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IMPACTS OF FIRM CHARACTERISTICS ON MINING COMPANIES CAPITAL STRUCTURE

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Abstract: This research is made with the main purpose of analyzing the impacts of firm-level determinants of capital structure that include profitability, firm size, liquidity, non-debt tax shield, as well as asset tangibility. The objects of this research are mining companies listed on the Indonesian Stock Exchange for the period 2012-2020. The sample of this research comprises of 7 companies that have been selected through the use of purposive sampling method and uses multiple regression with panel data approach as the method of data analysis. The result of this research shows that all variables except for firm size have an impact on capital structure. Profitability, liquidity, non-debt tax shield, asset tangibility are found to negatively impact capital structure.

Keywords: profitability, firm size, liquidity, non-debt tax shield, asset tangibility, capital structure

Abstrak: Penelitian ini dibuat dengan tujuan utama untuk menganalisis pengaruh determinan tingkat perusahaan terhadap struktur modal yang meliputi profitabilitas, ukuran perusahaan, likuiditas, non-debt tax shield, serta asset tangibility. Objek penelitian ini adalah perusahaan pertambangan yang terdaftar di Bursa Efek Indonesia periode 2012-2020. Sampel penelitian ini terdiri dari 7 perusahaan yang dipilih melalui metode purposive sampling dan menggunakan regresi berganda dengan pendekatan data panel sebagai metode analisis data. Hasil penelitian ini menunjukkan bahwa semua variabel kecuali ukuran perusahaan berpengaruh terhadap struktur modal. Profitabilitas, likuiditas, non-debt tax shield, aset berwujud ditemukan berdampak negatif pada struktur modal.

Kata kunci: profitabilitas, besar perusahaan, likuiditas, perisai pajak non-utang, tangibilitas aset, struktur modal

INTRODUCTION

Capital structure has been one of the most critical financing decision for enterprises, because they affect the cost of capital and the financial risks on it. According to Kumar (2017), Capital structure is the explicit fusion of debt and equity which an organization uses to back up its operating and investment decisions. Capital structure decisions are crucial for the financial wellbeing of the firm, due to that an inappropriate financing decision might lead to

unoptimal allocation of capital which in turn could cause financial distress (Thuraisingam & Kangetharan 2020), that could potentially leading to bankruptcy in case of adverse developments (Khan et al., 2018)

An optimal capital structure aids in an enterprise's development by maximizing firm value through lowering the cost of capital of investments, along with reducing the enterprise's financial risk (Thuraisingam & Kangetharan, 2020). This is in line with the goal of the firm which is to increase the wealth of the

shareholders (Gitman and Zutter, 2015:56). Hasanah and Lekok (2019) also stated that if the firm has a high value, then the goal of the firm has been achieved, which the increase of shareholders wealth is. Thus, base d on the statements above, a correct capital structure decision must be made in order to maximize firm value and achieve its goals.

There are already numerous studies in the literature on capital structure determinants on a variety of research objects. However, the results are quite inconclusive on the empirical studies, as it will become clear from the literature review. It is imperative to keep exploring the different factors influencing the capital structure decision of a firm with new variables and distinct time periods for a unique set of industries or sectors. Among them are researches conducted by Thuraisingam and Kengatharan (2019), Pongsupatt & Pongsupatt (2019), Farrukh and Asad (2017), Czerwonka and Jaworski (2017), Hussein et al. (2017), Nguyen and Tran (2020), Moradi & Paulet (2018), Burki (2017), Farrukh and Asad (2017), Sanyaolu et al. (2018), Jaworski and Czerwonka (2017), Rao et al. (2017), and Jahfer and Madurasinghe (2019). This research is a replication of the research conducted by Shah and Khan (2017) titled "Factors Determining Capital Structure of Pakistani Non- Financial Firms"

The formulation of the problem for this research is as follows: "Does profitability, firm size, liquidity, non-debt tax shield, and asset tangibility have an impact on capital structure?" The purpose of this research is to analyze the impacts of profitability, liquidity, non-debt tax shield, and asset tangibility on capital structure.

This research is arranged into several sections, in which is going to be outlined to give a clearer picture on this research. The first section is Introduction, which elaborates on the research background, the research problems,

research outline, theoretical framework of this research, as well as development of hypothesis.

The second section discusses the research methods which comprise of sampling procedure, the operational definitions and methods od measurement of each variable. The third section discusses and elaborate onto the research results of descriptive statistics analysis and the results of the hypothesis testing. After that it's followed with Conclusion, which elaborates on the overall conclusion of this research and discuss the limitations as well as recommending some suggestions for future researches.

Irrelevance Theory

Postulated by Modigliani & Miller (1958) Irrelevance Theory is the basic foundation of most capital structure theory that exists today. According to Gitman and Zutter (2015, 626) Irrelevance theory is the theory that explains financing decision with the assumption that there are no information asymmetry, no taxation, capital markets are working efficiently that resulted in an indifference of financing methods that a company uses to fund its operations. This results in firm's value being determined by their earning power and risk that is associated with its assets (investments) and that the financing decision doesn't affect the firm value, whether they choose to give out dividends or increase retained earnings as a source of internal funds. As most of these assumptions doesn't reflect the real world in order to realize the influence of taxation and information asymmetry theories such as the Pecking Order Theory and Agency Cost Theory has been created (Shah and Khan, 2017.

Trade-Off Theory

As the trade-off theory introduced taxation towards the equation, Trade-off theory states that firms take more of a balancing stance

in order to obtain optimal capital structure. This

is done by maximizing tax savings through tax shields that has a limit up to a certain point, then seeking out other source of funds whether its equity or internal funds (Thuraisingam and Kangetharan, 2020). Benefits of debt includes tax shield that reduces tax that have to be paid. therefore allowing more cash flow to the shareholders. The disadvantages include financial distress. in case of adverse development where the firm cannot maintain its profitability could lead to financial distress as they are still obligated to pay off their debt as opposed to using equity (Kumar, 2017).

Pecking Order Theory

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Pecking order theory is a capital structure theory that states there exist hierarchies of financing (Gitman and Zutter, 2015). First is internal funds originating from retained earnings and other savings, next is the use of external funds staring with debt then equity (Shah and Khan, 2017). When a firm needs to have more funds, they first prefer using debt this is cause debt is safer than the next in line which is convertible securities, and lastly equity. Equity are seen as more risky because unlike debt, shareholders can demand higher rate as the risk free rate increases.

Capital Structure

This research uses the dependent variable of capital structure, which in essence can be easily understood as how a firm chooses its financing methods for its operations. As Rao et al. (2016) stated that capital structure is the financing decision outcome that is taken by a firm.

Profitability

Some According to Kumar (2017) profitability is mostly defined as the earnings before interest and tax that is scaled by total assets. Findings from Thuraisingam and Kangetharan (2020) research found that profitability is negatively associated with capital structure, which other studies also yielded the results from Farrukh and Asad (2017), Pongsupatt and Pongsupatt (2019), Dalci et al. (2019). As profitability increases, this leads to the firm having more internal funds that is used as a source of internal financing. In accordance with the pecking order theory that there is a hierarchy of financing in which the firm utilizes internal funds first then proceed to use external funds, resulting in a hierarchy of financing source utilization of internal funds as a source of financing, which supports the pecking order theory of capital structure. firms utilize their internal funds like retained earnings and owner's equity. Kharismar and Stella (2014) also stated that profitability is the measurement of the overall effectiveness of a firm in generating profits using the firm's assets...

Given plenty of diverging empirical results of the relationship between profitability and capital structure, the following hypothesis is formulated **H**₁: Profitability has an impact on capital structure.

Firm Size

Some Firm size is the measure of how big the firm is through its total assets, total sales, total earnings, tax expense and more. Kharismar and Stella (2014) stated that firm size can be concluded as how large or small a firm, reflected by its total assets, total sales, total equity, or its market value. Several studies in the empirical literature on the relationship between firm size and capital structure. Research from Research

from Jahfer and Madurasinghe (2019), Dalci et al. (2019), Moradi and Paulet (2018) found that size positively impact capital structure. As firms begin to grow they become more diversified and make it less risky to obtain low cost debt financing. These findings supports the Trade odd theory of capital structure, which postulates that there exist benefits of using debt in the form of tax shields. Meanwhile Thuraisingam and Kangetharan (2020), Farrukh and Asad (2017), Khan et al. (2018), Jahfer and Madurasinghe (2019) found that size negatively impact capital structure. Given plenty of diverging empirical results of the relationship between firm size and capital structure, the following hypothesis is formulated

H₂: Firm size has an impact on capital structure.

Liquidity

Gitman and Zutter (2015, 138) stated that liquidity refers to a firm's ability to satisfy its short-term obligations as they come due. According to Brigham and Houston (2019, 108). liquidity is a ratio that shows the relationship of a firm's cash and other current assets to its current liabilities. According to Pongsupatt and Pongsupatt (2020), Sanyaolu et al. (2018), liquidity is found to be positively related to capital structure. However, according to Thuraisingam and Kengatharan (2020), Farrukh & Asad (2017), Hussein et al. (2017), liquidity is found to be negatively related to capital structure. This supports the Pecking Order theory in which firms with higher liquidity have more working capital. thus there is no need to use external financing when internal financing can fulfill its needs. Given plenty of diverging empirical results of the relationship between liquidity and capital structure, the following hypothesis is formulated H₃: Liquidity has an impact on capital structure

Non-Debt Tax Shield

Kumar (2017) stated that non-debt tax shield are the reductions from tax that you get through depreciation, amortization. Previous research by Farrukh & Asad (2017), Jahfer & Madurasinghe (2020), Dalci et al. (2019) found that non-debt tax shield is positively correlated to structure. However according to capital Pongsupatt (2020) Hussain et al. (2020). Tamam and Wibowo (2012) the opposite prevails. This supports the tradeoff theory of capital structure, in which through the existence of tax shields firms took up a balancing stance to maximize savings. Given plenty of diverging empirical results of the relationship between non-debt tax shield and capital structure, the following hypothesis is formulated

H₄: Non-debt tax shield has an impact on capital structure.

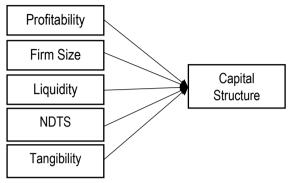
Asset Tangibility

According to Thuraisingam and Kengatharan (2020) Asset tangibility means the summation of fixed assets that could be sold off in the event that the firm went bankrupt. According to Burki (2017), Sanyoulu et al (2018), tangibility is found to be positively related to capital structure. That supports both the Trade Off theory and Pecking order theory, as the usage of debt gives tax savings and firms prefer debt first as a source of external funds. However. studies conducted by Thuraisingam and Kengatharan (2020), Dalci et al. (2019) showed that tangibility has negative relationship with capital structure. Given plenty of diverging empirical results of the relationship between asset tangibility and capital structure, the following hypothesis is formulated

 \mathbf{H}_5 : Asset tangibility has an impact on capital structure.

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Research Model



RESEARCH METHOD

The objects chosen for this research are mining companies listed in Indonesia Stock Exchange for the period 2012 – 2020, using purposive sampling method. The sampling criterion can be seen on Table 1.

Table 1 Sampling Procedure

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No.	Sampling Criteria					
1	Mining companies listed in Indonesia Stock Exchange in 2021	51				
2	Mining companies that consistently published annual financial reports during the research period 2012-2020	37				
3	Mining companies that published annual financial reports consistently in the currency of Indonesia Rupiah (IDR)	12				
Companies with outlier data		(5)				
Compa	nies used as research objects	7				
Number of research periods		9				
TOTAL NUMBER OF OBSERVATIONS						

Source: Indonesia Stock Exchange

Capital structure uses the measure of leverage of total debt to total assets ratio, showing how much of the total asset is financed by debt. According to Thuraisingam and Kangetharan (2020) capital structure can be calculated as follows:

Total Debt Ratio =
$$\frac{\text{Total Debt}}{\text{Total Assets}}$$

According Gitman and Zutter (2015) profitability means how a firm generates profit and cost through using their fixed assets. Pongsupatt and Pongsupatt (2019) stated that profitability can be calculated as follows:

Profitability =
$$\frac{\text{Earnings Before Interest and Tax}}{\text{Total Assets}}$$

The Firm size the measure of value by taking into account the value of the equity, the selling value, and assets. Firm size according to Jaworski and Czerwonka (2017) is calculated using the total assets of the firm, in which the formula is as follows:

Liquidity is the capability of a firm to fulfill its short term obligation without significantly losing value Basri et al. (2019). Nindiani & Arilyn (2019) stated that liquidity can be measured by looking at the current ratio, which can be calculated as follows:

$$Liquidity = \frac{Current Assets}{Current Liabilities}$$

Non-Debt Tax Shield is the tax savings that a company gets from deductions of fixed asset like amortization and depreciation. Pongsupatt and Pongsupatt (2019) calculated non-debt tax shield using the formula as follows:

Asset tangibility is the proportion of fixed assets to the total assets of a firm Rao et al. (2019). Firms with higher tangibility have more

access towards low cost debt. Calculation of asset tangibility according to Beny and Erika (2019) is as follows:

Asset Tangibility =
$$\frac{\text{Total Fixed Assets}}{\text{Total Assets}}$$

RESEARCH RESULTS

Below are the results of the descriptive statistics and hypothesis testing results for each of the research variables.

Table 2 Descriptive Statistics

	TDR	PROF	SIZE	LIQ	NDTS	TANG			
Mean	0.490624	0.079871	29.18112	1.641976	0.036788	0.513022			
Maximum	0.797773	0.282309	31.13677	4.923744	0.071595	0.804767			
Minimum	0.095558	-0.13655	26.28947	0.466088	0.003218	0.250028			
Std.	0.152559	0.086746	1.374044	0.749298	0.017624	0.134613			
Deviation									
N	63	63	63	63	63	63			

Source: Processed data

Table 3 t-Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	1.354526	0.493023	2.747388	0.0080
PROF	-0.328995	0.143315	-2.295604	0.0254
SIZE	-0.007389	0.017967	-0.411272	0.6824
LIQ	-0.153006	0.019364	-7.901358	0.0000
NDTS	-1.890082	0.940330	-2.010021	0.0492
TANG	-0.587167	0.146151	-4.017546	0.0002

Source: Processed data

Table 3 demonstrates the t-test results, in which the outcome shows that the size variable has a probability value that exceeded the alpha (α) value, therefore the H2 can be rejected. On the contrary the outcomes for profitability, firm size, non-debt tax shield, and asset tangibility have a probability value that is below the alpha (α) value, therefore H1, H3, H4, and H5 cannot be rejected.

From the results of the t-tests it can be concluded that the variables profitability, firm size, non-debt tax shield, and asset tangibility is

found to have a negative impact on capital structure while on the contrary the liquidity variableis found to have no impact on capital structure.

CONCLUSION

This research is put together with the intention to discover the factors impacting capital structure namely profitability, liquidity, non-debt tax shield, and asset tangibility. The results from

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the findings of this research can be summarized as follows:

Profitability has a negative impact on capital structure. This result is consistent with Moradi and Paulet (2018), Burki (2017) Nguyen and Tran (2020), Jaworski and Czerwonka (2017). However, it contradicts with the research conducted by Jahfer and Madurasinghe (2019), Basri et al. (2019), Sakr and Bedeir (2019), Khan et al. (2020), which stated that profitability has a positive impact on capital structure.

Firm size has no impact on capital structure. This result is consistent with Farrukh and Asad (2017), Rao et al. (2017), Sanyaolu et al. (2018), Deitiana and Komalasari (2017), Naseem et al. (2017). However, it contradicts with the research conducted by Khan et al. (2018), Imtiaz et al. (2016), Hussain et al. (2020), Pongsupatt and Pongsupatt (2019), which stated that firm size has an impact on Capital Structure.

Liquidity has a negative impact on capital structure. This result is consistent with Khan et al. (2018), Thuraisingam and Kangetharan (2020), Czerwonka and Jaworski (2017), Farrukh and Asad (2017). However, it contradicts with the research conducted by Pongsupatt and Pongsupatt (2019), Burki (2017), Imtiaz et al. (2016), which stated that liquidity has a positive impact on capital structure

Non-debt tax shield has a negative impact on capital structure. This result is consistent with Pongsupatt and Pongsupatt (2019) and Khan et al. (2020), Hussain et al. (2020). However, it contradicts with the research

conducted by Farrukh and Asad (2017), Jahfer and Madurasinghe (2019), Dalci et al. (2019), Moradi and Paulet (2018), which stated that non-debt tax shield has a positve impact on capital structure.

Asset tangibility has a negative impact on capital structure. This result is consistent with Sakr and Bedeir (2019), Imtiaz et al. (2016), Dalci et al. (2019). However, it contradicts with the research conducted by Moradi and Paulet (2018), Sanyaolu et al. (2018), Burki (2017), Basri et al. (2019), which stated that asset tangibility has a positive impact on capital structure.

There exist some inadequacies are present in this research due to a number of limitations namely: (1) The number of companies used as samples were limited to companies in the mining sector of IDX. (2) Limited number of variables (5) that were considered to influence capital structure. (3) This research was limited to 9 periods (from 2012 till 2020), reason being lack of complete financial reports.

There are several recommendations which could be useful for future research related to capital structure: (1) Research can be done with a more variative set of samples, not constrained to only of mining companies listed in Indonesia Stock Exchange. (2) Include more variables that might be of influence capital structure, in order to properly reflect what influences capital structure. (3) Elongate the research period, so as to improve research accuracy through unique period times..

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