



SIGNIFICANT MODEL BETWEEN EXCHANGE RATE AND INTEREST RATE  
EVIDENCE FROM INDONESIA

*Nursito*

*Lecture at Universitas Singaperbangsa, Karawang, Jawa Barat, and  
Lecture at Universitas Budi luhur, Jakarta, Indonesia*

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*Abstract*

*This study aims to see how the relationship between the exchange rate of the rupiah against the US dollar with the interest rate of SBI in Indonesia during December 1984-2017. This study proposes 3 models of multiple regression equations, of which 3 models of proposed equations will be able to 3 forecasting models and 3 results for statistical t test and for statistical F test. This study was done by the author at the time of May 2018, using statistical analysis tool that is eviews.*

*Keywords: Exchange rate, SBI rate, multiple regressions*

**I. PRELIMINARY**

Pressure on rupiah exchange rate continued following the rise of US Treasury yields and the strengthening of the US dollar. Employers 'and bankers' associations say BI can not continue to intervene in the rupiah exchange rate by flushing forex into the market. these steps can reduce the country's foreign exchange reserves Indonesia. The rupiah exchange rate against the US dollar (USD) continues to fluctuate, then Bank Indonesia (BI) will make adjustments to the interest rate (BI 7-days Repo Rate). Currently, the BI 7-days Repo Rate is at the level of 4.25% and has not increased since September 2017. According to data from Jakarta Interbank Spot Dollar Rate (Jisdor) reference rate, rupiah stuck at Rp13.936 per USD. This position shows the rupiah fell very badly from the previous position Rp13.877 per USD.

The rise of the benchmark interest rate could be one way to curb the turbulence of Garuda's currency exchange rate. In fact, the increase of BI 7-days Repo Rate can be considered to stop the turmoil. "That is, it's one way that usually affects the muffling or slowing down, if it can stop the exchange rate,". As explained, Bank Indonesia (BI) said it is ready to adjust the BI rate if the pressure on exchange rate continues and potentially hamper the achievement of the inflation target and disturb the stability of the financial system.

**II. LITERATURE REVIEW**

Monetary Policy Transmission

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 set the policy rate of BI 7DRR as the main policy instrument to influence the activity of economic activity with the ultimate goal of achieving inflation. But the path or transmission of the BI



7DRR decision up to achievement of the inflation target is very complex and takes time (time lag).

The mechanism of working of BI 7DRR change to affect inflation is often referred to as the monetary policy transmission mechanism. This mechanism illustrates the actions of Bank Indonesia through changes in monetary instruments and operational targets affecting various economic and financial variables before ultimately affecting the ultimate goal of inflation. The mechanism occurs through interaction between the Central Bank, banking and financial sector, as well as the real sector. BI 7DRR changes affect inflation through various channels, including interest rate, credit line, exchange rate path, asset price path, and expected path.

In the interest rate channel, BI 7DRR changes affect deposit interest rates and bank lending rates. If the economy is sluggish, Bank Indonesia can use expansive monetary policy through lower interest rates to encourage economic activity. Decrease in BI rate cut 7DR lending rates so that demand for credit from companies and households will increase. Reduced lending rates will also lower the company's capital costs to invest. This will all increase the activity of consumption and investment so that the economic activity more excited. Conversely, if inflationary pressures increase, Bank Indonesia responds by raising the BI rate of 7DRR to curb economic activity that is too fast, thereby reducing inflationary pressures. Changes in BI Rate 7DRR can also affect the exchange rate. This mechanism is often called the exchange rate path. The rise in BI 7DRR, for example, will encourage an increase in the difference between interest rates in Indonesia and foreign interest rates. With the widening interest rate differential, it encourages foreign investors to invest in financial instruments in Indonesia such as SBIs because they will get higher returns.

This foreign capital inflows will in turn encourage the appreciation of the rupiah. The appreciation of the Rupiah has resulted in lower prices of imported goods and our overseas export goods becoming more expensive or less competitive, thus encouraging imports and reducing exports. The decline in net exports will affect the decline in economic growth and economic activity.

This mechanism of monetary policy transmission takes time (time lag). The time lag of each path can be different from the others. The exchange rate path usually works faster because the impact of interest rate changes to the exchange rate works very quickly. The condition of the financial and banking sectors is also very influential on the speed of monetary policy transmission. If banks see the risk of economy is high enough, the banking response to the BI rate reduction 7RR is usually very slow. Also, if banks are consolidating to improve their capital, lower lending rates and rising demand for credit may not necessarily be responded by raising lending. On the demand side, the decline in bank lending rates is also not necessarily responded by increasing demand for credit from the public if the economic outlook is sluggish. In conclusion, the conditions of the financial sector, banking and real sector conditions play a major role in determining whether or not the monetary policy transmission process is effective.



### III. RESEARCH MODEL AND DISCUSSION OF RESEARCH

This study aims to examine the effect of exchange rate of rupiah to US dollar with interest rate of SBI, using multiple regression analysis technique. Multiple regression analysis in this study, using the proposed model as follows:

$$\text{US\_}\$ \text{\_RP} = a + \text{BI\_RATE} \quad \text{Model 1}$$

$$\text{LOG(US\_}\$ \text{\_RP)} = a + \text{LOG(BI\_RATE)} \quad \text{Model 2}$$

$$\text{D(US\_}\$ \text{\_RP)} = a + \text{D(BI\_RATE)} \quad \text{Model 3}$$

regression or prediction model is a step to involve more than one independent variable or predictor. The term multiple regression can also be called the term multiple regression. Multiple words mean multiple or more than one variable. Here are the results for the 3 regression models proposed in this study:

**Table 1: result for statistic regression model 1**

Dependent Variable: US_ \$ _RP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6206.512	1918.209	3.235576	0.0030
BI_RATE	-66.68672	177.8407	-0.374980	0.7103
R-squared	0.004665	Mean dependent var		5531.848
Adjusted R-squared	-0.028513	S.D. dependent var		3710.076
S.E. of regression	3762.596	Akaike info criterion		19.36407
Sum squared resid	4.250008	Schwarz criterion		19.45568
Log likelihood	-307.8251	Hannan-Quinn criter.		19.39443
F-statistic	0.140610	Durbin-Watson stat		0.141119
Prob(F-statistic) 0.710313				

Source : Proceed author with statistic

**Table 2 : result for statistic regression model 2**

Dependent Variable: LOG(US_ \$ _RP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.126288	0.879014	9.244774	0.0000
LOG(BI_RATE)	0.095160	0.386289	0.246343	0.8071
R-squared	0.002019	Mean dependent var		8.339842
Adjusted R-squared	-0.031247	S.D. dependent var		0.810233
S.E. of regression	0.822794	Akaike info criterion		2.508241
Sum squared resid	20.30972	Schwarz criterion		2.599849
Log likelihood	-38.13185	Hannan-Quinn criter.		2.538606
F-statistic	0.060685	Durbin-Watson stat		0.087695
Prob(F-statistic) 0.807094				

Source : Proceed author with statistic



**Table 3 : result for statistic regression model 3**

Dependent Variable: D(US_\$_RP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	387.2238	239.2334	1.618602	0.1164
D(BI_RATE)	42.22710	73.04926	0.578063	0.5677
R-squared	0.011391	Mean dependent var		385.5806
Adjusted R-squared	-0.022699	S.D. dependent var		1317.038
S.E. of regression	1331.901	Akaike info criterion		17.28894
Sum squared resid	51444878	Schwarz criterion		17.38146
Log likelihood	-265.9786	Hannan-Quinn criter.		17.31910
F-statistic	0.334157	Durbin-Watson stat		2.618787
Prob(F-statistic) 0.567683				

Source : Proceed author with statistic

From the regression results of tables 1, 2 and 3, for data processing it appears that the independent variable (exchange rate) does not have a significance value F that is smaller than 0.05. Thus the results of the analysis in this study indicate that together independent variable (exchange rate) does not affect the interest rate SBI. Thus the first hypothesis (H1) in this study is unacceptable. From 3 models of proposed regression, the result show for equation 3 model which is made as follows:

Estimation Command:

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$$US\_ \$\_ RP = 6206.51192857 - 66.6867188357*BI\_ RATE$$

Estimation Command:

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$$LOG(US\_ \$\_ RP) = 8.1262878453 + 0.0951598105845*LOG(BI\_ RATE)$$

Estimation Command:

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$$D(US\_ \$\_ RP) = 387.223756166 + 42.2271014655*D(BI\_ RATE)$$

#### IV. CONCLUSION

This study presents the theme of how to propose models in the regression equation. This study proposes 3 models of regression equations in or to see the relationship between SBI exchange rate and interest rate in Indonesia during the december period of 1984 to December 2017. The data in this study is downloaded from several websites including the Indonesian bank website and the central statistics agency website . The authors conducted this study based on the many assumptions and news in the mass media who argued that with a significant change in the interest rate of SBI it will be able to directly affect some basis point against the rupiah against the US dollar.



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#### Additional website:

- [1] <https://www.bi.go.id/id/moneter/transmisi-kebijakan/Contents/Default.aspx>
- [2] <https://ekbis.sindonews.com/read/1302474/33/darmin-kenaikan-bi-rate-bisa-redam-gejolak-nilai-tukar-rupiah-1525260332>