



## Factors That Influence Capital Structure With Profitability as A Moderating Variable

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### ABSTRACT

This study aims to determine the effect of business risk, Fixed Asset Ratio (FAR), and Time Interest Earned (TIE) on capital structure with profitability as a moderating variable. The main theories in this research are trade off theory and signal theory. The population in this study were 155 manufacturing companies listed on the Indonesia Stock Exchange in 2015-2017. The sample selection used a purposive sampling technique and selected 90 companies with 235 units of analysis. The analysis techniques used descriptive statistical analysis, inferential analysis, and moderated regression analysis (MRA) which processed through IBM SPSS 23. The results show that business risk and time interest earned have a significant negative effect on capital structure while fixed asset ratio has a significant positive effect on capital structure. Profitability is able to moderate the effect of fixed asset ratios on capital structure but is not able to moderate the influence of business risk and time interest earned on capital structure. The conclusion of the study is that business risk has a negative effect significant to the capital structure and fixed asset ratio have significant positive effects on capital structure. This can be used as the basis that companies must be careful when raising external funds because it can affect the efficiency and profitability of the company.

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### INTRODUCTION

Company will need capital in managing corporate operational activities. The need for capital in funding is very important to maintain and guarantee the continuity of a company. All company activities will determine the amount of capital, so it is needed optimal capital structure to support all operational activities. A balanced capital structure can be determined by collecting internal and external funds. Internal and external funds used must be made with an ideal composition in order to create a balance between debt and capital.

Companies really need a good capital structure policy, because financial conditions can be determined by looking at the ability to manage capital structures. Companies with a reasonably good capital structure will avoid from financial risks that will arise due to the use of debt that is too large. On the contrary, if the capital structure policy implemented by the company is less good with high debt ownership, it can increase financial

risk which causes the company to experience financial difficulties and even has an impact on bankruptcy because it must meet company obligations. Examples of cases in manufacturing companies that have been declared bankrupt due to their inability to pay off debt are PT Dwi Aneka Jaya Kemasindo Tbk and PT Indotirta Jaya Abadi.

PT Dwi Aneka Jaya Kemasindo (DAJK) went bankrupt on November 22, 2017. DAJK was declared bankrupt because it had debts to a number of creditors totaling up to Rp. 870 billion (DetikFinance.com, 2017). Moreover, the case that occurred at PT Indotirta Jaya Abadi, which is a producer of bottled water of Aquaria brand, was declared bankrupt on January 24, 2018 due to debt bills that were not paid to a number of creditors. Aquaria was known to have debts estimated at Rp 170 billion to several creditors, one of which was Bank Permata (Bisnis.com, 2018).

The cases of companies declared bankrupt because of difficulties in paying debts prove that managing corporate capital structure is very important. Therefore, a strategy is needed to optimize the management of corporate capital structure. Ideal capital structure is a balanced mix of capital and debt. Optimal capital structure

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ture management can facilitate company in funding its operations so that the company can avoid the risk of bankruptcy.

Some determinants of corporate capital structure, including business risk, fixed asset ratio, and time interest earned. The results of previous studies of the three factors above still have inconsistent results. Research of Iqbal *et al.* (2016), Wiagustini & Pertamawati (2015) and Wimelda & Marlinah (2013) explain business risk has a positive impact on capital structure. Research of Al-najjar (2015), Chipeta & Deressa (2016), and Alipour (2015) explain business risk has a negative impact on capital structure. Research by Margaretha & Ginting (2016) and Wahome *et al.* (2015) explain that business risk has no impact on capital structure.

Dewi & Dana (2017), Chadha & Sharma (2015), Kumar *et al.* (2017), Chow *et al.* (2018), and Morri (2017) explained that fixed asset ratio has a positive impact on capital structure. Khairin & Harto (2014), Acaravci (2015), and Li & Stathis (2017) explained that fixed asset ratio has a negative impact on capital structure. Nur-rohim (2008) and Yuniyanto & Subowo (2017) explained that fixed asset ratio does not have effect on capital structure.

Firnanti (2011) and Baral (2004) explained the positive relationship between time interest earned and capital structure. Joyo *et al.* (2017) and Putri *et al.* (2017) explained that time interest earned has a negative impact on capital structure. Janah (2015) explained that time interest earned has no impact on capital structure.

The research objective is to examine the effect of business risk, fixed asset ratio and time interest earned on capital structure with a moderating variable, namely profitability. The originality of the research is the □ three variables have not been conducted a research simultaneously. The use of independent variables simultaneously is due to the results shown in the previous studies are still inconsistent on the three variables. Another originality is profitability as a moderating variable to moderate the effect of business risk, fixed asset ratio, and time interest earned on capital structure. Profitability is chosen because the level of corporate profits can affect several factors to determine the use of company funds such as debt. The use of debt can be reduced when the company suffers a loss. Companies that have unstable profitability will cause a high risk of bankruptcy.

Theories used are trade off theory and signal theory. Trade-off theory suggests that ideal capital policy can be achieved by looking at the benefits of using debt and the costs of using debt. Signalling theory is a theory that explains about changes in investor behaviour due to signals given by companies. Management can inform outsiders on when the companies have good information.

Business risk is the relationship between current earnings and future profits that can occur uncertainly. Companies experiencing uncertainty in obtaining profits will try to avoid the use of external funds so that capital structure policies will decline. This condition is because companies can give rise to a bankruptcy risk when using debt in conditions of high business risk. Trade off

theory shows that quite high business risks and the use of large amounts of debt can lead to high interest costs so financial condition becomes difficult. Research by Al-najjar (2015) and Alipour (2015) argue that business risk has a negative effect on capital structure.

**H<sub>1</sub>: Business risk has a negative and significant effect on capital structure**

Fixed asset ratio, that is, fixed assets can be used to estimate total assets. Companies that have high fixed assets can make it easy to add external funds. Trade off theory states that companies can guarantee fixed assets to get loans so that it will ease companies to add funds. This condition is supported by signalling theory where companies with large fixed asset ownership are able to show a good sign for companies to be able to increase the use of debt. Research by Dewi & Dana (2017), Chadha & Sharma (2015), and Kumar *et al.*, (2017) state that fixed asset ratio has a positive effect on capital structure.

**H<sub>2</sub>: Fixed asset ratio has a positive and significant effect on capital structure**

Time interest earned is a balance between interest, net profit, and tax with financing costs. This ratio can be used to determine the ability to pay debts and interest. The level of creditor trust is strongly influenced by the ability to pay interest. This condition is in accordance with signal theory that shows the ability to pay interest will show a good sign for the company so that the level of creditor trust to the company will be higher. The higher the trust of outsiders to the company, the company in getting loan funds will be easier. Research by Firnanti (2011) and Baral (2004) argue that time interest earned has a positive effect on capital structure.

**H<sub>3</sub>: Time interest earned has a positive and significant effect on capital structure**

Profitability describes the ability to get profit. A high level of profitability with large profits is expected to reduce the level of business risk. This condition occurs because companies with the ability to obtain profits will show good expectations, so the level of risk that may arise from the company's operational activities can be avoided. Profitable companies with low risk will facilitate the acquisition of funds from outside parties. Signalling theory states that companies with large profits can show a sign to creditors, so that creditors can see to what extent the companies are able to pay debts. The greater profitability can weaken or increasingly have a positive influence of business risk on capital structure. Vice versa, the small profitability will further strengthen or negatively affect business risk on capital structure. This condition occurs because the low profitability is not able to give trust to creditors to provide debt.

**H<sub>4</sub>: Profitability moderates the effect of business risk on capital structure**

Fixed asset ratio, which is fixed assets, can be used to estimate the total assets of a company. The higher the fixed assets, it will provide benefits because it eases companies to obtain loans. This condition occurs because

the company can guarantee its fixed assets in obtaining loan funds so that the level of creditor trust increases.

Profitability illustrates the ability to get profit. A profitable company will increase creditor’s trust to lend funds, because the company can pay the loan with the profits obtained. Signalling theory states a profitable company with a large fixed asset ownership will show a positive sign for the company to get a loan because companies can guarantee fixed assets to meet their loans. Companies that have high fixed assets and a large profitability can increase capital structure. Therefore, the magnitude of profitability can strengthen or increasingly have a positive influence on the relationship of fixed asset ratio with capital structure.

**H<sub>3</sub>: Profitability moderates the effect of fixed asset ratio on capital structure**

Time interest earned is a balance between interest, net profit, and tax with financing costs and can determine the ability to pay off debt and interest. The level of creditor trust is strongly influenced by the ability to pay interest. The higher the creditor’s trust to the company, it can make it easier for the company to generate funds so that it will improve capital structure.

Profitability illustrates the ability to make profits. Signalling theory shows that companies with high pro-

fits will show a sign to outsiders, so creditors feel interested in lending their funds. Hence, a company with big profits and being able to pay interest will ease to get a loan so that it can improve the company’s capital structure. Companies that can pay off good interest payments with great profitability can increase capital structure. Therefore, the magnitude of profitability will strengthen or increasingly have a positive effect on the relationship of time interest earned with capital structure.

**H<sub>6</sub>: Profitability moderates the effect of time interest earned on capital structure**

**RESEARCH METHOD**

The type of research described quantitative research using secondary information, namely the annual report of the manufacturing institutions listed on the Indonesia Stock Exchange in 2015-2017 with a population of 155 companies. Sample selection by using purposive sampling method which amounted to 235 units of analysis. The analysis units have been reduced by outlier data by 35 data. The detection of the presence of outliers is done by determining the limit value that was equal to 3 (Ghozali, 2016). Data of analysis unit was declared outlier if the z-score of variable data was more than 3 and

**Table 1.** Sampling Procedure

Sample Criteria	Beyond Criteria	Included Criteria
Manufacturing agencies consistently listed on the IDX from 2015-2017		155
Manufacturing institution consistently published their report during 2015-2017	(13)	142
The book value of positive equity in the research year	(7)	135
Manufacturing agencies presented financial reports in rupiah	(26)	109
Manufacturing companies have complete data in the study year for the research variable	(19)	90
Total company samples		90
The amount of research data in the research year		270
Outlier data in the study year		(35)
Total analysis units		235

Source : IDX and companies’ website (data processed 2019)

**Table 2.** Definition of Variable Operations

No.	Variables	Operational Definition	Indicators
1	Capital Structure (LTDER)	Balance between long term debt to equity and total equity (Deviani & Sudjarni, 2018).	$LTDER = \frac{\text{Total Long-Term Debts}}{\text{Total Capital}}$ (Natalia, 2015)
2	Business Risk (BRISK)	Uncertain possibilities and usually encountered in carrying out its operations (Al-Kuwari, 2010)	$BRISK = \frac{\sigma \text{ EBIT}}{\text{Total Asset}}$ (Sawitri & Lestari, 2015)
3	Fixed Asset Ratio (FAR)	Ratio between a company’s fixed assets and total assets (assets) (Sorongan, 2015)	Fixed Asset Ratio = $\frac{\text{Fixed Asset}}{\text{Total Asset}}$ (Sorongan, 2015)
4	Time Interest Earned (TIE)	The balance between interest, net profit, and tax with the cost of financing and to determine the ability to pay debt and interest (Joyo et al., 2017)	$TIE = \frac{\text{EBIT}}{\text{Interest Expenses}}$ (Janah, 2015)
5	Profitability (ROA)	The ability of the company to obtain profits from operational results (Khairin & Harto, 2014)	$ROA = \frac{\text{Net Profit After Tax}}{\text{Total assets}}$ (Sheikh & Qureshi, 2017)

Source: Secondary data processed, 2019

less than -3 (-3 < x < 3), where x was the z-score value of the analysis unit data. Details of sample selection are presented in Table 1. The operational definitions of the variables in this research are explained in Table 2.

Data collected by the method of documentation in the form of annual report. Data analysis used descriptive statistics. Hypothesis testing used moderated regression analysis (MRA) through testing the absolute difference in value, so that the data values are converted into standardized values (Z-scores). The data analysis tool used was IBM SPSS 23. Before testing the hypothesis, the classical assumption test can be tested for normality, multicollinearity, autocorrelation, and heteroscedasticity. The effect of interaction or hypothesis is accepted if the level of significance is below 5% or less than 0.05. The moderation regression model is expressed in terms of equation 1:

$$LTDER = \alpha + \beta_1 ZBRISK + \beta_2 ZFAR + \beta_3 ZTIE + \beta_4 |ZBRISK-ZROA| + \beta_5 |ZFAR-ZROA| + \beta_6 |ZTIE-ZROA| + e \dots \dots \dots (1)$$

**RESULTS AND DISCUSSIONS**

The classical assumption test in this study consists of tests of normality, heteroscedasticity, multicollinearity, and autocorrelation. The results of the descriptive statistical analysis of the variables in this study are presented in Table 3.

The classical assumption test results of this study show that the data are normally distributed, with a significance value of 0.068 > 0.05. The multicollinearity test explains tolerance value 0.10 ≥ 0.10, and VIF ≤ 10, it means that no variables occur multicollinearity symptoms. The heteroscedasticity test uses park test, where

the result explains the significance value of all variables > 0.05 which means free from heteroscedasticity. The autocorrelation test explains the DW value of 2.119 which is located between dU to 4-dU or 1.7717 < 2.119 < 2.1947 and the autocorrelation symptoms are not detected in this study. Based on testing the hypothesis, it can be written in the form of equation 2.

$$LTDER = 0.174 - 0.042 ZBRISK + 0.122 ZFAR - 0.100 ZTIE + 0.030 |ZBRISK-ZROA| + 0.044 |ZFAR-ZROA| + 0.045 |ZTIE-ZROA| \dots (2)$$

The coefficient of determination of the adjusted R<sup>2</sup> is 0.245, meaning 24.5% of the capital structure can be explained by the model in the study, while 75.5% is delivered by components outside the research model. The results of hypothesis testing can be shown in Table 4.

**The Effect of Business Risk on Capital Structure**

Business risk has been proven to have a significant negative effect on the capital structure. The risk from institutions that may arise from operational activities will try to avoid the use of external funds, thus reducing the company's capital structure. The conditions occur because of the potential for bankruptcy to arise when using debt to companies with substantial business risk. Trade off theory supports the result by presenting an ideal capital structure policy that can be seen from the advantages of using external funds with financial and agency problems (Sofat & Singh, 2017). Companies with quite large business risks can use small amounts of debt to prevent bankruptcy. This result is in line with the findings of Alnajjar (2015), and Alipour (2015).

**Table 3.** Descriptive Analysis Test Results

	N	Minimum	Maximum	Mean	Std. Deviation
LTDER	235	0.0087	1.9111	0.2532	0.2851
BRISK	235	0.0010	0.4473	0.0332	0.0388
FAR	235	0.0008	0.9073	0.3498	0.1926
TIE	235	-218.2190	640.4099	28.9567	83.2243
ROA	235	-0.1767	0.7160	0.0664	0.1037
Valid N (listwise)	235				

Source: SPSS 23 Output, 2019

**Table 4 .**Hypothesis Test

No.	Partial / Moderation Effects	B	Sig	Results
1	H <sub>1</sub> : Business risk has a negative and significant effect on capital structure.	-0.042	0.046	Accepted
2	H <sub>2</sub> : Fixed asset ratio has a positive and significant effect on capital structure.	0.122	0.000	Accepted
3	H <sub>3</sub> : Time interest earned has a positive and significant effect on capital structure.	-0.100	0.000	Rejected
4	H <sub>4</sub> : Profitability moderates the effect of business risk on capital structure.	0.030	0.227	Rejected
5	H <sub>5</sub> : Profitability moderates the effect of fixed asset ratio on capital structure.	0.044	0.035	Accepted
6	H <sub>6</sub> : Profitability moderates the effect of earned time interest on capital structure.	0.045	0.084	Rejected

Source: Secondary data processed by SPSS 23, 2019

### **The Effect of Fixed Asset Ratio on Capital Structure**

Fixed asset ratio is proven to be able to have a significant positive effect on capital structure. The result of this study is supported by signal theory which states that companies with high fixed asset ownership can show a sign to the company to increase loan funds because creditors have a sense of security to provide funds to companies that are large enough to have fixed assets. Institutions that have fixed assets that can be guaranteed will increase creditor trust in getting funds. This condition means that institutions with sufficient fixed assets can make it easy to generate loan funds so as to improve the company's capital structure. This finding is in line with the findings of Dewi & Dana (2017), Chadha & Sharma (2015), and Kumar *et al.*, (2017).

### **The Effect of Time Interest Earned on Capital Structure**

Time interest earned has a negative effect on capital structure. Signal theory does not support the result where companies that have good interest payment ability can show signs to external parties making it easier for companies to get loans. The higher the level of time interest earned will actually cause the level of capital structure to be low. This condition is assumed to occur due to companies with good ability to pay interest indicate the companies have a large amount of retained earnings, so they are able to cover its operational costs using retained earnings without adding debt. Pecking order theory states that companies will make choices to use internal funds first compared to external funds, but when the funds from retained earnings are not enough then what is done is to try to generate funds from external parties. This condition indicates that companies with sufficiently high time interest earned can use retained earnings to fund their operations so as to minimize the company's capital structure. This result is consistent with the findings of Joyo *et al.*, (2017), Wenny & Linandi (2012), and Suratno *et al.*, (2017).

### **The Effect of Business Risk on Capital Structure with Profitability as a Moderating Variable**

Profitability is not able to moderate the effect of business risk on capital structure. His finding explains that business risk is moderated by profitability and cannot predict action of capital structure variable. Trade-off theory does not support the result by suggesting that companies with small and profitable business risks can use large amounts of external funds. This condition occurs because companies that have a high level of profitability with a small business risk level do not use debt to finance the corporate operations but use their own capital. This condition occurs due to large profits indicates large retained earnings, so the companies have sufficient internal funds to fund the companies. The use of external funds is considered less profitable for companies that have big business risks because it can lead to bankruptcy so the companies will avoid using external funds.

### **The Effect of Fixed Asset Ratio on Capital Structure with Profitability as a Moderating Variable**

Profitability is proven be able to moderate the effect of fixed asset ratio on capital structure. Trade off theory supports the result by suggesting that companies can align the benefits of using debt with the costs of using debt. When the profits obtained are valued higher than losses, the companies will be more courageous in making additional debt to fund corporate operations. The greater profitability with high fixed asset ownership can reduce the capital structure. Companies can guarantee fixed assets to get larger loans, but with profitability will reduce the use of debt. This condition occurs because a large profitability will show the availability of substantial cash in it that is from profits that are not shared, so that the use of internal funds is sufficient for corporate funding. This condition indicates that the company can meet the company's fixed asset turnover rate, so that it will reduce external funding in the form of debt.

### **The Effect of Time Interest Earned on Capital Structure with Profitability as the Moderating Variable**

Profitability is not able to moderate the effectiveness of time earned interest on capital structure. Signaling theory does not support the result by suggesting that companies with a large enough profitability will make it easier for them to pay interest expenses on loans made to creditors, then the creditor's trust to the companies is high. Therefore, when profitability is high, it can be easy to pay interest using the profits obtained by the companies so that it will improve the capital structure because of the creditor's trust to the company becomes high.

This condition is assumed to be caused by companies with high or low profit not being able to influence the ability level to pay interest so that it will reduce the company's debt. Based on the data from sample company financial statements, in 2015, the average profitability was 4.76% while the average time interest earned was 22.2558. In 2016, the average profitability was 5.98% while the average time interest earned was 26.3998. In 2017, the average profitability was 5.45% while the average time interest earned was 26.5260. The data shows that profitability has fluctuations that are uncertain so it is difficult to be used as a basis for increasing the ability to pay interest, so the presence of profitability does not affect the ability of companies to pay interest that will affect the level of the company's capital structure.

## **CONCLUSIONS**

The conclusions of the research results are high business risk, so the company's capital structure will be smaller. In addition, high fixed asset ratio is able to increase capital structure policy. High business risk is expected to be able to reduce the level of corporate debt, because using debt when the company is in a high business risk condition will pose a bankruptcy risk. The increasing amount of fixed assets in the company can increase the creditor's trust to the company because it can guarantee the fixed assets to obtain loans from out-

side parties. The companies that have high profits with large fixed asset ownership will use internal funds to fund operations. Therefore, the existence of profitability is able to weaken the effect of fixed asset ratio on capital structure.

The suggestion for the next researcher is to add another variable as an independent variable such as firm size by using an average measurement of total net sales. Firm size can reflect a company, so with the existence of firm size with large amount makes it easy to produce external funding for creditors that will improve the company's capital structure. Creditors should better understand the ownership of corporate fixed assets before making decisions. This can be used for consideration in providing credit. Companies that have large amounts of fixed assets need to pay attention to profitability in determining corporate funding policies.

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