Does Foreign Debt have an Impact on Indonesia's Foreign Exchange Reserves?

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ABSTRACT

Indonesia as one of the emerging market countries' utilization of external resources of foreign debt to a boost in increasing economic growth in addition to international trade that supports accelerated growth Economy. Using time-series data of the period 1988-2017 and using the simultaneous approach of Two-Stage Least Square (TSLS), the research results find out and showed that the foreign debt and reserves have a two-way relationship. The study findings that macroeconomic variables of significant investment affect foreign debt and consumption expenditures significantly affect foreign exchange reserves. It as a basic contributor to monetary policymaking by the government in reducing foreign debt by utilizing investment in sustainable economic development and improving the performance of international trade net exports as well as public consumption expenditures thus supporting the acceleration in increasing foreign exchange reserves.

1. Introduction

Indonesia is continuously striving to improve economic growth through international trade and international cooperative relations. Indonesia as ASEAN countries has economic growth increases and develops each year (Sardiyo & Dashman, 2019). That often occurs in this era is economic performance as the problem of economic development in developing countries (Wibowo & Indrayati, 2020). Resource utilization encourages economic activity in a better direction in full employment. International trade also has a very important influence on an economic country (Sujianto & Azmi, 2020). By doing export and import Indonesia focuses on increasing the number of current account surplus to continue to increase the number of domestic foreign exchange reserves. The number of foreign exchange reserves is the benchmark of the purchasing power of a country in export and import activities to improve the economy.

Utilization of internal and external resources into the development capital of a country. One of the inclusions of external resources is foreign debt. In the organization of World trade agreements, Indonesia is already a Member State as a trading partner in international markets. Foreign debt can be made between countries and/or to an international fund agency called the International Monetary Fund (IMF). The modern legal debt is a legal obligation handed over to the person or party to the payment of money with a certain amount of risk at a later date (Boboye & Ojo, 2012).

Until this period, Indonesia still conducts debt abroad in improving domestic development. Indonesia is still dependent on external resources. Dynamically showing the research results in the long term, Indonesia's foreign debt negatively affects economic growth. It means that in the short term positively the Indonesian foreign debt pushes the acceleration of domestic economic growth (Masih, 2013).

Accelerating investment in a country is one component of economic growth. Indonesia as a developing country allocates investment funds in the real market (goods and services). Industries can grow to thrive, impacting real-sector productivity that affects economic activity. High productivity generates high revenues as economic capital. However, when low productivity allows the country to need capital from external power sources of foreign debt.

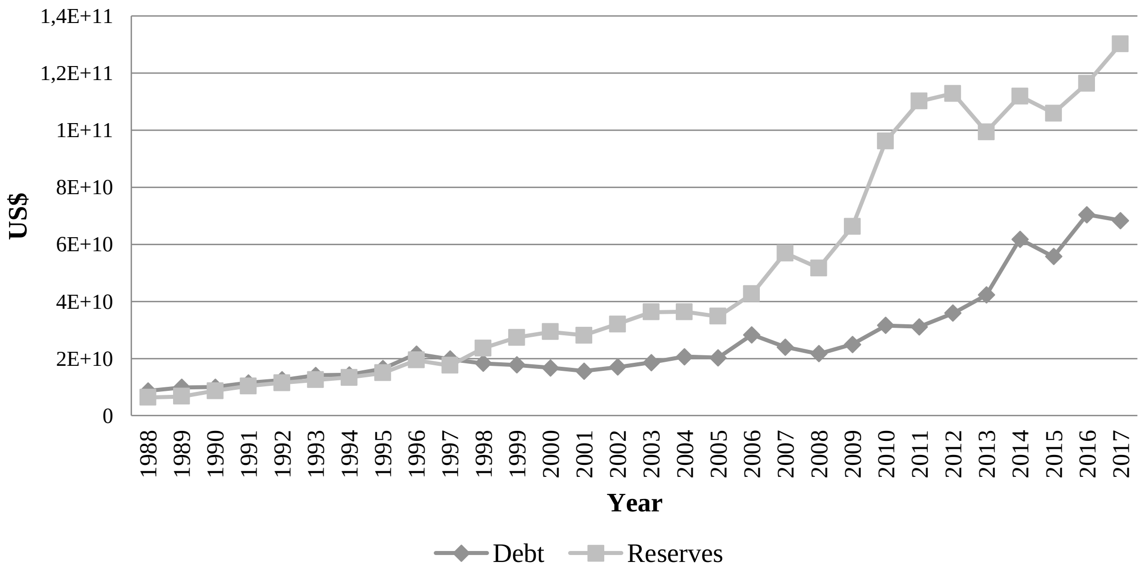

Figure 1. Foreign Debt and Reserves of Indonesia (US$)
Source: (Worldbank, 2019a)

As the fluctuation debt and reserves base on the figure above, the highest figure of Indonesian foreign debt during 1988-2017 was in 2016 while the year 1988 showed the lowest number. And for the Indonesian foreign exchange reserves, in 2017 it shows the highest number whereas the lowest number is also in the year 1988. The high number of reserves affects Indonesia's development of capital through international trade components to reduce external debt resources outside the country.

Net exports are the most important components in increasing the number of foreign exchange reserves of a country. Net exports Indonesia will encourage the current account surplus. Net export significantly affects changes in the development of Indonesian foreign exchange reserves (Febriyenti et al., 2013). So that the condition of the current account surplus where the high net export value will increase Indonesia's income as a source of foreign trade capital. The rapid growth of international reserves concentrated in the emerging markets remains a puzzle (Obstfeld et al., 2010). Demonstrate that these findings are robust to a host of other possible factors about the foreign exchange reserves (Ito & McCauley, 2020). And this became a further discussion in this study of some of the selected research variables.

The consumption pattern of a country's community affects the productivity of the countries' industries that are driving an increase per capita output. The consumption in question is the consumption of goods and services produced in the country itself. Consumption is closely related to demand and supply in the real market. This situation continues to encourage economic activity so that export offerings of goods and services are increasing. If sustainably give high returns will increase the Indonesia current account surplus.

Of the previous studies that have been discussed, it is known that debt demonstrates the influence of foreign exchange reserves. This study aims to find out and analyze whether the two variables of foreign debt and foreign exchange reserves in Indonesia have a two-way relationship that affects each other by including other variables such as GDP, investment, net exports, and consumption within the research period.

2. Literature Review

Foreign debt can increase foreign exchange reserves, initially in the form of loans that can strengthen foreign exchange reserves. If the foreign debt is invested productively, it will result in a high rate of return on foreign exchange. The results showed that foreign debt had a positive and significant effect on foreign exchange reserves in Indonesia in 1996-2015 (Putri et al., 2017). Increasingly, funds from foreign loans are used, thus encouraging an increase in foreign exchange reserves (Rahim et al., 2019). Foreign debt and foreign exchange reserves have a positive relationship. This is reinforced by the results of research (Togatorop, 2017) which said there is a positive influence between foreign debt and foreign exchange reserves. The increase in foreign debt will cause the capital balance to increase and impact the balance of payments. The most dominant variable to affect foreign exchange reserves (Ardianti & Swara, 2018) in 1997-2016 is foreign debt.

Exports are a source of foreign exchange, increasing exports means that foreign exchange is getting bigger as well. To be able to export, the country must be able to produce goods and services that can compete in the international market. This competitive ability is determined by many factors, including natural resources, human resources, technology, management, even social and cultural. The more types of goods that have such privileges produced by a country the more exports can be done (Sukirno, 2011). When exports increase, the country's income in the form of foreign currency (Rahim et al., 2019) or foreign exchange reserves will increase so that it is proven that it can increase foreign exchange reserves (Putri et al., 2017).

This export and import activity is an important component to look at the condition of the country's foreign exchange reserves. If the net export increases where the net export is the value of the export minus the value of imports then the state revenue will increase if the net export decreases then the state revenue will decrease (Mankiw et al., 2013), and if the difference in exports and imports is zero then the state of exports and imports of a country is balanced.

There is a relationship between GDP and foreign debt where the relationship is shown that when there is a shock to GDP it will have an impact on foreign debt. So this needs to be considered by the government in managing debt for things that benefit the country that not only increases state funding (Syukri, 2020). The use of debt funds to productive matters such as infrastructure development will increase GDP growth.

For developing countries should focus on improving the investment climate in all types of capital, both domestic and foreign. Investment becomes the main capital in economic development. The majority of developing countries rely on foreign investment to have a direct impact on the country's foreign debt (Kaliyeva et al., 2020). Investment is an important indicator of foreign debt for emerging economies.

3. Research Method

In many situations, economic variable relationships are not only one-way but mutually affecting. So this study uses a simultaneous equation model where variable relationships are two-way (Widarjono, 2014). Using time-series data from World Bank start 1988-2017 the method equation is Two-Stage Least Square (TSLS). It has two equations are the foreign debt and the foreign exchange reserves as endogen variables, as follows:

$$FD = \alpha_0 + \alpha_1 \, FER + \alpha_2 \, GDP + \alpha_3 \, INV + e_1 \quad (3.1)$$

$$FER = \beta_0 + \beta_1 \, FD + \beta_2 \, NX + \beta_3 \, CON + e_2 \quad (3.2)$$

where:

FD = foreign debt
FER = foreign exchange reserve
GDP = gross domestic product
INV = investment
NX = net exports
CON = consumption
α_0 , β_0 = intercept
α_1 , α_2 , α_3 = coefficient
β_1 , β_2 , β_3 = coefficient
e_1 , e_2 = error term

Table 1. Operational Definition Variables

No.	Variables	Operational Definition	Source
1.	Foreign Debt *(FD)*	The value of debt service on the external debt of Indonesia in current US$ per year	World Bank
2.	Foreign Exchange Reserves *(FER)*	The value of the reserves and related items on the balance of payment of Indonesia in current US$ per year	World Bank
3.	Gross Domestic Product *(GDP)*	The value of the Gross Domestic Product of Indonesia in current US$ per year	World Bank
4.	Investment *(INV)*	The value of the net foreign direct investment on the balance of payment of Indonesia in current US$ per year	World Bank
5.	Net Exports *(NX)*	The value of the difference between export and import of goods and services constant LCU of Indonesia in current US$ per year	World Bank
6.	Consumption *(CON)*	Value of the final consumption expenditure of Indonesia in the current US$ per year	World Bank

Next, the stage of this research is the identification test. This identification is intended to know whether the equation is in one of the following conditions: under-identified, exactly-identified, or over-identified. The result of this test, as follows:

Table 2. Identification Test

The Equation	The Results	Explanation
FD	K – k > m – 1 4 – 2 > 2 – 1	Over Identification
FER	K – k > m – 1 4 – 2 > 2 – 1	Over Identification

Based on Table 1, where **K** is the number of predetermined exogen variables in the model. **k** is the number of predetermined exogen variables in the equation. And **m** is the number of endogen variables in the equation. So the explanations are over-identification with Two-Stage Least Square (TSLS).

4. Results and Discussion

Foreign debt is not entirely bad for a country's economy. Foreign debt significantly affects the change of economic growth in a country (Kasidi & Said, 2013). Foreign debt as an acceleration of the development of a nation. As well as Indonesia allocates foreign debt for infrastructure development that has a multiplier effect. This will support the development of Indonesia in the future. Creation of full employment, opening employment opportunities, business opportunities for investors even paving the way for small entrepreneurs to have the opportunity to find profits. The reduced unemployment rate suppressed the crime rate that eventually created the welfare of the domestic community.

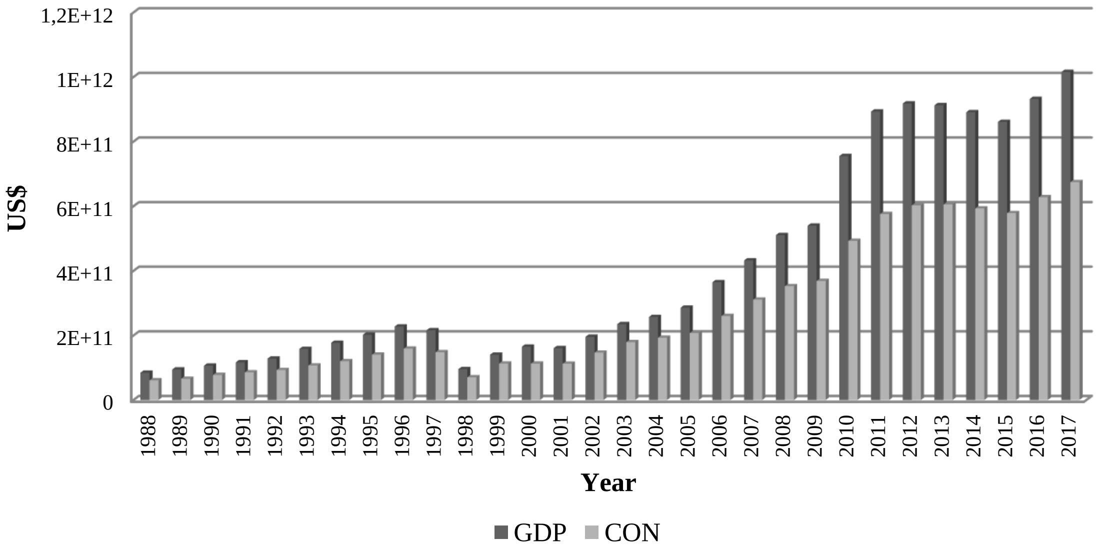

Figure 2. GDP and Consumption in Indonesia (US$)
Source: (Worldbank, 2019b)

The fluctuation of the highest GDP figure in the Indonesia period 1988-2017 is in 2016 while the lowest is in 1988. The consumption pattern of Indonesian people also affects Indonesia's foreign debt figures. Productive consumption is the consumption of goods and services produced by the State itself so that the output generated annually contributes greatly to domestic economic growth. However, when more consumption of imported goods will interfere with the stability of profit turnover in domestic industries, especially in the real sector. In Indonesia, the consumption of domestic goods and services and import are still balanced done even sometimes the imported numbers show greater than exports in some years. The fluctuation of Indonesian consumption figures in the period 1988-2017 is the highest in the year 2017 while the lowest in 1988. This means that every year Indonesian people's consumption figures continue to grow as the population grows.

Net exports can also be called with current accounts. Current accounts have a one-way causality relationship to foreign exchange reserves. Namely called the net exports to affect the foreign exchange reserves (Rangkuty, 2019). Net exports increase the economic growth of a country assuming that the value of exports is greater than imports. Pressing imports will support the acceleration of the real sector growth in the country. The highest number of Indonesian net exports period 1988-2017, which occurred in 2000 while the lowest in the year 2015. This fluctuation occurred due to Indonesia continue to import so that the import number is greater than exports so that in some period the current account deficit occurs.

Based on the identification test, that in this stage is done an estimation of simultaneous equations with the results as in Table 3. Equation (1) the FD, is positively and significantly increased by the US $1.11. FER positively and insignificant impact on changes in FD development. It means that if the FER rises by the US $1 then positively and will not significantly increase the FD of US $0.05. GDP is positively influential but not significant to changes in FD development. That means that when GDP rises by US $1 it is positively and insignificant will increase the FD by the US $0.00. INV has a positive and significant effect on changes in FD development. It means that if INV rises by the US $1 then positively and will increase the FD of US $0.02, cateris paribus. It is known that amounting to 95.32% of the FER, GDP, and INV variables have an influence on FD, and the remaining 4.68% of its effect FD variables are determined by other variables outside of the equation model.

Table 3. Summary of the results of TSLS estimation

Variables	(1)	(2)
Const.	1.11	-9.24
	(9.040)*	(-4.18)*
FD	-	0.11
		(0.88)
FER	0.047	-
	(0.424)	
GDP	0.003	-
	(0.232)	
INV	0.021	-
	(8.990)*	
NX	-	0.504
		(4.10)*
CON	-	0.20
		(16.996)*
R-squared	0.953	0.985
Adj. R-squared	0.948	0.983
F-stat.	176.31*	552.90*
	0.000*	0.000*

*denote significance at 5% level, respectively
Source: data processed (2020)

$$FD = 1.11 + 0.05\ FER + 0.00\ GDP + 0.02\ INV + e_1 \quad (4.1)$$
$$FER = -9.24 + 0.11\ FD + 0.50\ NX + 0.20\ CON + e_2 \quad (4.2)$$

Equation (2) the FER, is negatively and significantly increased by the US $-9.24. FD positively and insignificant impact on changes in FER development. It means that if the FD rises by the US $1 then positively and will not significantly increase the FER of US $0.11. NX is positively influential and significant to changes in FER development. That means that when NX rises by US $1 it is positively and insignificant will increase the FER by the US $0.50. CON has a positive and significant effect on changes in FER development. It means that if CON rises by the US $1 then positively and will increase the FER of US $0.20, cateris paribus. It is known that amounting to 98.47% of the FD, NX, and CON variables have an influence on FER, and the remaining 1.53% of its effect FER variables are determined by other variables outside of the equation model. So it can be concluded that equation (2) is better than equation 1 that the FD, NX, and CON variables have a major influence on the changes in the development of the FER in Indonesia during the research period.

Based on the results of the research, it is known that the investment directly affects the foreign debt of Indonesia during the period 1988-2017 and positively affects the change of Indonesian foreign debt development. While the foreign exchange reserves and GDP are positive but do not significantly affect the change in the development of foreign debt in Indonesia. In this regard, investments are intended in the real sector (market goods and services), when the realization of investments in the real sector is low reflecting the low productivity of the domestic real sector industries resulting in output produced every year is low. The low output reflects the source of income as the economic development capital is low. If the shortage of capital in fulfilling the needs of domestic development, it becomes an alternative that external resources become the choice of adding to foreign debt and vice versa. This is a novelty by researchers where macroeconomic variables investment positively and significantly affects the increase in foreign debt in Indonesia.

The foreign exchange reserves positively but not significantly affect the change in the development of foreign debt because in theory the foreign exchange reserves are influenced by the value of net exports and or current accounts, namely components of export and import which then If the foreign exchange reserves themselves become low, the source of capital in the trade, the foreign debt is also an option. GDP positively but insignificant affects the change in the development of foreign debt, it can be explained that GDP and foreign debt in the short term has a negative influence while in the long run, it provides an influence Insignificant in a country (Djulius, 2018) and the global reserve system can be strengthened (Lee, 2014).

Foreign exchange reserves, GDP, and investments have had a great influence on foreign debt. All three variables together positively influence foreign debt. It means that if simultaneously in a certain period reserve foreign exchange, GDP, and investment increases it will increase the foreign debt of Indonesia, and vice versa. This can be interpreted that the rise of significant foreign exchange reserves, GDP, and investments resulted in Indonesia's foreign debt as well as Indonesia is still dependent on external resources in fulfilling the development needs of the country. This reflects the dependence on foreign debt as the development capital seen from the overseas debt data continues to grow and interest for each period.

The foreign debt positively and insignificantly influenced the change in the development of Indonesia's foreign exchange reserves during the period 1988-2017 because, in theory, foreign debt that is utilized productively can support the increase in foreign exchange reserves but in reality, Indonesia's foreign debt has not been invested productively so it does not produce a high rate of return in several years of research (Putri et al., 2017). It also means that if foreign debt increases but does not significantly affect the change in the number of Indonesian foreign exchange reserve that by previous research stating that foreign debt influences foreign exchange reserves (Rahim et al., 2019). Net exports positively and significantly affect the change in the development of Indonesian foreign exchange reserves (Ardianti & Swara, 2018). It means that if the net exports increase it will significantly affect the change in the number of foreign exchange reserves in Indonesia during the research time. Being the value of novelty and the contribution of this research is evident that the two international macroeconomic variables between foreign debt and foreign exchange reserves are mutually affecting.

Net export significantly affects changes in the number of foreign exchange reserves (Ardianti & Swara, 2018). A foreign exchange reserve is a macroeconomic variable that supports accelerating economic growth in a country including GCC countries (Azar & Aboukhodor, 2017). Foreign exchange reserves are not only from the export and import activities but the availability of currency and gold reserves.

The consumption of the Indonesian Government directly positively and significantly affects the change in the number of domestic foreign exchange reserves. The increased consumption will significantly increase the number of foreign exchange reserves as well. It can be explained that the growing domestic community consumption of goods and services produced in the local real market, will boost the acceleration of increased output per capita and annually. This is a novelty by researchers where macroeconomic variables consumption expenditure positively and significantly affect the increase in foreign exchange reserves in Indonesia. Cause then it will increase productivity, including bidding on export products overseas, thereby driving Indonesia's net exports performance. Surely, it supports foreign exchange reserves.

5. Conclusion

Based on the results of research and discussion, it can be concluded that the international macroeconomic variables of foreign debt and foreign exchange reserves are mutually affecting. And this research is limited to foreign exchange reserves, GDP, and investment simultaneously affecting foreign debt. Then, simultaneously, foreign debt, net exports, and consumption influenced Indonesia's foreign exchange reserves during the research period. Besides, the study findings that macroeconomic variables of significant investment affect foreign debt and consumption expenditures significantly affect foreign exchange reserves. This is a basic contributor to monetary policymaking by the government in reducing foreign debt by utilizing investment in sustainable economic development and improving the performance of international trade net exports as well as public consumption expenditures thus supporting the acceleration in increasing foreign exchange reserves.

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