DETERMINANT OF INDONESIAN GOVERNMENT BOND ‘YIELD’ IN DOMESTIC PRIMARY MARKET

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ABSTRACT

Purpose : This study aims to analyze determinants which might influenced yield of Indonesian Government Bond Denominated-Rupiah in primary market.

Design/Methodology/ Approach : We divide the determinant by three factors (i.e intrinsic factor, extrinsic domestic factor and extrinsic global factor). Multiple regression using to analyze colinearity among variables in this study.

Findings : The results showed that bond maturity, bond coupon rate, bond price in secondary market, bond performance in market, inflation rate, currency, money and stock domestic market condition, and money and bond global market condition are significantly affected Indonesian government bond yield in primary market.

Keywords : bond, sukuk, bond yield, government bond, maturity, interest rate, inflation, bond price

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INTRODUCTION

After the 1998 monetary crisis, the Indonesian government explicitly implemented an unbalanced budget policy in the preparation of the State Budget (APBN). In the event of an APBN deficit, the government could finance the deficit through various sources such as through debt by issuing bonds or Government Securities (SBN) or non-debt. At this point, debt issuance through bonds is a source of financing APBN deficit especially for governments in many countries including Indonesia.

The portion of SBN issuancedenominated- rupiah increased from year to year. In addition to finance the deficit, the issuance of SBN brings other benefits, such as providing space for greater flexibility and independence for the government, developing the domestic bond market, as well as an alternative investment for the community.

Currently, the issuance of government bonds is the main source of funding for government budget deficits in many countries, including in developing countries (Naidu et al, 2016;
Aslanalp and Tsuda, 2014; Pham, 2014; Comelli, 2012; Jaramilo and Weber, 2012; Grigorian, 2003), such as Indonesia. This can be seen in Figure 1. For developing countries, the opening of access to finance to the world capital market is an acknowledgment of the success of efforts to strengthen creditworthiness so that it can access the world capital market and is free from the stigma of the group of recipients of official financing recipients’ countries (Grigorian, 2003).

![Figure 1](Source: Jaramilo dan Weber (2012))

**Figure 1**
**Comparison of Government Debt Composition in Developing Countries**

Although the SBN issuance provides a number of benefits (Aslanalp dan Tsuda, 2014; Pham, 2014; Jaramilo dan Weber, 2012; Grigorian, 2003), the cost of bond issuance can be quite high and has the potential to burden the posture of the next APBN (Naidu et al, 2016; Aslanalp dan Tsuda, 2014; Peiris, 2010). Although the ratio of outstanding government debt to GDP decreases from year to year, the government interest expenditure is increasing. In fact, the amount of government interest expenditure in 2017 is Rp217 trillion which surpass other expenditure items by function, such as Rp143 trillion for education spending, Rp61 trillion for health, and Rp29 trillion for housing and public facilities (Central Government Financial Report (LKPP), 2018).

The increasing of government debt interest expenditure cannot be separated from the factor of the increasing outstanding government debt from year to year as well as the amount of SBN yield. Compared to other countries in Southeast Asia, Indonesian government bond yields are relatively high as can be seen in Table 1 below.

**Table 1**
**Comparison of Bond Yields of Several Countries in Southeast Asia (5-year bonds)**

| Country  | 2010 | 2012 | 2014 | 2016 | 2018* |
|----------|------|------|------|------|------|
| Indonesia| 7.49 | 5.26 | 7.84 | 7.41 | 6.78 |
| Malaysia | 3.53 | 3.25 | 3.70 | 3.45 | 3.72 |
| Thailand | 3.07 | 3.34 | 2.95 | 1.80 | 2.00 |
| Singapura| 0.63 | 0.47 | 1.44 | 1.59 | 2.12 |
| Filipina | 5.91 | 4.74 | 3.95 | 3.63 | 5.43 |
| Vietnam | 11.12| 10.29| 6.43 | 5.85 | 3.70 |

*Source: processed from data at investing.com*
Related to the problem above, it is important for the government to understand and deal with the factors which influence the size of SBN yields as an effort to control the costs which also brings the implication for increasing the magnitude of deficit in the future.

This research was conducted to determine the determinants or factors which affect bond yields. This research was focused on helping the government as the publisher, so the data that used in this study based on the conditions at the time of publishing in the primary market.

In bonds, there are two general terms are known: the price and the bond yield. According to Bodie, et al (2014), bond price is the value of discounted payments up to the maturity date including the principal value at a certain interest rate, while yield refers to the total income received by investors, from the coupon rate and the price difference.

The relationship between price and yield is theoretically proportional, but it is not in the real world. According to Malkiel in Bodie, et al (2014), the increase of yield will be accompanied by a decrease in bond prices, but with a magnitude that will not always be the same.

Bond yields are influenced by various factors (Husnan, 2005). These factors can be classified into intrinsic and extrinsic factors. Intrinsic factors relate to the structure of bonds, the condition of issuers, and the bond performance in the secondary market, while extrinsic factors relate to the external situations, such as domestic and global economic conditions.

Intrinsic factors which commonly identified affect the yields are default risk exposure, maturity, and bond performance in the secondary market. In addition, tax status, options and coupon rates can also be categorized as intrinsic factors (Husnan, 2005; Kluza and Slawinski, 2002).

Extrinsic factors related to the domestic economy which are commonly identified affect the yields are domestic interest rates (Rahman, 2017), exchange rates, and inflation. Meanwhile, extrinsic factors related to global economic conditions which affect the yields are generally represented by interest rates in the United States and the European Union.

Based on some previous studies, it can be seen the relationship between several intrinsic and extrinsic factors on yields as presented in table 2 below:

| No | Variable | The impact on yields          |
|----|----------|-------------------------------|
| 1  | bond maturity | Positively significant effect |
| 2  | Bond performance in the secondary market | Negatively significant effect |
| 3  | Interest rate     | Positively significant effect |
| 4  | Exchange rate     | Positively significant effect |
The impact on yields

| No | Variable                     | The impact on yields       |
|----|------------------------------|----------------------------|
| 5  | Inflation                    | Positively significant effect |
| 6  | Global economic conditions   | Have a significant effect  |

*Source: Processed by the researcher (2019)*

From previous theories and studies, a conceptual framework is obtained in the form of factors that influence the determination of government bond yields on the primary market, which can be categorized into three groups as follows:

**Tabel 3**

**Conceptual Framework**

| Intrinsic Factor                      | Extrinsic Domestic Factor                      | Extrinsic Global Economic Factor |
|---------------------------------------|------------------------------------------------|---------------------------------|
| • Maturity                            | • Inflation                                    | • The Fed Rate                  |
| • Coupon                              | • Exchange Rate                                | • T-bill/notes USA rate         |
| • Yield Performance in Secondary Market | • Interest Rate                                | • LIBOR                        |
|                                       | • Money Market and Global Market Conditions    |                                 |

*Source: researcher, 2018*

**RESEARCH METHODS**

In analyzing the determinants of government bond yields on the primary market, the study was conducted by using quantitative, deductive, and associative approaches. The dependent variable in this study was the yield of government bonds on the primary market (WAY awarded) (WAY = Weighted Average Yield). Independent variables were represented into three types categories: intrinsic bond factor, domestic economic factor, and global economic factor.

The data used for this study was secondary data. The data used was characterized by daily data which was taken at the day of the auction. The period time of the auction in the range of 2016 to the 1st semester of 2018 was chosen as the research sample. That period was chosen because of the availability of data available at the data source. During that time period, there were 107 SBN auctions.

In analyzing the relationship between variables, the correlation between variables were tested and a more in-depth test was done on what would happen with the variable if the value of other variables changed. In analyzing the functional relationship, a regression analysis approach was used.

Before establishing the model and due to the use of many independent variables that have almost the same characteristics, we need correlation test. A correlation test between independent variables was conducted to detect multicollinearity. The existence of multicollinearity can lead a result analysis bias. From the multicollinearity test results, it can be found a number of variables which correlate strongly with the correlation value (r) above 0.7.
The existence of multicollinearity was overcome by using factor analysis. Through the factor analysis, a new variable was formed by a set of initial variables. Factor analysis is a method to re-express the multivariate data. Factor analysis transforms a number of old variables into a new one variable (Soedibjo, 2008).

The formation of a linear combination can be explained mathematically by the equation: 
\[ PC_i = W_1X_1 + W_2X_2 + \ldots + W_pX_p, \]
where \( W_p \) is the weight or coefficient for the \( p \)-variable, \( X_p \) is the \( p \)-variable, and \( PC_i \) is the linear combination of the \( X \) variable.

**Factor analysis** required a series of tests. First, the Determinant of Correlation Matrix test is to find out whether the variables to be analyzed are interrelated to each other. Second, the Kaiser-Meyer-Okin (KMO) and the Measure of Sampling Adequacy (MSA) test are to determine whether all data samples are sufficient to be analyzed. Third, the Bartlett test is to find out whether there is a relationship between variables and the communality test.

Based on the conceptual framework and list of variables data collected, there were three equation models, they are:

a. Intrinsic bond factor model:

\[\text{WAY Awarded} = f \{ \text{bond maturity, coupon, bond yield maturity are same in the secondary market, 3-months SPN yield, average price of SUN, Indonesian Bond Index} \} \]

\[ W_i = \beta_0 + \beta_1 \text{MATUR}_i + \beta_2 \text{INT}_i + \beta_3 \text{YMAT}_i + \beta_4 \text{YSPN03}_i + \beta_5 \text{PRICE}_i + \beta_6 \text{INDOBEX}_i + e_i \]

b. Extrinsic domestic factor model:

\[\text{WAY Awarded} = f \{ \text{inflation, exchange rate, BI rate, CSPI, market capitalization of CSPI} \} \]

\[ W_i = \beta_0 + \beta_1 \text{INF}_i + \beta_2 \text{IDR}_i + \beta_3 \text{BIR}_i + \beta_4 \text{IHSG}_i + \beta_5 \text{IHSGC}_i + e_i \]

c. Extrinsic global economic factor model:

\[\text{WAY Awarded} = f \{ \text{LIBOR, US Treasury Rate 3 months, US Treasury Rate 1 year, US Treasury Rate 5 years, Effective Fed Fund Rate} \} \]

\[ W_i = \beta_0 + \beta_1 \text{LIBOR}_i + \beta_2 \text{USTR3M}_i + \beta_3 \text{USTR1Y}_i + \beta_4 \text{USTR5Y}_i + \beta_5 \text{FEDR}_i + e_i \]

After the best model was obtained, an evaluation was made to find out whether the model was feasible or met the BLUE (Best Linear Unbias Estimator) criteria. In evaluating the models, there were three criteria used: a priori economic criteria, statistical criteria, and econometric criteria (Setiawan and Kusrini, 2010).

A priori economic criteria relates to the sign test, whether it is appropriate with the theory or previous study. Statistical criteria relates to the goodness of fit by using determination coefficient value and hypothesis testing partially (t test) and simultaneously (F test). Moreover, the econometric criteria relates to the classical assumption test which includes normality, multicollinearity, autocorrelation, and heteroscedasticity tests.
RESULT AND DISCUSSION

The Indonesian government has issued various types of SBN. They issued by the government every year based on the needs. Types of bonds issued are diverse related to the market demand.

The Government through the Ministry of Finance established a debt issuance and management strategies in annual and medium-term periods. Referring to the Decree of the Finance Minister Number 113 / KMK.08 / 2014 concerning the Strategies for Managing State Debt in 2014-2017 and Number 884 / KMK.08 / 2017 concerning the Strategies for Managing State Debt in 2018-2021, it is known that general debt management policies include optimizing domestic debt funding, developing instruments, controlling debt to GDP ratios, increasing the liquidity of the domestic SBN secondary market, perfecting electronic trading platforms, and developing the SBN secondary market.

In this study, the series of bonds that became the sampling were SUN: FR and PBS. FR is conventional state bonds with fixed interest rates up to the due date, while PBS (Project Based Sukuk) is sharia bonds issued to finance certain projects / activities. From 2016 to 1st Semester 2018, there were 13 FR series had been published which later became the subject of this study. They were FR0053 (12 Times / KT), FR0056 (13 KT), FR0059 (23 KT), FR0061 (22 KT), FR0063 (4 KT), FR0064 (8 KT), FR0065 (7 KT), FR0067 (6 KT), FR0072 (26 KT), FR0073 (15 KT), FR0074 (17 KT), FR0075 (13 KT), FR0076 (3 KT).

Meanwhile, there were 12 PBS published series. They were PBS002 (13 KT) series, PBS004 (8 KT), PBS006 (16 KT), PBS009 (17 KT), PBS011 (24 KT), PBS012 (36 KT), PBS013 (17 KT) KT), PBS014 (18 KT), PBS015 (2 KT), PBS016 (13 KT), PBS017 (7 KT), and PBS018 (2 KT).

At the time of issuance, there were several conditions which influenced the government's decision to determine the price and amount of the WAY Awarded, including domestic and foreign macroeconomic conditions which affect the market and investor preferences in channeling investment funds. The government referred to several market indicators as a consideration material in setting price limits, such as the Fed interest rate and the rupiah exchange rate.

In order to reduce debt costs, the Ministry of Finance established a policy which translated into a series of activity, such as the establishment of shortening duration strategy. The commitment to reduce debt costs ran effectively in 2017. It could be seen from the reduction in WAY auctions from 2016 to 2017.

The effort to reduce debt costs was also supported by the relatively stable condition of the financial market and the domestic economy. It could be seen from the stability of exchange rate in 2017 relative to macro assumptions in the 2017 Budget.

However, after the emergence of controversial policies from the elected American President, Donald Trump, such as trade wars and the imposition of import quotas, global financial market conditions have been volatile, especially in the beginning of 2018. This condition is known by market participants as the Trump Effect.
In addition, along with the adoption policy of increasing the benchmark interest rate by the Fed as well as the recovery of the US domestic economic conditions, it causes the shift of foreign investor funds from emerging markets to the US financial markets. It leads weakening exchange rate in a number of countries.

This weakening exchange rate condition then pushed the government to increase bond yield. It was seen from the increasing WAY auction in mid-2018. The government also raised the level of retail coupon bonds to more than 8% per year.

Fluctuating market conditions were also be seen in the following descriptive statistics table 4:

| No | Variables | Obs. | Mean | Min. | Max. |
|----|-----------|------|------|------|------|
| 1  | WAY Awarded | WAY | 342  | 7.32 | 5.48 | 9.07 |
| 2  | Maturity bonds | MATUR | 342  | 10.14 | 1.00 | 30.00 |
| 3  | Coupon bonds | INT | 342  | 7.54 | 5.45 | 8.88 |
| 4  | Yield with the same maturity on the secondary market | YMAT | 342  | 7.18 | 5.09 | 8.99 |
| 5  | 3-months SPN Yields | YSPN03 | 342  | 5.46 | 4.03 | 6.80 |
| 6  | Average SUN prices on the secondary market | PRICE | 342  | 101.74 | 93.03 | 106.65 |
| 7  | IndobexGov | INDOBEX | 342  | 217.21 | 180.32 | 244.65 |
| 8  | Inflation | INF | 342  | 3.57 | 2.75 | 4.45 |
| 9  | Exchange rate | IDR | 342  | 13.422 | 12.955 | 14.417 |
| 10 | BI Rate | BIR | 342  | 5.07 | 4.25 | 7.50 |
| 11 | JCI | IHSG | 342  | 5.553 | 4.491 | 6.662 |
| 12 | JCI Market Capitalization | IHSGC | 342  | 6.039 | 4.768 | 7.411 |
| 13 | LIBOR | LIBOR | 342  | 1.23 | 0.62 | 2.36 |
| 14 | USTreasury Rate 3 months | USTR3M | 342  | 0.85 | 0.22 | 1.95 |
| 15 | USTreasury Rate 1 year | USTR1Y | 342  | 1.12 | 0.45 | 2.33 |
| 16 | USTreasury Rate 5 years | USTR5Y | 342  | 1.82 | 1.01 | 2.90 |
| 17 | Effective Fed Fund Rate | FEDR | 342  | 0.89 | 0.34 | 1.82 |

Source: Data are processed from Finance of Ministry, Blomberg, Investing.com, IBPA, BI, and OJK
Based on the table 4, it could be seen that the average of SBN WAY is 7.32% with bond maturity range 1-30 years. The average of incoming bid ratio which meets the benchmark is greater than the indicative target, but there are several times the bid meets the benchmark below the target which reach 0.22 times.

The movement of 3-months SPN yields and inflation was relatively stable with a standard deviation number below 1, i.e 0.66 and 0.45. Meanwhile, exchange rate movements were quite volatile with the lowest value was Rp12,955.00 and the highest value was Rp14,417.50. The interest rates on US government and LIBOR bonds are likewise quite volatile with a standard deviation more than 0.5.

Based on the multicollinearity test results, there are several variables that need to be incorporated into new variables using factor analysis. Based on the results of several tests, the existing variables are feasible for a factor analysis. From the results of the factor analysis, new variables were obtained as follows:

a. Yield with the same maturity on the secondary market (YMAT), 3-months SPN yield (YSPN03), and INDOBEX Gov (INDOBEX) variables form SBN performance variable (PSBN);
b. JCI, BI Rate, and JCI Market Capitalization variables form money market conditions and domestic capital markets (DMARKET) variable;
c. LIBOR, US Treasury Rate (USTR3M, USTR1Y, USTR5Y), and Effective Fed Funds rate variables form money market and global bond market (GMARKET) conditions variable.

From these results, remodeling was formed on the equation model that had been arranged. The new equation model which used in regression analysis was as follows:

a. Intrinsic bond factor model

\[ \text{WAY Awarded} = f \{ \text{bond maturity, coupon, average SUN prices in the secondary market, SBN performance} \} \]

\[ \text{WAY}_i = \beta_0 + \beta_1 \text{MATUR}_i + \beta_2 \text{INT}_i + \beta_3 \text{PRICE}_i + \beta_4 \text{PSBN}_i + e_i \]

b. Extrinsic domestic economic factor model:

\[ \log (\text{WAY})_i = \beta_0 + \beta_1 \text{INF}_i + \beta_2 \log (\text{IDR})_i + \beta_3 \text{DMARKET}_i + e_i \]

c. Extrinsic global economic factor model:

\[ \text{WAY}_i = \beta_0 + \beta_1 \text{GMARKET}_i + e \]

The model suitability test was conducted to see how much the ability of the regression model explained the dependent variable; government bonds yields on the primary market.
From the table 5, it can be seen that the intrinsic bond factor model is very good in explaining the amount of government bond yields in the primary market, which is 91.60%, while 8.40% is explained by other variables which are not included in the model.

| No  | Category                                   | R-squared value | adj. R-squared value |
|-----|--------------------------------------------|-----------------|----------------------|
| 1   | Intrinsic bond factor model                | 0.917004        | 0.916019             |
| 2   | Extrinsic domestic economic factor model   | 0.769826        | 0.767783             |
| 3   | Extrinsic global economic factor model     | 0.404744        | 0.396117             |

Source: Result of data processing

Normality test was done to see whether the regression residual distribution was normally distributed or not (using Jarque Bera Normality Test, Gujarati, 2015). From the table 6 below, it can be seen that the residual values of the three regression models were normally distributed.

| No  | Category                                   | Jarque-Bera statistic | Prob of Jarque-Bera Statistic |
|-----|--------------------------------------------|-----------------------|--------------------------------|
| 1   | Intrinsic bond factor model                | 2.278957              | 0.319986                       |
| 2   | Extrinsic domestic economic factor model   | 4.459628              | 0.107548                       |
| 3   | Extrinsic global economic factor model     | 2.083235              | 0.352883                       |

Source: Result of data processing

The heteroscedasticity test was carried out to ensure the variance of the error was constant or identical for each period. From table 7, it can be seen that all three models passed the heteroscedasticity test.

| No  | Category                                   | Method           | Prob. Chi-Squared |
|-----|--------------------------------------------|------------------|-------------------|
| 1   | Intrinsic bond factor model                | Glejser test     | 0.0641            |
| 2   | Extrinsic domestic economic factor model   | Glejser test     | 0.0596            |
| 3   | Extrinsic global economic factor model     | Breusch-Pagan-Godfrey test | 0.1137 |

Source: Result of data processing

Autocorrelation test is a statistical test to find out the correlation between the variables in the prediction model and the changing time. From table 8, it can be seen that all three models passed the autocorrelation test.
Table 8

Autocorrelation Test

| No | Category                              | Nilai DW | result                     |
|----|---------------------------------------|----------|----------------------------|
| 1  | Intrinsic bond factor model           | 1.486354 |                            |
| 2  | Extrinsic domestic economic factor model | 1.480413 | Pass the limit value of the test |
| 3  | Extrinsic global economic factor model | 2.097697 |                            |

*Source: Result of data processing*

T-test was conducted to see the significance effect of independent variables on the dependent variable. By using $\alpha = 5\%$, all the independent variables in the model passed the test. A summary of the T-test can be seen in table 9:

Table 9

Regression Model T-test

| Variable | Std. Error | t-Statistic | Prob. |
|----------|------------|-------------|-------|
| MATUR    | 0.001809   | 21.52909    | 0.0000|
| INT      | 0.015836   | 7.706101    | 0.0000|
| PRICE    | 0.005074   | -20.78113   | 0.0000|
| PSBN     | 0.018989   | 15.34396    | 0.0000|
| INF      | 0.006059   | 2.945938    | 0.0034|
| Log(IDR) | 0.132517   | 8.553677    | 0.0000|
| DMARKET  | 0.002755   | -32.61796   | 0.0000|
| GMARKET  | 0.083710   | -6.849564   | 0.0000|

*Source: Result of data processing*

From the T-test results on the three formed regression models, the analysis result can be summarized as presented in table 10:

Table 10

The Summary of Regression Model T-Test

| No | Variable  | Result | Description                                             |
|----|-----------|--------|---------------------------------------------------------|
| 1  | Maturity bond | significant | Maturity bond has a positive significant effect on the government bond yields in the primary market |
| 2  | Coupon     | significant | Coupon rate has a significant effect on the government bond yields in the primary market |
| 3  | Price      | significant | The average price of SUN on the secondary market has a negativesignificant effect on the government bond yields in the primary market |
Determinant of Indonesian Government Bond ‘Yield’ in Domestic Primary Market

| No | Variable                  | Result | Description                                                                 |
|----|--------------------------|--------|-----------------------------------------------------------------------------|
| 4  | SBN performance          | significant | SBN performance has a significant effect on the government bond yields in the primary market |
| 5  | Inflation rate           | significant | Inflation rate has a positive significant effect on the government bond yields in the primary market |
| 6  | Exchange rate            | significant | Exchange rate Rupiah against Dollar has a positive significant effect on the government bond yields in the primary market |
| 7  | Domestic market condition| significant | Domestic market condition has a significant effect on the government bond yields in the primary market |
| 8  | Global market condition  | significant | Money market and global market conditions have a significant effect on the government bond yields in the primary market |

Source: Result of data processing

The interpretation of regression model analysis results was carried out to see how much the independent variable value influenced the dependent variable value. It was done by looking at the beta coefficient values of each independent variable as presented in the following Table 11:

| Table 11 | Beta coefficient values of independent variables |
|----------|--------------------------------------------------|
| No | Variable | coefficient value |
| |  | Intrinsic bond factor | |
| 1 | MATUR | 0.038939 |
| 2 | INT | 0.122031 |
| 3 | PRICE | -0.105452 |
| 4 | PSBN | 0.291372 |
| | Extrinsic domestic economic factor | |
| 1 | INF | 0.017848 |
| 2 | Log (IDR) | 1.133507 |
| 3 | DMARKET | -0.089850 |
| | Extrinsic global economic factor | |
| 1 | GMARKET | -0.573375 |

Source: Result of data processing
The table above describes that each independent variable has a different value and coefficient sign. The negative (-) sign expresses a negative effect on the dependent variable, while without the negative (-) sign states a positive effect. Based on the suitability test, these signs were suitable with the existing theory.

The value of each independent variable in the models are used as a reference in determining the benchmark price or owner's estimate which then used as a WAY maximum decision limit in the auction.

Besides as a reference in determining the benchmark price or owner's estimate, changing conditions on certain variables are also used as an early warning system in anticipating the potential debt costs increase to be responded to certain handling steps.

In addition, the coefficient value of the maturity bond variable (MATUR) was 0.038939. It means that the increase maturity period of 1 year increases the amount of government bond yields on the primary market by 0.038939%, ceteris paribus.

The results of this study are in line with the related literature and previous study which state that an increase in maturity bond increases the yield which requested by the investors. It happens since the investors face uncertainty over the greater return on investment in long-term portfolios.

The changes of maturity bond which have a positive effect on bond yields can be used as a reference in choosing a strategy for determining the duration. However, the changes in bond yields due to the determination of duration will not always be the same in the actual conditions since there are many other factors also affect the changing.

Moreover, the coefficient value of the coupon rate variable (INT) was 0.122031. It can be summarized that an increase in coupon rate by 1% increases the amount of government bond yields in the primary market by 0.122031%, ceteris paribus.

The results of data analysis show that coupon rate influences the amount of the yield. It is possible since the determination of benchmark prices will not be too much different from the coupon rate, considering the two variables were driven by the same factors: domestic and global market conditions.

The coefficient value of the SUN average price in the secondary market (PRICE) was -0.105452. It means that an increase in the average price of SUN in the secondary market by 1 point decreases the amount of government bond yields on the primary market by 0.105452%, ceteris paribus.

This finding is supported by the related literature and previous study which states the relationship between price and yield is the opposite. The results of the data analysis showed the existing bond prices on the secondary market influenced the yield on the primary market.

The increase of bond prices in the secondary market needs to be responded as a momentum to reduce the yields so that bond issuance becomes more efficient. The increase was driven by increased demand and reduced expectations of yields so that when the government sets
a reduction of the yield limit, market absorption or the incoming supply ratio will potentially be met as what is expected.

Furthermore, the coefficient value of the SBN performance variable (PSBN) was 0.291372. In other words, an increase in SBN performance by 1 point increases the amount of bond yield on the primary market by 0.105452%, ceteris paribus.

The results of the data analysis show that there is an effect of issued bonds performance towards the new yield issuance cost in the primary market. It provides empirical evidence that SBN performance variables: Yield with the same maturity on the secondary market, 3-months SPN yields, and INDOBEX Gov, significantly influence government bond yields on the primary market, ceteris paribus.

Changes of SBN performance which bring a positive effect on bond yields need to be responded anticipatedly to keep yields from a sharp increase by affecting other variables which affect the yields.

In addition, the coefficient value of the inflation rate variable (INF) was 0.017848. It implies that an increase in inflation of 1% increases the rate of government bond yields on the primary market by 0.09%, ceteris paribus.

This finding supported by the related theory which states an inflation increased make the investors face a greater uncertainty. Especially for the domestic investors, it will increase the expectation of return on investment funds so that it will encourage an increase on yield demanded by investors.

Since the inflation rate brings positive effect on bond yields on the primary market, the decline in the inflation rate announced by BPS can be a momentum for the government to reduce yields on the primary market. Instead, the government needs to prepare anticipatory steps on the increasing inflation rate.

Moreover, The coefficient value of exchange rate (IDR) variable was 1.133507. It shows that the weakening of the rupiah by 1% per 1 USD increase the government bond yields on the primary market by 1.133507%, ceteris paribus.

The results of this study are in line with the theory which underlies the research, that the weakening of the exchange rate causes the investors, especially global investors, face greater exchange rate risk and default risk exposure. Therefore, it increases the expected return that will encourage an increase on yield demanded by investors.

By the positive effect of the exchange rate on the bond yields, the government needs to respond the weakening of the exchange rate through a series of steps to keep yields from a sharp increase on the primary market, such as delaying the issuance of foreign currency bonds.

Then, the coefficient value of the money market and the domestic market (DMARKET) condition variable was -0.089850. It implies that the improvement of money market and domestic market conditions by 1 point reduces the amount of bond yields on the primary market by 0.089850%, ceteris paribus.
This finding has the same point of view with the related literature which states the market conditions influence bond market conditions. It also provides empirical evidence that the variables forming the condition of the money and the domestic market: JCI, BI Rate, and JCI Market Capitalization have a significant effect on government bond yields on the primary market.

The results of this study describes the conditions of the money and capital market in Indonesia support the bond market. The positive performance of the money market and capital market also bring a positive effect on the bond market with lowering the yield. In other words, there is no opposite assumption in the case of the better money / capital market conditions, the more bond investors move from the bond market to the money / capital market, and vice versa.

In addition, the results of this study assumes that the conducive conditions on the money and capital markets provide positive sentiment towards the bond market, so that the yield expected by investors can be lower.

Since domestic market conditions brings the negative effect on yields, improving the domestic market conditions can be used as momentum to reduce bond yields in the primary market. Meanwhile, the worsening domestic market conditions need to be anticipated to keep the yield from a sharp increase, including by issuing private placements.

The coefficient value of the money market and global bond market (GMARKET) conditions variable was -0.573375. It means that the improvement of money market and the global bond market conditions by 1 point reduces the amount of bond yields on the primary market by 0.573375%, ceteris paribus.

The results of the study are in line with related theory which states the conditions of the money market and global bond market also significantly influence the bond market in developing countries, which then affect the yield demanded by investors, especially global investors. It shows the money market and global bond market conditions have a positive effect on the bond market in Indonesia.

It also proves that the variables forming the financial market and global bond markets conditions: LIBOR, US Treasury Rate of various maturity and the Effective Fed Fund Rate (FEDR) have a significant effect on bond yields on the primary market, ceteris paribus.

The improvement of global economic conditions have led a reduction on government bond yields on the primary market. In other words, there is no opposite assumption in terms of better global money / bond market conditions will make the investors move from Indonesian bond market to other countries market (sudden reversal) which encourages the government to increase the yields.

This condition is possibly happen because of several factors:

a. Global investors still try to maintain their influence in domestic market by maintaining a certain percentage of ownership level, so that the sudden reversal effect is not too high when the economic conditions of developed countries improved;
b. Global investors have a higher financial capacity to invest in developing countries when the global economic condition improved;

c. The portion of domestic investor ownership of SBNs is high and there is a positive sentiment of the investors when global economic conditions improved.

Since there is a negative influence between global market conditions and bond yields, the government needs to respond the weakening of global market conditions by strengthening the level of trust and domestic land-based investors to keep yields from sharp increase in the primary market.

Based on the results of the study, several implications policy are obtained as follows:

a. The government needs to optimize the government spending so it can be productive and has a large impact and it optimizes state revenue and non-debt financing to reduce the budget deficit considering the debt interest expenditure reaches more than 200 trillion and continues to increase.

b. In trade off, a policy is needed to issue a new debt. By obtaining determinants of government bond yields on the primary market along with the various direction and value from each determinant influence, the government can formulate or evaluate debt issuance policies more optimally through cost control by considering the relationship between these variables.

c. The government can take a momentum on the movement of certain variables to reduce the bond yields on the primary market without worrying unreached issuance target. In addition, the movement of certain variables can also be used in building a good early warning system to anticipate rising costs of issuing new debt / increasing bond yields on the primary market.

d. In maintaining risk exposure due to the changes conditions in economic or global financial markets, the government needs to strengthen and educate the investors and potential domestic investors so that the domestic SBN market can be stronger, deeper and more stable. In addition, the government needs to periodically review the ideal proportion of foreign investor ownership, so that common risk exposures due to the high portion of foreign investor ownership such as sudden reversals can be maintained at a controlled level.

**CONCLUSIONS AND SUGGESTIONS**

Based on the findings and discussion in this study, several conclusions are obtained as follows:

a. Determinants of government bond yields on the primary market can be classified into three categories: intrinsic bond factor, extrinsic domestic economic factor, and extrinsic global economic factor.

b. The determinants of government bond yields on the primary market that represent intrinsic bond factor are: bond maturity, coupon rate, bond prices in the secondary market, and bond performances (bond yield with the same maturity, 3-months SPN, and
INDOBEX Gov index from IBPA). All of these variables have a significant effect on the government bond yields on the primary market with different direction and magnitude of influence.

c. The determinants of government bond yields on the primary market that represent extrinsic domestic economic factor are: inflation rate, exchange rate, and money market and the domestic capital market conditions (formed by JCI, BI Rate, and JCI market capitalization). All of these variables have a significant effect on government bond yields on the primary market with different direction and magnitude of influence.

d. The determinants of government bond yields on the primary market that represent extrinsic global economic factor are the money and global bond market conditions (formed by LIBOR, US Treasury Rates of various maturity and the Fed Fund Rate). All of these variables have a significant effect on government bond yields on the primary market with different direction and magnitude of influence.

e. The best model which can explain the yield of government bonds in the primary market is the intrinsic bond factor model, and the independent variables that greatly affect the yield of government bonds in the primary market are domestic and global market conditions.

The limitation of this study is the limited data on auction results which are only available starting in 2016. In addition, although the auction method is the main publishing method, there are a number of portfolios issued using other publishing methods so that the holistic analysis can not be done due to the different situations and conditions.

Some other variables which are thought affect government bond yields, such as sovereign credit rating and government financial conditions are not included in the model since there is a different time range data which are not presented in daily but annually.

For further researchers, it is expected to develop an approach which can accommodate other variables that have non-daily time periods characteristics, such as credit ratings and government financial conditions, to be included into the analysis model. In addition, remodeling can also be done by combining the three existing models into one integrated equation as long as it meets the prerequisites of model feasibility.

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