CAPITAL STRUCTURE ANALYSIS IN MINING COMPANIES LISTED IN INDONESIA STOCK EXCHANGE

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ABSTRACT

This research aims to analyze the capital structure of mining companies listed on the Indonesia Stock Exchange by examining 4 fundamental factors, namely Asset Structure, Profitability, Sales Growth and Company Size. The research sample was 41 mining companies on the Indonesia Stock Exchange in 2016-2020. For the panel data regression analysis technique, Software Econometric Views (Eviews) version 12 was used. Based on the results of the analysis, the direct influence is concluded that 1) Asset Structure, Profitability, Sales Growth and Company Size simultaneously have a positive and significant effect on the company's capital structure Mining on the Indonesia Stock Exchange for the period 2016-2020; 2) Asset structure has no significant positive influence on capital structure; 3) Profitability has a negative and significant effect on capital structure; 4) Sales growth has a negative and insignificant influence on capital structure; and 5) Company size has a negative and significant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange in 2016-2020.

Keywords: Capital Structure, Asset Structure, Profitability, Sales Growth and Company Size

INTRODUCTION

The mining sector plays a role in the national economy because of its activities as a provider of energy resources, such as coal, oil and gas, and metals and minerals. This type of business is strongly influenced by the world and national economy. The improvement in the world economy gave birth to great needs, especially the mining industry.

The mining business is growing from time to time driven by the availability of potential and wide market. However, the mining business requires large investment costs in the long term, so that capital issues are seen as the main issue to take part in this business. As a business that produces global commodities, the mining sector has attracted a lot of attention from both domestic and international investors, so there is an opportunity to choose a source of financing. In determining the composition of the mining company's financing, it is necessary to pay attention to the factors that affect the composition of debt and equity or capital structure.

This research examines the capital structure of mining companies in Indonesia that produce such as coal, oil and gas, and metals and minerals, it is interesting to know the level of corporate debt in each mining sub-sector as well as the factors that affect the company's leverage level. The tested factors and capital structure still show inconsistent relationships between studies, so further research is needed. The choice of variables was based on two things, namely, previous studies showed an inconsistent relationship between debt and these variables. Second, there are data limitations that limit the development of proxies for other variables.

Capital structure refers to the balance or combination of foreign capital (debt) with own capital to maximize firm value (Husnan 2006:263).

Agency theory according to Jensen and Meckling (1976:5), describes a relationship that arises because of a contract between the principal and another party called the agent, where the

principal delegates a job to the agent. Investors are the principal parties in companies whose capital comes from the share ownership of investors, while the management of the company is the agent. The essence of the agency relationship is the separation of functions between company owners and management. Agency theory explains that the owner provides resources for management to run the company, on the contrary, management is required to perform services for the owner in accordance with the interests of the owner. When a company is in debt, agency costs arise which are triggered by conflicts between shareholders and creditors, so that creditors apply creditors to apply such a strict mechanism. However, when the firm provides assets as collateral, the agency conflict is reduced, which lowers the agency costs of debt.

In 1977 Steven Ross analyzed the capital structure associated with the phenomenon of information asymmetry in the capital market. Asymmetric information occurs when there is unknown information between managers and shareholders. In the model, leverage is chosen by managers as a good signal about business prospects, which allows the company to pay back debt.

Asymmetry information is analyzed in a different model by Myers and Majluf (1984) which is based on investor penalties for external financing but supports the use of internal financing. The two researchers came to the conclusion that corporate financing follows a hierarchical pattern, namely prioritizing internal financing. If external financing is needed, the company will use debt before issuing new shares.

The relationship between the capital structure of company value was analyzed by MM in 1958, leading them to proposition 1 that in a perfect market capital structure does not influence company value. In other words, the modal structure is irrelevant. Changes in the composition of debt and equity do not change the value of the company. Both experts use arbitration arguments to prove their proposition.

The neglect of taxes in the previous theory made the theory unrealistic, so MM (1963) introduced taxes into their theory. The logic of MM (1963) is that the debt used can reduce the amount of tax that must be paid by the company, this is because the interest is treated as a deduction from taxable income. Because debt makes the value of the company higher, companies are encouraged to use debt as much as possible, it can even lead to a capital structure with the use of 100% debt. The conclusion from this theory is certainly illogical because no company is willing to use debt as much as possible, because the use of large debt will lead to a high probability of bankruptcy. This is the reason why in the findings of MM (1963) companies refer to the use of debt as much as possible, because bankruptcy costs are ignored in the theory.

The presence of capital structure theory is irrelevant because MM refers to the assumption of ignoring bankruptcy costs. However, in the real world the costs of bankruptcy can be substantial. The value of the company will continue to slope if the company continues to bear the costs of bankruptcy continuously, therefore the cost of bankruptcy is a loss that must be borne by the company until it goes bankrupt or returns to health (Harmono, 2009: 158). The company will bear relatively large legal and accounting costs when it goes bankrupt. The rising cost of bankruptcy will increase the return required by shareholders. Simultaneously, the cost of debt capital increases because creditors apply higher interest rates as a form of compensation for the increased risk of bankruptcy. Referring to the trade-off thinking, increasing the level of debt is recommended if debt is able to provide greater benefits.

The high level of debt in mining companies in Indonesia and the differences in the results of previous research is a very interesting phenomenon to research. Based on this background, to obtain empirical evidence, a research entitled " Capital Structure Analysis in Mining Companies Listed in Indonesia Stock Exchange" was conducted.
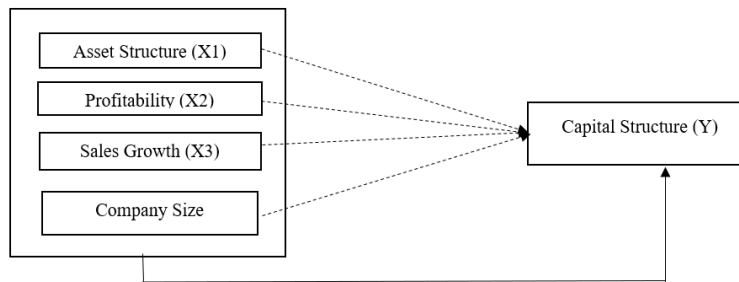
As for the framework in this research, namely:

Figure 1
Research Conceptual Framework

Hypothesis

H1: It is assumed that the asset structure has a significant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange.
H2: It is assumed that profitability has a significant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange.
H3: It is assumed that sales growth has a significant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange.
H4: It is assumed that the size of the company has a significant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange.

METHOD

Research Object

This is verification research, which method aims to determine the relationship between two or more variables and is used to test the truth of a hypothesis (Sugiyono, 2015:36). The location of the research is the Indonesia Stock Exchange. The source of the data is the annual financial report of mining companies. The research analyzes secondary data consisting of capital structure and the factors that affects it. Four variables that would be verified for their effect on Capital Structure are Asset Structure, Profitability, Sales Growth, and Company Size. Verification of the hypothesis was carried out using panel data regression with a data horizon of 5 years (2016-2020). The data in the research is a combination of time series data and cross section data. The total population was 74 companies, while the number of samples used was 31 companies. Thus, the panel data regression model specified for the research is as follows:

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

Variable Operational Definition
Asset Structure
With the results of the comparison between fixed assets, total assets will result in asset tangibility, meaning that the more guarantees issued, the easier it will be for the company to get debt, meaning investors will have more confidence if the company goes bankrupt, then the available fixed assets can be used to pay off debt. debt owned by the company. According to Riyanto (2011: 19) the formula to determine the ratio of the Asset Structure (assets) is:

$$\text{Asset Structure} = \frac{Total\ fixed\ assets}{Total\ assets}$$

Profitability
Return on Assets (ROA) is a ratio used to measure the company's management ability in obtaining overall profits (Agnes, 2005:18). The higher the ROA of a company, the greater the level of profit, the better the position of the company in terms of asset use. The ROA formula is (Kasmir, 2016:199):

$$\text{ROA} = \frac{Net\ profit\ after\ tax}{Total\ Asset}$$

Sales Growth

According to Kasmir (2016:107), sales growth shows the extent to which the company can increase its sales compared to total sales as a whole. The formula for calculating sales growth is:

$$Sales\ Growth\ Ratio = \frac{Net\ Sales\ t - Net\ Sales\ t-1}{Net\ Sales\ t-1}$$

Company Size

Company size according to Brigham and Houston (2013: 117) is the average total net sales for the year concerned until several years later. Company size which is the size or amount of assets owned by the company is indicated by the natural logarithm of total assets. Firm size variable is proxied by SIZE. Company size is expressed in the form of a ratio scale.

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

Capital Structure

The company's capital structure describes the combination of capital sources in financing the business. The higher the capital structure, the higher the risk, the lower the interest of investors to invest in the company, resulting in a decrease in stock prices. Conversely, the lower the capital structure, the better it will be in paying long-term obligations. Referring to Brigham and Houston (2001: 86) the formula for the capital structure is:

$$\text{DAR} = \frac{Total\ debt}{Total\ Asset}$$

RESULTS AND DISCUSSION

Result

1. Mining Company Debt Level Analysis

Table.1
Analysis of Mining Companies' Debt Levels on The IDX

NO	Sub Sector	N	2016	2017	2018	2019	2020	Deviation Standard	Average
1	Coal Mining	16	0.3572	0.3343	0.3569	0.3531	0.3100	0.0204	0.3423
2	Oil and gas mining	14	0.5129	0.4630	0.5344	0.5395	0.4995	0.0308	0.50986
3	Metal and mineral mining	1	0.0002	0.0029	0.0025	0.0023	0.0016	0.0011	0.0019
	Average		0.2901	0.2667	0.2979	0.2983	0.2704		
	Deviation Standard		0.2628	0.2374	0.2708	0.2728	0.2513		

As shown in table 4.1 above, oil and gas mining management companies have the highest level of debt (DAR) from year to year during the data period (in the range of 0.46 – 0.53), while metal and mineral mining management companies have the lowest debt levels. The debt level of coal mining management companies is between 0.31 – 0.36. The level of debt in each sector tends to be stable from year to year. Overall, the debt level (DAR) of mining companies is relatively low, 0.2901 in 2016 increasing to 0.2983 in 2019, and decreasing in 2020 to 0.2704. Judging from the standard deviation value, the variations in the level of debt each year tend to be identical, which illustrates that the debt level of mining companies tends to be stable during the 2016-2020 period.

2. Panel Data Regression Results

a) Estimation Model Selection

The estimation of the panel data regression model can be done in three approaches, namely the common effect model, the fix effect model, and the random effect model (Widarjono, 2013: 353). Determination of the most appropriate estimation model is carried out through the Chow ui procedure,

Haussman test, and LM test. Table D.2 presents a summary of the results of the estimation model selection, as follows:

Table. 22
Estimation Model Selection

No	Model	Tujuan dan Hasil		Conclusion
1	Uji Chow	Common effect or Fixed effect Statistic cross-section F :18,41 Probabilita statistik: 0.000 < 0.05		Fixed effect
2	Uji Hausman	Fixed effect or Random effect Cross section random chi- square :7.62 Probabilita statistik: 0.10 > 0.05		Random effect
3	Uji Langrange Multiplier (LM)	Random effect or Common effect *cross section* :169.8 Signifikan pada 0.00 < 0.05		Random effect

Based on the table above, the estimation of the panel data regression model can be done using *the Random Effect Model* approach.

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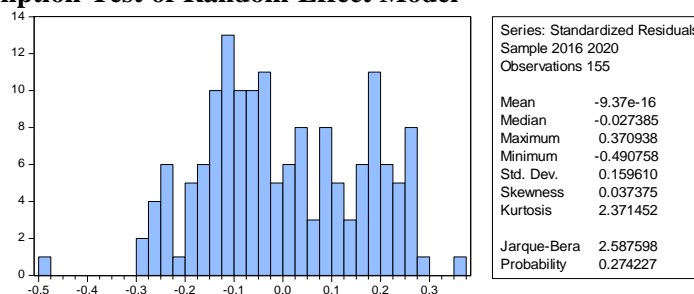**b)   Classical Assumption Test of Random Effect Model**

Series: Standardized Residuals Sample 2016 2020 Observations 155	
Mean	-9.37e-16
Median	-0.027385
Maximum	0.370938
Minimum	-0.490758
Std. Dev.	0.159610
Skewness	0.037375
Kurtosis	2.371452
Jarque-Bera	2.587598
Probability	0.274227

Figure. 1
Normality Test
Source: Eviews 12 (data processed, 2022)

In this research, the results of the normality test obtained the Jarque-Bera value of 2.58 > 0.05, which means that the research data has a zero distribution.

Table. 3
Multicollinearity Test

	DAR	SA	ROA	SG	FS
DAR	1.000000	0.188735	-0.218596	-0.084788	0.668171
SA	0.188735	1.000000	-0.150093	0.021622	0.181856
ROA	-0.218596	-0.150093	1.000000	-0.012667	-0.011907
SG	-0.084788	0.021622	-0.012667	1.000000	-0.129608
FS	0.668171	0.181856	-0.011907	-0.129608	1.000000

Source: Eviews 12 (data processed, 2022)

The results of the multicollinearity test in Table D.3 show that, of all the independent variables, there is no correlation coefficient greater than 0.85. So it can be concluded that the regression model is free from multicollinearity.

Table. 4
Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

	1.112717	Prob. F(4,150)	0.3527
Obs*R-squared	4.466693	Prob. Chi-Square(4)	0.3465
Scaled explained SS	2.980922	Prob. Chi-Square(4)	0.5610

Source: Eviews 12 (data processed, 2022)

The results of the heteroscedasticity test using Breusch-Pagan showed the probability value of chi squares was 0.3465. The probability value of chi squares is greater than the significance level (0.34 > 0.05), which means Ho is rejected and Ha is accepted or there is no heteroscedasticity problem in the research data.

c) **Quality of R2 and F Models**

Table. 5
Results of Regression Random Effect Model

Dependent Variable: DAR
Method: Panel EGLS (Cross-section random effects)
Date: 07/22/22   Time: 21:43
Sample: 2016 2020
Periods included: 5
Cross-sections included: 31
Total panel (balanced) observations: 155
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.409277	0.158648	-8.883056	0.0000
Asset structure	0.062829	0.056150	1.118935	0.2650
ROA	-0.277925	0.081557	-3.407746	0.0008
Sales growth	-0.002319	0.004441	-0.522242	0.6023
Company size	0.065718	0.005789	11.35290	0.0000

Effects Specification			
		S.D.	Rho
Cross-section random		0.141329	0.7923
Idiosyncratic random		0.072364	0.2077

Weighted Statistics			
R-squared	0.504483	Mean dependent var	0.090844
Adjusted R-squared	0.491269	S.D. dependent var	0.102673
S.E. of regression	0.073232	Sum squared resid	0.804441
F-statistic	38.17851	Durbin-Watson stat	1.611116
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.434132	Mean dependent var	0.406994
Sum squared resid	3.923215	Durbin-Watson stat	0.330353

Source: Eviews 12 (data processed, 2022)

The F statistic is used to determine whether all independent variables in the model have a simultaneous effect on the dependent variable. In Table 4.8, the value of Fcount is 38,178 and the probability value of F-statistic is 0.000 <0.05 (critical limit). These results indicate that the significant model or dependent variable can be explained by the independent variable.

The coefficient of determination is intended to measure how far the model's ability to explain the variation of the dependent variable. In other words, the value of this calculation can be used to find out how much the contribution of the independent variable can affect the dependent variable. In this study using more than two independent variables, the coefficient of determination used is Adjusted R-Square (Sujianto, 2007:63). Based on the results of the Random Effects model regression in Table 4.8, the coefficient of determination (Adjusted R-Square) is 0.491. This means that 49.1% of the capital structure variable (y) can be affected by independent variables, namely, Asset Structure (x1), Profitability (x2), Sales Growth (X3) and Company Size (x4).

d) Regression Coefficient and Hypothesis Testing

The results of the Random effect regression model in Table 4.5 can be written in a linear equation as follows:

HS = -8.883056 (C) + 1.118935 (Asset Structure) - 3.407746 (ROA) - 0.522242 (Sales Growth) + 11.35290 (Company Size) +

1. The constant value of -8.883056 explains that if all independent variables (Asset Structure, Profitability, Sales Growth and Company Size) are zero (0), then the dependent variable Capital Structure (DAR) is -8.883056.
2. The value of the regression coefficient for the Asset Structure variable is 1.118935 and is significant at 0.2650 (>5%). These results indicate that an increase in Asset Structure by 1 will increase the level of Capital Structure by 1.118935 with the assumption that other independent variables are zero.
3. The value of the regression coefficient of the Profitability variable is - 3.407746 and significant at 0.0008 (<5%), with this result an increase in Profitability of 1 will reduce the Capital Structure by 3.407746 with the assumption that other independent variables are zero.
4. The regression coefficient value of the Sales Growth variable is - 0.522242 and significant at 0.6023 (>5%). With this result, an increase in Sales Growth of 1 will reduce the Capital Structure by 0.522242 assuming the other independent variables are zero.
5. The regression coefficient value of the Firm Size variable is 11.35290 and significant at 0.000 (<5%), with this result, an increase in Firm Size by 1 will increase the Capital Structure by 11.35290 with the assumption that the other independent variables are zero.

Discussion

Asset Structure

The positive and insignificant coefficient of asset structure indicates that the asset structure has a positive effect on the capital structure of mining companies listed on the Indonesia Stock Exchange (IDX). In this research, the asset structure is not the main factor for the company to make decisions on the use of company debt. In this study, the company's management uses other factors to make decisions on the use of debt in addition to the asset structure. Creditors are more concerned with the results obtained or their income/sales than the assets owned because mining companies are profitable companies. In addition, on average, mining companies use internal sources of funds rather than using debt sources to meet company needs. It also explains that from the creditor's point of view, fixed assets cannot be used as collateral for providing debt to the company, in this case as a debtor. This is why in this research the asset structure has no effect on the capital structure. The results of the research are in line with research conducted by Rani, et al (2020) which found that asset structure has a positive and insignificant effect on capital structure.

Profitability

The significant and negative ROA coefficient indicates that the increase in profitability is followed by a decrease in the capital structure of mining companies listed on the IDX. This shows that most mining companies with high profitability tend to have higher retained earnings. The amount of retained earnings owned by the company can be used by the company to fund the company's operations. Because the company uses more internal sources of funds in funding the company's operations so that

the use of debt which is funding from outside the company is less. In addition, the use of own capital is considered to further reduce the risk that occurs in the company due to the costs incurred for the use of debt. The results obtained support the Pecking Order theory which states that if a company within a certain period of time has a sufficient level of profit, then the company does not need to use external or external funds in the form of debt because the retained earnings from asset management are still adequate to finance the company's operational needs. the. If internal funds are not sufficient, the company will be in debt to meet operational needs.

The results of this research are in line with the research of Yolandafitri (2016), Pramana and Darmayanti (2020), Nguyen and Tran (2020), Gharaibeh and Al-Tahat (2020), Brizan and Ismul (2018).

Sales Growth

The sales growth coefficient is negative and not significant, indicating that sales growth has no effect on the capital structure of mining companies listed on the Indonesia Stock Exchange (IDX). The results show that the company's growth rate does not affect the company's capital structure. This can happen because the growth of the company in this study is seen by the sales growth of mining companies only. From the data found in the research period, it shows that sales of mining companies fluctuated so it is difficult to find a relationship between company growth and the company's capital structure. In addition, high sales at mining companies allow companies to have greater retained earnings. Retained earnings in these companies can be used to fund company operations, so that mining companies do not require larger debts for company operations. It can be seen that the company's growth has no influence on the company's capital structure. There is research in line with research by Rani, et al (2020) and Hamida, et al (2016), sales growth has no effect on capital structure because when the company tries to increase the number of sales, when sales increase, the income from sales is higher. also. Thus, the costs incurred can be minimized by reducing capital from long-term debt. Profits from sales are high enough to make the company's fund turnover faster. This means that when sales increase, the capital structure will decrease.

Company Size

The coefficient of firm size is positive and significant, indicating that firm size has a positive effect on the capital structure of mining companies listed on the Indonesia Stock Exchange (IDX). This shows that large-scale mining companies seen from large total assets are more likely to use debt funding. Assets in large companies are used as collateral in borrowing debt by financial managers. In addition, from the creditor side, large-scale companies are considered to have good reputations, so it is unlikely for large-scale companies to default in paying off debt. This makes it easier for creditors to provide loans to large-scale companies compared to small-scale companies. This is because large-scale companies have larger assets to be used as collateral for borrowed debts compared to small companies which have fewer assets to pledge as collateral. The results of this study are in line with Rani, et al (2020), Pramana and Darmayanti (2020), Putu (2017), Nguyen and Tran (2020), Gharaibeh and Al-Tahat (2020) and Kalimun and Wibowo (2017), which state that the larger the firm size, the capital structure increases, or the company can increase the amount of debt.

CONCLUSION

Based on the results of data analysis, several conclusions can be drawn as follows:
1. Oil and gas mining management companies have the highest level of debt (DAR) from year to year during the data period. Meanwhile, metal and mineral mining management companies have the lowest debt levels. Overall, mining companies' debt levels (DAR) are relatively low. The level of debt in each sector tends to be stable from year to year.
2. Asset structure, Profitability, Sales Growth and Company Size simultaneously affect the capital structure of Mining companies listed on the Indonesia Stock Exchange.
3. Asset structure, measured by the ratio of fixed assets to total assets, has a positive and insignificant effect on the capital structure of mining companies listed on the IDX.

4. Profitability, measured by ROA, has a negative and significant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange.
5. Sales growth, measured by the Sales Gowth Ratio, has a negative and insignificant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange in 2016-2020.
6. Company size or company size, measured by Ln (sales), has a positive and significant effect on the capital structure of mining companies listed on the Indonesia Stock Exchange in 2016-2020.
7. The independent variables of asset structure, profitability, sales growth and firm size have an effect of 49.1% on the dependent variable of capital structure, and the remaining 50.9% is affected by other independent variables outside the model.

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