

Determining Factors of Capital Structure Using the Trade Off Theory a Case Study on Indonesian Stock Exchange in the Period of 2016-2020

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<p>Article Information :</p> <p>Keywords : Profitability; Asset structure; Liquidity; Sales Growth; Company size;</p> <p>Article History: Received : May 31, 2024 Revised : June 20, 2024 Accepted : July 1, 2024</p> <p>Cite This Article: Rosid, M., Hikmah, K., & Herlianto, D. (2024). Determining Factors of Capital Structure Using the Trade Off Theory Approach: A Case Study on the Indonesian Stock Exchange in the Period of 2016 - 2020. Indikator: Jurnal Ilmiah Manajemen dan Bisnis, 8(3), 42-51. doi:http://dx.doi.org/10.22441/indikat.or.v8i3.27377</p>	<p>Abstract</p> <hr/> <p><i>This research is quantitative research which aims to cognize and analyze the determining factors of capital structure, namely profitability, asset structure, liquidity, sales growth and company size in issuers listed on the Indonesia Stock Exchange (BEI). This research is correlative research that uses secondary data from the Indonesian Stock Exchange. The sampling technique used is the purposive sampling method. The object of this research is issuers listed on the Indonesia Stock Exchange in the period 2016 to 2020, with the exception of issuers included in the financial sector. The analysis technique used in this research is linear regression using the IBM SPSS program. The results of this research are 1) Profitability has a significant negative effect on capital structure. 2) asset structure, liquidity and company size have no effect on capital structure, 3) sales growth has a significant positive effect on capital structure.</i></p>
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INTRODUCTION

During times of crisis, a company's funding policy is very important in its management. The economic crisis in Indonesia has occurred several times, such as the crisis in 1998, 2008, and most recently 2020 which was caused by the Covid 19 pandemic. Many companies collapsed when a country experienced a crisis. Indonesia recorded negative economic growth for three consecutive quarters, resulting in many companies filing for bankruptcy and delaying debt payments. There were 1,407 companies registered with PKPU at the Jakarta District Court in the period 2020 to 2022. Meanwhile, 9 companies registered on the Indonesia Stock Exchange were submitted for bankruptcy. Companies experiencing PKPU problems are spread across various industrial sectors listed on Indonesian Stock Exchange. Therefore, it is necessary to review the condition of the capital structure of companies listed on Indonesian Stock Exchange. Capital structure is part of a company's financial structure. Capital structure is a combined compilation of short-term debt, capital, and company equity. The preparation of a good capital structure is one that is in accordance with the company's expected goals. Each company has a different capital structure based on the industrial risks the company faces in the operational process. The optimal capital structure is a structure that will maximize the company's share price, and this structure generally requires a debt ratio that is lower than the ratio that maximizes the expected earnings per share (EPS) (Brigham and Houston 2011). The costs and benefits of using debt are things that need to be considered in the capital structure determination policy. Trade off theory is a theory that explains the leverage exchange where

companies exchange the tax benefits of debt financing for the problems arising from the risk of bankruptcy (Brigham and Houston 2011). Based on trade off theory, increasing debt can reduce taxes. Therefore, it is necessary to determine the optimal point of debt so that there is no high risk of bankruptcy. Thus, companies need to adjust the level of leverage so that it is optimal. To determine the optimal capital structure, it is necessary to know the factors that influence the capital structure. Capital structure is influenced by several factors such as profitability, asset structure, and liquidity (Muslimah et al., 2020). Apart from that, it is also influenced by sales growth and company size (Umdiana and Claudia, 2020) and (Kyissima et al., 2020).

There are differences in previous researches on the variables profitability, asset structure, liquidity, sales growth and company size. Kholifah et al., (2019) in their research find that profitability has a significant effect on capital structure. This is different from Yuliani (2017) and Santika & Sudiyatno, (2011) who find that profitability has a significant negative effect. Santika & Sudiyatno, (2011), and Yuliani (2017) in their research find that asset structure has a significant positive effect on capital structure. Meanwhile, Umdiana & Claudia (2020) in their research find that asset structure has a negative effect on capital structure. Yuliani (2017) and Muslimah et al., (2020) in their research find that liquidity has an effect on capital structure. Meanwhile, Kanita & Hendryadi (2017) find that liquidity does not have a significant effect on capital structure. Umdiana & Claudia (2020), Santika & Sudiyatno (2011) in their research find that sales growth has an effect on capital structure. Meanwhile, Novitayanti & Rahyuda (2018) in their research find that sales growth has an insignificant negative effect on capital structure. Novitayanti & Rahyuda (2018) in their research find that company size has a significant negative effect on capital structure. Meanwhile, Muslimah et al., (2020) in their research find that company size has no effect on capital structure. In the research on Determining Factors of Capital Structure using the Trade Off Theory that will be carried out, it refers to the business sectors listed on Indonesian Stock Exchange except the financial sector. The financial sector is not included in the sample calculation because the composition of the capital structure in the financial sector is inversely proportional to other sectors.

LITERATURE REVIEW

Trade Off Theory

Trade off Theory is a leverage exchange theory which exchanges the tax benefits of using debt financing with the potential problems that can lead to the risk of bankruptcy. Debt is permitted as long as the benefits are greater than the sacrifices made, conversely if the sacrifice due to the use of debt is greater than additional debt is not permitted (Umdiana & Claudia, 2020). Using a larger amount of debt will reduce taxes and result in more of the company's operating profit (EBIT) being received by investors. (Myers 2001) reveals that companies will use debt up to a certain level, where the tax savings (tax shields) from using debt are equal to the costs of financial distress. Therefore, this research develops factors that influence capital structure including profitability, asset structure, liquidity, sales growth and company size.

H1: profitability, asset structure, liquidity, sales growth, company size together influences capital structure.

Profitability

Profitability is a profit the company obtains from running its business. Companies with high returns on investment use relatively little debt (Brigham Houston 2011). Based on research conducted by (Santika & Sudiyatno, 2011), (Yuliani, 2017) and (Kholifah et al., 2019), it is revealed that profitability (ROA) has a significant negative effect on capital structure. Therefore, the hypothesis is formulated as follows.

H2: Profitability has a negative effect on capital structure.

Asset Structure

The asset structure is a depiction of the total assets that can be used as collateral. Asset structure is a comparison between total fixed assets and total assets. Companies with adequate assets or large long-term fixed assets can use more debt because the assets they own can be used as collateral for debt. According to (Yuliani, 2017) in his research on food and beverage industry companies listed on Indonesia Stock Exchange (BEI), the influence of asset structure on capital structure is significantly positive. This is also supported by research conducted by (Muslimah et al., 2020) and (Novitayanti & Rahyuda, 2018) which find that asset structure has a significant positive effect on capital structure.

H3: Asset structure has a positive effect on capital structure

Liquidity

Liquidity is a ratio used to measure a company's ability to pay short-term debt obligations that are due. Novitayanti & Rahyuda (2018) in their research on consumer goods sector companies on Indonesia Stock Exchange find that liquidity has a significant negative effect on capital structure.

H4: Liquidity has a negative effect on capital structure.

Sales growth

Sales growth reflects the company's ability to generate profits. The development of company sales growth can affect company value. According to (Santika & Sudiyatno, 2011) and (Umdiana & Claudia, 2020), the effect of sales growth on capital structure is positive and significant. This condition shows that if sales growth increases, the capital structure will also increase.

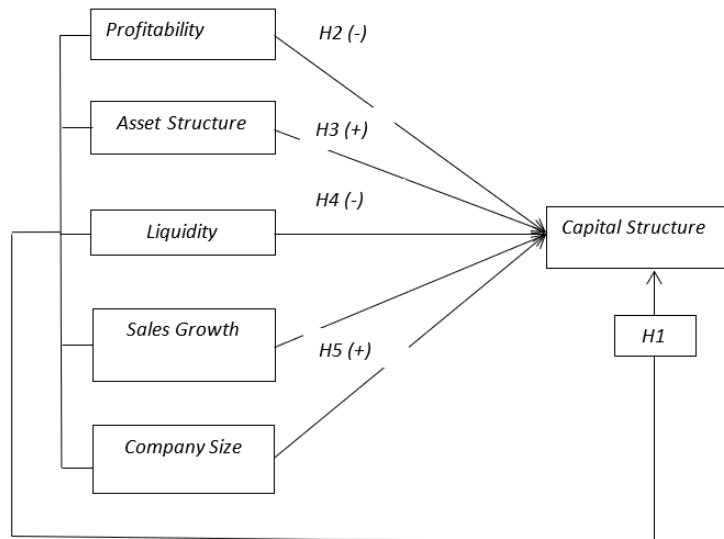
H5: Sales growth has a positive effect on capital structure

Company Size

Company size is a value that shows the size of the company's scale. Based on trade off theory, large companies can take on debt more freely and gain tax shield benefits. Large-scale companies require more funding than small-scale companies. According to (Novitayanti & Rahyuda, 2018) in their research on consumer goods sector companies on Indonesian stock exchange, it is revealed that company size has a significant negative effect on capital structure.

H6: Company size has a positive effect on capital structure

Figure 1. Conceptual Framework



METHOD

This research is conducted to find out and test whether there are determinants of capital structure using a trade off theory approach in capital structure decisions of companies listed on Indonesia Stock Exchange. This research includes associative descriptive research. The research method used is a quantitative research method. The population in this study includes companies listed on Indonesia Stock Exchange except for the financial sector which published financial reports from 2016 to 2020. There are 710 companies listed on Indonesia Stock Exchange in 2020. Of the total companies listed on Indonesia Stock Exchange in 2020, 102 companies are listed in the financial sector. It means that the observed population is 608 companies listed outside the financial sector. The sample method used is purposive sampling. From a population of 608, a sample of 270 companies is taken with a total of 1100 observations from 2016 to 2020.

Table 1. Variables and Measurements

Variable	Measurements	Explanation	Supported Studies
Dependent (Y)			
Capital Structure	Debt to Equity Ratio	Total Debt/Equity	(Muslimah et al., 2020); (Kyissima et al., 2020); (Kholifah et al., 2019);
Independent (X)			
Profitability (X ₁)	Return On Assets (ROA)	Net Profit/Total Assets	(Muslimah et al., 2020); (Kyissima et al., 2020); (Kholifah et al., 2019); (Saif-alyousfi, 2019); (Yuliani, 2017); (Santika & Sudiyatno, 2011)

Variable	Measurements	Explanation	Supported Studies
Asset Structure (X ₂)	Tangibility	Fixed Assets/Total Assets	: (Umdiana & Claudia, 2020); (Muslimah et al., 2020); (Yuliani, 2017)
Liquidity (X ₃)	Current Ratio (CR)	Current Assets/Current Liabilities	(Muslimah et al., 2020); (Saif-alyousfi, 2019); (Novitayanti & Rahyuda, 2018); (Yuliani, 2017)
Sales Growth (X ₄)	Sales Growth	(Sales _t – Sales _{t-1})/Sales _{t-1}	(Umdiana & Claudia, 2020); (Saif-alyousfi, 2019); (Santika & Sudiyatno, 2011)
Company Size (X ₅)	Firm Size	L _n (Total Assets)	: (Muslimah et al., 2020); (Kyissima et al., 2020); (Novitayanti & Rahyuda, 2018); (Kanita & Hendryadi, 2017)

The data analysis technique used in this research is a multiple linear analysis technique using the IBM SPSS test tool. With the regression model expressed as $Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$

Symbol description :

- Y = Debt to equity ratio (DER)
- α = Constant (intercept)
- β₁₋₅ = Regression coefficient
- X₁ = Profitability
- X₂ = Asset Structure
- X₃ = Liquidity
- X₄ = Sales Growth
- X₅ = Company Size
- e = Error factor

RESULTS AND DISCUSSION

Result

Table 2. Descriptive Test Results

DER	1100	-134.31	370.57	1.7357	13.75557
ROA	1100	-1.47	.92	.0158	.13034
TANG	1100	.00	.99	.3267	.25370
CR	1100	.02	410.24	3.7485	16.92124
GROWTH	1100	-1.00	67.66	.2639	2.87868
SIZE	1100	23.16	33.49	28.2979	1.72528

Valid N (listwise)	1100				
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Source: SPSS Test Results (2024)

From the results of the descriptive test, it obtained the minimum, maximum and mean values from the data that had been observed. The information obtained is as follows. The DER variable shows that the data distribution is between -134.31% to 370.57% with an average of 1.73% and a standard deviation of 13.75%. The company with the smallest value of -134.31% is the issuer coded DWGL (PT. Dwi Guna Laksana Tbk). Meanwhile, the maximum value is 370.57% for the issuer coded LAPD (PT. Leyand International Tbk). The ROA variable shows that the data distribution is between -1.47% to 0.92% with an average of 0.01% and a standard deviation of 0.13%. The company with the smallest value of -1.47% is an issuer coded LAPD (PT. Leyand International Tbk). Meanwhile, the maximum value is 0.92% for the issuer with the code MERK (PT. Merck Tbk).

The asset structure variable shows that the data distribution is between 0.00% to 0.99% with an average of 0.32% and a standard deviation of 0.25%. The company with the smallest value of 0.003% is the issuer coded HDIT (PT. Hensel Davest Indonesia Tbk). Meanwhile, the maximum value is 0.99% for the issuer coded MLIA (PT. Mulia Industrindo Tbk). The Liquidity variable shows that the data distribution is between 0.02% to 410.24% with an average of 3.74% and a standard deviation of 16.92%. The company with the smallest value of 0.02% is the issuer coded ARTI (PT. Ratu Prabu Energi Tbk). Meanwhile, the maximum value of 410.24% is found in the issuer coded OASA (PT. Maharaksa Biru Energi Tbk).

The Sales Growth variable shows that the data distribution is between -1.00% to 67.66% with an average of 0.26% and a standard deviation of 2.87%. The company with the smallest value of -1.00% is the issuer coded ETWA (PT. Eterindo Wahanatama Tbk). Meanwhile, the maximum value of 67.66% is found in the issuer code BUMI (PT. Bumi Resources Tbk). The Company Size variable shows that the data distribution is between 23.16% to 33.49% with an average of 28.29% and a standard deviation of 1.72%. The company with the smallest value of 23.16% is the issuer coded PGJO (PT. Tourindo Guide Indonesia Tbk). Meanwhile, the maximum value of 33.49% is found in the issuer coded ASII (PT. Astra International Tbk).

Table 3. Autocorrelation Test Results

Durbin-Watson (d)	k	n	dU	4-dU
1,988	5	1100	1,8911	2,1089

Source: SPSS Test Results (2024)

The results of the autocorrelation test shows that the Durbin Watson (d) value is in the range $dU < d < 4-dU$. It means that in this test there is no autocorrelation.

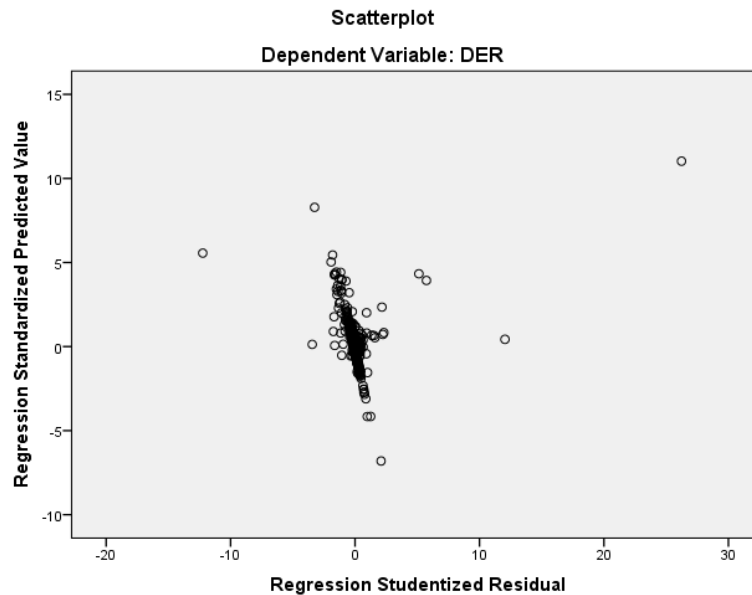
Table 4. Multicollinearity Test Results

Collinearity Statistics		
Variables	Tolerance	VIF
Profitability	0,973	1,028
Asset Structure	0,972	1,029
Liquidity	0,953	1,049
Sales Growth	0,996	1,004
Company Size	0,949	1,054

Source: SPSS Test Results (2024)

The results of the multicollinearity test shows that the tolerance value of the independent variable is more than 0.10 and the VIF value is less than 10. Therefore, the variables tested are free from multicollinearity.

Figure 2. Heteroscedasticity Test Results



Source: SPSS Test Results (2024)

Judging from the scatterplot image, it shows that in this regression analysis, there is no systematic pattern. Thus, it can be concluded that in this regression equation, there is no heteroscedasticity.

Table 5. Regression Model Test Results

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17635.914	5	3527.183	20.276	.000 ^b
	Residual	190312.245	1094	173.960		
	Total	207948.159	1099			

a. Dependent Variable: DER

b. Predictors: (Constant), SIZE, GROWTH, TANG, ROA, CR

Source: SPSS Test Results (2024)

F test regression model shows a significance level of $0.000 \leq 0.5\%$, it can be concluded that H1 is accepted which means that there is a joint influence between Profitability, Asset Structure, Liquidity, Sales Growth and company size which is significant on capital structure.

Table 6. Multiple Linear Regression Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
		1	(Constant)	-4.510			6.766	
	ROA	-29.284	3.095	-.277	-9.462	.000	.973	1.028

TANG	2.497	1.591	.046	1.570	.117	.972	1.029
CR	-.012	.024	-.014	-.485	.628	.953	1.049
GROWTH	.335	.138	.070	2.423	.016	.996	1.004
SIZE	.207	.237	.026	.873	.383	.949	1.054
a. Dependent Variable: DER							

Source: SPSS Test Results (2024)

H2: The profitability variable coefficient (ROA) is -29.284 with a calculated t value of -9.462 and with a significance level of $0.000 \leq 0.05$, meaning it can be concluded that H2 is accepted
 H3: The coefficient of the Asset Structure variable is 2.497 with a calculated t value of 1.570 and with a significance level of $0.117 > 0.05$, meaning it can be concluded that H3 is rejected
 H4: The coefficient of the Liquidity variable is -0.012 with a calculated t value of -0.485 and with a significance level of $0.628 > 0.05$, meaning it can be concluded that H4 is rejected
 H5: The coefficient of the Sales Growth variable is 0.335 with a calculated t value of 2.423 and with a significance level of $0.016 \leq 0.05$, meaning it can be concluded that H5 is accepted.
 H6: The coefficient of the Company Size variable is 0.207 with a calculated t value of 0.873 and with a significance level of $0.383 > 0.05$, meaning it can be concluded that H6 is rejected.

Discussion

The test results of this research show that the profitability variable has a significant negative effect on Capital Structure. In contrast to the trade off theory which states that companies with the ability to generate large profits can take on debt more freely, this research is more inclined to the pecking order theory where companies with a fairly large level of profit prioritize internal funding from retained earnings rather than using external debt funds. This research shows that profitability has a significant negative effect on capital structure, which means that if the company's profitability increases, debt funding decreases. The results of this research support previous research conducted by Muslimah et al., (2020), Kyissima et al., (2020), Kholifah et al., (2019), Yuliani (2017) and Santika and Sudiyatno (2011), who empirically suggest that profitability has a significant negative effect on Capital Structure. The results of this research do not support previous research conducted by Novitayanti and Rahyuda (2018) which finds that profitability has a positive effect on capital structure.

The test results of this research show that Asset Structure has no significant effect on capital structure. Even though the effect is not significant, this research shows that the capital structure coefficient is positive which means that the tendency of asset structure movements is in line with the capital structure, although the effect is not significant. It shows that company management uses other components in its decision to increase debt. The results of this research support previous research conducted by Kyissima et al., (2020), and Santika and Sudiyatno (2011), which empirically show that asset structure does not have a significant effect on capital structure. The results of this research do not support previous research conducted by Umdiana and Claudia (2020), Muslimah et al., (2020), and Yuliani (2017) which find that asset structure has an effect on capital structure.

The results of this research indicate that liquidity has no significant effect on capital structure. The results of this research are in contrast to the trade off theory where companies that have good liquidity can be more flexible in using debt funding. The liquidity coefficient

shows a negative value which means that additional debt is inversely proportional to the level of company liquidity. Companies are more likely to use available internal cash funds than to use external funds in the form of debt, in accordance with the pecking order theory. The results of this research support previous research conducted by Kanita and Hendryadi (2017) which states that liquidity does not have a significant effect on capital structure. The results of this research do not support previous research conducted by Muslimah et al., (2020), Saif Alyousfi (2019), Novitayanti and Rahyuda (2018), and Yuliani (2017), who find that liquidity has a significant effect on capital structure.

The results of this research indicate that Sales Growth has a significant positive effect on Capital Structure. In accordance with trade off theory, when there is stable sales growth, the company can use debt more freely. Stable sales growth makes companies relatively safer in adding larger amounts of debt and incurring higher fixed expenses than companies with unstable sales. The results of this research support previous research conducted by Umdiana and Claudia (2020), Saif Alyousfi (2019), and Santika and Sudiyatno (2011), which find that sales growth has a significant positive effect on capital structure. The results of this research do not support previous research conducted by Novitayanti and Rahyuda (2018) which find that sales growth does not have a significant negative effect on capital structure.

The results of this research indicate that company size has no significant effect on capital structure. This is different from the trade off theory which states that companies with large assets can use their assets as collateral for debt. In this study, the opposite happened where company size had no effect on capital structure which means determining debt is not just based on the value of the company's assets. There may be special conditions that cause companies with large asset values to use debt in a limited manner. Apart from that, companies with large assets can also use their retained earnings to fund company operations in accordance with the pecking order theory. The results of this research support previous research conducted by Kholifah et al., (2019) which find that company size has no effect on capital structure. The results of this research do not support previous research conducted by Novitayanti and Rahyuda (2018), Kanita and Hendryadi (2017), Muslimah et al., (2020), and Kyissima et al., (2020) which find that company size has an effect on capital structure.

CONCLUSION

Based on the results of multiple linear regression analysis with 1100 sample companies, the following conclusions can be drawn. Profitability, Asset Structure, Liquidity, Sales Growth, and Company Size together have a significant effect on Capital Structure. Profitability has a significant negative effect on Capital Structure. Asset Structure has no significant effect on Capital Structure. Liquidity has no significant effect on Capital Structure. Sales growth has a significant positive effect on Capital Structure. Company size does not have a significant effect on Capital Structure.

This research can be used to enrich insight references in understanding capital structure and the factors that can determine capital structure. Regarding the findings of factors that influence capital structure, it is hoped that future researchers will pay attention to the variables of profitability and sales growth. If future researchers want to research the same theme, they can consider using other capital structure variables such as Long Term Debt to Equity and Debt to Asset Ratio, in testing capital structure.

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