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Analysis of Factors Affecting Rupiah Exchange Rate Toward US Dollar In Free Floating Exchange Rate System

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Abstrak. The purpose of this study is to analyze the effect of inflation, the current account balance, and the interest rate on the exchange rate of the rupiah against the dollar after the application of the free floating exchange rate system. The data used in this study is the time series from 1997 semester 1 to 2018 semester 2. The analysis tool used is multiple linear regression with ordinary least square (OLS) model. The results of the analysis show that the current account and interest rates variables have a positive and significant effect on the rupiah exchange rate at a 5 percent significance level. The inflation variable has a negative and not significant effect on the rupiah exchange rate. The implication of this finding is that the government and Bank Indonesia must continue to monitor and control interest rates and increase exports so that the current account balance remains surplus.

Keywords: Exchange Rate, Inflation, Current Account, Interest Rate, floating Exchange Rate System

1. INTRODUCTION

In the era of globalization, the ASEAN Economic Community movement encouraged international trade. International trade that occurs between one country and another leads to economic relations that are increasingly tied through export and import activities. Where a country exports so that it can penetrate the international market in marketing its products and importing goods at low cost.

Increasingly easy international trade and less barriers to international trade, resulting in an increase in the volume and value of international trade (Kartikaningtyas, 2014). Thus, in carrying out international trade transactions a currency that has been agreed upon by a country that exports and imports is needed as a means of payment, so that in order to support international trade activities with other countries, a country must change the currency to be used in the agreed currency. This exchange rate change causes exchange rate risk which will directly affect the price development of goods and services in the country.

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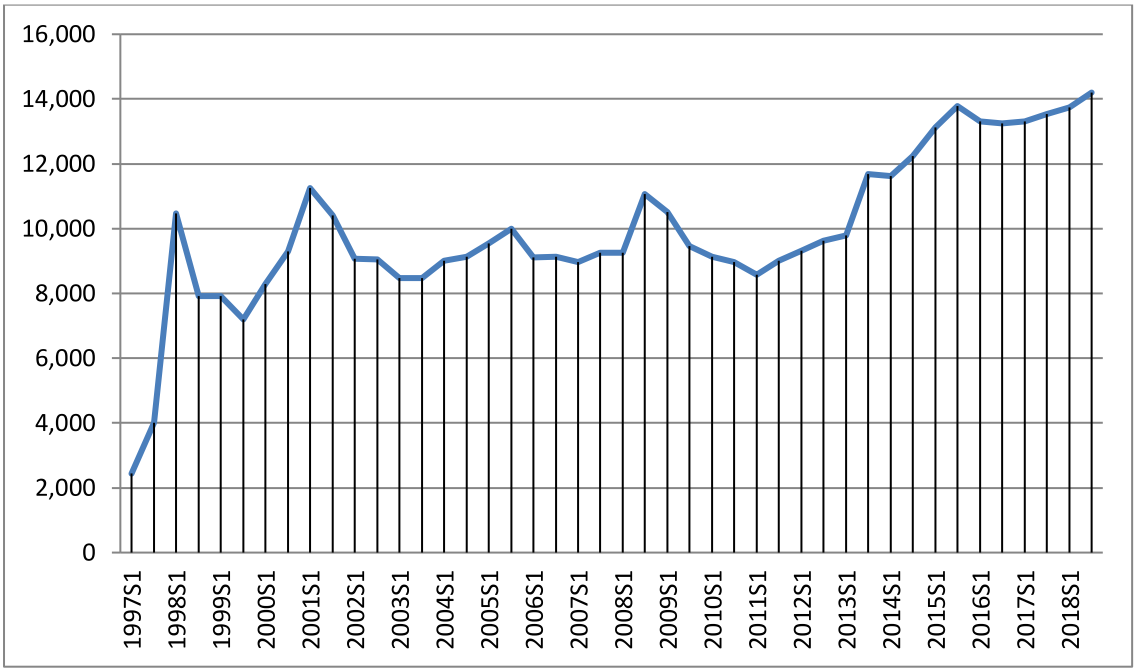
The existence of the currency exchange rate has an impact on currency appreciation and depreciation (Puspitaningrum, 2014). Every country must maintain the stability of the exchange rate, as happened in countries in Asia during the monetary crisis in 1997-1998, the exchange rate crisis can have a detrimental effect on the economy, such as prices that soar and have an impact on the economic contraction that is quite deep (Simorangkir and Suseno 2004). Therefore the stability of the currency is very important to be achieved so that a country can avoid the extreme economic crisis.

Indonesia in maintaining and maintaining rupiah stability is the duty of Bank Indonesia. Bank Indonesia is given the authority to determine the exchange rate system as stated in Law Number 24 of 1999 concerning foreign exchange flows and the exchange rate system which reads "Bank Indonesia submits the Exchange Rate System to be determined by the Government". According to Indonesia's economic history, Bank Indonesia once carried out a policy related to the establishment of an exchange rate system during the 1997 and 1998 monetary crises by changing the controlled floating exchange rate system to a free floating exchange rate system. The following is a picture that shows the exchange rate after the application of free drawing.



Source: Bank Indonesia, 2019

Picture . Rupiah Exchange Rates from 1997 - 2018 per semester

Figure 1 shows the exchange rate of the rupiah against 1997 to 2018. During the 1998 monetary crisis there was a considerable weakening as well as the beginning of the application of the free floating exchange rate system. After Bank Indonesia adopted the free floating exchange rate system, the condition of the rupiah exchange rate against the US dollar had a fluctuating tendency in the period after the monetary crisis in 1998.

Free floating exchange rate systems, exchange rates always experience changes that are difficult to predict. Changes in exchange rates depend on the amount of demand and supply of foreign exchange against the domestic currency in this case the Indonesian currency. Exchange rates can be influenced by several variables including inflation, the current account balance, and interest rates. Inflation is one factor that has a very large influence on foreign exchange exchange rates.

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Inflation is a condition of an increase in the price of goods and continuously and for a certain period of time (Nopirin, 2013). The prevailing inflation generally tends to reduce the value of a foreign exchange. This trend is due to the effects of inflation as follows: (i) inflation causes domestic prices to be more expensive than foreign prices and therefore inflation tends to increase imports, (ii) inflation causes prices of exported goods to be more expensive, by therefore inflation tends to reduce exports. Circumstances (i) cause the demand for foreign exchange to increase, and the situation (ii) causes the supply to the foreign exchange to decrease; then the price of foreign exchange will increase, this means the price of the currency of a country experiencing inflation has dropped (Sukirno, 2013).

Interest rates also affect exchange rate conditions. According to Simorangkir and Suseno (2004), based on the interest rate parity theory, if the impact of the policy of increasing interest rates, so that domestic interest rates are higher compared to foreign interest rates, then this will have an impact on increasing capital inflows. This increase in capital flows will increase the amount of foreign exchange. then it will make the exchange rate of the domestic currency increase. This is supported by the findings of Arifin (1998) and Warjiyo (1998) stating that the use of interest rates is the operational target of monetary policy in suppressing the rupiah exchange rate.

According to Kuncoro (2001), there are several approaches used to analyze exchange rate fluctuations, one of which is the balance of payments approach. Balance of Payment (BOP) is a financial report that describes transactions of goods, services, and capital in a period. Information from the balance of payments can provide a total value of how much the source of funds flows from one country to another, thus indicating whether the country is an exporter of goods and capital, or vice versa as an importer of goods and capital. According to Machpudih (2013), the balance of payments is the sum of the current account and capital account, so that it can show the flow of funds to and from abroad. The flow of funds has caused demand and supply of foreign and domestic currencies to experience changes. The change in demand and supply of foreign and domestic currencies has an effect on the exchange rate of the traded currency. If the demand for foreign currency increases due to the need for transactions that must use foreign currency, then this can cause the exchange rate of the domestic currency against foreign currencies to depreciate.

Based on the description above, the thing behind this research is the existence of a policy from Indonesian banks regarding the establishment of a free floating exchange rate system. With the policy of a free floating exchange rate system, the condition of the rupiah exchange rate against the US dollar has a fluctuating tendency in the period after the monetary crisis of 1997 to 2018. Based on the formulation of the problem, the purpose of this study is to analyze the influence of inflation, interest rates and current account transactions on the exchange rate after the application of the free floating exchange rate system.

2. RESEARCH METHODS

The data collection method used in this study is a method of non-participant observation, an observation data collection technique where researchers are not directly involved but as independent observers (Gujarati, 2012). The location of the study in Indonesia using secondary time data starting from 1997 semester 1 to 2018 semester 2. The dependent variable in this study is the exchange rate of the rupiah against the US dollar as measured in rupiah units and the independent variable is inflation measured in units percentages, interest rates measured in percentage units, and current transactions measured in US dollars. This study uses multiple linear regression models with Ordinary least Square (OLS) models (Gujarati, 2012). With the research equation as follows:

$$\mathrm{ER} = B_0 + B_1 INF_1 + B_2 CA_2 + B_3 IR_3 + e$$

Keterangan :

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ER = Exchange Rate(Percent)

INF = Inflation (Percent)

CA = Current Account (US Dollar)

IR = Interest Rate (Percent)

e = residual (error term)

The next stage is the classic assumption test where in the use of regression, there are some basic assumptions that can produce the Best Linear Unbiased Estimator (BLUE) from the regression model obtained from the Ordinary Least Square (OLS) model. By fulfilling these assumptions, the results obtained can be more accurate and close to or equal to reality, where the basic assumptions are known as classic assumptions. To get the results of fulfilling these characteristics, classical assumptions were tested which included normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test (Gujarati, 2012).

3. RESULTS AND DISCUSSION

To analyze the effect of inflation, current transaction balance and interest rates this study uses multiple linear regression with the Ordinary Least Square (OLS) model. The following table shows the estimation of the results of multiple linear regression.

Table 1. Results of Multiple Linear Regression

Variables	Coefficient	t-Statistic	Prob.
Konstanta	11,92430	13,96251	0,0000
INF	-0.079549	-1.786847	0.1608
CA	3,384926	4,184714	0,0001
IR	0,924471	2,493855	0,0174
T-tabel			1,994
F-hitung			4.135677
F-tabel			2,79
R_2 –squared			0,532764

Source: Data processed, 2019

In the regression model of the multiple linear Ordinary Least Square (OLS) model, it must pass the basic assumption that can produce the Best Linear Unbiased Estimator (BLUE). This study has passed the basic assumptions known as classical assumptions. Classical assumptions include normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test, so it can be stated that this study is the Best Linier Unbiased Estimator (BLUE).

The results of the regression output analysis show that the inflation variable regression coefficient is -0.079549 and the probability value is 0.1608. This shows that the inflation variable has a negative and not significant effect on the rupiah exchange rate. These findings are in line with Abdurehman & Hacilar (2016) and Shojaeipour & Akin (2017) which show that inflation has a negative and not significant effect on exchange rates. Theoretically the relationship between inflation and the movement of the rupiah exchange rate on the American dollar is inversely proportional. This means that if the inflation rate increases and the currency weakens. If this

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condition occurs continuously, it will have an impact on the overall worsening economic conditions and shocks to the political stability of a country.

In the year of observation after the application of the free floating exchange rate system in 1997 semester 1 to 2018 semester 2 showed that in 1998 the conditions of Indonesian inflation were very extreme, post-crisis in 1998 conditions of Indonesian inflation fluctuated at the level of mild inflation. Especially after the implementation of the Inflation Targetting Framework (ITF) in 2005 where the government through Bank Indonesia determined and announced the inflation target achieved to make inflation more manageable. However, the unsignificant effect of the previous semester's inflation on the growth of the exchange rate reflects that exchange rate growth is more influenced by other factors.

Although the influence of inflation on the exchange rate but the Indonesian government and banks still have to maintain inflation stability. Bank Indonesia in controlling inflation, coordination with the government will continue to be strengthened. Coordination was carried out at the central and regional levels, both in the form of the Inflation Control Team (TPI) and the Regional Inflation Control Team (TPID). The coordination that has been going well has been directed intensively to overcome some of the main problems, such as reducing volatile food inflation, reducing the impact of exchange rate depreciation on rising prices of public goods, and ensuring the availability and smooth distribution of food supplies. Through coordination of these policies, inflation is expected to be directed at the target range.

The results of the regression output analysis show that the current account balance regression coefficient is 3.384926 and the probability value is 0.0001. This shows that the current account balance variable has a positive and significant effect on the rupiah exchange rate per US dollar, so that the meaning that if exports are increasing will have an impact on the increase in the rupiah exchange rate or in other words the rupiah depreciates more against the US dollar.

Theoretically, the rupiah exchange rate is determined by the exchange and demand for the US dollar. Demand and supply depend on exports and imports, if the export value is greater than imports, then the current account is likely to be surplus. Export payments require rupiah currency, while imports require foreign currency. Thus, an increase in the quantity (volume) of exports will increase the demand for the currency of the rupiah, so that the exchange rate of the local currency will strengthen against the currencies of the trading partner countries. Likewise, if imports decrease, it will make the demand for US dollars decrease, so that the US dollar will weaken against the rupiah.

This is in line with the findings of Sanggor (2013) and Hounsou (2017) which show that when the current account balance has a surplus, it will have an effect on the appreciation of the exchange rate. This is in accordance with the theory, when the value of the current account balance is surplus, causing greater domestic foreign currency reserves which will have an impact on the strengthening of the exchange rate. In the period before the adoption of the free floating exchange rate system, net exports which are still dominated by the export of raw materials or raw goods have a negative and significant influence, which means that Indonesia's net exports are one of the factors used by the government in this case Bank Indonesia in determining the limit of the rupiah exchange rate range. The results of data analysis after the application of the free floating exchange rate system, namely in 1997 semester 2 to 2017 semester 2 showed that net exports also had a negative and significant effect on the growth of the rupiah exchange rate against the US dollar.

The results of the analysis show that the interest rate regression coefficient is 0.924471 and the probability value is 0.0174. This shows that the interest rate variable has a positive and significant influence on the rupiah exchange rate per US dollar. This finding is in line with Atmadja (2002)

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and Twarowska and Kakol (2014) which show that interest rates have a positive and significant influence on exchange rates. This is the theory which states that when the interest rate increases it will have an increase in exchange rates or also called appreciation. Mishkin (2008) states that when the interest rate increases it will have an impact on decreasing the number of financial investments, investors expect a higher rate of return from invested assets.
This finding is in line with Sanggor (2013), Ramasamy (2015), Tafa (2015) and Sarac & Karagoz (2015) which state that the interest rate has a positive effect on changes in exchange rates. The interest rate determines the added value of a country's currency. The higher the interest rate of a currency, the higher the demand for that currency. The interest rate is regulated by the central bank, and the trend of the exchange rate of the country against other countries will tend to rise. This will continue until there are other factors that influence central bank again reduce interest rates.

4. CONCLUSION

Based on regression estimation results show that the inflation variable has a negative and not significant effect on the rupiah exchange rate. The current account and interest rates variables have a positive and significant effect on the rupiah exchange rate. This finding implies that the special government must increase exports and reduce dependence on imports from other countries, so that it will cause the current account balance to surplus and result in the exchange rate of the rupiah. In addition, inflation must also be controlled by Bank Indonesia so that the foreign exchange rate against the US dollar is maintained.

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