9.722	-11.761	0.000
ΔPB_{t-1}	0.097	1.273	0.224
ΔPB_{t-2}	-0.349	-3.946	0.002
ΔPB_{t-3}	0.284	3.503	0.004
$\Delta Debt$	0.025	1.004	0.332
$\Delta Debt_{t-1}$	-0.158	-5.863	0.000
ΔCAB	-0.245	-3.242	0.006
ΔER	-0.001	-7.552	0.000
ΔER_{t-1}	-0.001	-3.566	0.003
ΔER_{t-2}	-0.001	-5.375	0.000
$\Delta Inflation$	0.216	8.137	0.000
$\Delta Inflation_{t-1}$	-0.199	-6.839	0.000
$\Delta Inflation_{t-2}$	-0.042	-2.643	0.019
ΔTI	0.124	3.841	0.002
AFC	-0.383	-0.888	0.390
ECT(-1)	-0.945	-11.912	0.000
<i>ARDL Long-Run</i>			
<i>Variable</i>	<i>Coefficient</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>Debt</i>	0.051	3.194	0.007
CAB	-0.679	-4.310	0.001
ER	0.000	2.662	0.019
Inflation	0.624	4.753	0.000
TI	0.092	2.040	0.061

Source: processed data (2020)

According to Lau and Syn-Yee (2018), unsustainable fiscal policy is likely affected by low tax efforts. Figure 2 informs that Indonesia's taxation growth has frequently been lower than interest payment increase. The money spent to finance debt was higher than the return obtained from the use of debt itself. Hence, government debt would continue to increase in the next period. Such a continuous increase will burden Indonesia because it is more costly to pay the debt. However, seeing the slope of the growth curve of tax revenue which is steeper than the growth curve of interest payments, in the long-run tax growth has the potential to exceed the growth rate of interest payments which leads to an improvement in the position of the primary balance. This is in line with the positive coefficient of debt in the long-run where the government takes responsive action to offset the increase in debt by reducing expenditure or increasing revenue in the long-run. In addition, as debt grows, Indonesia tends to keep lending rates at low levels to stimulate the economy to generate tax revenue. Lower interest rates will encourage individuals and businesses to borrow money, which in turn will trigger higher levels of consumption and investment. The condition brings a positive impact on creating job opportunities and increasing tax revenue.

The performance of Indonesia's debt utilization shows a situation that is relatively safe for present and future generations from unnecessary tax burdens from the government. Indonesia also still has room to use more debt to finance development followed by prudent, effective and efficient debt management. However, it should be noted that fiscal sustainability in Indonesia is still classified as weak because the value of the debt coefficient is below one, meaning that the increase in debt is not responded to by an increase in the primary balance which is equal or higher. It gives an indication that debt management in Indonesia still needs strengthening to maintain the existing sustainable condition.

Figure 2
The Comparison of Indonesia's Interest Payment Growth and Tax Revenues
 Source: World Bank, compiled (2020c, 2020e)

Table 3 suggests that inflation (inflation), investments (TI), exchange rates (ER), and the current account balance (CAB) affect primary balance (PB). Basically, a higher rate of inflation can be associated with an increase in wages which allows an increase in revenue from income tax and value added tax. Value added tax is a tax imposed on any added value of goods or services. Inflation tends to change the pattern of people's consumption behavior and the availability of goods related to tax imposition. When there is an increase in the inflation rate, the selling price of goods will increase, followed by an increase in taxes obtained from the sale of those commodities. Fournier and Fall (2017) mention that higher inflation rates will encourage governments to increase tax revenues from goods and services to stabilize consumption and aggregate expenditure.

Further, investment had a significantly positive effect on primary balance, implying that higher total investments increase primary balance. Taraki and Arslan (2019) propose that capital formation will create employment opportunities, increase technological growth, which in turn help the economy realize its production scale and intensify specialization, and encourage the development of qualified human resources. Capital formation also expands markets and increases production activities that increase public income and government tax revenues. In general, an increase in investment will have a multiplier impact on the economy. The increase in capital and productivity will enlarge the scale of the company, which in turn has a positive impact on the increasing amount of taxes that must be paid. On the other hand, an increase in company scale will also increase job opportunities and attract more workers. In the end, investment can increase people's income, demand for goods and services, and improve the primary balance.

Figure 3
The Comparison between USD to IDR Exchange Rate and Government External Debt in Foreign Currency
 Source: Bank Indonesia (2020) and World Bank (2020d)

In the short-run, the exchange rate (ΔER , ΔER_{t-1} , ΔER_{t-2}) showed a consistent negative effect on the primary balance. Our results were in line with Cevik and Teksoz (2014) who show that exchange rates harm emerging market countries. Large depreciation in real exchange rates can cause fiscal sustainability problems, especially in emerging markets that are relatively closed with relatively large debt and are heavily influenced by dollar value fluctuations (Galindo & Izquierdo, 2003). Exchange rate fluctuations will affect government spending policies, and greater depreciation and debt payments in foreign currencies will worsen primary balance. Based on Figure 3, Indonesia's foreign debt in foreign currency always increases, followed by an increase in the value of the dollar against the rupiah. This indicates that the amount of money that Indonesia spends to pay back its foreign debt is increasing every year along with the decline in the value of the rupiah against the dollar. In the end, this will worsen the condition of Indonesia's primary balance.

On the other hand, in the long-run, the exchange rate (ER) has a positive effect on the primary balance. When the domestic exchange rate (rupiah) depreciates, the prices of Indonesian export products from the trading partners' side will be lower. This will encourage an increase in the volume of Indonesian exports due to increased demand for imports from trading partners. The positive export performance will bring a positive impact on the country's tax revenue (then on the primary balance) through an increase in the income of export-oriented companies and an increase in the personal income of employees who work for the company (Gnangnon & Brun, 2019).

Current account (CAB) negatively affected primary balance, indicating that an increased ratio of current account to GDP would suppress primary balance. The current account surplus may reflect a relatively small country's spending triggered by weak domestic demand. Figure 4 shows a scatter plot of the relationship between the current account and domestic demand growth in Indonesia for the last ten years. The relationship between the two variables tends to be negative, where an increase in the current account is identical to a decrease in domestic demand. A decrease in domestic demand can reduce the tax collection obtained from economic activities. On the other hand, the government will be encouraged to increase spending or cut taxes as an incentive to stimulate domestic demand so that it will suppress the primary balance.

Figure 4

The Pattern of Relationship between Domestic Demand Growth and Current Account Balance

Source: World Bank, compiled (2020a, 2020b)

The stability test for parameters was carried out as a final step to ensure no errors in functional form specifications caused by the volatility of time series data. The cumulative sum (CUSUM) and cumulative sum squared (CUSUMSQ) tests were used to verify the ARDL model's stability. As shown in Figure 5, it appeared that CUSUM and CUSUMSQ plots were between the critical limit with a significance level of 5 percent, confirming the parameters' stability in the ARDL model.

Figure 5

Cumulative Plots of CUSUM (Left) and CUSUMSQ (Right)

Source: processed data (2020)

CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS

This study aims to determine the condition of fiscal sustainability in Indonesia by analyzing the effect of government debt on the primary balance. In the long term, government debt is found to have a positive impact on the primary balance because the Indonesian government tends to maintain low loan interest rates to encourage the

economy to accelerate the increase in tax revenue. Based on Bohn's condition, Indonesia's fiscal policy is considered sustainable. However, government debt negatively affects primary balance in the short-run because of low tax efforts, less productive debt use in enhancing economic growth, lower growth of capital expenditures relative to other consumptive expenditures, and lower tax revenue growth relative to debt interest payments as the cost of using debts. Furthermore, two macroeconomic variables (i.e., inflation, investments, and exchange rate in the long-run) increase primary balance while the other two (i.e., exchange rates in the short-run and current account balances) worsen primary balance. The findings inform the Indonesian government to formulate policies that are based on existing conditions. The government needs to compensate for the absence of counterweighting factors of increased debts by maximizing the existing potentials to achieve primary balance positions, such as improving tax efforts, expanding the existing tax bases, or increasing government spending in productive sectors. Because this study only uses annual data in its analysis, future studies are expected to use more detailed data, namely quarterly or even monthly. Future studies are also expected to consider several scenarios related to the role of economic activities of Indonesia's main partner countries in domestic primary balance fluctuations.

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