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RUPIAH EXCHANGE RATE FLUCTUATION AND CURRENT ACCOUNT

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Abstract

The Rupiah exchange rate is an economic variable which is very sensitive toward the changes in both economy and non-economy. The stability of Rupiah exchange rate has influenced macro economic variables like current account and finally influenced economic stabilities. Thus, it is interesting to make a research on it. The research would choose and analyze approach models of Rupiah exchange rate to USA dollar connected with current account. The Ordinary Least Square analysis model was used in this test in order to find the relation between independent variable and dependent variable. The result of the study showed that exchange rate variable influence significantly to current account. This conclusion was in accordance to elasticity approach with Marshall-Lerner condition. Another result showed that gross domestic product influenced current account significantly and this was also in accordance to Global Monetary Approach Balance of Payment with purchasing power parity concept.

Keywords : exchange rate, current account, economic stability, Marshall-Lerner condition, purchasing power parity.

Introduction

The influence of exchange rate policy towards economy could be seen from demand and supply. In demand, foreign exchange rate depreciation will result on higher price of foreign goods compared with domestic one. Thus, there will be increase in domestic demand as well as export. Price elasticity concept by *Marshall-Lerner Condition* enriched this analysis. It is stated that exchange rate depreciation will increase net export when the sum of price elasticity for imports and exports demands is more than one.

In supply, foreign exchange rate depreciation will increase the cost of raw materials import that result on production output decrease and inflation. The direct interaction between demand and supply will influence international trade flows. It is reflected on balance of trade in macro indicator.

It is clear that monetary authorities used exchange rate to boost export by observing Indonesia international trade performance all this time (Waluyo and Siswanto, 1998). Devaluation in Indonesia happened when fixed exchange rate system was used to increase export competitiveness that might be able to avert current account deficits. Devaluation policy did not increase the export significantly even after using the policy several times. According to international economy theories and some empirical studies, it is clear that devaluation or depreciation policies are aimed to fix current account of a country.

Adelman (1999) stated that domestic currency appreciation will decrease export competitiveness. In turn, it will also increase current account deficit and vice versa. Raja (2003) stated that depreciation and domestic currency appreciation was not an effective way to correct the current account imbalance.

The contradiction between two studies above has brought a new interesting issue to conduct a new study about the real impact of rupiah fluctuation towards current account in Indonesia. Thus, the problem to be discussed in this research is: How does Rupiah exchange rate to US dollar variables and national real income affect current account?

Current account Analysis

Current account analysis gives more emphasize on export and import activities. In theory studies, some approaches are able to explain current account analysis (Faik K and Douglas McMillin, 1999)

a. Elasticity approach

This analysis concept emphasised on the important role of export and import in understanding balance of payment. This approach give emphasize on balance of trade concept as differentiation between export and import. Elasticity approach is closely related to *Marshall-Lerner Condition* concept. According to *Marshall-Lerner condition*, both appreciation and depreciation of exchange rate fluctuation will be beneficial to influence current account if the sum of price elasticity for imports and exports demand is more than one. Nevertheless, the number of elasticity is not the only determining factor. The production scale of a country is also determining. If the country has huge production scale that affect international

market, exchange rate fluctuation will bring big influence towards the economy of the country. In contrary, if the country has small production scale in international market, the policy of exchange rate will only change the value of goods in absolute way. If the small country conducts devaluation, the impact will be not only the increase of export earnings, but also import expense.

b. The absorption approach

This approach give more emphasized on devaluation impact towards the current account. The current account is defined as the difference between income and absorption. In this concept, devaluation has tendency to fix the current account only if devaluation is able to reduce relative income expenses. If the absorption is bigger than income, so that the difference has to be covered by import, the current account will be deficit. In the other hand, absorption can be related to the use of saving-investment balance or leakage-injection. If domestic saving does not cover the investment needs, it is necessary to import foreign saving in form of foreign investment. If the income of a country is smaller than absorption level, the investment will be bigger than the saving, as the consequence, current account deficit occurred. Thus, foreign investment in form of capital flow is needed.

c. Monetary approach

There are two versions of this approach. First, *Equilibrium Monetary Approach Balance of Payment* (EMABP) and *Dis-equilibrium Monetary Approach Balance of Payment* (DMABP). (Miller, 1978). EMABP stated that money market has flow form and it is stable. In a country where economy grows relatively small or almost none and the price and interest level are relative with international scale, the ratio between the changes of international reserve and domestic asset from central bank is equal to -1. DMABP version surely stated that the money market equation has flow behaviour and views money market in imbalance position. The imbalance derived on the demand of goods market in *excess demand* and also the imbalance from constraint budget in economy.

d. Global Monetary Approach Balance of Payment (GMABP) approach

There are two important elements in GMABP. First, It used monetary group thought in disequilibrium current account analysis that emphasized money supply and demand. Second, GMABP placed its assumption of global economy integrity, especially at commodity market. Monetary group assumed that commodities from different countries still have substitution characteristics. Thus, the exchange will aimed at the law of one price in free trade. The current account balance in this approach is defined as the world's income and expense equivalence or the equivalence of domestic hoarding and foreign dishoarding (Hallwood and McDonald, 1995). In exchange rate fluctuation case, it refers to devaluation, the effect was the increase of foreign hoarding with current devaluation level. The increase is based on the price level movement that grows as big as devaluation change.

Previous Research

A study conducted by Djiwandono (1980) about monetary approach towards balance of payment analysis in the open economy context of Indonesia, showed that (1) the changes in national income and price level at the same time will fix current account position, (2) devaluation policy had positive effects toward current account in short period, (3) by assuming that other variables that formed other research model as external factor, accordingly, there are significant proof that the proportion of money demand and international reserve (in balance of payment) has negative proportional characteristic.

Waluyo and Siswanto (1998) showed that elasticity of real exchange rate towards a quite big and significant non-oil and gas export implied exchange rate policy (rupiah depreciation) that happened in Indonesia influence the work of non- oil and gas export. However, it didn't have direct effect, but needed lag. Besides, the research also showed that the influence of exchange rate advanced bigger and faster exports before monetary crisis in 1997.

Maand Cheng (2003) conducted research on the effect of exchange rate fluctuation towards international trade. The research results showed that the exchange rate fluctuation effect during the monetary crisis in 1997 brought negative impact in import, in contrary, it gave positive impact in export. The decline of domestic currency would reduce import in short term and stimulate export for long term.

Research Methodology

The data used in this research is secondary data in form of time series, form quarter period of 2000.1 to 2015.4. To analyse the influence of rupiah exchange rate to US Dollar towards current account, the writer used current account (CA_t), rupiah exchange rate to US Dollar (ER_t), and Gross Domestic Product (GDP_t)

Research Model

The model used to analyse the influence of rupiah exchange rate towards current account is :

$$CA_t = \beta_0 + \beta_1 ER_t + \beta_2 GDP_t + e$$

where :

- CA_t : Indonesia current account
ER_t : Rupiah exchange rate to US Dollar
GDP_t : Indonesia Gross Domestic Product

Tools of Analysis

This research used *Ordinary Least Square* (OLS) and regression analysis assessment models. Regression analysis was used to see the influence of independent variable towards dependent variable. Next, the relation of each independent variables and how far the relation of independent variables influenced dependent variables were acquired by using *Ordinary Least Square* (OLS) from linear regression analysis.

DISCUSSION

Model estimation

This research model used *Ordinary Least Square* (OLS) assessment. The data treatment result showed that the R-square that valued 0.793225 meant 79,32 % of the dependent variable was able to be explained by exchangerate variable and National Income set variation. At the other hand, the F-sat value : 8.2628 was bigger than F table : 4.98 and significant by 1%. It implied that independent variable collectively influenced dependent variable.

Table 1 : Estimation Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1403.492	307.0657	4.570656	0.0000
KURS	0.276307	0.068128	4.055715	0.0001
GDP	-0.002710	0.000921	-2.942625	0.0044
R-squared	0.793225			
F-statistic	8.262871			
Prob(F-statistic)	0.000607			

Source : processed data

Classical assumption test

a. Autocorrelation test

This research used assumption that had no autocorrelation or correlation series in its disturbance term. *Breusch Godfrey Test* (B - G Test) was used in this test. The data treatment result showed that the value of χ^2 count = 3, 32925 < χ^2 value at 27.9907 table by 99% significance level or it had no autocorrelation in the model.

b. Heteroscedacity test

This test was conducted by using *Metoda Glejser*. It regressed absolute residual value from free variable. The data treatment result showed that each dependent variable was not significant towards independent variable, where GDP significance level GDP : 77,29 % and exchange rate : 94,71 % . It was concluded that *heteroscedasticity* was neglected in the model.

c. Multicollinearity test

In order to find out the existence of multicollinearity, the test was conducted by regressing main model and partial model. Next, it was compared with R² and partial regression was counted with main R² model. Based on the result on table 6, it could be seen that R-square value from three dependent variable of partial model were: GDP : 0.637 and exchange rate : 0.6702, smaller than R-square value from main model 0.7932 . Based on the decision making, it was concluded that *multicollinearity* was neglected in the model.

Normality and Linearity tests

Normality test was conducted by using *Jarque-Bera Test*. The data result showed that the value of J-B was 2.3308. It was smaller than the value of χ^2 table 27.997. It means that residual u_t model distributed normally in significance level by 99%.

Ramsey Test and *general test of specification* were conducted in linearity test. The result showed that the value of F-sat : 0.1207 < F tabel : 2.23 in significance level of 0.90. Thus, it was concluded that linear model was accepted.

Goodness of Fit Test

This test was meant to find the compatibility of the model, whether the independent variables in the used model were able to explain independent variable. This research result showed that the value of R^2 from the estimated model showed the value of 0,7932. Thus, it was concluded that the research model was *fit*.

Discussion

The estimation result from the model showed that Exchange Rate variable was able to explain the variation of current account variable with significance value 0.0001. Whereas the Exchange Rate variable coefficient was positive 0.276307. It showed 1% raise of Exchange Rate variable (that means Rupiah exchange rate to US dollar was depreciated) and it would push the raise of current account surplus by 0.27%. It was caused by Rupiah depreciation (US Dollar appreciation) in One Law Price international trade theory. Thus it gave impact on price decreasing of Indonesia goods/service product. The decrease would make increasing demand of the goods/service from foreign country (It was in accordance to Demand Theory). As a result, the value of goods/service was increasing.

In the other point of view, foreign currency appreciation or Rupiah depreciation would arouse the increasing price of foreign goods/service, whereas the demand of foreign goods/service was decreasing (in accordance to Demand Theory). Both conditions would lead to current account surplus.

GDP variable or national income affected the movement of current account variable. It could be seen from the low significance level by 99.96%. The two variables movement had contradictive characteristics that could be seen from GDP coefficient by 0.0027 (negative). It means that if there is national income increase by 1%, it will lead to current account surplus decrease by 0.0027.

There are 3 Keynes theories about demand motives : transaction motive, precautionary motive, and speculation motive . Money demand motive for transaction was influenced by income. If GDP increased, then the money demand for goods/service increased. In consumption theory, the increase of public income caused purchasing power increase. As a result, goods/service consumption would also increase.

Based on both theories, it is concluded that the raise of GDP would increase the demand of imported goods/service. As a result, it tend to decrease the current account surplus.

Conclusion

Based on the data treatment and discussion, it was concluded that, Exchange Rate variable in the model influenced current account in short term. It was in accordance to Demand Theory, where Rupiah fluctuation (depreciation) caused the increase of foreign goods price. Thus, it tended to decrease import. GDP variable affected current account and it was in accordance to Keynes and One Law Price theories. When national income increased, purchasing power would also increase. As a result, goods/service consumption increased as well as import through transformation effect.

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