EUROPEAN ACADEMIC RESEARCH
Vol. VI, Issue 5/ August 2018

Impact Factor: 3.4546 (UIF)
DRJI Value: 5.9 (B+)

ISSN 2286-4822
www.euacademic.org

Causality and cointegration of exchange rates and interest rates Bank of Indonesia

Dr. H. NURSITO SE. MSi. Ak, CA
Lecturer at Universitas Budi luhur, Jakarta, Indonesia
Hj. SRIE HENDRALIANY SE., M. Akt
Lecturer at Universitas Singaperbangsa, Karawang, Jawa Barat

Abstract:

This study aims on how the incident will happen if the exchange rate of rupiah against the US dollar with the interest rate banks of Indonesian during the period of December 1984-2017. The results of the study showed that the exchange rate and interest rates banks of Indonesian have no relationship and influence, both in causality and reciprocity. This study provides an opinion and explanation that, in theory if an level interest rate be raised in some basis point or lowered in some basis point, it will be able to cause the corrected exchange rate up or down.

Key words: Exchange rate, interest rate, causality test and cointegration test.

PRELIMINARY

To prevent the continued weakening of the Rupiah against US Dollar (US), Bank Indonesia (BI) decided to adjust the benchmark interest rate or 7-day Reverse Repo Rate. MONETARY AUTHORITIES Bank Indonesia (BI) has decided to raise its benchmark interest rate by 25 basis points (bps) to 4.5 percent. The adjustment was followed by an increase in the deposit interest rate of 25 bps to 3.75 percent, and the interest rate from BI to lending facility by 25 bps to 5.25 percent. The policy is still in line with the inflation target of 3.5 plus -1 percent in 2018.

In addition, BI also implemented macroprudential policy while maintaining Countercyclical Capital Buffer (CCB) of 0 percent, to maintain financial system stability and to encourage banking intermediation function. CCB is an additional capital that serves as a buffer to anticipate losses in case of credit growth and / or excessive banking financing, thus potentially disrupting the stability of the financial system. BI will raise the amount of CCB at a time when the economy is expanding, otherwise it will be lowered as the economy is contracting.

The Rupiah exchange rate against the US Dollar depreciated from January to April 2018 by 2.06 percent (year-to-date / ytd). On a point-to-point basis, the Rupiah weakened by 1.47 percent in Q1 / 2018 and 1.06 percent in April 2018. The peak of weakening occurred since early May 2018. The weakest rupiah exchange rate recorded at 14.097 on Wednesday (16/5 / 2018). The decline of the rupiah is not due to turbulent domestic economic factors. BI even quite optimistic that economic fundamentals are still quite resilient so that the weakening of the rupiah did not sink too deeply.

Conversely, the strengthening of the US Dollar on a global scale and the normalization of monetary policy of the US central bank, The Federal Reserve (the Fed), is called BI as the dominating factor. As a result, recently there was a strong outflow of foreign capital from the domestic capital market. The movement of Composite Stock Price Index (CSPI) has been chaotic since mid-late April 2018, reflected by the loss of psychological position of 6,000.

Indonesia is not alone. Similar conditions are also experienced by other soft currency countries. However, the movement of Indonesia's central bank to adjust its benchmark interest rate somewhat late than neighboring countries such as Malaysia and Singapore.

LITERATURE REVIEW

Bank Indonesia (BI) estimates that third party fund growth will increase and the rate of credit expansion that will weaken last year will improve to 15-17% in Q1 /

1. Interest Rate (BI Rate)

The BI Rate is a policy rate reflecting the stance or stance of monetary policy stipulated by Indonesian banks and announced to the public. The BI Rate is announced by the Board of Governors of Bank Indonesia at each monthly Board of Governors Meeting and implemented in monetary operations conducted by Bank Indonesia through liquidity management in the money market to achieve the operational targets of monetary policy.

The operational targets of monetary policy are reflected in the development of the Overnight Interbank Money Market Rate (PUAB O / N). The movement in the interbank money market rate is expected to be followed by developments in deposit rates, and in turn bank lending rates. By lowering the BI Rate, Bank Indonesia has implemented a rather loose monetary policy. The ultimate goal of monetary policy is to maintain and maintain rupiah stability, one of which is reflected in the low and stable rate of inflation. To achieve this objective, Bank Indonesia sets the policy rate of the BI Rate as the main policy instrument to influence the activity of economic activities with the ultimate goal of achieving inflation.

The mechanism of action of the BI Rate changes to affect the inflation occurs through interaction between the Central Bank, banking and financial sector, as well as the real sector. Changes in the BI Rate affect inflation through various channels, at least through 4 lines, namely the interest rate, credit line, exchange rate path, asset price path, and expected path.

Changes in the BI Rate can also affect the exchange rate. This mechanism is often called the exchange rate path. The increase in the BI Rate, for example, will make interest rates in Indonesia higher than interest rates abroad. This condition will encourage foreign investors to invest by buying securities into financial instruments in Indonesia such as SBIs because they will get higher returns, ceteris paribus. This foreign capital inflows will in turn encourage the appreciation of the rupiah. Rising rupiah exchange rate will make the price of imported products cheaper and export products more expensive, thus will encourage imports and reduce exports. Turn of import value will be higher than export value. The decline in net exports and imports (net-exports) will affect the decline in economic growth and economic activity.

The change in the BI Rate rate affects the macro economy through changes in asset prices. If the BI Rate falls and causes the bank interest rate to decline, it will increase asset prices, such as shares and other securities. These conditions will encourage the ability of asset owners to conduct investment and consumption activities. Furthermore, these activities will encourage economic growth.

2. Inflation rate

Inflation is defined as increasing prices in general and continuously. An increase in the price of one or two items alone can not be called inflation unless the increase extends (or results in price increases) in other goods. The opposite of inflation is called deflation. The most commonly used indicator to measure the inflation rate is the Consumer Price Index (CPI). Changes in CPI from time to time indicate price movements of packages of goods and services consumed by the community. Since July 2008, packages of goods and services in the CPI basket have been made on the basis of the 2007 Living Cost Survey conducted by the Central Bureau of Statistics (BPS). Then, BPS will monitor the price developments of those goods and services on a monthly basis in several cities, in traditional and modern markets of some goods / services in each city.

3. Banking Interest Rate

Bank interest rates can be interpreted as a fringe provided by the bank, which is based on conventional principles to customers who buy or sell their products. The decline in the benchmark interest rate (BI Rate) will gradually be followed by the decline in bank lending rates. This is done because there is an economic slowdown that is feared will impact on the weakening value of the rupiah currency (rupiah value fuctuation). So it is expected that the real sector in the Indonesian economy will again move faster to increase investment and maintain economic growth.

The measured cut in the BI Rate is also expected to reinforce prudential macro and prudential macroeconomic mitigation (GWM) from March 16, 2016 to 7.50% to 6.50% to support efforts to spur lending. As is known, Statutory Reserves

The measured cut in the BI Rate is also expected to reinforce prudential macro and prudential macroeconomic mitigation (GWM) from March 16, 2016 to 7.50% to 6.50% to support efforts to spur lending. As is known, Statutory Reserves Minimum (GWM) is a monetary instrument of BI to influence the amount of money circulating in the community. GWM is a minimum liquidity that must be maintained and maintained by each bank. the decline in the reserve requirement will increase banking liquidity. The goal is that banks can fulfill their obligations to the withdrawal of public savings at any time. Hence, a decrease in the BI rate could effectively boost lending to banks.

4. Financial Market Uncertainty

From overseas, the space of monetary easing is exposed due to the easing of global economic uncertainty after the central bank's rate hike of Fed Fund Rate (FFR) by 25 basis points to 0.25-0.50 percent and improvement in the domestic economy. Based on BI's observations, the market's response so far to the policy is still positive. It is marked market participants have anticipated, so as not to cause turmoil in global financial markets is not too large. However, the global economic recovery is expected to remain limited so that commodity prices continue to sag, including world oil prices. Specifically, China's economy is expected to slow down despite stimulus efforts, both through monetary and fiscal policy, as well as supply-side reforms. This has put pressure on the Chinese stock market. Furthermore, BI will still observe the risks of the slowdown in the Chinese economy and the continued decline in global commodity prices.

DATA AND DISCUSSION

This study uses data of Bank Indonesia interest rate and rupiah exchange rate against US dollar during december 1984-December 2017. This study uses data analysis technique of causality and cointegration test autocorrelation to see the relationship between the two variables in doing this research.

Table 1 : Result for autocorrelation

<table>
<tr><td colspan="3">Autocorrelation</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Autocorrelation</td><td>Partial Correlation</td><td></td><td>AC</td><td>PAC</td><td>Q-Stat</td><td>Prob</td></tr>
<tr><td>. |******|</td><td>. |******|</td><td>1</td><td>0.844</td><td>0.844</td><td>25.000</td><td>0.000</td></tr>
<tr><td>. |***** |</td><td>. | . |</td><td>2</td><td>0.728</td><td>0.055</td><td>44.227</td><td>0.000</td></tr>
<tr><td>. |**** |</td><td>.*| . |</td><td>3</td><td>0.600</td><td>-0.094</td><td>57.746</td><td>0.000</td></tr>
<tr><td>. |**** |</td><td>. |*. |</td><td>4</td><td>0.533</td><td>0.126</td><td>68.791</td><td>0.000</td></tr>
<tr><td>. |*** |</td><td>. | . |</td><td>5</td><td>0.467</td><td>0.000</td><td>77.574</td><td>0.000</td></tr>
<tr><td>. |*** |</td><td>.*| . |</td><td>6</td><td>0.393</td><td>-0.080</td><td>84.044</td><td>0.000</td></tr>
<tr><td>. |**. |</td><td>. | . |</td><td>7</td><td>0.316</td><td>-0.039</td><td>88.386</td><td>0.000</td></tr>
<tr><td>. |**. |</td><td>. | . |</td><td>8</td><td>0.265</td><td>0.048</td><td>91.571</td><td>0.000</td></tr>
<tr><td>. |*. |</td><td>.*| . |</td><td>9</td><td>0.187</td><td>-0.136</td><td>93.220</td><td>0.000</td></tr>
<tr><td>. |*. |</td><td>. | . |</td><td>10</td><td>0.128</td><td>-0.019</td><td>94.030</td><td>0.000</td></tr>
<tr><td>. | . |</td><td>. | . |</td><td>11</td><td>0.063</td><td>-0.026</td><td>94.238</td><td>0.000</td></tr>
<tr><td>. | . |</td><td>.*| . |</td><td>12</td><td>-0.007</td><td>-0.117</td><td>94.241</td><td>0.000</td></tr>
<tr><td>. | . |</td><td>. | . |</td><td>13</td><td>-0.061</td><td>-0.011</td><td>94.455</td><td>0.000</td></tr>
<tr><td>.*| . |</td><td>. | . |</td><td>14</td><td>-0.099</td><td>0.021</td><td>95.053</td><td>0.000</td></tr>
<tr><td>.**| . |</td><td>.**| . |</td><td>15</td><td>-0.210</td><td>-0.333</td><td>97.877</td><td>0.000</td></tr>
<tr><td>.**| . |</td><td>. |*. |</td><td>16</td><td>-0.255</td><td>0.098</td><td>102.29</td><td>0.000</td></tr>
</table>

Source : Proceed author with software

Table 2 : Result for causality granger

Pairwise Granger Causality Tests			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
BI_RATE does not Granger Cause US_$_RP	31	0.77025	0.3876
US_$_RP does not Granger Cause BI_RATE		0.35804	0.5544

Source : Proceed author with software

Table 3 : Result for cointegration

Series: US_$_RP BI_RATE				
Lags interval (in first differences): 1 to 1				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.152665	5.858908	15.49471	0.7121
At most 1	0.029203	0.889125	3.841466	0.3457
Trace test indicates no cointegration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source : Proceed author with software

Based on the results of the analysis contained in tables 1, 2 and 3 is the result of analysis for variable interest rates and exchange rates. Seen in table 1 of the plot of the corelogram, all the research data is deviated because it exits from the mark in lag 1, so all the data is autocorrelated and partial autocorrelation in lag 1. Therefore all data not stationer at level level or Q-Stat probability are all significant or <0.05. Therefore, the first difference test data on all research data The Corelogram plot drawings are presented for exchange rate and bank interest rate.

While the result of data analysis in table 2 and 3 shows no relation of causality and cointegration in long term for both variables in doing the research, thus can be explained that variable of interest rate of bank Indonesia do not experience relation and cointegration with value variable exchange rupiah currency against US dollar.

Conclusion

This research is to see how the relationship between exchange rate of rupiah to US dollar with interest rate of bank Indonesia. In many writings in the mass media of Indonesia, many economists and analysts who explain if there is a decrease in interest rates of Indonesian banks, indirectly can raise and / or lower the exchange rate, but with this research and study provide and explain the opinion slightly different, thus this study can add literature and reading materials related to exchange rates and interest rates.

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