Do Firm Size and Asset Structure Effect Capital Structure Through Firm Profitability? Evidence from Coal Mining Industry

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Abstract. This study examines mediating role of profitability on the relationship between firm size and asset structure and capital structure in Coal Mining industry from the Indonesia Stock Exchange (IDX) listed firms. Total sample of current study represented by 13 companies with 130 firm-year observations from 2010-2019. The results of this study indicate that: (1) firm size has a positive and significant effect on capital structure (2) asset structure has a positive and significant effect on capital structure (3) profitability has a significant and negative effect on capital structure, (4) firm size has no negative and insignificant effect on profitability, (5) asset structure has no negative and insignificant effect on profitability. Profitability is not able to mediate the effect of firm size and asset structure on capital structure. The results of the study are expected to provide insight to investors in viewing financial statement from various aspect, not only judging from the size of the company size and asset structure, so that the information obtained by investors is more accurate in assessing the company's prospects and determining investment.

Keywords: Company Size (Ln total assets), Company Assets, Profitability (Return On Assets) and Capital Structure (Debt to Asset Ratio)

1. Introduction

Capital structure decisions, or financial decisions relating to the composition of own capital and debt that the company must utilize, are among the decisions that every company manager must make about company operations. There are many ways to obtain debt, including via issuing bonds and other long-term debt. Capital structure is the union of long-term debt and equity.Risks in the coal mining subsector are quite complicated. This industrial sub-sector is exposed to a wide range of dangers. Physical danger, market risk associated with changes in domestic and international selling prices, as well as different financial risks that arise if it turns out that the content produced by mining is deemed to be uneconomical are some of the risks that have a tendency to be high (speculative risks). In addition, earlier explorations and exploitation have been expensive. In recent years, the prices of commodities used in mining, agriculture, and energy, as well as coal, have tended to decline, according to data gathered by the Vibiz research center. The outlook for coal prices in 2015 tends to dim as China's steel production activities also experience a fall in coal use. Oil, whose price is prone to reduce, is competing with coal's usage in industry, and coal use in homes is also prone to diminish. The majority of coal businesses' declining profits are impacted by this circumstance. Operating

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costs, meanwhile, were increasing Knowing and analyzing the variables that can impact the capital structure is one thing financial managers can do when deciding on policies for the composition of the capital structure. The size of the business, its financial flexibility, the composition of its assets, its profitability, its liquidity, and its rate of growth are some of the elements that influence its capital structure [1].

Debt Asset Ratio (DAR), which is used as a proxy for capital structure in this study, can be used to measure capital structure. The DAR ratio takes the total debt into account when calculating the number of company assets financed by debt, indicating that the company does not only focus on sources of operational financing from equity but also uses operational financing through debt, which can have an impact on the management of company assets. The following is a graph of the development of DAR (Debt to Asset Ratio) in coal mining sub-sector companies from 2010 – 2019.

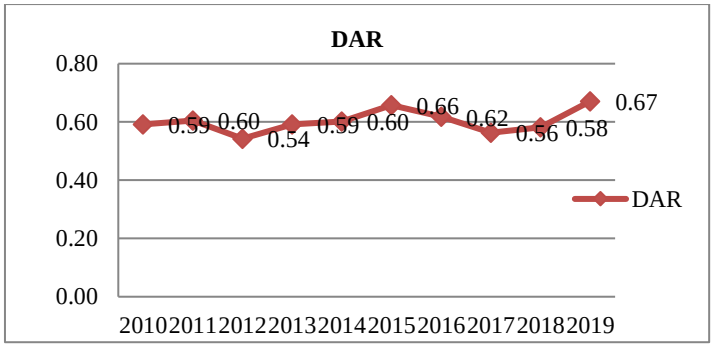

Fig. 1

Graph of Movement of Average Capital Structure (DAR) in Coal Mining Sub-Sector Companies Period 2010 – 2019

Source: ICMD (all data have been analyzed by the aouthors)

According to Figure 1, over a ten-year period, companies in the coal mining subsector listed on the Indonesia Stock Exchange had fluctuations in debt to assets (DAR), with a rise in 2015 to 0.66. However, it saw a significant 0.10 drop in 2017 (0.66 to 0.56). Had a small increase of 0.58 points in 2018 and continues to rise in 2019. The graph's DAR fluctuations witnessed unsteady swings, and it includes data on both the present and future conditions of the financial markets.

The government restricted mining businesses from exporting raw minerals in Government Regulation No. 1 of 2014, which was initially passed in 2015. In 2015, the Debt to Asset Ratio increased as a result of the impact of this law on the company's capital structure. Additionally, this phenomena demonstrates how much more at danger a corporation is of not being able to pay its debts. The capital structure started to improve more in 2017 than in 2015 due to a very rapid fall that took place in 2017.

Previous studies frequently connected asset structure and firm size to capital structure. Septiani and Suaryana's (2018) investigation into the connection between firm size and capital structure shows that firm size has a favorable impact on capital structure [2]. This, however, runs counter to Premawati and Darma's (2017) study, which claims that firm size has no bearing on capital structure [3].

Nur'aini and Chomsatu conducted the research that shows how asset structure and capital structure are related [4]. They claimed that the capital structure was positively impacted by asset structure. This, however, runs counter to the findings of Septiani and Suaryana's (2018) study, which contend that asset structure has no effect on capital structure [2].

Other factors that affect the relationship between firm size, asset structure, and capital structure are thought to be the reason of the study gap. Profitability is a factor that affects how a company's size, asset structure, and capital structure relate to one another. According to a number of earlier studies, business size has a favorable and considerable impact on profitability. According to studies by Ambarwati et al. (2015) and Sinarti & Darmajati (2019), business size has a favorable impact on profitability [5]. Rahmiyatun (2016) conducted study on the impact of asset structure on profitability, and Rahmawati (2018) concluded that this impact is both positive and significant [6][7].

In light of the aforementioned business phenomenon and research gap, the researcher plans to investigate "The Influence of Firm Size and Asset Structure by including Profitability as an Intervening Variable in Coal Mining Sub-Sector Companies Listed on the Indonesia Stock Exchange for the Period 2010-2019."

2. Related Literature and Hypotheses Development

2.1 Theories of the firm

The three theories help to explain the connection between firm size and profitability. These theories are as follows: technology theory, which emphasizes physical capital, economies of scale, and scope as factors that determine company size and its impact on profitability [8].

The organizational theory links firm size, transaction costs for administrative purposes, agency costs, and control costs to profitability. Resources and the critical theory of resources are also included. A theory that is pertinent to the connection between business size and profitability is called critical resource theory. Critical resource theory predicts that as a result of large companies' ability to take advantage of economies of scale, the larger a company's scale, the more profitable it will be. This is because the control over a company's resources, such as intellectual property, technology, and assets, by its owners, is a factor that influences the size of the company. As a result, businesses benefit from lower production costs when they create in huge quantities utilizing the same resources but at a certain time. Or increasing a company's size by a particular amount will eventually result in lower profits.

According to institutional theory, the scale of the business is related to other elements including the legal framework, antitrust laws, patent protection, market size, and the growth of the financial markets.

Trade Off Theory

Mars proposed the trade-off hypothesis (1982). According to this idea, the best capital structure is chosen depending on how well the advantages and drawbacks of using debt are balanced. According to the capital structure trade-off theory, businesses swap the tax advantages of debt financing for the difficulties brought on by prospective bankruptcy. The corporation may continue to incur more debt as long as the advantages continue to outweigh the costs associated with the debt itself. Additionally, the corporation can still take on more debt as long as there are still fixed assets available as security, but it should refrain from doing so if the cost of debt is too high to reduce unwanted risks [9].

Pecking Order Theory

Myers and Majluf created the pecking order theory for capital structure analysis (1984). According to this view, the company's operating results in net profits after taxes that are not paid to the company's owners or shareholders must be the initial source of capital for the business (retained earnings). The remaining earnings will then be invested in successful business endeavors or initiatives. If the company's retained earnings are inadequate to cover the successful investment project, it can raise more cash by turning to debt and equity sources of funding . This capital structure hierarchy illustrates how the pecking order theory came to be one of the capital structure theories that best captures how businesses finance their operations [10].

Capital Structure

Fahmi (2013) asserts that a company's capital structure demonstrates the shape of its financial proportions, specifically between owned capital derived from long-term debt and own money, which serves as the company's funding source [11]. Capital structure, according to Riyanto (2011), is an ongoing expense that indicates the ratio of long-term debt to own capital [12]. Nuswandari (2013) asserts that capital structure refers to the proportion of funds coming from stock and debt. A company's capital structure refers to the ratio or balance between the amount of capital and debt used to finance its operating activities [13].

Profitability

The capacity of a business to turn a profit at a certain level of revenue, assets, and share capital is known as profitability [14]. Kasmir (2010) claims that profitability ratios can be used to evaluate a company's capacity for pursuing profits as well as their level of managerial effectiveness. Profit from sales and investment income were generated, and this ratio demonstrates the effectiveness of the business. The high rate of return enables the majority of the financial requirements to be met using internally generated cash [15].

Company Size

The quantity of equity value, sales value, or asset worth determines the company's size . In the meantime, company size, characterizes the size of a company. The company's size reflects its financial capacity at a given time [16]. Numerous studies examine the organization's financial strength from a variety of angles, including net sales or assets the company owns. Therefore, a company's size can be determined by looking at its total assets or total net revenues [17].

Struktur Aktiva

The quantity of funds allocated for each asset component, including fixed and current assets, is determined by asset structure . A firm has two different kinds of assets: fixed and existing. Current assets are assets that can be quickly cashed (paid) as needed and for a maximum of one year, according to Kasmir (2008). Fixed assets, in contrast, are possessions or assets that belong to the business and are used throughout the course of more than a year. The asset structure will be made up of these two components of assets [15].

2.2 Hypothesis Development

Company size of the company to the capital structure

According to Batubara and Topowijono's (2017) explanation, total assets can be used to express the quantity of wealth that a firm owns. This influence of company size on the capital

structure is explained by the Pecking Order Theory. There is a trend to raise debt because the major assets that the firm owns can guarantee the long-term debt since large corporations are thought to have a more minimal risk due to access to funding issues [18].

The impact of firm size on capital structure is a topic of empirical study by a number of scholars. According to research by Nadzirah et al. (2016), the size of the company has a favorable effect on the capital structure. The more assets a company has and uses debt as a finance or revenue source, the higher the organization's size generally reflects [19].

H1 : Company Size Positively Affects Capital Structure

Asset Structure to Capital Structure

According to Batubara and Topowijono (2017), fixed assets are the main way that businesses manufacture the goods they sell, and the more fixed assets a business has, the more of an impact asset structure has on capital structure. The company will benefit from the increased sales in terms of the amount of profit made, which will serve as the company's capital stock [18].

Asset structure has a favorable and significant impact on capital structure, according to Denziana and Yunggo (2017). The bigger the guarantee offered by the company to creditors, the more debt creditors may offer to the company. Creditors will be wary of lending money to the business, and they won't consider doing so unless they are assured that their interests will be protected. Fixed assets owned by the corporation are collateral that can guarantee protection for creditors [19].

H2 : Asset Structure Has a Positive And Significant Effect on Capital Structure

Profitability to Capital Structure

The Trade of theory affirms that profitability has an impact on capital structure. According to Premawati and Darma (2017), businesses that generate substantial profits might entice investors to invest. Because they can pay their obligations and interest, companies with high profit stability will be more willing to accept foreign capital for corporate finance. Businesses that are consistently profitable will keep trying to boost their profits while maintaining the distribution of profits to shareholders [3].

According to Premawati and Darma's 2017 study, profitability has a positive and considerable impact on capital structure. Large profits might entice investors to invest in a company. Because they can pay their obligations and interest, companies with strong profit stability will be more willing to accept foreign capital for corporate finance [3].

H3 : Profitability has a positive and significant impact on capital structure

Firm Size on Profitability

According to the theory of firms, more scale means greater profitability since larger businesses may take advantage of economies of scale. As a result, businesses benefit from lower production costs when they create large quantities utilizing the same resources. Sinarti and Darmajati's 2019 research, firm size has a favorable impact on profitability (ROE). The capacity to invest in corporate assets increases with a company's growth. The investment's return has the potential to boost earnings after taxes and will rise in direct proportion to the company's profitability [20].

H4 : Firm size has a positive and significant effect on profitability

Asset Structure to Profitability

The trade-off hypothesis, the choice to employ debt by the corporation is based on a comparison of the benefits of tax breaks and the costs of financial difficulty. When financial difficulty arises, fixed asset-intensive businesses will trade at a discount to non-fixed asset-intensive businesses. Profitability will therefore be further increased by investments employing fixed assets. According to Rukmana and Hasmi's (2018) research, asset structure significantly improves profitability. Fixed assets can be used as collateral for debt loans, which lowers the cost of financial distress. Therefore, raising the company's debt ceiling can be advantageous [21].

H5 : Asset structure has a positive and significant impact on profitability

The Effect of Profitability in Mediating the Relationship between Firm Size and Capital Structure

The businesses can obtain economies of scale, profitability would rise the larger the company's scale. As a result, businesses benefit from lower production costs when they produce large amounts of goods with the same resources. Sinarti and Darmajati (2019) assert that a company's ability to invest in its assets increases with its size. The investment's return has the potential to boost earnings after taxes and will rise in direct proportion to the company's profitability [20].

According to Premawati and Darma (2017), businesses that generate substantial profits may be more appealing to investors. Because they can pay their obligations and interest, companies with strong profit stability will be more brave to accept foreign capital for corporate finance.

Firm size has a favorable impact on profitability, according to research [19]. Putri (2012), Puspawardhani (2014), Sinthayani, and Sedana (2015) highlighted that profitability has a good impact on capital structure. Profitability, according to Afsa et al. (2020), can moderate the effect of firm size on capital structure [22][23][24].

H6 : Profitability is able to mediate the relationship between firm size and capital structure

The Effect of Profitability in Mediating the Relationship between Asset Structure and Capital Structure

Rahmawati and Mahfudz (2018) contend that companies with sizable fixed assets can be used as company guarantees to creditors in the event that they run out of cash for ongoing operations. Businesses with sizable asset bases will soon experience higher earnings because they won't have any trouble funding their ongoing operations [7].

Dewi and Martha (2017) claim that expanding enterprises need a sizable quantity of outside capital in order to benefit from tax reductions that might lead to future improvements in earnings. As a result, an asset structure that increases profitability can also improve the capital structure of the company [25].

Premawati and Darma's research from 2017 shows that the asset structure has a beneficial effect on profitability. The 2019 study "The Influence of Company Size, Liquidity, and Asset Structure on Capital Structure with Profitability as an Intervening Variable" by Susantika and Mahfud claims that profit can moderate the effect of asset structure on capital structure [3].

H7 : Profitability Is Able to Mediate the Relationship between Asset Structure and Capital Structure

Based on the explanation above, the framework of thought in this study is as follows:

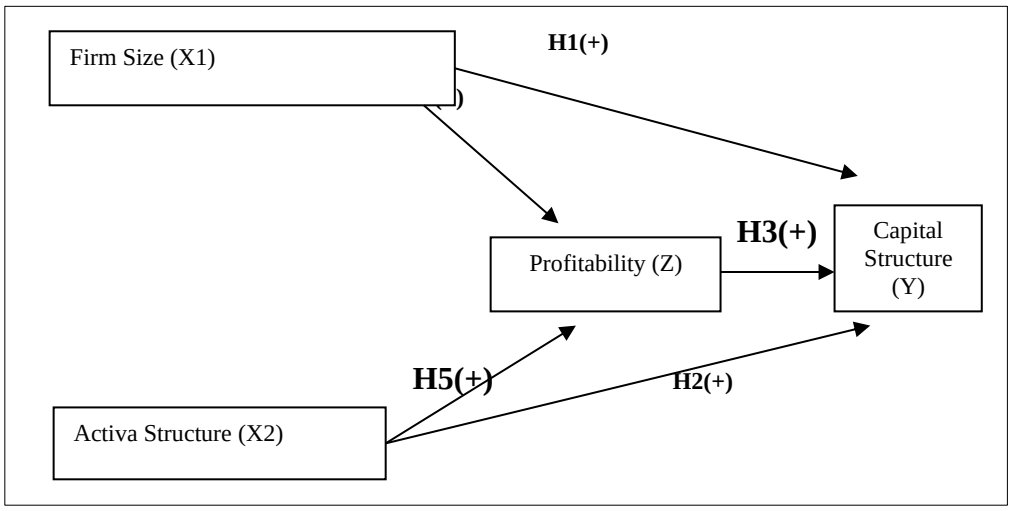

Fig. 2. Framework of tought

3. Method

3.1 Population and Sample

The population in this study consists of 22 firms from the coal mining subsector that were listed on the Indonesia Stock Exchange (IDX) between 2010 and 2019. By using the purposive sampling technique, samples were chosen. The company with the entire data required for all research variables from 2010 to 2019 is the chosen sample from the coal subsector. There are up to 13 companies in the sample that meets these requirements.

3.2 Data Types and Sources

The researchers' indirect acquisition of secondary data from firms listed on the Indonesia Stock Exchange served as the study's data source. The information used is quantitative and takes the form of financial statements for companies in the coal mining subsector listed on the Indonesia Stock Exchange (IDX) between 2010 and 2019. These companies are in the coal mining subsector.

Research Variabels

a. **Dependent Variable**
   The Capital Structure (Y), which is a dependent variable in this study and is represented by the Debt to Asset Ratio (DAR). The debt to asset ratio compares the total amount of the company's debt to its total assets.
b. **Independent Variabel**
   The logarithmic value of the total assets is employed in this study as a proxy for the independent variable, which is the size of the company. Fixed assets are divided by total assets to approximate the assets structure.

c. Intervening Variable

A variable that potentially influences the link between independent and dependent variables but cannot be observed or measured is known as an intervening variable (Sugiyono, 2017: 5). In order to prevent the independent variable from directly affecting the change of the dependent variable, this variable acts as an interlacing variable between the independent variable and the dependent variable. Return on Asset served as a proxy for the variable intervening in this investigation (ROA). The effectiveness of management in turning a profit with the assets at hand is gauged by return on assets.

Analysis Methods

Multiple linear regression analysis was utilized in this investigation with SPSS. Descriptive statistical analysis, the classical assumption test, and path analysis were the methodologies utilized to analyze the study's data.

4. Result

4.1 Capital Structure Descriptive Statistic

In this study, the capital structure variable is measured by the debt to asser ratio (DAR). Based on calculations from the observation period, it can be seen that the Debt to Asset Ratio (DAR) for coal mining sub-sector companies from 2010 to 2019 used as a sample ranges from 0.07 at PT. Golden Eagle Energy Tbk in 2012 to 4.95 at PT. Delta Dunia Makmur Tbk in 2019. The minimum value of the DAR for coal mining sub-sector companies from 2010 to 2019 used as a sample range from 0.07 at PT. Golden The standard deviation of the average Debt to Asset Ratio (DAR), which is 0.5715 on average, is 0.54593. Therefore, the capital structure variable has low risk, and fluctuation due to the slight deviation that occurs in the capital structure variable, the standard deviation value, which is smaller than the average value (mean), indicates that the capital structure data (DAR) has a good data distribution. The normal deviation value is smaller than the average value (mean), which is 0.54593 0.5715.

4.2 Firm Size Descriptive Statistic

Total assets are used in this study to measure the business size variable (Ln total assets). According to estimations from the observation period, PT. Myoh Technology Tbk had the lowest Ln Total Assets of coal mining sub-sector firms in 2010 at 8.03, while PT. Delta Dunia Makmur Tbk had the highest Ln Total Assets of coal mining sub-sector companies in 2010 at 18.96. The standard deviation of the Ln Total Assets is 1.93831, while the average is 15.5242The firm size variable has a low risk and fluctuation due to the modest variance in the firm size variable, as indicated by the standard deviation point, which is smaller than the mean value, which is 1.93831 15.5242. The company size data has a decent distribution because the standard deviation point is closer to the mean.

4.3 Activa Structure Descriptive Statistics

Fixed assets are divided by total assets to get the study's variable asset structure. According to calculation results from the observation period, the minimum value of the asset structure of the coal mining sub-sector company in 2010-2019 is 0.01 and is contained in PT. Bumi Resources Tbk from 2017 to 2019, and the maximum value is 3.24 and is contained in PT. Delta Dunia Makmur Tbk in 2019. Asset structure has a mean of 0.3039 and a standard deviation of 0.30576. The asset structure variable has risks and fluctuations as seen by the variance value

of 0.30576 > 0.3039, which is higher than the mean value. This is because the asset structure variable has a high standard deviation. More important than the mean value, the standard deviation value shows that the asset structure has a poor data distribution.

4.4 Profitability Descriptive Statistics

By dividing fixed assets by total assets, this study's variable asset structure is calculated. According to calculation results from the observation period, the minimum value of the asset structure of the coal mining sub-sector company in 2010-2019 is 0.01 and is contained in PT. Bumi Resources Tbk from 2017 to 2019, the maximum value of the asset structure is 3.24 and is contained in PT. Delta Dunia Makmur Tbk in 2019, and the mean of the asset structure is 0.3039 with a standard deviation of 0.30576 The asset structure variable contains risks and swings because of its high level of variation, as indicated by the standard deviation of 0.30576 > 0.3039. The asset structure has a poor data distribution, which is indicated by the standard deviation, which is more significant than the mean.

4.5 Test of Classical Assumptions

The traditional assumption test includes tests for linearity, autocorrelation, heteroscedasticity, multicollinearity, and heteroscedasticity. The unreported outcome demonstrates that there are no traditional presumptions in this investigation.

Path Analysis

Intervening variables in this path analysis must be conducted in two separate research sub-lines, namely substructural one and substructural two.

1. Substructural 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,158[a]	,025	,003	1,56501

a. Predictors: (Constant), SQRT_StukturAktiva, SQRT_LnTotalAsset

Substructural 1 Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4,862	3,642		1,335	,185
	SQRT_LnTotalAsset	-,250	,882	-,030	-,283	,778
	SQRT_StukturAktiva	-1,692	1,113	-,160	-1,521	,132

a. Dependent Variable: SQRT_ROA

Source: SPSS 25 output (Processed Data)

According to the aforementioned data table, the path coefficient value of the company size (P4ZX1) is -0.030, or 3%, which means that every 1% rise in company size will be followed by a 3% loss in profitability. A 16% decline will occur for every 1% rise in asset structure in profitability, according to the asset structure's path coefficient value (P5ZX2) of -0.160.

If ε_1 the amount of intervening that cannot be accounted for by the size of the business or the asset structure is as follows:

$\varepsilon_1 = \sqrt{(1 - R2)} = \sqrt{(1 - 0{,}025)} = 0{,}987$ atau 98,7%

Then the value of ε1 coefficient of another variable path to profitability is 98.7%. So that the equation of the substructural path 1 is as follows:

$$\mathbf{Z = \alpha + P_4ZX_1 + P_5ZX_2 + \mathcal{E}_1}$$

ROA = 4,862 + (-0,030) Ln total asset + (-0,160) struktur aktiva+ 0,987

2. Substructure 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,488[a]	,238	,213	,13050

a. Predictors: (Constant), SQRT_ROA, SQRT_LnTotalAsset, SQRT_StukrurAktiva

Substructural 2 Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-,438	,307		-1,427	,157
	SQRT_LnTotalAsset	,254	,074	,323	3,446	,001
	SQRT_StukturAktiva	,268	,094	,271	2,853	,005
	SQRT_ROA	-,024	,009	-,256	-2,735	,008

a. Dependent Variable: SQRT_DAR

Source: SPSS 25 output (Processed Data)

According to the data table above, the value of the path coefficient of company size (P1YX1) is 0.323 or 32.3%, which indicates that every 1% increase in company size will result in an increase in the capital structure (DAR) of 32.3%; the value of the path coefficient

of asset structure (P2YX2) is obtained, and it is 0.271 or 27.1%, which indicates that every 1% increase in asset structure will result in a rise in the capital structure (DAR)

If ε2 towards the capital structure shows the amount of intervening that cannot be explained by the size of the company, the asset structure and profitability of the magnitude are as follows:

$$\varepsilon 2 = \sqrt{(1 - R2)} = \sqrt{(1 - 0{,}238)} = 0{,}872 \text{ atau } 87{,}2\%$$

Then the value of 2 of the path coefficients of other variables on the capital structure is 87.2%. So the equation for substructural path 2 is as follows:

$$\mathbf{Y = \alpha + P_1YX_1 + P_2YX_2 + P_3YZ + \varepsilon_2}$$

DAR = -0,438 + 0,323 LnTotal asset + 0,271 struktur aktiva+ (-0,256) ROA + 0,872

5. Result

5.1 The Effect of Firm Size on Capital Structure

Based on the output results in table 14, the firm size variable has a tcount value of 3,446 and a ttable with an absolute level of 5% and degrees of freedom (df) = 93 - 3 = 90 yields a ttable of 1.66196. According to these findings, tcount > ttable (3.446 > 1.66196) with a significant value 0.05 (0.001 0.05) is the case. As a result, the capital structure of the company is positively and significantly impacted by the company's size. Implies that a big company can have a better capital structure. Ha1, which asserts that business size positively influences the capital structure, is therefore accepted, according to the analysis.

The findings of this study corroborate earlier research, including those by Nadzirah et al. (2016), Batubara and Topowijono (2017), and Septiani (2018), which found a positive relationship between firm size and capital structure. These earlier studies have since become standard references for researchers. Nevertheless, this runs counter to studies by Premawati and Darma (2017), Susantika and Mahfudz (2019), and Arsadena (2020), which claimed that firm size has no bearing on capital structure [2][3][18][19].

The study's findings suggest that a company's size affects its asset holdings and the amount of debt it uses to finance itself. This is especially true for companies in the coal mining subsector.

5.2 The Effect of Asset Structure on Capital Structure

Based on the output data in table 14, it can be concluded that the asset structure variable's tcount value is 2.853 while its absolute level ttable has a = 5% and degrees of freedom (df) = 93 - 3 = 90, yielding a ttable of 1.66196. These findings show that tcount > ttable with a significant value 0.05 (0.005 0.05) (2.853 > 1.66196). As a result, the capital structure is positively and significantly impacted by the asset structure to some extent. Implies that the capital structure may increase with a huge asset structure. Finally, Ha2, which asserts that asset structure influences capital structure favorably, is acknowledged.

The findings of this analysis corroborate earlier studies, including those by Denziana and Yunggo (2017), Dewiningrat and Mustanda (2018), and Nur'aini and Chomsatu (2020), which found an association between asset structure and capital structure. In contrast, studies by Seftianne (2011), Mudjijah and Hikmanto (2018), and Septiani and Suaryana (2018) found no relationship between asset structure and capital structure [4][19][26].

The findings of this study show that the asset structure of the mining subsector company, where the majority of its assets come from fixed assets, is more remarkable because the company has guarantees that can lessen financial distress from the use of debt, so coal mining companies must take the structure of the assets owned into consideration when making decisions for capital structure.

5.3 The Effect of Profitability on Capital Structure

The profitability variable's tcount value is -2.735 based on the output data in table 14. At the same time, the degrees of freedom (df) for the ttable at the absolute level are df = 93 - 3 = 90, yielding a ttable of 1.66196. According to these findings, tcount ttable (-2.735 1.66196) with a significant value of 0.05 (0.008 0.05) was found. The capital structure is so negatively and significantly impacted by partial profitability. shows that a high rate of profitability cannot be used to enhance the capital structure. Finally, Ha3, which asserts that profitability affects the capital structure favorably, is disproved.

In contrast to other studies by Sinthayani and Sedana (2015), Premawati and Darma (2017), and Dewi and Mertha (2017), which claimed that profitability had a favorable impact on capital structure, the findings of the present study do not support this claim [3][25][27].

The findings of this study, however, are in line with those of Juliantika and Dewi's (2016) study, which found that profitability had a detrimental impact on capital structure. The findings of this study suggest that high-profit coal mining subsector companies will favor internal funding and use retained revenues to support their operational activities rather to external funding; as a result, the high-profit companies will typically employ less debt.

5.4 The Effect of Firm Size on Profitability

The tcount value for the firm size variable is -0.283 based on the output results in table 12, whereas the ttable at the real level a = 5% with degress of freedom (df) = 93 - 2 = 91 generates a ttable of 1.66177. According to their findings, tcount t table (-0.283 1.66177) had a significant value > 0.05 (0.778 > 0.05). As a result, the size of the business only slightly and insignificantly affects its profitability. This suggests that a large firm's size has little impact on profitability. The assumption that firm size affects profitability favorably is debunked.

The findings of this study do not support other studies that have been the standard for scholars, particularly Sinarti and Darmajati (2019), which claimed that profitability was positively correlated with company size [20].

The findings of this analysis, however, are consistent with studies by Rukmana and Hasmi (2018) and Arsadena (2020), which found no relationship between firm size and profitability. According to the findings of his study, the business has a lower ability to benefit from its assets [21][28]. Since the peaks and valleys of size have no bearing on profitability, the corporation should not be concerned about it. Companies should not only consider the size of the company since they need to consider other criteria as well.

The statistical results of the effect of business size on profitability (-0.030) support this, although there is no subsequent rise in profitability. This shows that there is no economic scale for the company to increase profitability since the assets the company has are not matched by

its capacity to manage assets and control production costs. Consequently, the increase in firm profits is unaffected by the company's size.

5.5 The Effect of Asset Structure on Profitability

Based on the output findings in table 12, it can be concluded that the asset structure variable's tcount is -1.521 and the fundamental level's ttable, with an a = 5% and degrees of freedom (df) = 93 - 2 = 91, is 1.66177. With a significant value > 0.05 (0.132 > 0.05), these data show that tcount ttable (-0.521 > 1.66177). As a result, the asset structure only has a minimally negative impact on profitability. shows that a large asset structure has no effect on profitability. Ha5, which asserts that asset structure favorably impacts profitability, is disproved in this regard.

The findings of this study contradict earlier studies, such as those by Al-Jafari & Al Samman (2015) and Rahmiyatun (2016), which claimed that the asset structure had a favorable impact on profitability [6][28].

The findings of this study, however, are consistent with research by Mudjijah and Hikmanto (2018), who claimed that asset structure has little bearing on profitability. According to the findings of his study, businesses with a lot of fixed assets require a sizable source of funding to raise their cost of capital. Reduced profitability will be a result of rising capital costs. However, ownership of fixed assets has no effect on profitability in the sample of businesses used.

5.6 Firm Size on Capital Structure through Profitability

Direct effect = 0.323
Indirect effect = (-0.030) x (-0,256) = 0.0077
Total effect = 0.323+ (-0.030 x -0.256) = 0.331

Because the direct influence has a greater impact than the direct effect, it can be inferred from the results of the calculations above that the profitability variable (ROA) cannot be an intervening variable for the relationship between firm size and capital structure in the companies in the coal mining sub-sector listed on the Indonesia Stock Exchange for the 2010–2019 period. The total impact is 0.331, with direct being (0.323 > 0.0077).

Ghozali (2018: 244) claims that the Sobel test can be used to assess the mediation hypothesis. The strength of the indirect influence of X to Y through Z is given in the following table. This Sobel test is conducted by determining if the intervening variable is significant or not.

Calculating the value of the standard error of indirect effect

$Se1 = \sqrt{(1 - R2)} = \sqrt{(1 - 0{,}025)} = 0{,}987$ atau 98,7%

$Se2 = \sqrt{(1 - R2)} = \sqrt{(1 - 0{,}238)} = 0{,}872$ atau 87,2%

$P_4ZX_1 \times P_3YZ = (-0{,}030) \times (-0{,}256) = 0{,}00768$

$SeZX_1 = \sqrt{(P_4ZX1^2 . Se2^2) + (P_3YZ_2 . Se1^2) + (Se1^2 . Se2^2}$

$= \sqrt{[(-0{,}030)^2 . (0{,}872)^2] + [(-0{,}256)^2 . (0{,}987)^2] + [(0{,}987)^2 . (0{,}872)^2)]} =$

$\sqrt{(0{,}000684) + (0{,}06384) + 0{,}74074} = \sqrt{0{,}80526}$

$= 0{,}89736$

From the above calculations, then determine the t count:

$$\text{t count} = \frac{P_4ZX_1 \times P_3YZ}{SeZX_1} = \frac{0{,}00768}{0{,}89736} = 0{,}008558$$

Because the t count value of 0.008558 is less than the t table value of 1.66177 with a significance threshold of 0.05, the results are considered to be unimportant. The link between firm size (Ln total assets) and capital structure (DAR) in the coal mining sub-sector companies listed on the Indonesia Stock Exchange for the 2010–2019 timeframe is therefore not mediated by the profitability variable (ROA).

In earlier research on the companies in the property and real estate sub-sector listed on the IDX in 2013–2017, Afsa, Desiyanti, and Yuhelmi (2020) found that profitability could be an intervening variable of firm size on capital structure. However, the findings of this study indicate that profitability cannot be the influencing factor of firm size on the capital structure of enterprises in the coal mining subsector [24]. The explanation is that a company's size is determined by its total assets or entire net revenues. The ability of the business to turn a profit is known as profitability. Therefore, the company does not need to expand profitability in order to fulfill its operating funding requirements as it grows in size.

5.7 Asset Structure on Capital Structure through Profitability

Direct Effect = 0,271
Indirect Effect = (-0,160) x (-0,256) = 0,041
Total Effect = 0,271 + (-0,160 x -0,256) = 0,312

The results of the computations above indicate that the direct influence has a greater impact than the indirect effect, or (0.271 > 0.041), with a total force of 0.312.

Ghozali (2018: 244) claims that the Sobel test can be used to assess the mediation hypothesis (Sobel Test). By determining whether the intervening variable is significant or not, the Sobel test is conducted. The following describes the magnitude of the indirect influence of X on Y via Z:

Calculating the value of the standard error of indirect effect

$Se1 = \sqrt{(1 - R2)} = \sqrt{(1 - 0{,}025)} = 0{,}987$ atau 98,7%

$Se2 = \sqrt{(1 - R2)} = \sqrt{(1 - 0{,}238)} = 0{,}872$ atau 87,2%

$P_5ZX_1 \times P_3YZ = (-0{,}160) \times (-0{,}256) = 0{,}04096$

$$SeZX_2 = \sqrt{(P_5ZX1^2 . Se2^2) + (P_3YZ_2 . Se1^2) + (Se1^2 . Se2^2}$$

$$= \sqrt{[(-0{,}160)^2 . (0{,}872)^2] + [(-0{,}256)^2 . (0{,}987)^2] + [(0{,}987)^2 . (0{,}872)^2)]}$$

$$= \sqrt{(0{,}02232 + (0{,}06384) + 0{,}74074} = \sqrt{0{,}8269}$$

$= 0{,}90934$

From the above calculations, then determine the t count:

$$\text{t hitung} = \frac{P_5ZX_1 \times P_3YZ}{0{,}04096} = 0{,}04504$$

$SeZX_2$ 0,90934

With a significance level of 0.05, the t-count value of 0.04504 is less than the t-table value of 1.66177, indicating that the outcome is not significant. The link between asset structure and capital structure (DAR) in the coal mining sub-sector companies listed on the Indonesia Stock Exchange for 2010–2019 cannot, consequently, be mediated by the profitability variable (ROA).

According to the study's findings, the business will only take on debt if its internal resources are insufficient to cover its operating expenses. Every business wants to turn a healthy profit. Companies with significant earnings should still pay dividends, nevertheless, so that they will continue to contemplate taking on debt. High profits do not, then, guarantee that a corporation will solely use funds from within. Even while the company has enough asset guarantees to receive loans, it doesn't always take advantage of this possibility.

6. Conclusions

The following conclusions can be drawn from data analysis on the impact of company size and asset structure on capital structure, with profitability acting as an intervening variable, in companies in the coal mining subsector listed on the Indonesia Stock Exchange (IDX) between 2010 and 2019:

1. The capital structure is positively and significantly impacted by firm size.
2. The capital structure is positively and significantly impacted by asset structure.
3. A negative impact on profitability and the capital structure.
4. Profitability is unaffected by firm size.
5. The profitability of an asset structure has no bearing.
6. From 2010 to 2019, profitability was unable to mitigate the impact of firm size on the capital structure of enterprises in the coal mining subsector.
7. From 2010 to 2019, profitability cannot offset the impact of asset structure on capital structure in the enterprises that make up the coal mining subsector.

The following recommendations can be made in light of the conclusions previously presented: Investors should evaluate or interpret financial statements from a variety of perspectives, rather than only focusing on the firm's size and asset structure, in order to obtain more accurate information about a company's prospects and utilize it as a factor when deciding whether or not to invest in it.

Future studies should measure the capital structure more thoroughly and not just focus on factors like business size, asset structure, and profitability. The following research could perhaps incorporate or take into account a number of factors that have an impact on the capital structure, including tax, control, management attitude, the attitude of lenders and rating agencies, market conditions, internal company conditions, and financial flexibility. Additionally, additional stock sectors listed on the Indonesia Stock Exchange (IDX) were studied as well as sampling methods other than purposive sampling, in addition to employing samples from the coal mining sub-sector.

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