Comparative Analysis of Dollars Exchange Rate against Yuan In USA - China Trade War Period

Ni Kadek Ria Puspayanti[1], Ni Putu Wiwin Setyari[2]

[1] Department of Economics, Udayana University, Denpasar, Bali, Indonesia

[2] Department of Economics, Udayana University, Denpasar, Bali, Indonesia

Abstract

This study aims to analyze the effects of the trade war, inflation, net exports, and the yuan devaluation policy with the dollar to yuan exchange rate during the 2017-2019 US-China trade war period. The method used is parametric regression with stages in the form of f test, classical assumption test, and t test. The results in this study indicate that partially the trade war and the yuan devaluation policy have a significant effect on the appreciation of the dollar exchange rate, and simultaneously the variables of trade war, inflation, net exports, and the yuan devaluation policy affect the dollar exchange rate against the yuan.

Keywords: Exchange Rates, Trade Wars, Inflation, Net Exports, and Yuan Devaluation Policies.

1. Introduction

The US-China trade war is significant and will likely result in multiple economies being dislocated to both economies. The US currently has the largest trade deficit with China, something that President Trump always mentioned [1]. The role of the Chinese government over the domestic economy and financial markets allows it to adjust its exchange rate so that it devalues the yuan against certain currencies, such as the US dollar, while its value is unchanged against other currencies. This causes Chinese exports to the United States to become cheaper, results in more exports to the United States, and thereby counteracts the ill effects of US tariffs. [2].

The exchange rate is important because of its influence on the economy. Changes in exchange rates can be influenced by several factors. The first factor is the influence of the trade war between the United States and China. The United States dollar index fluctuated in trade in August 2019 amid the escalation of the United States-China trade conflict. The Chinese government's actions to allow the devaluation of yuan exchange rate against the US dollar in recent weeks in response to a planned 10 percent tariff on China's remaining imports to the US have put pressure on developing countries' currencies across Asia.

The second factor is the inflation rate. Inflation is the process of increasing the general prices of goods continuously [3]. Inflation affects the demand for foreign currency which will affect the appreciation or depreciation of the dollar exchange rate. In this study, the inflation variable was included in the control variable because it was not the main focus of the study but had an influence on the dependent variable.

The third factor is the effect of a country's net exports. Imports have a positive effect on exports where every business or policy that supports an increase in imports will cause exports to increase, especially if imported goods are capital goods aimed at supporting the growth in the production of exported goods [4]. In this study, the net exports variable was included in the control variable because it was not the main focus of the study but had an influence on the dependent variable. The fourth factor is the yuan devaluation policy. The devaluation of the yuan exchange rate is aimed at increasing the competitiveness of its products so that domestic production experiences more competitive [5].

2. Literature Review

Hilland, A., & Devadoss, [6]
Shows the effect of an underestimated yuan on China's trade with the US and other countries. A low Yuan exchange rate will increase US imports from China and reduce US exports to China, which will lead to a US trade deficit. The study results have shown that the decline in the exchange rate of the currency also affects other trading partners of these two countries.

Avdjiev, S., Bruno, V., Koch, C., & Shin, H. S [7]
Shows that the strengthening of the dollar exchange rate has a significant macroeconomic effect in the opposite direction to the standard trade route. While a stronger dollar exchange rate tends to increase net exports, the dollar's dampening effect on investment could dampen the gains arising from the trade route.

3. Problem Formulation

The hypothesis of this project is:
   i. It is suspected that the dollar exchange rate against the yuan is higher during a trade war than when there is no trade war
   ii. It is suspected that the dollar exchange rate against the yuan is higher during the yuan devaluation policy than when there was no yuan devaluation policy
   iii. It is suspected that the trade war and the yuan devaluation policy simultaneously affect the dollar exchange rate.

4. Research Methodology

- Monthly secondary data on trade war, inflation, net exports, yuan devaluation policy in the 2017-2019 range
- F test analysis to fit the model
- Analysis of the classical assumption test with 4 stages: normality test, multicollinearity test, autocorrelation test, heteroscedasticity test
- Partial testing using the t test
- The test was carried out using the SPSS version 17 for windows application

5. Analysis Result

The f-test result shows the R^2 value of 0.693 which shows that the variables of trade war, inflation, net exports, and the yuan devaluation policy have a strong influence on the exchange rate. This means that 69.3% of the exchange rate variation is influenced by trade wars, inflation, net exports, and the yuan devaluation policy, while the remaining 30.7% is influenced by other factors not included in the model. The f test result shows that the sig 0.00 is less than 5%, which means that simultaneously the variables of trade war, inflation, net exports, and the yuan devaluation policy are significant to the exchange rate.

The normality test used a statistical test with the parametric Kolmogorov-Smirnov Test (K-S). The Kolmogorov-Smirnov statistical value is 0.496 with a Sig (2-tailed) of 0.967 greater than 0.05. This means that the residual data is normally distributed and passes the normality test. Multicollierity test using a variant inflation factor (vif). The test results show that the calculated value in the tolerance column is more than 0.10 and the value in the VIF column is lower than 10, it can be concluded that there is no multicollinearity between the independent variables in the regression model.

The autocorrelation test uses the Durbin-Watson test (DW-test). The autocorrelation test results show that the value of DW = -2 <0.462 <2, it is concluded that there is no autocorrelation in the regression model. Heteroscedasticity test performed using the Glejser method. The test results show that the significance probability value is above 0.05, so it can be concluded that the regression model does not contain heteroscedasticity. The results of regression testing using the t test show that partially the variable trade war and the yuan devaluation policy causes an appreciation of the dollar exchange rate against the yuan. Meanwhile, the inflation and net export variables have a negative effect on the dollar exchange rate.

6. Conclusion

With this tariff policy, it will trigger a longer trade war which will have an impact on the stability of the two countries and the global economy, and the yuan devaluation policy carried out by China will disrupt international trade due to the decline in the price of the yuan exchange rate. This policy will make export prices from China cheaper so that it is increasingly difficult for other trading partners to conduct trade which causes international trade activity to become unstable.

7. References

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