ANALYSIS OF EQUILIBRIUM PHENOMENA SHORT TERM AND LONG TERM FLUCTUATIONS CURRENT ACCOUNT BALANCE IN INDONESIA

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Abstract

This study aims to describe the influence of the Indonesian economy, the Japanese economy, the US economy, the Chinese economy and the exchange rate against the ratio of the current account to GDP in Indonesia, both in the short term and in the long term. in this study in the form of time series data from the first quarter of 2000 - the fourth quarter of 2014. The analysis model used is Ordinary Least Square (OLS), an error correction mechanism (ECM) and Co-integration.
The study concluded that the results of the OLS estimates showed a significant difference between the Indonesian economy, the US economy, Japan's economy, China's economy and the exchange rate against fluctuations in the current account in Indonesia. While based on the estimation of the ECM showed there is an imbalance in the short term or short-term relationship between changes in the economy United States, Japan and China as well as changes in the exchange rate fluctuations to changes in the current account. While the change in the Indonesian economy in the short term does not cause fluctuations in the current account. Additionally, based on the estimation of cointegration although short-term fluctuations of an imbalance in the current account, but in the long-term fluctuations in the current account will lead to equilibrium.
Based on the above conclusions, the suggestions that can be raised is the need to foster harmonious working relationship Indonesia with trading partner countries, the need for trade policy strategy, especially in diversifying their main trading partner for exports.

I. Introduction

The current account is one of the macroeconomic indicators are often used as a reference in assessing the economic stability of a country. One reason is that the current account reflects the strength of the international competitiveness of a nation and the extent to which the nation utilizing the resources (Uneze and Tail, 2012).

After the economic crisis in 1997/1998, the value of Indonesia's current account was relatively stable and generally has a positive value. But since the global financial crisis that hit the world in 2008, the current account Indonesia directly affected until the fourth quarter of 2009. These conditions have resulted in the current account balance fluctuated Indonesia. Fluctuations in the current account implies that imports greater than exports so much capital flee abroad. Fluctuations in the current account is calculated by dividing the value of the current account with the Gross Domestic Product (GDP) and multiplied by 100%.

There are several factors that affect the current account of a country theoretically. According to Dornbusch (2004) that the current account of a country is affected by domestic output, output abroad and exchange rate (exchange rate). The theory didapatlah output of foreign influence over the current account Indonesia are Japan, the United States and China. Indonesia third country trading partners are the three countries that have the highest intensity of trade compared with the state - Indonesian trading partners other countries. Based on data from the Badan Pusat Statistik (BPS) of Indonesia in 2014

obtained an average net export of Indonesia and the United States from 2005 to 2013 obtained amounted to USD 10,649,647 thousand, while the average net Indonesian exports to Japan amounted to USD 5.81449 million thousand, while the average net export of Indonesia and China amounted to USD -3,083,728 thousand means that on average Chinese imports greater than exports to China from 2005 to 2013 year. From these circumstances it can be said that the three countries affects the current account Indonesia.

Based on the above phenomena, to study the problem of fluctuations in the current account balance in Indonesia and the factors that influence it, the author examines in the form of research titled "Analysis of Equilibrium Phenomena Short Term and Long Term Fluctuations Current account balance in Indonesia".

II. Theoretical Framework

Theory Development

Mathematically, the definition of the current account (Current Account) is (Krugman, 2000:167):

$$CA = EX - IM \tag{1}$$

Where CA = current account balance, EX = exports, IM = imports. When a country imports exceed exports, the country is experiencing fluctuations in the current transaction. A country is said to have a current account surplus when exports greater than imports. Current account balance is important because it measures the direction and magnitude of international loans. When a country imports more than exports, then buy from foreign parties more than sold. As a result, the country has fluctuated in the current account.

In the Mundell-Fleming model (Dornbusch, 2004:175) there is a balance of open economies. To see the function of foreign trade can be seen through the balance in the IS market, namely:

$$C + S + T = Y = C + I + G \tag{2}$$

Where, C is consumption, S is saving, T is tax, Y is output, I is investment, G is government expenditure. By adding imports (M) and exports (X) into the model (3) so that it can be replaced with:

$$C + S + T = C + I + G + X - M \tag{3}$$

So the IS equation becomes:

$$S + T = I + G + X - M \tag{4}$$

Where (X-M) the current account is the foreign sector's contribution to aggregate demand or surplus. If the import is moved to the left side can indicate determinant variables of each element in the equation above, then in an open economy IS model becomes:

$$S(Y) + T + M(Y,E) = I(r) + G + X(Y^*,E) \tag{5}$$

From the above equation, the equation for the current account, namely:

$$NX = X(Y^*,E) - M(Y,E) = NX(Y,Y^*,E) \quad (6)$$

Where, NX is the current account, Y is domestic output, Y * is the output of other countries, E is the exchange rate. Thus, the current account is determined by the level of domestic output (Y), (Y*) overseas output in this case, three countries the main trading partner of Indonesia include Japan, the United States and China. While (E) is the value of the rupiah against the US dollar.

III. Research Methods

The data in this study starts from the first quarter of 2000 - the fourth quarter of 2014. This study used classical assumption: (a) multicolinearity test with correlation matrix, (b) heterokedastisity test with Park test, (c) autocorrelation test with Durbin-Watson method.

After going through the classical assumption that the model will be obtained BLUE so that errors in the equation has been streamlined. Therefore, then the OLS estimates done by the equation:

$$CA_t = \beta_0 + \beta_1 Y_{Inat} + \beta_2 Y_{Jepangt} + \beta_3 Y_{USAt} + \beta_4 Y_{Cinat} + \beta_5 E_t + \mu_t \quad (7)$$

After performing the OLS estimates above, then do the test Stationarity to ensure that, on average, variance and autocovariance is constant over time for each variable. The method is Fuller or Aucmented Dicky Dicky Fuller.

To see a short-term balance between independent variables with the dependent variable in the study used an error correction method Mechanism (ECM). As for seeing the long run equilibrium in this study used methods Cointegration.

IV. Results and Discussion

Multicollinearity Test

Based on multikolinearity the test results with Correlation Matrix in Table 1, it was found that the correlation among the independent variables were below 0.5. Therefore, it can be said that among the independent variables correlated enough or not too strong so it can be concluded that in this study there was no trouble multikolinearity serious and should be continued at a later stage.

Table 1 : Matrix Correlation

	X1	X2	X3	X4	X5
X1	1	0.194	0.257	0.260	0.212
X2	0.194	1	0.279	0.274	0.293
X3	0.257	0.279	1	0.421	0.462
X4	0.260	0.274	0.421	1	0.478
X5	0.212	0.293	0.462	0.478	1

Heterokedastisity Test

From the test results with test heterocedastisity Park in the equation, it can be seen all variables in this study had a probability value > α = 0.05. Therefore all variables in this study had a probability value > α = 0.05, it can be concluded that in this study there was no trouble heterokedastisitas. Thus all variables in this study had a linear relationship with the residual (variables outside the model).

Autocorrelation Test

Autocorrelation test of the Durbin-Watson test, the obtained value of DW is 1.811342. Value Table DW with significant 0.05 and the amount of data (n) = 56, and k = 5 (k = number of independent variables) values obtained dL = 1.38, dU = 1.77, 4-dU = 2.23, 4-dL = 2.62. Because the value of DW is 1.811342 is in the region between dU and 4-dU, it can be concluded that there is no autocorrelation. With the meaning of the word in this study there is no correlation between residuals on one observation with another observation.

Estimation Results Current Account with OLS

In accordance with the theory which has been described previously, fluctuations in the current account in this study is influenced by Indonesian economy, the United States economy, the Japan economy, the China economy and the exchange rate. From the results of the OLS estimates obtained the following equation:

$$CA_t = 0.541808 - 0.268056\, Y_{Inat} + 0.492150\, Y_{USAt} + 0.612278\, Y_{Japant}$$
$$(0.0006) \quad (0.0000) \quad (0.0169) \quad (0.0001)$$

$$+\ 0.102610\, Y_{Chinat} + 0.416356\, E_t \qquad (9)$$
$$(0.0000) \quad (0.0158)$$

R-squared = 0.825950
Prob(F-statistic) = 0.00000

Based on the results of OLS above, it is known that all independent variables a significant effect on the current account. This condition is seen from the value of the probability of each independent variable fraction of α = 0.05. In addition, if the Indonesian economy, the United States, Japan, China and the exchange rate value is zero then the value of the current account Indonesia is 0.541808 percent. R-squared value of the current account balance equation Indonesia amounted to 0.825950. This shows the variable contribution of the Indonesian economy, the United States, Japan, China and the current account rate to Indonesia amounted to 82.59 per cent while the remaining 16.41 percent is influenced by other variables not included in the current account balance equation in Indonesia.

Stationary Test

Having performed classical assumption and OLS above, will obtain BLUE model so that errors in the equation has been streamlined. Then it is done Stationary test to continue to test the balance of short-term (ECM) and the long-term equilibrium (cointegration).

Table 2: Stationary Test Results of Each Variable

Variable Name	Value	Level Probability
Current Account (CA)	*1st difference*	0,0001
Indonesian Economy (Y_{Ina})	*1st difference*	0,0001
The USA economy (Y_{USA})	*1st difference*	0,0069
Japanese Economy (Y_{Japan})	*1st difference*	0,0000
The Chinese economy (Y_{China})	*1st difference*	0,0048
Exchange rate (E)	*1st difference*	0,0002

Table 2 shows each variable stationary at a certain level, ie at the level, difference 1st, or 2nd difference. From the table it can be known that all variables in this study had a probability value <α = 0.05 in 1st difference. Thus, these variables are said to be stationary

at the 1st difference. Therefore all variables in this study stationary, then all variables in this study can be said to be an average, variance and autokovarian is constant over time (for a variety of different lag value is the same, no matter at which point start measuring).

Estimation Results Short Term Balance (Error Correction Mechanism)

After the test Stationary above, it will be the balance of short-term fluctuations in the current account balance in Indonesia using models Error Correction Mechanism. From the results obtained stationary test that all variables are stationary at 1st difference. ECM error term in the model is taken from the error term in the OLS estimates above that have been through the stage classical assumptions.

ECM model estimation results can be seen in equation 28. These results show that the lag error term fluctuations significantly influence changes in the current account in Indonesia. This means that there is an imbalance in the short term or short-term relationship between changes in the economy of the United States, Japan and China as well as changes in the exchange rate fluctuations to changes in the current account. No significant changes in the economy of the United States, Japan and China as well as changes in the exchange rate fluctuations have affected changes in the current account. In other words, the imbalance in the current account fluctuations change the cause is changes in the economy United States, Japan and China as well as changes in the exchange rate. While in the short term, changes in Indonesia's economy significantly influence changes in the current account fluctuations in Indonesia. This means that changes in the Indonesian economy in the short term does not cause fluctuations in the current account. This condition is due to that in the short term rise in the Indonesian economy will not directly increase demand for imports but rather encourage exports. Therefore, the Indonesian government is expected in the long term is not dependent on imports mainly on imported raw materials and capital goods, by creating their own raw materials and capital goods to Indonesia no longer consumptive nature but are also more productive.

Estimated Results Long Term Balance (Cointegration)

Then to see the balance of long-term fluctuations in the current account balance in Indonesia can be seen in equation 10. This equation shows that fluctuations in the current account balance in the long term lead to equilibrium back. Although there is an imbalance in the short term fluctuations in the current account, but in the long-term fluctuations in the current account will lead to equilibrium. This is shown by the results of the changes lag cointegration test error term fluctuations in the current account balance which significantly influence changes in error term fluctuations in the current account (0.0017 < 0.05). Therefore, the Indonesian government needs to be taken in order to maintain and oversee the balance fluctuations in the current account balance is in both the short term and in the long term, because the sustainability of the current account fluctuations in foreign exchange reserves will deplete Indonesia.

$$\Delta CA_t = \underset{(0.0000)}{0.768823} - \underset{(0.0121)}{0.437997}\,\Delta Y_{Inat} + \underset{(0.1129)}{0.765403}\,\Delta Y_{USAt} + \underset{(0.5859)}{0.176745}\,\Delta Y_{Japant}$$

$$+ \underset{(0.1414)}{0.284397}\,\Delta Y_{Chinat} + \underset{(0.3378)}{0.130740}\,\Delta E_t + \underset{(0.0073)}{0.239431}\,\mu CA_{t-1} \quad \ldots\ldots \quad (10)$$

V. Conclusion

The study concluded that the results of the OLS estimates showed a significant difference between the Indonesian economy, the US economy, Japan's economy, China's

economy and the exchange rate against fluctuations in the current account in Indonesia. While based on the estimation of the ECM showed there is an imbalance in the short term or short-term relationship between changes in the economy United States, Japan and China as well as changes in the exchange rate fluctuations to changes in the current account. While the change in the Indonesian economy in the short term does not cause fluctuations in the current account. Additionally, based on the estimated cointegration hasl imbalances although short-term fluctuations in the current account, but in the long-term fluctuations in the current account will lead to equilibrium.

Based on the above conclusions, the suggestions that can be raised is the need to foster harmonious working relationship Indonesia with trading partner countries, the need for trade policy strategy, especially in diversifying their main trading partner for exports. In addition, work on the domestic market more optimally can be an alternative when the international market slows down. A stable exchange rate give 'clarity' for exporters in the calculation of costs and sales. This condition must be able to push the passion exporters to continue to increase exports.

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