Analysis of Factors Affecting Indonesia' External Debt

Selvia Inca Devi[1], Fitrawaty[2] and Eko Wahyu Nugrahadi[2]

[1,3] Post Graduate of Economics, Uniersitas Negeri Medan, Medan, Indonesia
[2]Faculty of Economics, Universitas Negeri Medan, Medan, Indonesia

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Abstract: Indonesia's external debt increases in the year 1998-2017 has been a huge debt burden for the country of Indonesia. This aims of this study is to analyze the influence of gross domestic product (GDP), the budget deficit, exchange rate, inflation and interest rates on Indonesia'a external debt. Analysis of the data in this study was using an error correction model (ECM). The results showed that in the short-term GDP, inflation, and interest rates have a positive influence on Indonesia's external debt. While the budget deficit ofand the exchange rate had a negative effect on Indonesia's external debt. In the long-term GDP, inflation have a positive influence on Indonesia's external debt. While budget deficits, exchange rates and interest rates have a negative effect on Indonesia's external debt. The coefficient of determination of 94.4 percent indicated that the GDP, budget deficit, exchange rate, inflation and interest rates have a very big influence on Indonesia' external debts.

1 INTRODUCTION

In general, the developing countries needs the debt that sourced from overseas to cover the gap between domestic savings and investment requirements. The need for investment funds should be financed by funds from domestic sources. But because of limited funds from the domestic sources, so the external debt to be an alternative of government to cover the shortage of domestic savings.

The Increase of Indonesia's external debt indicating that Indonesia has a dependency in terms of funding sources from abroad. When the position of dependence on foreign capital grew, the greater risks will be faced by the global economy system. In addition, there draining of State Budget Revenue and Expenditure for the payment of principal and interest debt installments that would directly impact on reduced of budget portion to finance the other important sectors.

The international dependency model (dependency theory) views developing countries as victims of the rigidity of institutions, politics, and economics both domestically and internationally and trapped in a set of dependencies and domination by rich countries (Todaro, 2011). The theory postulates that the best way chosen by the developing countries are as slight as possible to depend on the developed countries in terms of external debt. We recommend to implementing development policy funding sources of domestic.

In the three-gap model theory, external debt is used by a country to finance the current account deficit, budget deficit, the gap of savings and investment, debt payments, reserves the monetary authorities and capital requirements and also the short-term capital flow movements such as capital flight (Basri, 2002).
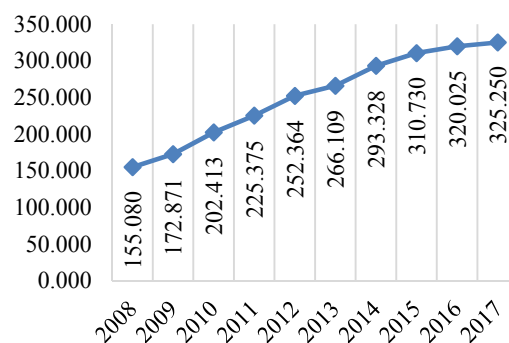

Figure 1: Development of Indonesia' External debt.

Table 1: External debt, GDP, Budget Deficit, Exchange Rate, Inflation, Interest Rates in 2008-2017

Years	External Debt (Billion USD)	GDP (%)	Budget Deficit (Billion Rp)	Exchange Rate (USD/Rp)	Inflation (%)	Interest Rate (%)
2008	155.08	5.69	-4.121	10895	11.06	9.25
2009	172.871	4.39	-49.844	9353	2.78	6.5
2010	202.413	5.91	-46.846	8964	6.96	6.5
2011	225.375	6.17	-84.399	9113	3.79	6
2012	252.364	6.03	-153.301	9718	4.3	5.75
2013	266.109	5.56	-211.673	12,250	8.38	7.5
2014	293.328	5.01	-226.692	12 502	8.36	7.75
2015	310.730	4.88	-298.495	13 864	3.35	7.5
2016	320.025	5.03	-308.341	13 503	3.02	6.5
2017	325.250	5.07	-345.800	13 616	3.61	4.25

Source: Badan Pusat Statistik and Bank Indonesia

Indonesia's external debt total from the year 2008 in the amount of USD 155.0806 billion continue to rise until 2017 reached USD 325 250 billion. This is due to the state budget condition, which continues to widening deficits, inflation and rupiah continues to depreciate. Another factors were low exports and the reduced of tax revenues or domestic income, so the government covers the deficit with external debt. Without it, the budget will not be sufficient for development financing that has been prepared in State Budget Revenue and Expenditure.

There were several factors that cause increased external debt, including national income, budget deficits, exchange rates, inflation, and interest rates.

According to the table 1, GDP in Indonesia has fluctuated and in several years, the increase of GDP followed by the increase of external debt. This is suitable with the research that has been conducted by (Alin, 2015) that an increase in GDP will increase the portion of external debt in the European Union and Romania. But it is not suitable with the monetarist theory which states that the GDP had a negative effect on the external debt.

In 2008-2017 Indonesia tend to widening deficit and this is also followed by an increase in external debt. Meanwhile, according to the theory of three-gap model of thatexternal debt required by a country to finance the government budget deficit. The results of research which had been conducted by (Abdullahi, Bakar, & Hassan, 2015) found that the budget deficit has a negative and significant effect in the short and long- term on Nigeria' external debts.

Based on the long-term trend that Indonesia's exchange rate tends to increase (depreciation). But if seen in the short-term trend is the increase in the exchange rate has not been followed by an increase in external debt. According to the Keynesian theory that when a country's currency has increased (depreciation) it will reduce external debt. It is not appropriate to the research conducted by (Tambunan, 2008) that the exchange rates affect positively on external debt.

Inflation in Indonesia tend to fluctuate every year. In several years, the inflation and external debt shows the trade-offs. This is not in appropriate with the Keynesian theory that when inflation rises, the government will adopt the policies to increase the funds sourced from abroad as a result of an increase in imports. Research conducted by (Zakaria, 2012) found a relationship between inflation and external debt is positive.

The decline in interest rates seen in the years 2008-2017 with long-term trends but tend to fluctuate. There were a few years when interest rates increase followed by an increase in external debt. This is not in accordance with the opinion of Keynes that relations with the interest rate of external debt reverse. (Rosalina, 2018) also found that the interest rate has a negative effect on external debts.

Based on the difference the results of previous studies and existing theories, this study examines how much the influence of the independent variable on the dependent variable in the short and long-term. This study aimed to analyze the effect of the Gross Domestic Product (GDP), the budget deficit (BD), the exchange rate (ER), inflation (INF), and interest rates (IR) of the external debt (ED) in Indonesia in the short and long-term.

2 THEORETICAL FRAMEWORK

2.1 External Debt

External debt is foreign aid given by governments of developing countries or international agencies specifically set up to provide loans to the obligation to repay the loan and pay interest (Zulkarnain, 1996).

World Bank formulates that the debt conditions to GDP safe ratio is 21 percent - 49 percent, while the IMF set a safe limit of debt between 26 percent - 58 percent. Refers to the ratio of debt to GDP, the debt to GDP ratio is said tobe safe if it is under 60 percent (as stipulated in article 12 paragraph 3 of Law No. 17/2003). Based on data obtained from the Central Bureau of Statistics that the ratio of external debt to GDP of Indonesia in 2017 is still safe at 34.68 percent.

There are several theories that explain the external debt of which three gap model of theory, macroeconomic theory - the conventional approach, the theory of dependency. Harrod Domar theory, the Debt Laffer Curve Theory, the monetarist theory and Keynesian theory.

2.2 Gross Domestic Product

National income of a country can be measured by the cumulative growth rate of Gross Domestic Product (GDP). According to Central Bureau of Statistics, GDP is the sum of the value added generated by all business units within a country.

According to the Monetarists theory that the increased of GDP will encourage increased exports, this will lead to a surplus in the current account so that the government will adopt policies to reduce the external debt of Indonesia (Anisa, 2017) . So that the relationship between GDP and external debt is negative.

2.3 Budget Deficit

The budget deficit is the difference between state income and expenditure in the same fiscal year. According to the three gap model theory obtained from the national income identity equation in terms of expenditure and income states that in addition to financing the current account deficit, a country's external debt is also needed to finance the government's budget deficit.

According (Harahap, 2007) that if a country's budget deficit gets bigger, the government will implement a policy to increase the amount of external debt to finance investment needs. So that the budget deficit had a positive influence on the external debt.

2.4 Exchange Rate

The exchange rate is the exchange of two different currencies, which is a comparison of the price or value of the two currencies (Triyono, 2008). Keynesian theory states that when a country's currency has increased (depreciation) against other currencies, so that the goods produced by that country in abroad becomes cheaper and conversely the foreign goods in that country is becoming more expensive. It will lead to an increase in exports resulting in a surplus in the current account. Therefore external debt to be reduced. So that the exchange rate had a negative effect on the external debt.

2.5 Inflation

Inflation is the tendency of rising prices in general and continuously (Boediono, 1985). In Keynesian theory whereby when inflation increases, imports will increase. This is because the domestic consumers would buy a lot of goods from abroad as a result of high domestic prices due to inflation. Furthermore, when the value of imports is higher, it will cause the current account deficit so that the government will increase funds sourced from overseas. So that the relationship between inflation and external debt is positive.

2.6 Interest Rate

The interest rate is the cost to be paid by the borrower on the loan capital or use of some of money to the lender of capital (Mankiw, 2006). Interest rates in relation to the external debt according to Keynesian explain that when interest rates increase, it will encourage a decline in investment in the country so that it can affect the decline in aggregate income. This will lead to a decrease in import capabilities. If the import value is lower than the export value, it will cause a surplus in the current account so that it will reduce external debt. It is accordance with the Keynesian theory that interest rates have a negative influence on external debt.

Based on theory and previous research that has been described above, then the hypothesis in this study is the GDP, exchange rates and interest rates in the short and long-term have a positive influence on external debt, while the budget deficit, and inflation in the short and long-term have the positive influence on external debt.

3 RESEARCH METHOD

Data used in this research is secondary data time series in 1998-2017. The data collection was done by using the documentation technique. In this research the collected data is external debt, GDP, the budget deficit, exchange rate, inflation, and interest rates published by the Badan Pusat Statistik and Bank Indonesia.

Estimates Model used in this study is a model equation Error Correction Model (ECM) to estimate the relationship of short-term and long-term the variables of GDP, the budget deficit, exchange rate, inflation and interest rates on Indonesia's external. Before estimating the model, first perform data analysis such as testing unit root tests Augmented Dickey Fuller (ADF), test the degree of integration, the determination of lag length optimal, using the Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), and likelihood Ratio (LR), Engle Granger cointegration test. Further done

the testing of the econometric assumptions such as k normality, multicollinearity and autocorrelation. This study uses Eviews 9 software to analyse the data.

4 RESULTS

4.1 Test of Stationarity

Stationary test was used to observe whether a particular coefficient of autoregressive models was estimated to have a value of one or not. A variable is said to be stationary if the average value, variance and covariance always constant at any point of time. If the results of the test roots of a data unit obtained some or all of the data is not stationary at the current level, it is necessary to test the degree of integration in the first difference and the second difference.

Based on table 2, the unit root test level test has four variables that are not stationary so that the unit root test first level carried out and there is one variable is not stationary namely external debt. Furthermore, conducted the test of unit root test second difference, it was found that all research variables had the same stationary level with the ADF value greater than the critical value at α = 5%.

4.2 Test Long-Legth Optimal Lag

Long Lag Test (Determination of Optimal Lag) is the amount of lag which is gives the significant effect or response. From the test results obtained the highest number of stars that are in the lag 1. Hence lag (inaction) which is used to test the Engle-Granger cointegration done by using a long lag = 1.

Table 2: Results of Unit Root Test Augmented Dickey Fuller

Variables	Unit Root Tests Level			Unit Root Tests 1st Difference			Unit Root Tests 2nd Difference		
	Value ADF	Prob	Interpretation	Value ADF	Prob	Interpretation	Value ADF	Prob	Interpretation
LNULN	-0.841572	0.7824	Non Stationary	-1.662302	0.4323	Non Stationary	-4.137555	0.0061	Stationary
LNGDP	-24.71472	0.0000	Stationary	-10.95496	0.0000	Stationary	-4.627015	0.0023	Stationary
LNBD	-2.095142	0.2484	Non Stationary	-4.811261	0.0016	Stationary	-5.977131	0.0016	Stationary
LNEF	-1.255088	0.6276	Non Stationary	-4.767239	0.0018	Stationary	-5.551385	0.0005	Stationary
LNINF	-4.505773	0.0025	Stationary	-8.167253	0.0000	Stationary	-8.226760	0.0000	Stationary
LNIR	-1.604777	0.4609	Non Stationary	-4.578929	0.0026	Stationary	-5.348230	0.0007	Stationary

Source: Eviews 9 (processed)

Table 3: Results-Length Determination of Optimal Lag

lag	LogL	LR	FPE	AIC	SC	HQ
0	-31.35892	NA	2.06e-06	3.932518	4.230762	3.982993
1	66.88966	124.1035 *	3.65e-09 *	-2.619964 *	-0.532257 *	-2.266641 *

Source: Eviews 9 (processed)

Table 4: Results of Engle-Granger Cointegration

Variables	Critical Value ADF			ADF	Probability
	1%	5%	10%		
ECT	-2.692358	-1.960171	-1.607051	-2.218387	0.0290

Source: Eviews 9 (processed)

4.3 Cointegration Test

Cointegration test is a test that is performed to determine whether there is a balance in the long term on the model chosen and established. In this study the cointegration test was done by using method of Engle Granger (EG). ADF statistic value of -2.218387 > -1.960171 and probability value of 0.0290 < 0.05. So that there was cointegration between regression results variables between the gross domestic product, budget deficits, exchange rates, inflation and interest rates on external debts. This indicates that the variable is said to be long-run equilibrium condition, so that the regression results are cointegrated regression.

4.4 Assumptions Econometrics Testing

A research theoretically produce the exact value of estimators parameter when it meets the assumptions detection of econometrics, they are normality test, multicollinearity and autocorrelation.

4.4.1 Normality Test

Data Normality Test is done to see whether the data were normally distributed or not. In this study, the test for normality using the Jarque-Bera test. Based on estimates on Table 4, the data value JB statistical probability of 0.423766 > α = 5% (0.05). Thus, it can be concluded that the data used in the model ECM is normal distribution.
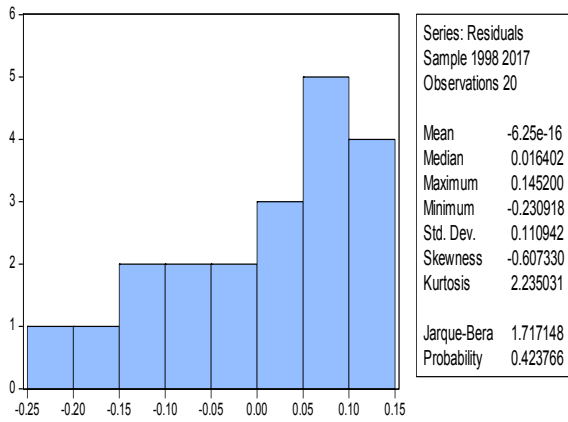
4.4.2 Multicollinearity Test

Multikolonearitas test in this study was done by looking at the value of tolerance and the value of Variance Inflating Factor (VIF). Based on Table 5 the Value tolerance > 0.10 or VIF <10, it can be concluded that the multikolinearitas is not happen.

4.4.3 Autocorrelation Test

The Autocorrelation testing by using LM methods need to determine the lag. Based on Table 6 the calculation results obtained value Obs * R-squared of 8.273345 with probability 0.1060. From these values illustrates that the probability value is greater than α = 5%. It can be conclude that H_0 rejected and

H₁ accepted it is indicates that there is no autocorrelation in the model.

Source: Eviews 9 (processed)

Figure 2: Normality Test

Table 5: The Results of Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	3.388294	4056.921	NA
LNGDP	0.002893	11.38971	3.352729
LNBD	0.000238	4.844887	1.716412
LNEF	0.040141	4080.061	1.524497
LNINF	0.007839	46.42314	4.097321
LNIR	0.014744	88.08453	1.447129

Source: Eviews 9 (processed)

Table 6: The Results of Autocorrelation Test

F-statistic	Obs * R-squared	Prob. F	Prob. Chi-Square
2.586893	8.273345	0.1060	0.0407

Source: Eviews 9 (processed)

Table 7: Results of Estimation of ECM Engle Granger

Variable	Coefficient	T-Statistic	Prob.
C	1.877821	3.426659	0.0110
D (LNGDP)	0.011038	0.170868	0.8692
D (LNBD)	- 0.004576	- 1.234070	0.2570
D (LNER)	- 0.373992	- 3.563008	0.0092
D (LNINF)	0.013044	0.713105	0.4989
D (LNIN)	0.012629	0.263113	0.8000
LNGDP (-1)	0.074769	1.609382	0.1516
LNBD (-1)	- 0.020668	- 5.215808	0.0012
LNER (-1)	- 0.187067	- 3.539204	0.0095
LNINF (-1)	0.066913	2.287816	0.0560
LNIR (-1)	- 0.191336	- 5.200300	0.0013
ECT (-1)	- 0.176742	- 2.669528	0.0320
R-squared	0.944058		
Adjusted R-squared	0.856150		
F-statistic	10.739130		
Prob (F-statistic)	0.002247		

Source: Eviews 9 (processed)

4.5 ECM Estimation Model

Analysis of the data used in this study is a model equation Error Correction Model (ECM) to estimate the relationship of short-term and long-term between the variables of GDP, the budget deficit, exchange rate, inflation and interest rates on Indonesia'a external debt.

ECM approach used in this study is the approach of Error Correction Model of Engle Granger. According to this approach, the ECM model is valid if the sign coefficient of ECT is negative and statistically significant.

Based on the results in table 7, Engle Granger Error Correction Model obtained coefficient value is negative and significant (probability value < the absolute value of critical value for α = 0.05), which is the value of the coefficient of ECT (Error Correction Term) of -0.176742 and the probability

of 0.0320 < 0.05. So the value of ECT coefficient is negative and statistically significant. It is indicates that specification model ECM *Engle-Granger* used in this study is valid (proper / appropriate).

ECM model equations Engle Granger short-term and long-term as follows:

d (lnuln) = 1.877821 + 0.011038 d (lngdp) - 0.004576 d (lnbd) - 0.373992 d (lner) + 0.013044 d (lninf) - 0.012629 d (lnir) + lngdp 0.074769 (-1) - 0.0206681lnbd (-1) - 0.187067 lner (-1) + 0.066913 lninf (-1) - 0.191336 lnir (-1)- 0.176742 ECT.

4.6   Hypothesis Testing Results

4.6.1   The Results of t-test

Partial test results are shown in table 7. Through t-test with a significant level of alpha 5 percent. In the short term the value of t-statistic and probability of each variable is the variable GDP by t-statistic = 0.170868 (prob = 0.8692) and no significant positive effect on Indonesia'a external debt, the budget deficit with a t-statistic = -1.234070 (prob = 0.2570) have negative effect and no significant on Indonesia'a external debt, the exchange rate with the t-statistic = -3.563008 (prob = 0.0092) negatively affect and significant on Indonesia'a external debt. Inflation with t-statistic = 0.713105 (prob = 0.4989) positively affect and no significant on Indonesia'a external debt, and the interest rate with the t-statistic 0.263113 (prob = 0.8000) positively affect and no significant on Indonesia'a external debt.

In the long term value of t-statistic and probability of each variable is the variable GDP by t-statistic = 1.609382 (prob = 0.1516) positively affect and not significant on Indonesia'a external debt, the budget deficit with a t-statistic = -5.215808 (prob = 0.0012) negatively affect and significant on Indonesia'a external debt, the exchange rate with the t-statistic =-3.539204 (prob. 0.0095) negatively affect and significant on Indonesia'a external debt, inflation with t-statistic =2.287816 (Prob = 0.0560) negatively affect and significant on Indonesia'a external debt, and the interest rate with the t-statistic -5.200300 (prob =0.0013) negatively affect and significant on Indonesia'a external debt.

4.6.2   F Test Results

Based on estimates in table 7, that in short-term and long-term estimation results can be seen that the value of the F-statistic of 10.73913 with a statistical probability of 0.002247 smaller than α = 0.05 indicates that together (simultaneous test) all the independent variables namely the gross domestic product, the budget deficit, the value of exchange rates, inflation and interest rates have an impact on Indonesia'a external debt.

4.6.3 R^2 Test Results

The coefficient of determination (Rsquare) in the short term and long term that is 0.944058, or 94.4 percent, so that variations of the gross domestic product, budget deficits, exchange rates, inflation and interest rates in the short term and long term is 94.4 percent affect to Indonesia'a external debt. While the remaining 5.6 percent is explained by variables outside the model (not examined).

4.7   Discussion

4.7.1   The Effect of GDP on External Debt

From the estimation is known that the gross domestic product in the short term and the long term have a positive effect and no significant at α = 0.05 with respective probabilities of 0.8692 and 0.1516. This means that in the short term and the long-term gross domestic product was not able to influence the Indonesia'a external debt, which is indicated by the insignificant variables GDP (lngdp) on Indonesia'a external debt.

The effect which are not significant because in short-term and long-term, the improvement of Indonesia's gross domestic product has not been significant enough to encourage a decrease in external debt. National income in Indonesia is still low, so it has not been able to reduce external debt. The policy of increasing external debt by the government is channeling these funds to the construction of infrastructure facilities and stabilizing the economy in Indonesia which is classified as a developing country. Indonesia still has a dependency to other countries and because of the large external debt, Indonesia not only pays the principal debt repayments but also pay interest on the debt is so large.

The results are consistent with research conducted by (Wibowo, 2012) that the GDP had a positive effect and no significant effect on Indonesia'a external debt.

4.7.2   The Effect of Budget Deficit on External Debt

Based on the estimates found that the budget deficit variable in the short-term has a negative effect and

no significant at α = 0.05 with a probability of 0.2570. It means that the budget deficit in the short-term have a negative influence but does not have a significant impact on Indonesia'a external debt.

The budget deficit variable shows a negative but not significant relationship. It is indicate that the budget deficit of a country means there is a reduction in the budget to finance the and the Indonesian economy so that additional funds is needed. External debt is one that is used as an alternative source of financing development funding by the government. But in the short-term, when the budget is deficit, the government needs funds relatively quickly so that the required funds are not necessarily derived from external debt, but can also be sourced from domestic funding as by issuing State Debt Securities (obligation).

The government also each year continues to increase state revenue through increased tax revenues and make savings on the expenditure side as subsidy spending and reducing program spending unproductive and inefficient that do not support the growth of the real sector. Thus, in the short-term budget deficits increased no significantly affect the external debt. The results are consistent with research conducted by (Saputro & Soelistyo, 2017), where the budget deficit does no significantly influence Indonesia'a external debt.

Furthermore, based on the results of the estimation is known that variable budget deficit in the long term have a negative and significant impact at α = 0.05 with a probability of 0.0012. This means that in the long-term budget deficits have a negative influence and significant influence on Indonesia's external debt. The decline in the budget deficit is not accompanied by a reduction in Indonesia'a external debt. Just when the budget deficit has decreased but the external debt has increased. This is because in the long-term internal funding sources Indonesia still not sufficient to meet the investment needs in Indonesia so that Indonesia still has a dependence on external debt.

Research conducted by (Abdullahi et al., 2015) found that the budget deficit had a negative effect in the long term on external debts in Nigeria.

4.7.3 The Effect of Exchange Rates on External Debt

Based on estimates found that the variable exchange rate in the short term and the long term have a negative and significant impact at α = 0.05 with their respective probabilities of 0.0092 and 0.0095. This means that in the short term and the long term affect

the exchange rate of Indonesia'a external debt as indicated by significant exchange rate variable (lnkurs) on Indonesia'a external debt.

According to Keynesian theory, when a country's currency has increased (depreciation) against other currencies, the goods produced by the country abroad becomes cheaper and goods abroad in the country is becoming more expensive (assuming domestic prices constant in both countries). This will lead to an increase in exports resulting in a surplus in the current account. Therefore external debt to be reduced. If the exchange rate to depreciate the government would take a policy to reduce external debt in the long term or the next year because it has more funds for developing, investing able to finance other government spending.

Likewise, when a country's currency has decreased (appreciation) against other currencies, the goods produced by the country abroad become more expensive and goods abroad becomes cheaper (assuming domestic prices constant in both countries). This will lead to a reduction in exports and increased imports. Increased imports will lead to a reduction in the current account deficit so. Therefore external debt will increase.

Thus the exchange rate had a negative effect on Indonesia's external debt. According (Manuhutu, 2010), due to the depreciation of the domestic exchange rate against foreign currencies will increase the burden of foreign loans so that more and more depressed domestic exchange rate, the number of foreign loans is high. Results of the study according to the study carried out by (Setiawan, Indira & Paundralingga, 2007) that the exchange rate had a negative effect and signifikan on external debts in the long term

Other studies support that (Cain, Thaxter, Thomas, Thomas, & Walker, 2013), in which the long-term role in the exchange rate is inversely related to the external debt. Changes in a country's exchange rate affects the size of the external debt.

4.7.4 The Effect of Inflation on External Debt

Based on the estimates found that the variable inflation in the short term has a positive effect and no significant at α = 0.05 with a probability of 0.4989. This means that in the short term the variable inflation have a positive influence but does not have a significant impact on Indonesia'a external debt. The results of this study are consistent with the research conducted by (Ningrum, 2018), which found that inflation has a positive and not significant influence on Indonesia'a external debt.

The insignificant effect of inflation on external debt due to rising/falling inflation cannot significantly affect Indonesia's external debt. Because if there is inflation, the government does not directly take the policy of raising external debt, and conversely when there is deflation, the government does not directly reduce external debt. But when inflation occurs, the government carries out other policies such as conducting monetary policy by means of Bank Indonesia to reduce the money supply by raising interest rates.

Furthermore, based on the estimation results it is known that variable inflation in the long term has a effect positive and significant at α = 0.05 with a probability of 0.0560. This means that in the long term the variable inflation can influence Indonesia'a external debt as indicated by the significant variable inflation (lninf) on Indonesia'a external debt.

The positive relationship of inflation to external debt in accordance with domestic theory and imported inflation states that when a country experiences inflation it will cause the price of domestic goods to be relatively more expensive than the price of imported goods. Domestic products are difficult to compete with imported products. This will cause the export value to be smaller than imports, resulting in a deficit in the current account which will further increase external debt. So that inflation has a positive influence on external debt.

The same theory is also explained in Keynesian theory where when inflation increases, imports will increase. This is because domestic consumers will buy a lot of goods from abroad as a result of high domestic prices due to inflation. Furthermore, when the import value is higher, it will cause the current account deficit to add funds sourced from abroad. The results of this study are consistent with the research conducted by (Zakaria, 2012), and (Kwon, Mcfarlane, & Robinson, 2009), where the relationship between inflation and external debt is positive.

4.7.5 The Effect of Interest Rates on External Debt

Based on estimates found that the variable interest rate in the short term has a positive effect and no significant at α = 0.05 with a probability of 0.8000. This means that interest rate have a positive influence but does not have a significant impact on the Indonesia'a external debt.

No significant influence of interest rates on external debts because interest rates can not affect Indonesia's external debt significantly. The

Government will continue to raise external debt despite its benchmark interest rate in Indonesia has increased/decreased. Due to the short-term external debt used by the government for spending on structural and sectoral fields such as health, education and infrastructure. The results are consistent with research conducted by (Wibowo, 2012) that the GDP had a positive effect and no significant effect on Indonesia'a external debt.

Furthermore, based on the estimation results found that the variable interest rate in the long run have a negative effect dansignifikan at α = 0.05 with a probability of 0.0013. This means that in the long-term interest rates affect Indonesia's external debt as indicated by significant variable interest rate (lnsb) on Indonesia'a external debt.

This result is consistent with that proposed by Sukirno (2002), that the investment will be made by investors in accordance and in line with theories that there is such a classical theory and keynes that the theory is that if the interest rate is greater than the rate of return on capital, the planned investment is not profitable, so the investment will not be made by the investor.

Keynesian theory explains that when interest rates rise, then to a decrease in investment in the country so as to affect the decline in aggregate opinion. This will lead to a decrease in import capabilities. If the import value is lower than the value of exports will lead to a surplus in the current account that will reduce external debt. Therefore, according to the Keynesian theory that interest rates have a negative influence on external debt.

The results are consistent with research conducted by Rosalina (2018), where variable interest rates have a negative effect on the external debt.

5 CONCLUSION

In the short-term there is 1 (one) a significant variable that is the exchange rate, while in the long - term there are four (4) significant variables that budget deficits, exchange rates, inflation and interest rates. Other independent variables in the short term variables such as GDP, inflation and interest rates have a positive impact and no significant effect on Indonesia's external debt and budget deficit variables have a negative impact and no significant effect on Indonesia'a external debt. While in the long term variable GDP had a positive effect and no significant effect on Indonesia'a external debt.

The coefficient of determination (R^2) on the results of model estimation Engle Granger Error Correction Model can be explained that the variation of the external debt variable (Y) in the short term and long term able to be explained by variables that is equal to 0.944058, or by 94.4 percent, thus in the short term and long term variations that amounted to 94.4 percent of gross domestic product, budget deficits, exchange rates, inflation and interest rates. While the remaining 5.6 percent is explained by variables outside the model (not examined).

There are some suggestions that can be used as a recommendation, including for Bank Indonesia and the Government to adopt policies to maintain inflation stability, interest rates and the rupiah exchange rate so as to encourage an increase in national income and reduce external debt. Further restricting the import of goods from other countries and maximize the results from the source country of Indonesia. This will increase exports so that there is a surplus in the current account. Then reduce dependence on external debt by means of further enhancing the country's national income from taxes and natural resources and human resources of Indonesia. And to further research needs to examine this further research using different approaches.

REFERENCES

Abdullahi, M. M., Bakar, N. A. B. A., & Hassan, S. B. (2015). Determining the Macroeconomic Factors of External Debt Accumulation in Nigeria: An ARDL Bound Test Approach. *Procedia - Social and Behavioral Sciences*, *211*(November), 745–752. https://doi.org/10.1016/j.sbspro.2015.11.098

Alin, H. G. (2015). Public Debt In The EU Countries., *Annals of Constantin Brancusi University of Targu-Jiu. Economy Series*, 275–280. ISSN 2344–3685/ISSNL1844-7007.

Anisa, A. C. (2017). Faktor-faktor yang Mempengaruhi Neraca Pembayaran Indonesia. *JOM Fekon*, 4(1). 313-324.

Badan Pusat Statistik. https://www.bps.go.id

Bank Indonesia. http://www.bi.go.id

Basri, F. (2002). *Perekonomian Indonesia; Tantangan dan Harapan bagi Kebangkitan Ekonomi Indonesia*. Jakarta: Erlangga.

Boediono. (1985). Ekonomi Moneter Edisi 3. Yogyakarta: PPFE.

Cain, D., Thaxter, A., Thomas, D. A., Thomas, K., & Walker, A.-A. (2013). The Original Sin and Exchange Rate Dynamics: Panel Cointegration Evidence. American Charter of Economics and Finance, 2(2), 1–23. https://doi.org/10.2139/ssrn.2312425

Harahap, D. M. (2008). Mempengaruhi Utang Luar Negeri Indonesia. *Usu E_Repository*, *8*.

Kwon, G., Mcfarlane, L., & Robinson, W. (2006). Public Debt, Money Supply, and Inflation: A Cross-Country Study and Its Application to Jamaica. *International Monetary Fund (IMF) Working Papers*. 56(3). 1-37.

Mankiw, Gregory N. (2006). *Principles of Economics, Pengantar Ekonomi Mikro*. Edisi ketiga. Jakarta: Salemba Empat

Manuhutu, Y. (2010). Nilai Tukar Berpengaruh Terhadap Pinjaman Luar Negeri Indonesia, 1997-2007. *Eko-Regional*, *5*(2), 81–86. https://doi.org/10.1007/BF02657288

Ningrum, R. M. (2018). Analisis Error Correction Model Terhadap Utang Luar Negeri Indonesia Tahun 1992-2016. *Univesitas Muhammadiyah Surakarta.*

Rosalina. (2018). Analisis Interdependensi Produk Domestik Bruto, Inflasi, Suku Bunga dan Nilai Tukar terhadap Utang Luar Negeri Indonesia. *Tesis.* Universitas Negeri Medan

Saputro, Y. D., & Soelistyo, A. (2017). Analisis Faktor-faktor Yang Mempengaruhi Utang Luar Negeri Indonesia. *Jurnal Ekonomi Pembangunan, Vol X Jilid X*, 45–59. https://doi.org/10.1155/2014/757618.

Setiawan, I., Indira, D & Paundralingga, A, Y. (2007). Pembayaran Pinjaman Luar Negeri Korporasi dan Pergerakan Rupiah, *Bulletin Ekonomi Moneter dan Perbankan, Bank Indonesia*. 9(3). 31-71. doi: https://doi.org/10.21098/bemp.v9i3.208.

Sukirno, S. (2002). *Pengantar Teori Makro Ekonomi*. Jakarta: Rajawali Press.

Tambunan, T. (2008). Pembangunan Ekonomi dan Utang Luar Negeri. Rajawali Pers: Jakarta.

Todaro, P. M. (2011). *Ekonomi Pembangunan di Dunia Ketiga*. Jakarta: Bina Aksara.

Triyono. (2008). Analisis Perubahan Kurs Rupiah Terhadap Dollar Amerika. *Jurnal Ekonomi Pembangunan*, *9*(2), 156–167.

Wibowo, C. (2012). Analisis faktor-faktor yang mempengaruhi beban hutang luar negeri Pemerintah Indonesia, *Universitas Sebelas Maret.*

Zakaria, M. (2012). Interlinkages Between Openness and Foreign Debt in Pakistan, *Dogus Universitesi Dergisi* 13(1), 161–170.

Zulkarnain, D. (1996). *Masalah Utang Luar Negeri Bagi Negara-Negara Berkembang dan Bagaimana Indonesia Mengatasinya*. Jakarta: Fakultas Ekonomi Universitas Indonesia.