

## DETERMINANTS OF THE LEVERAGE IN COMPANIES OF STATE-OWNED ENTERPRISE (SOE) LISTED ON THE INDONESIA STOCK EXCHANGE

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### ABSTRACT

This study analyzes the Determinants of Leverage of BUMN companies listed on the Indonesia Stock Exchange by testing 4 fundamental factors, namely Firm Size, Profitability, Asset Tangibility and Tobin's Q. The sample in this study is 15 BUMN companies listed on the Indonesia Stock Exchange for the period 2016-2021. Data were analyzed using panel data regression. Based on the results of the analysis, the direct effect is concluded that 1) Firm Size has a positive and significant effect on Leverage; 2) Profitability has a negative and significant effect on Leverage; 3) Asset Tangibility has a positive and significant effect on Leverage; 4) Tobin's Q has a negative and insignificant effect on Leverage; 5) Firm Size, Profitability, Asset Tangibility and Tobin's Q simultaneously have a positive and significant effect on the Leverage of BUMN companies listed on the Indonesia Stock Exchange for the 2016-2021 period.

**Keywords:** Leverage, Firm Size, Profitability, Asset Tangibility, Tobin's Q

### INTRODUCTION

A State-Owned Enterprise (SOE) is a business institution whose entire or most of its capital is owned by the state through direct participation from separated state assets. As a business entity with most of its capital coming from the state, the role of SOE is expected to provide maximum contribution to the national economy, especially state revenues. To achieve this goal, SOE conduct business as private companies in general. Likewise, in the financing policy, SOE can choose the source of financing, whether debt or equity, so that SOE can achieve optimal leverage levels.

The existence of SOE as a business owned by the majority of the state is often identified as a business with a high level of leverage. In spurring development, SOEs often increase debt when the capital contribution from the government is limited. The government pressures SOE management to reduce debt and avoid using direct loans that can burden SOEs' finances. The government also helps increase the profitability of SOEs by providing guaranteed orders for SOE products and services while at the same time triggering the growth potential of SOEs. However, the assignment was given by the government to SOEs as agents of state development through the function of services to the community and strategic projects that require high costs so that SOEs are forced to use external funding sources in the form of debt. This makes SOE companies highlighted because they have large debts. Some of them are even estimated to be threatened with bankruptcy.

The trade-off theory is referred to as the Leverage exchange theory, where companies exchange tax benefits from debt financing with the problems caused by potential bankruptcy (Brigham dan Houston, 2011: 183). This is in line with the trade-off theory of Myers (2001), which states that the company will owe up to a certain level of debt, where the tax shields from additional debt equal the cost of financial distress. Scott (1977) in Teddy Chandra (2014) explained that in the trade-off theory, an increase in debt that is too much would cause an increase in risk, namely financial distress. This increased risk will increase the cost of bankruptcy, resulting in the addition of debt being no longer feasible. Scott suggests companies can still be in debt, but the increase in debt that has reached the cost of bankruptcy limit is a debt limit that must be stopped.

Modigliani and Miller (1958) analyzed the capital structure with the assumption of a perfect capital market. The assumptions of perfect capital market conditions that underlie this theory include the absence of agency costs, no taxes, no bankruptcy costs, and EBIT is not influenced by the use of

debt. On this assumption, MM concludes that the capital structure does not affect the value of a company. This proposition is known as the irrelevant capital structure.

Potential agency problems occur when the manager's share of the company's shares is less than one hundred percent (Masdupi, 2005). The proportion of ownership that is only part of the company makes managers tend to act in personal interests and not to maximize the company. This will later cause agency costs. Adding debt to the capital structure can reduce the use of shares to minimize the agency costs of equity. However, the company should repay the loan and pay the interest expense periodically. In addition, using too large a debt will also cause agency conflicts between shareholders and debtholders, thereby increasing the agency costs of debt. However, collateral can reduce agency costs.

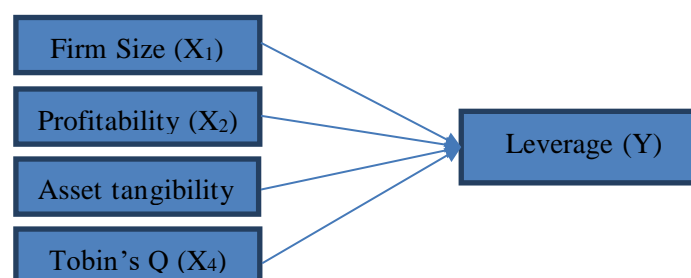
The amount of debt used is determined by the optimal composition of debt and equity. This issue has been discussed since Modigliani Miller and was followed by several experts who produced several theories, namely bankruptcy theory, agency theory, signal theory, and pecking order theory, implications that sometimes differ from one another. Empirical research is also carried out, but the results are sometimes different from what the theory predicts, and even the conclusions between empirical studies are sometimes contradictory.

This study investigates the determinants of the leverage in companies of state-owned enterprises listed on the Indonesia Stock Exchange. The choice of this theme was based on two reasons. First, the trend of developing SOE debt has continued to increase significantly since the period of 2016-2021, and second, it is to test whether the determinants indicated in the previous study affect the leverage of SOE listed on the Indonesia stock exchange. Based on this background, the researcher conducted a study entitled "Analysis of the Capital Structure of Mining Companies Listed on the Indonesia Stock Exchange" to obtain empirical evidence.

The neglect of taxes in the previous theory made it unrealistic, so Modigliani and Miller (1963) introduced taxes into their theory. The results of MM's research state that the debt used can reduce the tax a company must pay because of the interest, which is treated as a deduction from taxable income. Furthermore, because debt increases the company's value, companies are encouraged to use debt as much as possible. It can even lead to a capital structure using 100% debt.

Stephen A. Ross, in 1977 in the Bell Journal of Economics, said that there is certain information that only managers know, while shareholders do not know that information. In other words, there is asymmetric information between managers and shareholders. For example, Ross explained that the issuance of new debt could be used as a clear signal about the company's prospects for profitable investments owned by the company. Consequently, changes in the company's capital structure bring information to shareholders that will change the company's value.

Myers and Majluf (1984) analyzed the phenomenon of information asymmetry in which management knows the investment opportunities of the companies it manages compared to investors or shareholders. Information asymmetry results in external financing being penalized by investors with different intensities, reducing the company's value. This situation leads companies to prioritize financing internal financing, and if internal financing has been used up while investment opportunities are still available, the company prefers to issue debt and shares as a last resort. This financing sequence is a hierarchical financing pattern (Pecking order Theory). As for the conceptual thinking in this study, namely:



**Figure 1**  
**Conceptual Framework**

## Hypothesis

### Firm Size

The larger the company's size, the more information about the company is available in the market, so the level of information asymmetry is low. The low level of information asymmetry makes external parties, especially creditors, more trusting of the company's performance so that companies can quickly obtain loans.

**H1: It is suspected that Firm Size positively and significantly affects leverage.**

### Profitability

Companies that generate high profits or profits have more internal funds than companies with low levels of profits. Companies that have high profitability will tend to use relatively small debt levels because the company will finance most of its activities with internal company funds.

**H2: It is suspected that profitability negatively and significantly affects leverage.**

### Asset Tangibility

Asset Tangibility is essential in the company's funding decisions because fixed assets provide collateral to creditors. The greater the Asset Tangibility, the greater the company's capacity to provide guarantees for long-term debt, so the company tends to meet its capital needs with funds sourced from debt.

**H3: It is suspected that Asset Tangibility has a positive and significant effect on leverage Tobin's Q**

Companies with a higher Tobin's Q have a higher level of asymmetry between fundamental book value and market value which can be considered riskier, so the company will lower leverage. Thus, the firm benefits from high firm value and finances the firm with equity. However, when the company is undervalued, the company can be financed by issuing debt, thereby increasing the company's liabilities.

**H4: It is suspected that Asset Tangibility negatively and not significantly affects leverage.**

## METHOD

### Research Object

This study analyzes secondary data on capital structure and the factors influencing it. This type of research is verification research, namely a research method that aims to determine the relationship between two or more variables and is used to test the truth of a hypothesis (Sugiyono, 2015:36 ). Four variables will be verified for their effect on leverage, namely Firm Size, Profitability, Asset Tangibility, Growth, Business risk, and Tobin's Q. The total population in this study amounted to 20 state-owned companies, and the samples taken by the purposive sampling technique totaled 15 companies. The hypothesis is verified using panel data regression with a data horizon of 6 years (2016-2021). The panel data regression model specified for this study is as follows:

$$Y = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it}$$

### Research variables and their measurements

#### Firm Size

This variable describes the size of a company can be shown by total assets, sales, average total sales, and average total assets (Sujianto, 2001).

$$Size = Ln \text{ Total Sales}$$

### Profitability

This variable measures the company's ability to generate profits during a certain period (Munawir, 2004). In this study, profitability is measured using return on assets (ROA), calculated by dividing net profit by total assets as follows:

$$ROA = \frac{Net\ Profit}{Total\ Asset}$$

### Tangibility Asset

According to Titman and Wessels (1988), Asset Tangibility is a tangible asset of a company that can influence the company's financing decisions, and in general, tangible assets have a high level of liquidity. The Asset Tangibility formula is as follows:

$$FTA = \frac{Fixed\ Asset}{Total\ Asset}$$

### Tobin's Q

Tobin's Q value is the company's market capitalization divided by the company's total assets. The use of Tobin's Q has been modified by the researcher, including Klapper dan Love (2002), simplifying Tobin's Q and has been consistently used in various studies. Klapper dan Love measures the value of Tobin's Q by adding the stock's market value with the market value of debt and then dividing it by the book value of total assets. The formula for calculating Tobin's Q is as follows:

$$Tobin's\ Q = \frac{MVS + D}{TA}$$

### Leverage

The higher the leverage, the higher the risk, and the lower the interest of investors to invest in the company, leading to lower stock prices. Conversely, the lower the leverage will increase the stock price, and the company will be better at paying long-term obligations. Referring to Brigham and Houston (2001:86), the formula for leverage is as follows:

$$Debt\ to\ Asset\ Ratio = \frac{Total\ Debt}{Total\ Asset}$$

## RESULT AND DISCUSSION

### Result

#### Analysis of State-Owned Enterprises' Debt Level

**Table 1**  
**Development of Debt to Asset Ratio (DAR) Sample State-Owned Enterprises**  
**From 2016 to 2021**

No.	Activity Sector	Year						Average	std	N
		2016	2017	2018	2019	2020	2021			
1	CONSTRUCTION	0.676	0.725	0.739	0.759	0.809	0.800	0.751	0.050	4
2	METAL INDUSTRY	0.533	0.550	0.770	0.892	0.871	0.862	0.746	0.150	1
3	PHARMACEUTICAL	0.545	0.603	0.645	0.616	0.672	0.670	0.625	0.048	2
4	TRANSPORT	0.346	0.453	0.378	0.767	0.762	0.748	0.576	0.186	1
5	ENERGY	0.536	0.494	0.597	0.561	0.608	0.563	0.560	0.038	1
6	TELECOMMUNICATION	0.412	0.435	0.431	0.470	0.510	0.475	0.456	0.033	1
7	MINING	0.409	0.415	0.450	0.478	0.452	0.422	0.438	0.027	3
8	CEMENT	0.297	0.352	0.365	0.463	0.463	0.430	0.395	0.067	2
Average per year:		0.469	0.503	0.547	0.626	0.643	0.621			
std:		0.125	0.119	0.162	0.163	0.161	0.173			15

In the table above, the infrastructure sector of SOE has a debt level above 70%, while the Cement Company has a debt level below 40%. The increase in SOE debt occurred in 2019 when the metal and transportation Industry Sector experienced a significant increase in debt, as shown by the standard deviation value. The high debt of the SOE Infrastructure sector is

caused by assignments to carry out infrastructure development, government subsidies, and land acquisition for toll road construction which the government charges. However, the government's supply of funds cannot cover these infrastructure projects' financing needs, so the funding needs of companies included in the SOE infrastructure cluster seek funds in the form of debt.

The standard deviation of the debt level for the entire sample was nearly identical each year during the study period, indicating that the variation in the data did not differ from year to year. Therefore, the average value of all sample SOEs each year can be used to describe the trend of SOE debt levels from year to year. As in the table above, the average value of SOE debt levels tends to increase yearly and reach around 62% in 2021. These results show some SOEs with high debt levels and others with medium and low debt levels.

## Panel Data Regression Results

### 1. Estimation Model Selection

The panel data regression model can be estimated in three approaches: the common effect model, fixed effect model, and random effect model (Widarjono, 2013: 353). The Chow ui procedure, Hausman test, and LM test determine which estimation model is the most appropriate. Table 3 presents a summary of the results of the estimation model selection, as follows:

**Table 2**  
**Summary of Panel Data Estimation Model Selection Results**

No	Model	Objectives and Results	Conclusion
1	Chow Test	Common effect or Fixed effect Cross Section Random: $0.000 < 0.05$	Fixed effect
2	Hausman Test	Fixed effect or Random effect Cross Section Random: $0.1716 > 0.05$	Random effect
3	Langrange Multiplier (LM) Test	Random effect or Common effect Cross Section Random: $0.000 < 0.05$	Random effect

Based on the table above, the panel data regression model can be estimated using the Random Effect Model approach.

## 2. Model Coefficient

**Table 3**  
**Random Effect Model Regression Results**

Dependent Variable: DAR  
 Method: Panel EGLS (Cross-section random effects)  
 Sample: 2016 2021  
 Periods included: 6  
 Cross-sections included: 15  
 Total panel (balanced) observations: 90  
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.835314	0.613475	-1.361611	0.1769
SIZE	0.050783	0.020201	2.513898	0.0138
ROA	-1.540376	0.256922	-5.995509	0.0000
FTA	-0.235061	0.074803	-3.142377	0.0023
QTOBIN	-0.000371	0.005982	-0.062020	0.9507

Effects Specification

	S.D.	Rho
Cross-section random	0.087706	0.5444
Idiosyncratic random	0.080235	0.4556

Weighted Statistics

R-squared	0.321055	Mean dependent var	0.202857
Adjusted R-squared	0.289105	S.D. dependent var	0.097026
S.E. of regression	0.081807	Sum squared resid	0.568857
F-statistic	10.04856	Durbin-Watson stat	0.865201
Prob (F-statistic)	0.000001		

In the above, the value of  $F_{count}$  is 10.05 with a prob (F-statistic) value of 0.000, which is smaller than 0.05 (critical limit). Based on these statistics, the model is significant, or the independent variable can explain the dependent variable. This study uses more than two independent variables; the coefficient of determination used is *Adjusted R-Square* (Sujianto, 2007:63). Based on the Random Effect model, the coefficient of determination (*Adjusted R-Square*) is 0.289. This means that the four independent variables influence 28.91% change in leverage variable (y) by 28.91%.

## 3. Hypothesis test

The results of the Random effect regression model in Table 4.8 can be rewritten in the form of a linear equation as follows:

$$HS = -0.835 + 0.051 (\text{Size}) - 1.540 (\text{ROA}) - 0.235 (\text{FTA}) - 0.0004 (\text{qtobin}) + \varepsilon$$

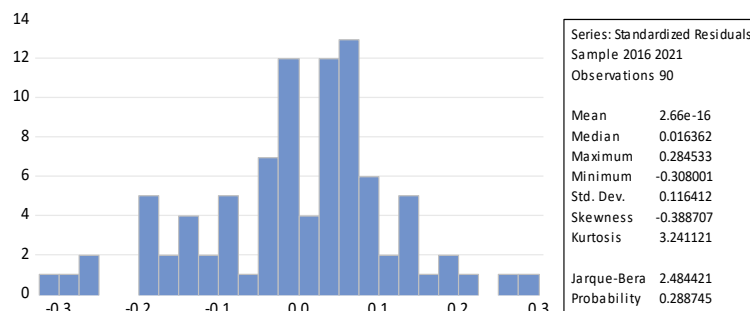
**Table 4**  
**Hypothesis Testing Results**

Hypothesis		t-statistic	Prob.	Test Result	Conclusion
<b>H1</b>	Firm Size positively and significantly affects the Leverage of SOE companies listed on the IDX.	2,513898	0,0138	(+) S	Accepted
<b>H2</b>	Profitability negatively and significantly affects the Leverage of SOE companies listed on the IDX.	-5,995509	0,0000	(-) S	Accepted
<b>H3</b>	Asset Tangibility positively and significantly affects the Leverage of SOE companies listed on the IDX.	-3,142377	0,0023	(-) S	Accepted
<b>H4</b>	Tobin's Q negatively and not significantly affects the Leverage of SOE companies listed on the IDX.	-0,062020	0,9507	(-) TS	Accepted

#### 4. Classic Assumption Test

##### Normality test

The normality test aims to determine whether the confounding or residual variables have a normal distribution in the regression model.



**Figure 2**  
**Normality Test Results**

The Jarque-Bera statistic obtained is 2.48, with a probability of 0.289. Because the probability value is more significant than 0.05, the residuals are normally distributed.

##### Multicollinearity Test

The multicollinearity test aims to test whether the regression model correlates with the independent variables. However, a good regression model should not correlate with the independent variables.

**Table 5**  
**Multicollinearity Test Results**

	LN(SALES)	ROA	TANG	TQR
Size	1			
ROA	0.38	1		
FTA	-0.02	0.08	1	
QTobin	-0.56	-0.06	0.17	1

There is no correlation coefficient between independent variables greater than 0.85, so it can be concluded that the panel data regression model is free from multicollinearity problems.

### Heteroscedasticity Test

The heteroscedasticity test aims to determine whether there is an inequality of variance in the regression model from the residual of one observation to another. A good regression model is a model that does not occur heteroscedasticity.

**Table 6**  
**Heteroscedasticity Test Results**

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.832154	Prob. F(4,85)	0.5084
Obs*R-squared	3.391602	Prob. Chi-Square(4)	0.4946
Scaled explained SS	4.772580	Prob. Chi-Square(4)	0.3114

The result of the Breusch-Pagan-Godfrey test shows that the probability value of chi-squares is 0.4946. Because this probability value is greater than the significance level ( $0.49 > 0.05$ ), the data is free from heteroscedasticity problems.

### Discussion

#### Firm Size

Based on the coefficient value generated in the Random Effect model, it can be concluded that the Firm Size variable positively and significantly affects the Leverage of SOE companies. Therefore, this study's results support the trade-off theory, which states that large companies generally have a lower probability of bankruptcy than small companies, making it easier to obtain bank loans. In addition, the size of a company will have a high rate of sales growth so that the company will be more daring to issue new shares, and there are indications to use a more significant loan amount in the capital market. The results of this study align with the research of Kadim Sunardi (2019) and Chen et al. (2021), which state that the greater the firm size value, the larger the company's capital structure, or it can be said that the company can increase the amount of debt if it is used to increase assets or company size.

#### Profitability

Based on the negative coefficient value generated in the Random effect model, it can be concluded that the profitability coefficient is negatively and significantly affected. The results align with the pecking order theory, which states that companies are more likely to prioritize using their capital as a source of capital. Companies with high profitability have adequate internal funds, so the company uses internal funds first to finance the company's operational needs. This test explains that the government emphasizes the management of SOE to prioritize internal and external sources for operational funding. The use of debt is only carried out if internal sources are no longer sufficient to finance SOE strategic work programs. The government seeks to maintain SOE's financial stability and avoid bankruptcy. This study's results align with the research conducted by Perdana (2019) and Tijow et al. (2018), which states that profitability negatively and significantly affects the company's capital structure.

#### Asset Tangibility

Based on the negative coefficient value generated in the Random Effect model, it can be concluded that the Asset Tangibility variable has a negative and significant effect on the Leverage of SOE companies listed on the Indonesia Stock Exchange. The negative sign on the beta coefficient indicates that asset tangibility has a negative and significant effect. It means that if the asset tangibility increases, the debt will decrease. On the other hand, if the asset tangibility decreases, the debt level increases. The higher the company's asset tangibility, the company will not experience a lack of funds in meeting its capital needs because companies with large asset tangibility are mature companies and can generate relatively stable profits. This negative relationship is consistent with the implications of agency theory, which shows that the tendency of managers to consume more than the optimal level of



additional income can result in a negative relationship between tangible assets and debt levels. This study's results align with Margarita et al. (2020), which state that increasing Asset Tangibility will further reduce the company's debt; if the Asset Tangibility decreases, the debt will increase.

### **Tobin's Q**

Based on the negative coefficients generated in the Random Effect model, it can be concluded that Tobin's Q variable negatively and does not significantly affect the Leverage of SOE companies listed on the Indonesia Stock Exchange (IDX). Therefore, Tobin's Q was not a factor that pushed the company into debt. This study's results align with Leite dan Mendes (2020) and Rajan Zingales (1995), which state that a high firm value indicates a high cost of financial distress, thus affecting its ability to pay debts contracted in the previous period. This condition makes the company prefer to reduce its debt level; on the other hand, a high Tobin's Q indicates a high stock market, so the company prefers financing from equity rather than debt.

### **CONCLUSIONS**

Based on the results of the research that has been carried out as described in the discussion, it can be concluded that SOE debt has increased significantly due to infrastructure companies. This is due to the assignment to carry out infrastructure development, government subsidies, and land acquisition for toll road construction which the government charges. However, the government's supply of funds cannot cover these infrastructure projects' financing needs, so the funding needs of SOE companies included in the SOE infrastructure cluster seek funds in the form of debt.

Firm size is measured by sales, has a positive and significant effect on the leverage of SOE companies. Profitability, measured by ROA, has a negative and significant effect on the leverage of SOE companies. Asset tangibility, measured by the ratio of fixed assets to total assets, has a negative and significant effect on the Leverage of SOE companies. Tobin's Q, measured by the company's market capitalization divided by total company assets, has a negative and insignificant effect on the Leverage of SOE companies. Firm Size, Profitability, Asset Tangibility, and Tobin's Q simultaneously affect the Leverage of SOE companies. Independent Variables: Firm Size, Profitability, Asset Tangibility, and Tobin's Q have an effect of 28.91% on the dependent variable, and the remaining 71.09% is influenced by other variables.

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