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Determinants of Pertamina Global Bond Yield

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Abstract

This paper aims to recognize the determinant factors that influence the yield of PERTAMINA's bond. The data used was 10 years of time-series from the year 2011 which was the first time PERTAMINA issued bond, until 2021. The result is the crude oil price, foreign exchange, and the yield of US Treasury bill has strong influence the yield of PERTAMINA both simultaneously and partially.

Keywords
Yield; bonds; oil prices; currency rates; US Treasury bill

I. Introduction

The company's goal is always to make a profit. The company carries out business activities by issuing expenses which are expressed in an amount of money. On the other hand, from these business activities, the company hopes to get income that can be converted into money. This excess of income over expenses is called accounting profit (Weygandt et al, 2015).

With regard to money or cash, financial statements that describe in detail cash inflows and outflows are cash flow statements. Just as the balance sheet states that total assets are equal to the value of liabilities plus equity, cash flows from company assets must also be the same as cash flows issued to creditors and shareholders (Ross et al, 2016).

The main benefit of the cash flow statement is the existence of cash flow information. Information can be seen in cash inflows, outflows, and changes in cash flows during a certain period from operating, investing, and financing activities. Investors can estimate the company's ability to generate cash in the future. Creditors and shareholders can obtain information about the company's ability to pay liabilities and dividends. Stakeholders can see the company's ability to operate to generate revenue and at the same time incur expenses, thereby determining net income.

In other words, the cash flow statement describes the cash inflows and outflows from the following three (3) activities (Weygandt et al, 2015):

1. Operating activities that include the impact of cash on transactions that generate income as well as expenses. In the end a net profit is formed.
2. Investment activities include cash to acquire and dispose of investment assets including property, plant and equipment, as well as cash lending and collecting activities.
3. Funding activities include obtaining cash from the issuance of debt securities (bonds) as well as payment of interest and principal value, as well as cash acquisition from shareholders, purchase of shares, and payment of dividends.

Of the three activities, our focus is on financing activities. There are two (2) ways for companies to obtain funding, namely from debt (debt) or equity (Damodaran, 2015). Debt is a contractual claim against the company (and is independent of its performance), creates tax-deductible payments, has a lifespan, and is a priority claim for cash flow in operations and bankruptcy. While equity is a means of financing the company's residual assets, does not offer tax incentives for payment, has an indefinite life, does not have bankruptcy

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priority, and business control for company owners. The higher the company's leverage, the company tends to generate less cash, this is likely to affect the occurrence of earning management. Companies with high debt or leverage ratios tend to hold their profits and prioritize the fulfillment of debt obligations first. According to Brigham and Ehrhardt (2013), the greater the leverage of the company, it tends to pay lower dividends in order to reduce dependence on external funding. So that the greater the proportion of debt used for the capital structure of a company, the greater the number of liabilities that are likely to affect shareholder wealth because it affects the size of the dividends to be distributed. (Yanizzar, et al. 2020)

Based on the Pecking-Order Theory, companies tend to prioritize the use of internal funding first (equity). The simple reason is that it is expensive to issue securities (Ross et al, 2016). Companies that have a high level of profitability may not need external funding so that the amount of debt is little or no.

Companies that take external funding (debt) can feel the benefits compared to internal funding. The first benefit is related to taxation. The existence of interest payments is a tax deductible for the company. While the payment of dividends (equity) there is an element of tax deduction. The second benefit is to increase the company's discipline to pay debts (Damodaran, 2015). Both of these benefits can be quantified in terms of debt capacity.

In Indonesia, the government is also thinking about how State-Owned Enterprises (BUMN) can carry out operational and funding activities effectively and efficiently. To strengthen the role of SOEs, the Indonesian government has a medium-term plan to establish a sector-based holding company (cluster). The government wants these SOEs to increase their investment, take advantage of synergies and economies of scale, and reduce operational and financing inefficiencies.

The formation of the BUMN cluster is carried out based on the main business industry in the context of efficiency and value strengthening. Currently, there are 12 SOE clusters. Pertamina is included in the energy and oil & gas (migas) cluster. In order to accelerate the development of energy infrastructure and increase oil and gas production, the government has made Pertamina an energy holding company (Kim, 2017).

Pertamina as the object of research has a vision. Its current vision is to become a world-class national energy company. The vision was created to achieve the aspiration to become a leading global energy company with a market value of USD100 trillion. To achieve such a large valuation, large funding is also required for large projects.

The biggest source of funding is by issuing global bonds. The balance of Pertamina's bonds payable as of June 30, 2021 is USD 15.3 trillion. This amount is so large that Pertamina must take care to prevent the risk of default from occurring.

One way is liability management. Pertamina has a global bond buyback program if its financial condition is good. Pertamina must know what factors affect the price of bonds circulating in the market. Meanwhile, there are many studies that discuss variables such as world oil prices, USD exchange rates, and US Treasuries that affect bond yields. In fact, bond prices and yields are inversely proportional.

II. Research Method

2.1 Types of Research

This research was conducted with a quantitative approach. Quantitative research method is a research method that involves collecting numerical data to show the relationship between theory and research as deduction with a scientific approach and objectivity about social reality (Bell et al, 2019). Quantitative research is synonymous with measurement. Measurements in this study provide a more accurate basis for the relationship between variables through correlation analysis.

2.2 Operational Definition and Measurement of Variables

Some social phenomena can be measured but others cannot be measured directly. It is necessary to have indicators that can support the concept so that it can be measured. This is called an operational definition (Bell et al, 2019).

a. World Oil Prices

Crude oil is a commodity so it has a price. The price in this study is the price of West Texas Intermediate (WTI) crude oil which is the benchmark for Pertamina's oil price as stated in the annual report. Oil prices are expressed in USD/barrel.

b. USD Currency Rate

In international trade, currency rates or exchange rates are usually expressed in USD in practice (Ross et al, 2016). Therefore, this study uses the USD exchange rate with reference to the Bank Indonesia exchange rate.

c. US Treasury

US Treasuries are bonds issued by the United States government. What is meant by the US Treasury in this study is its yield. Yield expressed in basis points is equivalent to 1/100 or 1%.

2.3 Method of collecting data

Pertamina's global bond yield data was obtained from Pertamina's internal sources. Data in the form of time series were taken purposively. Data on oil prices, USD exchange rates, and US Treasury are obtained from internet publications. While the supporting theory is obtained by means of literacy studies and through published journals.

2.4 Data Analysis Techniques

Analysis of the regression model data was carried out using the SPSS application.
Normality Test

The hypothesis test was first carried out with a normality test. In regression analysis, the assumption of normality is very important in hypothesis testing (Suyono, 2015). The assumption of normality facilitates hypothesis testing and the formation of confidence intervals. How to detect normality with the Kolmogorov Smirnov test. Data that are normally distributed use parametric statistical tests such as One Sample Test, Independent Sample Test, Paired Sample Test and Analysis of Variance (ANOVA). Data that are not normally distributed use non-parametric statistical tests such as the Mann-Whitney Test, Wilcoxon Test, and Kruskal Wallis Test.

2.5 Autocorrelation Test

The assumption is that there is no significant autocorrelation in the regression analysis. If this assumption is not met, then there are difficulties in hypothesis testing and the formation of confidence intervals (Suyono, 2015). The autocorrelation test was performed using the Durbin-Watson test.

2.6 Homoscedasticity Test

In the regression model, homoscedasticity is a condition where the variance of error is the same for all observations of each independent variable. If there is no homoscedasticity, then there is a consequence that it is difficult to draw correct conclusions in hypothesis testing because the confidence interval is too wide (Suyono, 2015). Homoscedasticity test can be done by applying the Spearman test.

2.7 Hypothesis Testing Criteria

The coefficient of determination (R^2) test was carried out to find out how big the relationship of the independent variable was to the dependent variable. The value of this coefficient is between 0 and 1. If the result is close to 0 it means the ability of the independent variables to explain the variation of the variable is small or limited. If the result is close to 1, then the independent variables are able to provide the information needed to predict the variation of the dependent variable. In other words, to the strong relationship between the independent variable and the dependent variable.

The F test was conducted to determine the effect of the independent variables simultaneously on the dependent variable. The degree of confidence or significance used is 0.05. If the calculated F value is greater than the F value, then the hypothesis is accepted. In other words, all independent variables simultaneously have a significant effect on the dependent variable.

The t-test was conducted to see the effect of the independent variables on the dependent variable partially. The degree of confidence or significance used is 0.05. If the significant value is less than the degree of confidence, then the hypothesis is accepted. That is, partially the independent variable affects the dependent variable.

2.8 Yield Global Bond

Pertamina has issued global bonds which are traded on the secondary market. The meaning of global bond is a bond that is issued internationally because it is in the form of a foreign currency (USD) and is traded on international markets. This global bond has a yield expressed in basis points equivalent to 1/100 or 1%.

2.9 Types and Sources of Data

This study uses secondary data. Secondary data is the result of studies that have been carried out by other parties and used for various purposes (Cooper & Schindler, 2014). In this study, global bond yield data were obtained from Pertamina's internal database. Meanwhile, the variables of world oil prices and US Treasury are taken from internet publication data via the web address https://id.investing.com. The USD exchange rate variable is taken from the Bank Indonesia website. All data was taken on June 5, 2022.

2.10 Population and Research Sample

Population is the element we want to infer. While the sample is a collection of participants, events, cases, or records that are part of the targeted population (Cooper &

Schindler, 2014). The population in this study is all outstanding Pertamina global bond yield data.

While the sample data uses PTM 41 global bond yields which still outstanding and have 10 years of data. Data is taken in time series from 2011 to 2021.

III. Result and Discussion

3.1 Descriptive Analysis

Based on the data processing of the variables of each population as many as 2713, the following data were obtained:

1. The US Treasury variable has an average of 2.78626 with a standard deviation of 0.624999. The standard deviation is small which means the value of the data distribution is relatively the same (homogeneous).
2. The currency exchange rate variable has an average of 12,639.91 with a standard deviation of 1,956.28. The standard deviation is quite large considering the relatively high distribution of the data. This was due to the weakening of the IDR exchange rate against the USD during the Covid-19 pandemic in 2020.
3. The oil price variable has an average of 66.87 with a standard deviation of 23.92. Oil prices have fluctuated over the past 10 years. Oil prices experienced a drastic decline in 2016 due to world supply disruptions and 2020 due to the Covid-19 pandemic.
4. Global bond yield variable has an average of 5.71 with a standard deviation of 0.96. The standard deviation is smaller than the average, meaning that the data distribution is the same.

Table 1. Descriptive statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
BY 41	5.71454	.964037	2713
Crude Oil	66.86590	23.916286	2713
Forex	12639.90731	1956.277435	2713
US Treasury	2.78626	.624999	2713

3.2 Hypothesis test

Processing of data from variables is done with SPSS software. The results of the study can be seen below.

Table 2. Summary Table of Research Results Model

Model Summary[b]										
					Change Statistics					Durbin-Watson
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	
1	.783[a]	.613	.612	.600360	.613	1427.948	3	2709	.000	.019
a. Predictors: (Constant), US Treasury, Forex, Crude Oil										
b. Dependent Variable: BY 41										

Table 3

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1544.033	3	514.678	1427.948	.000[b]
	Residual	976.409	2709	.360		
	Total	2520.442	2712			
a. Dependent Variable: BY 41						
b. Predictors: (Constant), US Treasury, Forex, Crude Oil						

Table 4

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.076	.168		24.305	.000
	Crude Oil	-.018	.001	-.440	-21.494	.000
	Forex	-9.102E-5	.000	-.185	-9.930	.000
	US Treasury	1.427	.025	.925	57.331	.000
a. Dependent Variable: BY 41						

These results show a multiple correlation coefficient R of 0.783. This means that 78.3% of global bond yields can be explained by the variables of oil prices, currency exchange rates, and US Treasury yields. Meanwhile, 21.7% global bond yield is explained by other variables other than X in this study.

The coefficient is significant after being tested with the F test, the F value is 1427.948 with a significance of 0.00. The results of Sig < Research Alpha (0.000 < 0.05) which means that the variables of oil prices, currency exchange rates, and US Treasury yields simultaneously have a significant effect on global bond yields.

While the results of the t test obtained the t value of each dependent variable according to the table. The significance value is 0.00. The results of Sig < Research Alpha (0.000 < 0.05) which means the hypothesis is accepted. Each variable oil price, currency exchange rate, and yield of US Treasury partially have a significant effect on global bond yields.

The results of the analysis show that the value of the constant is 4.076. The value of the oil price coefficient is -0.018. The value of the currency exchange coefficient is -0.00009102. The US Treasury yield coefficient value is 1.427. The most significant coefficient is the currency exchange rate because the significance value is close to 0. While the least significant coefficient is the US Treasury yield because the significance value is close to 1. Therefore, another result obtained is the regression line equation as follows:

Pertamina global bond yield = 4.076 - 0.018 oil price - 0.00009102 currency exchange rate + 1.427 US Treasury yield

3.3 Discussion

a. The Effect of Oil Prices on Yield Global Bonds

Hypothesis testing shows that there is an effect of oil prices on global bond yields. This strengthens the theory from previous research, namely Rehman & Arshad (2017) and Gormus et al (2018).

b. Effect of USD Currency Exchange on Global Bond Yield

Hypothesis testing shows that there is an effect of the USD exchange rate on global bond yields. This strengthens the theory from previous research, namely Mina et al (2003), Huia et al (2018), and Ayuningtyas & Nugrohowati (2018).

c. Effect of US Treasury on Global Bond Yield

Hypothesis testing shows that there is an effect of oil prices on global bond yields. This strengthens the theory from previous research, namely sterholm (2018) and Huia et al (2018).

IV. Conclusion

Variables of oil prices, USD exchange rates, and US Treasury yields have a strong influence on Pertamina's global bond yields. The effect is simultaneous or partial. The data uses time-series during the year of issuance of Pertamina's global bonds 2011 to 2021. The test uses a multiple regression model with SPSS software. By knowing the factors that affect Pertamina's global bond yield, Pertamina's global bond investors can conduct further analysis for decision making. Analysis in liability management, especially for bond buyback actions, can consider the results of the analysis of the influence of the relationship between variables on global bond yields in this study. The sample of this research is based on time-series. Because Pertamina has only issued global bonds since 2011, the complete time-series that can be taken is about 10 years. The outstanding global bonds selected as the Y variable are also limited. Further research should be developed. Development could be carried out on a longer time-series in the future. In addition, development can be carried out for other variables, both macroeconomically and company internal factors.

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