

# The Influence of Inflation Rate, Exchange Rate, Control Corruption, and Political Stability to Indonesian Government Bond Yield

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## Abstract

As a developing country that still has to develop in all fields and to maintain its economic development Indonesian government requires large funds for development. To fulfil the lack of funds obtained from the tax, Indonesian government sells bonds. Indonesia 10-year government bonds are known as *Surat Utang Negara* (or abbreviated as SUN). This study aims to confirm whether inflation rate, exchange rate, political stability, and corruption control affect the yield of SUN. The research uses descriptive methods and explanatory studies with secondary data based on systematic sampling of periods chosen from January 2013 to December 2019. Multivariate regression equation models were used with a significance level of 5% for the t-test. The conclusions are: partially and simultaneously inflation rate, exchange rate, control corruption and political stability have a significant effect on Indonesian Government Bond. This research found that deteriorating political stability and control corruption would cause government bond yields to increase.

**Keywords:** Indonesian government bond yield; inflation rate; exchange rate; control corruption; political stability.

## 1. Introduction

Economic of a country requires funds for sustainable development. As a developing country that still has to develop in all fields and to maintain its economic development the Indonesian government requires large funds for development. The increase in tax rates and the expansion of tax objects continues to be driven by the government to meet the needs of these funds, but there are certainly limits. To fulfil the lack of funds obtained from the tax, the Indonesian government sells bonds. In the financial market, the term bond is defined as a statement of debt from the bond issuer to the bondholders to pay the principal debt and coupon interest at a certain time specified in the agreement. Because a country issuing bonds requires financing for the long term, it will be very troublesome if every one or two years the government must search some new sources of funding to fund ongoing projects. Therefore, government bonds generally have tenure of 10 years or more. In the United States, government bonds are known as US Treasury Bonds and have a minimum maturity of 10 years, whereas in Indonesia 10-year government bonds are known as *Surat Utang Negara* (or abbreviated as SUN). Because Government Securities are sold to various groups, both domestic inventors and foreign investors, the yields offered must be attractive and can compete with bond yields offered by other countries. High yields on the one hand can be an attraction for investors to buy these

bond products, but on the other hand high yields will burden the countries that issue bonds.

From the results of previous studies there are various factors that affect the yield of state bonds such as inflation rate, interest rate, exchange rate, political stability and corruption control. A number of research results concluded that inflation rate, exchange rate, and corruption control variables have a significant effect on the yield of state bonds, but a number of other research results concluded that there was no significant effect. Because there are different conclusions from several research results, this study aims to confirm whether inflation rate, exchange rate, political stability, and corruption control affect the yield of state bonds, especially Indonesian government bonds.

## 2. Literature Review

Bonds are long-term debts that have terms of 10 years or more, with an agreement to pay the loan principal along with interest and predetermined terms. If a payment failure is promised, it is called a default and can lead to bankruptcy (Emery et al, 2011). Bond's yield is a discount rate which gives it the same price as the market price if applied to all cash flows (Hull, 2011).

The results of a number of studies regarding the relationship between inflation and government bond's yield are as follows:

The results of Ehling et al (2018) stated that inflation has a significant effect on bond's yield. The same thing was stated by Costantini et al. (2014) and Chun, A. L. (2011) in their research results, but Setiawan & Bratakusumah (2010) stated that inflation did not significantly influence Indonesian government bond's yield.

The results of a number of studies on the relationship between foreign exchange rate and government bond's yield are as follows:

The results of research by Gadanez et al (2014), Maltritz & Molchanov (2013), Ahmad & Radzi (2011), Pericoli & Taboga (2012), Miyajima et al (2015) stated that foreign exchange rate has a significant effect on bond's yield, but He & McCauley's research (2013) and Edwards (2010) state that foreign exchange has no significant effect on bond's yield.

The results of a number of studies regarding the relationship between corruption control and government bond's yield are as follows:

The results of the research of Boubakri & Ghouma (2010), Cooray et al (2017), Ang et al (2015), Butler et al (2009), and Bellas et al (2010) stated that corruption control had a significant effect on bond's yield, but Eichler's research (2014) and Raghavan & Sarwano (2012) state that corruption control has no significant effect on bond's yield.

The results of a number of studies regarding the relationship between political stability and government bond's yield are as follows:

Eichler (2014), Butler et al (2009), Lehkonen & Heimonen (2015), Bellas et al (2010), and Gao & Qi (2012) stated that political stability has a significant effect on bond's yield, but research that links the influence of political stability to government bond's yield in Indonesia is still rare.

Based on the research results above where there are some conflicting results and some that are still rarely studied for in Indonesia, this research intends to ascertain whether the factors that affect bond's yield in the world are equally influential on government bond's yield in Indonesia?

For this reason, the research hypothesis is as follows:

H0: There is no significant and partially simultaneous effect between inflation rate, exchange rate, corruption control, and political stability on the yield of Indonesian Government Bond (SUN).

Ha: There is a significant and partially significant effect between inflation rate, exchange rate, corruption control, and political stability on the yield of Indonesian Government Bond (SUN).

### 3. Methods

The research uses descriptive methods and explanatory studies with secondary data provided by www.bi.go.id, www.worldbank.org, www.finance.yahoo.com and www.id.investing.com based on systematic sampling of periods chosen from January 2013 to December 2019. The dependent variable is the Indonesian Government Bond's Yield, and the independent variables used are: inflation rate, political stability, control corruption, and direct exchange rate between IDR and USD. Multivariate regression equation models were used with a significance level of 5% for the t-test.

**Table 1.** Source of Variables

No	Variables	Data Type	Period	Data Source
1	SUN	Ratio	Monthly	id. Investing.com
2	INF	Ratio	Monthly	Bank Indonesia
3	EXR	Ratio	Monthly	Finance.Yahoo.com
4	CC	Ratio	Monthly	BBVA Research
5	PS	Ratio	Monthly	BBVA Research

Based on the review of several literatures, the equation model that influences the yield of Indonesian Government Bonds is:

$$SUN = \beta_0 + \beta_1.INF_t + \beta_2.EXR_t + \beta_3.CC_t + \beta_4.PS_t + \mu_t$$

Notes:

SUN: Indonesian Government Bond's Yield (*Imbal hasil Surat Utang Negara*)

INF : Inflation rate

EXR: Direct quotation IDR to USD

CC : Control corruption

PS : Political stability

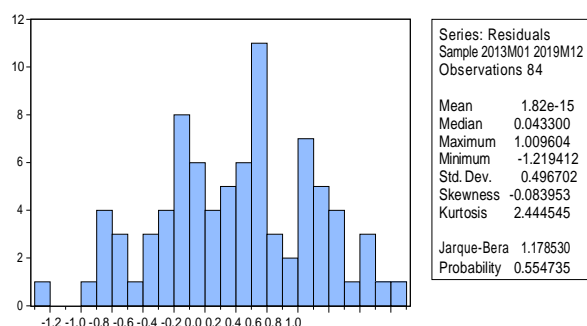
$\mu_t$  : Term of error

## 4. Results

### 4.1 Assumptions of classical model tests

The assumptions of classical model tests are used to guarantee a linear regression model meets the Best Linear Unbiased Estimation criteria.

#### 4.1.1 Normality Test



**Figure 1.** Graph of Normality Test

From the results of the normality test,  $p\text{-value} = 0.55 > 0.01$ , in this case error terms are normally distributed with a 99% confidence level.

#### 4.1.2 Heteroscedasticity Test

Heteroscedasticity Test: White

**Table 2.** Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	3.449171	Prob. F(4,79)	0.0119
Obs*R-squared	12.48882	Prob. Chi-Square(4)	0.0141
Scaled explained SS	7.978445	Prob. Chi-Square(4)	0.0924

Because the test results show the probability of  $\text{Chi-Square} > 0.05$ , it means that there is no heteroscedasticity.

#### 4.1.3 Multicollinearity Test

**Table 3.** Multicollinearity Test

Variable	Coefficient Variance	Centered VIF
C	2.306896	NA
INF	0.002218	2.321363
EXR	5.97E-09	3.43461
CC	0.55101	3.853728
PS	0.87644	1.894719

From the results of testing the coefficient VIF  $< 10$  means that there is no multicollinearity

#### 4.1.4 Autocorrelation Test

**Table 4.** Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	3.875927	Prob. F(2,75)	0.0250
Obs*R-squared	7.425298	Prob. Chi-Square(2)	0.0244

Test Equation:  
 Dependent Variable: RESID  
 Method: Least Squares  
 Sample: 2013M03 2019M12  
 Included observations: 82  
 Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF)	0.005858	0.044206	0.132513	0.8949
D(EXR)	4.55E-05	0.000118	0.387364	0.6996
D(CC)	-0.511573	1.250136	-0.409213	0.6835
D(PS)	-0.104437	0.753985	-0.138514	0.8902
D(SUN(-1))	-0.230908	0.123146	-1.875075	0.0647
RESID(-1)	0.450356	0.164461	2.738377	0.0077
RESID(-2)	-0.050526	0.117039	-0.431697	0.6672
R-squared	0.090552	Mean dependent var	-0.014256	
Adjusted R-squared	0.017797	S.D. dependent var	0.244338	
S.E. of regression	0.242154	Akaike info criterion	0.083018	
Sum squared resid	4.397907	Schwarz criterion	0.288470	
Log likelihood	3.596248	Hannan-Quinn criter.	0.165504	
Durbin-Watson stat	1.943664			

Because the  $p\text{-value Obs}^*R\text{-squared} = 0.0244 > 0.01$ , then with a 99% confidence level there is no autocorrelation.

## 4.2 Multivariable Regression Test

The result of data processing is in the following table:

**Table 5.** The Result of Multivariable Regression Test

Dependent Variable: SUN Method: Least Squares Sample: 2013M01 2019M12 Included observations: 84				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.246937	1.518847	-4.771341	0.0000
INF	0.218559	0.047095	4.640815	0.0000
EXR	0.000807	7.73E-05	10.44957	0.0000
CC	3.924866	0.742301	5.287435	0.0000
PS	2.385937	0.936184	2.548578	0.0128
R-squared	0.673563	Mean dependent var		7.568810
Adjusted R-squared	0.657034	S.D. dependent var		0.869352
S.E. of regression	0.509121	Akaike info criterion		1.545417
Sum squared resid	20.47714	Schwarz criterion		1.690109
Log likelihood	-59.90752	Hannan-Quinn criter.		1.603582
F-statistic	40.75169	Durbin-Watson stat		0.316447
Prob(F-statistic)	0.000000			

From the above table the equation can be formed:

$$\text{SUN} = -7.245 + 0.218 \text{INF}_t + 0.000807 \text{EXR}_t + 3.925 \text{CC}_t + 2.386 \text{PS}_t$$

Prob (F-statistic): 0 indicates that together all independent variables influence the dependent variable. P-value inflation rate, exchange rate, control corruption and political stability are smaller than 0.05, which shows that these variables partially affect the dependent variable. Simultaneously inflation rate, exchange rate, control corruption and political stability have a significant effect on Indonesian Government Bond.

Partially the inflation rate has a significant effect on the Indonesian Government Bond, this result is in line with research by Ehling et al (2018), Costantini et al. (2014), and Chun, A. L. (2011). Partially the exchange rate has a significant effect on the Indonesian Government Bond, this result is in line with research by Gadanez et al (2014), Maltriz & Molchanov (2013), Ahmad & Radzi (2011), Pericoli & Taboga (2012), and Miyajima et al (2015) ). Partially control corruption has a significant effect on the Indonesian Government Bond, this result is in line with research by Boubakri & Ghouma (2010), Cooray et al (2017), Ang et al (2015), Butler et al (2009), and Bellas et al. (2010). Partially political stability has a positive and significant effect on Indonesian Government Bond, this result is in line with research by Eichler (2014), Butler et al (2009), Lehkonen & Heimonen (2015), Bellas et al (2010), Gao & Qi (2012).

## 5 Discussion

An increase in inflation rate will cause the yield of government securities to also increase. Changes in the inflation rate in a country will usually be monitored by the central bank governor who will immediately

issue a policy related to bank interest rates. If the inflation rate increases, the interest rate of the central bank will also be raised. An increase in central bank interest rates will affect the sale of government bond because investors will consider the risk and return of the two monetary products. Usually to maintain the level of sales of government bond, the government will also increase the yield of government bond. Because bank interest rates with government bond yields always have a high correlation, interest rate variable is not included in the equation in this study.

An increase in the value of the USD against the rupiah will cause the yield of government securities to also increase. This can be explained from the perspective of demand, because when the value of the USD increases (and the value of IDR weakens) foreign investors will have higher purchasing power which causes demand for government securities to increase, because demand is greater than supply, bond yields will increase.

The increasing numbers of positive control corruption in Indonesia will cause the yield of state securities to also increase. The value of control corruption on BBVA can be a negative sign or a positive sign where the negative sign actually shows good control corruption from a country and vice versa. So, when a country is given an increasingly positive value by the World Bank it means that control corruption is getting worse in that country. In this case, Indonesia's corruption control numbers from 2013 to 2019 range from 0.3 to 0.7, of course, investors see this as the higher the level of risk from a country, that cause the higher yield of government bond they request. When the corruption index deteriorates, the risk will increase, therefore yields on securities will be increased to compensate for the higher risk.

The value of political stability on BBVA can also have a negative sign or a positive sign where the negative sign actually shows the good political stability of a country and vice versa. The number of political stabilities that is increasingly positive in a country will cause the yield of government bond to also increase. This is because investment risk will increase when a country's political situation is unstable, so the yield of securities will be increased to offset the higher risk.

## 6 Conclusions

Government bonds have long due date, on average of 10 years, investors who intend to invest in government bonds will first pay attention to political stability. The better the political stability of a country, the lower the risk of the government bonds experiencing default. The second thing that

is an important concern of investors is monitoring corruption. Corruption will result in a high cost economy and high inflation. A high inflation rate will weaken the exchange rate of the issuer country, so the yield of the bond in the future maybe reduced.

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