

# Effect of Liquidity, Leverage, Profitability and Firm Size on Corporate Sukuk Rating

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**Abstract:-** The purpose of this research is to examine the factors that affect corporate sukuk rating. The factors are liquidity, leverage, profitability and firm size. In 2020, Outstanding sukuk is rated by PT Pefindo and published by real sector companies to be population in this research. This research used purposive sampling method with 87 corporate sukuk samples. The analysis method of this research is ordinal logistic regression. The factor which isn't affect the sukuk rating are liquidity, leverage and profitability. In the other hand, firm size be the factor that affect negative significantly of sukuk ratings.

**Keywords:-** Sukuk Corporate; Sukuk Rating; Ordinal Logistic Regression.

## I. INTRODUCTION

Nowadays in Indonesia, the interest of economic actors to invest in sharia capital markets is increasing in line with sharia financial industry growth, such as to invest in sharia bonds (sukuk). Sukuk is a bond (long-term securities) issued by either a company or an institution. They are sold to investors to get profit distribution/margin/fee and repay the bond when it matures by applying sharia principles. The level of sukuk issuance in Indonesia can be seen in statistical data from Otoritas Jasa Keuangan (OJK).



Fig. 1: The Growth of Corporate Sukuk in Indonesia

Source : Statistics of OJK (2020)

The chart is increase every years, It representative that the sukuk issuance increase too. There are 162 outstanding sukuk in December 2020 with an outstanding value of Rp 30.35 trillion. Although investing in sukuk more safer than conventional bonds, but it still can causes a risk. The example is default risk. It can be happened if the issuer is unable to pay the value of the sukuk to investors when it is matures. This case make the investors have to consider when they will decided to invest in sukuk. So, The investors need information about what sukuk they will invest. The information is gotten from sukuk rating.

Sukuk ratings give a signal about possibility debt default company. The investors can estimate the return and safeness they gaining from their invest by sukuk ratings. Sukuk ratings can be affected by the default risk. A company that has defaulted, its sukuk rating will be decreased. So, the level trustness of investor will decrease too. Therefore, sukuk ratings are important for every investor.

One of the companies that rated securities in Indonesia is PT Pefindo where its duty to rate the position of investment grade or non investment grade. The sukuk can be investment grade, if the issuer has AAA, AA, A, or BBB. While BB, B, CCC, and D are non-investment grade.

The company getting a downgrade of sukuk rating due to default was PT Berlian Laju Tanker, Tbk (BLTA) which was the largest sea transportation company in Indonesia. The sukuk that failed were A and B series Ijarah II 2009 with value at Rp 1.74 billion and Rp 2.33 billion which matures on February 27, 2012. Pefindo's press release on February 28, 2012, stated that the sukuk rating issued by PT BLTA was drop from CCC to D.

The rating issued by PT Pefindo, may change at any time as shown in the transition matrix of the 2007-2019 default study. There is a percentage variation in the rating of a debt value. As previously researched, liquidity affects negative significantly of sukuk ratings which is determined by *Current Ratio* (CR) (Hamida, 2017) [6]. The result of her research interprets the downgrade of the sukuk ratings could have occurred due to default risk. According to her research, the sukuk rating could have been downgraded due to a default. When a company's current assets are not managed properly, but instead are used to meet short-term liabilities and other operations, the risk of default increases. On the other hand, the liquidity ratio isn't affect the sukuk ratings (Winanti, Nurlaela & Titisari 2017) [16].

Leverage is another factor that is considered to have a significant negative effect on the sukuk ratings (Muhammad & Biyantoro, 2019)[8]. Leverage is proxied by the Debt to Equity Ratio (DER). These results contradict with Utami (2019). In her research, leverage which is also measured using DER does not have a significant effect on the sukuk ratings because a company that has a lot of debt does not necessarily have a low sukuk rating [14]. The results of Astuti (2017), the profitability ratio determined using Return on Assets (ROA) can have a positive effect on the sukuk ratings [1]. However, this contradicts with Cahyati and Nurnasrina's (2019) results, which concluded that profitability has a significant negative effect on sukuk ratings [3].

In addition to these three variables, firm size has been examined as a determinant of sukuk ratings in previous research. The total assets of a company are used to determine the firm size. The larger the total assets, the larger the firm size. On the other hand, the larger the firm size, the better the sukuk ratings. Therefore, sukuk ratings are positively affected by firm size (Hadinata, 2020) [5]. However, other research have shown that the sukuk ratings is not necessarily influenced by the firm size. Companies that have large total assets do not guarantee that they will be able to meet all of their obligations. The company could default even though its total assets are large. So, the firm size does not significantly affect the sukuk ratings (Pranoto, Anggraini & Takidah, 2017) [12].

There are inconsistencies in the results obtained based on the results of previous research. The conclusions reached did not all converge to the same conclusion. Therefore, the authors will study about how liquidity, leverage, profitability, and firm size affect corporate sukuk ratings.

## II. LITERATURE REVIEW

### A. Agency Theory

This theory can be regarded as a model of a contract between two or more parties, namely the capital owner (principal) and the management (agent). This theory arises due to differences in interests between agent and principal which causes agency problems and asymmetric information. There must be a "checks and balances" which is separation of the supervisory and executive functions so that healthy independence between the two can be achieved. This theory is based on the statement of Jensen and Meckling (1976)[7], "*agency relationship as a contract under which one or more person (the principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent*".

### B. Signalling Theory

This theory is based on Akerlof's (1970) theory of "The Market for Lemons" which initiated the existence of asymmetric information. The existence of asymmetric information (asymmetric information) is a condition when the owner of the capital doesn't have information/less information about the product that is his investment

compared to the management. In order not to damage another one, signaling theory is needed, which is related to the management's procedures for giving signals to stakeholders, which can be the informatios, both financial statements and other information related to their investments.

### C. Pecking Order Theory

This theory relates to the order of financing changes made by a company. When the company is in deficit, the company chooses to use funds from retained earnings, in other words, using internal funds. However, if the cash obtained from retained earnings is still insufficient, the company will seek debt in other words using external funds. This theory is discussed by Donaldson (1961).

### D. Sukuk

Sukuk are sharia bonds that implement islamic law. Etymologically, sukuk comes from the word "Sakk" (صك) which means a record of a transaction or report on an activity. Meanwhile, in terms of terminology, sukuk is defined as securities issued to capital owners in which the issuer is obliged to pay a margin/yield/fee. Additionally, the issuer is required to repay the funds from the debt securities to the capital owner at maturity.

### E. Liquidity Ratio

Liquidity comes from the word liquid. A company could be liquid when it is able to fulfill its obligations. In other words, this ratio can also be interpreted as the ability of a company to pay off debt or short-term debts in a time such as paying bills, other costs or all other liabilities that will be due. The current ratio (CR) formula, which divides current assets by current liabilities, can be used to determine the liquidity ratio.

### F. Leverage Ratio

The Debt to Equity Ratio (DER) can be used to calculate the leverage ratio, which is calculated by dividing total liabilities by total equity. Leverage is a ratio that determines how much of an asset is comprised of capital or debt. As a result, the leverage ratio can be used to determine the position of fixed assets and balance the value of existing capital.

### G. Profitability Ratio

Profitability ratio is defined as an indicator of a company's financial performance as measured by profit earned in order to effectively and efficiently manage the company's assets. In the other hand, profitability can also be defined as a company's capacity to maximize profits from all of its assets (profit).

According to pecking order theory, more higher profit, so debt will be lower because the company regulates internal funding (retained earnings). As a result, the company is considered to be capable of handling its liabilities, suggesting that the risk of default is lowering. The Return On Asset (ROA) ratio is used to determine the profitability ratio, which is calculated by dividing net income by the total assets owned by a company.

H. Firm Size

The size of the total assets can be an indicator of determining the firm size. If a company is large enough, market confidence will be high, making it easier for the company to get funding if it need one. In addition, the default risk is also considered low. The default rate has an affect on bond and sukuk ratings. According to Rudi and Marsoem (2019) [13], the firm size is a determining factor for bond ratings that has a positive affect. In the view of investors, companies that have high total assets, then the company is considered good.

I. Sukuk Rating

Investors need information to explain the quality of their sukuk investments in order to monitor their investments in sukuk. The information could be regarding the issuing company's industry's business situation as well as the issuer's financial performance. The sukuk ratings that are the investment can also give this information. The information can also be seen from the sukuk ratings that are the investment. The sukuk ratings classified in investment grade are a sukuk that is still relatively safe, making it a viable investment option and if they classified in non-investment grade, then the company is considered vulnerable to default.

The purpose and objectives of this research can be seen based on the framework below:

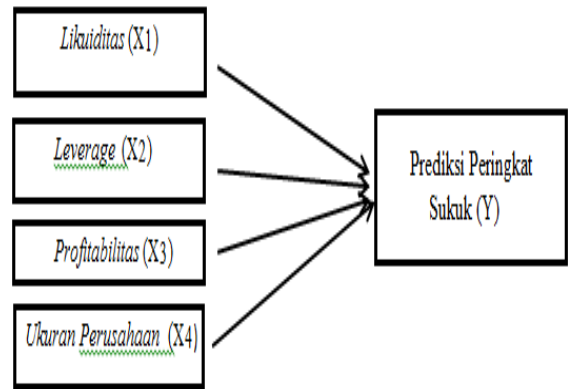


Fig. 2: Research Framework

From the above framework, the hypothesis of this research:

- H<sub>1</sub> : Liquidity (CR) has a positive effect on sukuk ratings
- H<sub>2</sub> : Leverage (DER) has a negative effect on sukuk ratings
- H<sub>3</sub> : Profitability (ROA) has a positive effect on sukuk ratings
- H<sub>4</sub> : Firm Size has a positive effect on sukuk ratings

III. METHODOLOGY

The definition and operationalization of this research variable in more detail can be explained from the table below:

Variable	Rating	Indicator	Scale
Dependent Variable: Sukuk Ratings (Y)			
	AAA	Category Rating	Ordina
	AA+	1	1
	AA	2	
	AA-	3	
	A+	4	
	A	5	
	A-	6	
	BBB+	7	
	BBB	8	
	BBB-	9	
		10	

Variable	Measurement	Indicator	Scale
Variable Independent			
CR (X1)	<i>Current Ratio =</i>	$\frac{\text{Current Asset}}{\text{Current Liabilities}}$	Rati o
DER (X2)	<i>Debt to Equity Ratio =</i>	$\frac{\text{Total Debt}}{\text{Total Equity}}$	Rati o
ROA (X3)	<i>Return On Asset =</i>	$\frac{\text{Net Income}}{\text{Total Asset}}$	Rati o
Firm Size (X4)	<i>Firm Size =</i>	$\text{Ln}(\text{Total Asset})$	Rati o

Table 1: Operational Variable

**A. Population and Samples**

The population in this research is 162 sukuk that are still outstanding in 2020, are rated by PT Pefindo, and are issued by real sector companies. There are 87 corporate sukuk samples.

**B. Data Analysis Method**

Ordinal logistic regression analysis with cross-section data was chosen as the study's analysis method, with the model formed using the formula:

$$\ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots$$

Information :

- $P$  = Probability
- $\alpha$  = Constants
- $\beta_1 - \beta_4$  = Variable Coefficient
- $X_1 - X_4$  = Independent variable

The odds and probability of ordinal logistic regression is:

$$Odds = \frac{P}{1 + p}$$

$$P = \frac{odds}{1 + odds}$$

Or,

$$P = \frac{\exp(\beta_0 + \beta_k X_k)}{1 + \exp(\beta_0 + \beta_k X_k)} = \frac{e(\beta_0 + \beta_k X_k)}{1 + e(\beta_0 + \beta_k X_k)}$$

Information :

- $P$  = Probability
- $\exp$  = exponential or odds
- $\beta_0$  = Constants
- $\beta_k$  = Variable Coefficient
- $X_k$  = Variable -k

**IV. RESULTS AND DISCUSSION**

The first step in analyzing the research hypothesis is to test the model. After testing the model, the next step is to examine the effect of each independent variable on corporate sukuk ratings. Here are the steps:

**A. Fitting Information Model**

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	122,159			
Final	0,000	122,159	4	0,000

Table 2: Fitting Information Model

The value of -2 log likelihood (intercept only) to -2 log likelihood (final) has decreased with a significant value of 0,000, which is less than 5% or 0,05. The  $H_0$  statistic, which is a fit model with only an intercept, is thus rejected at the 95 % confidence level. As a result, the model is fit by including independent variables, as statistical  $H_0$  is rejected.

**B. Goodness of Fit**

The Goodness of Fit test was used to show the model's appropriateness with empirical data.

	Chi-Square	df	Sig.
Pearson	29,559	23	0,162
Deviance	16,191	23	0,847

Table 3: Goodness of Fit

If the p-value is more than 0,05, the model is considered to be fit or viable to employ in this test. The significant Pearson and deviance values are 0,162 and 0,847, respectively, meaning  $> 0,05$ . As a result, the model utilized is fit or has matched the empirical data at a 95 % confidence level.

**C. Pseudo R-Square**

Pseudo R-Square is used to determine the coefficient of determination of the model.

Cox and Snell	0,754
Nagelkerke	1,000
McFadden	1,000

Table 4: Pseudo R-Square

The results of the coefficient of determination above show the R-Square value with various methods. With the Cox and Snell method the contribution of the independent variable in explaining the dependent variable is 75,4% and the remaining 24,6% is influenced by other variables. The largest value is 1,000, which means that the independent variable is able to explain the dependent variable by 100% using the Nagelkerke and McFadden method.

**D. Parallel Lines Test**

This test is used to determine whether the slope coefficient for all response variables is the same.

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis General	0,000	0,000	8	1,000

Table 5: Parallel Lines Test

In this test, the expectation is that the p-value  $> 0,05$ . It can be seen in the table above, it shows a p-value or a significance value of 1,000, meaning  $> 0,05$ . As a result, the model can be considered to fit or be appropriate. In other words, the slope coefficient is the same for all response variables or the categorical similarity between one variable and another.

**E. Regression Coefficient Test**

The significance value in the table can be used to determine the ordinal logistic regression coefficient. If the significant value in the table is more than 0,05, the

independent variable does not significantly affect the dependent variable. Then, if it is lower than 0,05, the independent variable has a significant effect on the dependent variable.

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Threshold t	[Y = 1,00]	-168,132	73,190	5,277	1	0,022	-311,581	-24,683
	[Y = 6,00]	-149,009	65,121	5,236	1	0,022	-276,644	-21,375
	[Y = 7,00]	-144,129	63,642	5,129	1	0,024	-268,866	-19,393
Location	CR	2,999	4,102	0,534	1	0,465	-5,042	11,039
	DER	-2,334	1,522	2,353	1	0,125	-5,317	0,648
	ROA	39,658	73,276	0,293	1	0,588	-103,961	183,276
	SIZE	-9,111	3,827	5,669	1	0,017	-16,611	-1,611

Table 6: Parameter Estimates

The table shows that the independent variable whose significance value is <0,05 is only the variable firm size. Thus, only firms size has an effect on corporate sukuk ratings.

According to the results, it is concluded that a 1% increase in firm size can reduce the probability of a AAA, A and A- sukuk rating by 1,05765E-77, 2,1348E-69 and 2,79E-67, respectively which means that the decrease is very small.

**F. Ordinal Logistics Regression Model**

The parameter estimates table is used to form an ordinal logistic regression model. The following is the ordinal logistic regression model:

$$\text{Logit} (p1) = -168,132 + 2,999CR - 2,334DER + 39,658ROA - 9,111SIZE$$

$$\text{Logit} (p1 + p2) = -149,009 + 2,999CR - 2,334DER + 39,658ROA - 9,111SIZE$$

$$\text{Logit} (p1 + p2 + p3) = -144,129 + 2,999CR - 2,334DER + 39,658ROA - 9,111SIZE$$

The equations of the logistic regression model can be explained as follows:

- p1 : probability of corporate sukuk rating AAA
- p2 : probability of corporate sukuk rating A
- p3 : probability of corporate sukuk rating A-

This research obtained the results that the independent variable that affects the corporate sukuk rating is only the firm size. So, the interpretation of the variable is if the firm size = 1 and the other independent variables = 0, it is obtained:

$$p1 = \frac{\exp(-168,132 - 9,111)}{1 + \exp(-168,132 - 9,111)} = 1,05765E - 77$$

$$p1 + p2 = \frac{\exp(-149,009 - 9,111)}{1 + \exp(-149,009 - 9,111)} = 2,1348E - 69$$

$$p1 + p2 + p3 = \frac{\exp(-144,129 - 9,111)}{1 + \exp(-144,129 - 9,111)} = 2,81005E - 67$$

So, :

$$p2 = (2,1348E - 69) - (1,05765E - 77) = 2,1348E - 69$$

$$p3 = (2,81005E - 67) - (2,1348E - 69) = 2,79E - 67$$

Another interpretation is that if there is a 1% increase in firm size, it will reduce the odds ratio (exp -9,111) for the BBB+ sukuk rating by 0,00011. It can be concluded that the rate of decline of each sukuk rating probability is very small for every 1% increase in firm size.

**V. DISCUSSION**

Furthermore, it will discuss the influence of each independent variables which are liquidity, leverage, profitability and firm size on the 2020 corporate sukuk rating as rated by Pefindo.

**A. Effect of Liquidity (CR) on Sukuk Rating**

The results of the ordinal logistic regression test that have been carried out can be seen in the parameter estimates table that the regression coefficient for liquidity calculated using the current ratio (CR) is 2,999, which is positive. A significant value is 0,46. It is > 0,05, so that statistically liquidity does not have a significant effect on the sukuk rating. Thus, the research H<sub>1</sub> was rejected.

The CR has a positive regression coefficient, indicating that the better the company's liquidity, the higher the sukuk rating. This is because liquid companies are thought to be capable of meeting short-term liabilities such profit sharing/fees/margin sukuk. This suggests that if a company has good liquidity, the default rate will be low.

The results in this study are in line with Astuti (2017)[1], Pebruary (2016)[10] and Hadinata (2020)[5] which show that the liquidity variable has a positive influence on the sukuk rating. However, contrary to Hamida (2017)[6] and Pramesti (2017)[11]. In her research, it shows that liquidity on sukuk ratings has a negative effect.

### B. Effect of Leverage (DER) on Sukuk Rating

The leverage variable, which is calculated by the debt to equity ratio (DER), is shown in the parameter estimates table that it has a negative regression coefficient of -2,334 and a significance value of 0,125. This means that  $0,125 > 0,05$ , so statistically leverage does not significantly affect the sukuk rating. Thus, the research  $H_2$  was rejected.

It does not have a significant effect, meaning that even though a company has very large debt, it does not necessarily mean that the sukuk rating is low. According to Melani and Kananlua (2013) in Utami (2019)[14], this is because DER is very dependent on the type of industry and how to manage a business in a company. This research is in line with Hamida (2017)[6], Widiastuty (2017)[15] and Utami (2019)[14]. Melani and Kananlua (2013) in Utami (2019)[14], further explain that companies with low DER levels are better than those with high levels, and vice versa. The results of this research are in contradiction with Cahyati & Nursina (2019)[3], where their research shows that the DER ratio can positively affect the sukuk.

### C. Effect of Profitability (ROA) on Sukuk Rating

The regression coefficient for the profitability ratio estimated using return on assets (ROA) determined using the results of the ordinal logistic regression test is 39,658 which is positive, as shown in the parameter estimates table. A significant value is 0,588. Because  $0,588 > 0,05$  the profitability ratio has no statistically significant impact on the sukuk rating. As a result, the  $H_3$  research was rejected.

The results of this research, when viewed in regarding the positive value of the regression coefficient, are consistent with those of Elhaj, et al (2015)[4], Astuti (2017)[1], and Borhan & Ahmad (2018)[2], who concluded that profitability has a positive effect on sukuk rating. This is because a company with a high level of profitability is considered to have a low default risk. Companies that are in a profitable position (profit), will be guaranteed the sustainability of their operations, including being successful in fulfilling their obligations. In addition, the profits obtained can be used for payment of profit sharing, fees/ujrah/margin and sukuk funds issued. So that it will affect the rating of the resulting sukuk, which will be better. However, the results of this research are not in line with Cahyati and Nurnasrina (2019)[3]. The results of their research concluded that the higher the profitability, the lower the sukuk rating. In other words, profitability has a negative effect.

In the other hand, when viewed from the significance value in the parameter estimates table, this research supports Pranoto, Angraini & Takidah (2017)[12] and Winanti, Nurlaela & Titisari (2017)[16] which explain that sukuk ratings are not influenced by profitability. This is because Pefindo considers other aspects such as the company's cash flow when determining the sukuk rating. Because a company with a good profitability ratio, it is not necessarily a good cash flow.

### D. Effect of Firm Size on Sukuk Rating

The parameter estimates table shows that the firm size variable has a negative regression coefficient of -9.111 with a significance value of 0.017, as calculated by Ln (total assets). Because  $0,017 < 0,05$ , the firm size has a statistically significant impact on the sukuk rating. Thus, the research  $H_4$  is accepted but with a negative direction of influence.

The results of this research indicate that the larger the firm size, the lower the sukuk rating. However, the rate of decrease in each sukuk rating probability is relatively small for every 1% increase in the firm size. The firms size has a negative effect, because it is calculated by Ln (Total Assets) which possible that most of their assets are obtained from debt. This condition will burden the company because debt repayment costs will increase, potentially increasing the default risk level which will negatively impact the sukuk rating.

This research is in line with Ningrum, Fatikhin and Darsin (2019)[9], one of the factors that affect the sukuk rating is the firm size. However, it is in contradiction with Borhan & Ahmad (2018)[2] whose research results that firm size is not a significant determinant of the sukuk rating.

## VI. CONCLUSION

The results of this study can be summarized as follows after executing the ordinal logistic regression test:

- Based on the hypothesis test, Liquidity calculated by the Current Ratio has no effect on the sukuk rating of corporate sukuk rated by PT. PEFINDO 2020.
- Based on the hypothesis test, Leverage calculated by the Debt to Equity Ratio has no effect on the sukuk rating of corporate sukuk rated by PT. PEFINDO 2020.
- Based on the hypothesis test, Profitability calculated by the Return on Assets has no effect on the sukuk rating of corporate sukuk rated by PT. PEFINDO 2020.
- Based on the hypothesis test, Firm Size calculated by Total Assets has a significant negative effect on the sukuk rating of corporate sukuk rated by PT. PEFINDO 2020.

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