THE EFFECT OF CAPITAL STRUCTURE TO FINANCIAL PERFORMANCE OF FIRMS IN INDONESIA

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Abstract - This study examines the relationship of capital structure on financial performance of Indonesia firms in top exported commodities. This research uses Ordinary Least Square (OLS) regression. The samples are 125 Indonesia firms who are listed in Bloomberg during 2014-2018 with total of 625 panel data. The firms are categorized to Indonesia's top five exported commodities which are basic material, industrial, energy, and consumer (cyclical and non-cyclical). The study uses three capital structures which are Debt to Equity (DTE), Debt to Total Capital (DTC), and Long Term Debt to Total Capital as independent variables. Three financial performance which are Return on Asset (ROA), Return on Equity (ROE), and Tobin's Q as dependent variables. Two control variables which are industry and sales growth. The result showsmixed results with negative correlation or no correlation at all. The positive relationship is only seen on sales growth with financial performance. Industries also show mixed result with mostly no correlation with financial performance.

Keywords - Capital Structure, Leverage Ratio, Financial Performance

I. INTRODUCTION

Capital structure is how a firm is financed. Firm's financing revolved around its cost of capital that impacts the funding mix preference to finance its operations. Capital structure is a combination of debt and equity. For a firm to have the optimum mix of debt and equity would minimize cost and maximize financial performance. The strategy varies, depending on the time and the firm. The optimal composition of debt and equity minimizes the cost of financing in a firm and maximizes its market value (Abor, 2005). According to Bevan and Danbolt (2002), profitable firms are less likely to rely on debt financing. Yet several studies show different results in this field of study. When a firm has debt, it signals investors that the firm is confident to meet the future obligations of paying (Ganguli, 2003). Moreover, some studies imply a negative correlation between capital structure and financial performance.

There are three types of debt-equity mix; 0% debt:100% equity, 100% debt: 0 equity, and X% debt: Y% equity. For the first case, it is called as unlevered firm, in which the firm is not involved in any type of borrowing money activity. The second case is unlikely to happen as most financial institution does not provide 100% of debt financing for to mitigate their own risk. The third case is combination of both debt and equity at a certain level to gain advantage of leverage activity. The leverage trade-off benefit is the tax saving benefit from having debt as source of financing and avoiding bankruptcy risk as the result of equity funding.

Return on Asset (ROA) and Return on Equity (ROE) are the most common used financial performance indicator. ROA is used to measure firm's profitability in relative to its asset and ROE is used to measure profitability in relative to its equity.Tobin's Q (TQ) is used for the market value. In this study, growth and industry are used as control variables. Growth has shown mixed results in previous studies and industry is rarely used as one of the factor that might affect financial performance. For the capital structure, Debt to Asset(DA) and Debt to Equity (DE) indicate firm's financial leverage. DA indicates the amount of asset financed by liabilities and DE indicates the amount of asset financed by equity.

1.1Objectives

The objective of this research is to examine the relationship between capital structure and corporate's financial performance of Indonesian companies listed in Bloomberg during the stated time range which is 2014-2018.

II. LITERATURE REVIEW

According to a study by Maina L.K, Olweny T, and Wanjau K (2018), studied 35 non-financial firms in Kenya. The debt market in Kenya is still in a growing stage found out long term debt ratio has a positive influence on financial performance. Short term debt gives negative influence on firm's performance due to the cost being more expensive for short term debt financing.In this paper, long term debt will be used instead of short term debt following this assumption.

The effect of growth varies. In a study performed by Dwidaya (2017), growth has no significant relationship with financial performance of companies in Indonesia listed in Indonesia's Stock Exchange but positive correlation with growth. In contrast, a study done by Pratheepan, T (2016) shows a positive correlation.

The Irrelevance Theory of Capital Structure study done by Modigliani and Miller's (1958) has been a study of interest. Various of studies were done to

investigate the relationship between capital structure and performance. The results are different, considering firm's behavior and the economy condition. Indonesia is a developing country;therefore, the result might be different with developed countries.

Muritala, T.A (2018) did a study in Nigeria and found a positive relationship of growth with the financial performances. Batra, G.S (2018) found mixed correlation for industry with financial performance of firms in Taiwan. Based on the literature reviews, several hypotheses are made for this paper, and listed in section 3.2.

III. RESEARCH METHODOLOGY

3.1Data and Variables

The data used for this research are companies whose product are within the top 5 most exported commodities in Indonesia which are; basic material, industrial, energy, consumer non-cyclical, and consumer cyclical, with Bloomberg as the source of the information. The observation period is from the year of 2014 to 2018. The total is 125 companies with the result of 625 panel data. The method used for the research is Ordinary Least Square regression and processed in data processing program called as STATA. The main variables for this research are capital structure which acts as the independent variable and financial performance which acts as the dependent variable. In capital structure, it consists of Long Term Debt to Debt (LTD), Debt to Capital (DTC), and Debt to Equity (DTE). The financial performance variable consists of Return on Asset (ROA), Return on Equity (ROE), and Tobin's Q (TQ). The control variables are Sales Growth (SG) and the firms of the industries (I).

Return on Assets ratio is firm's profitability generated by its asset. Return on Equity ratio is firm's profitability in relation to its equity. Tobin's Q ratio is firm's market value to replacement cost of the assets.

3.2 Hypotheses

H1: A firm's financial performance is positively influenced by leverage ratios
H2: Growth in positively correlated with financial performance
H3: Industry sectors influence firms' financial performances.

3.3 Method

The method of analysis is using OLS regression with 625 panel data. STATA was used for the analysis. The relationship between capital structure and financial performance is tested with the following model:

1. Equation for ROA

(1) $ROA_{i,t} = \beta_0 + \beta_1 LTDTC_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

(2) $ROA_{i,t} = \beta_0 + \beta_1 DE_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

(3) $ROA_{i,t} = \beta_0 + \beta_1 DC_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

2. Equation for ROE

(1) $ROE_{i,t} = \beta_0 + \beta_1 LTDTC_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

(2) $ROE_{i,t} = \beta_0 + \beta_1 DE_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

(3) $ROE_{i,t} = \beta_0 + \beta_1 DC_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

3. Equation for TQ

(1) $TQ_{i,t} = \beta_0 + \beta_1 LTDTC_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

(2) $TQ_{i,t} = \beta_0 + \beta_1 DE_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

(3) $TQ_{i,t} = \beta_0 + \beta_1 DC_{i,t} + \beta_2 I_{i,t} + \beta_3 SG_{i,t} + \varepsilon_{i,t}$

IV. RESULT AND DISCUSSION

Table 1 shows the descriptive statistics result of the samples used for this paper. It shows the number of observation, average, standard deviation, minimum, and maximum of the samples.

For the financial performance,the mean of Tobin's Q ratio is more than one. In Tobin's Q, when the number is larger than one it means the market value is bigger than the replacement cost of assets. Although it has a large variation with 0,18 at the lowest compared to 37,2 at the maximum value. ROE has the largest gap between the minimum and maximum value.

The capital structure shows a high average of DE, 89,9, which means on average the firms are financing its growth with debt. The maximum of the number reaches 1487,7. This explains the high average of DE. In terms of standard deviation, SG has the highest number. A high standard deviation means more variety of data. In this case, different sectors might be the causal of the variety.

Variables	Obs	Mean	S. Dev	Min	Max
ROE	625	7,94985	24,1716	-119,04	145,05
ROA	625	3,80995	9,4052	-36,09	55,2
TQ	625	1,842875	3,3888	0,18	37,23
SG	625	22,9509	170,944	-98,01	-98,01
LTDTC	625	20,0005	19,8228	0	91,88
DC	625	35,823	22,6756	0	93,7
DE	625	89,8693	134,49	0	1487,7
Industry	625	2,733	1,50382	1	5

Table 1:Descriptive Statistics

Table 2 shows the firms in each industry. Energy and basic materials have the largest number of firms, taking half of the total which is 60%. This is due to both commodities being the biggest commodities in Indonesia.

Sector	Freq	Percent	Cum
Consumer Non-Cyclical	90	14,4	14,4
Consumer Cyclical	70	11,2	25,6
Energy	220	35,2	60,8
Industrial	90	14,4	75,2
Basic Materials	155	24,8	100
Total	625	100	

Table 2:Number of Firms by Industry sector

The regression results are shown in Table 3,4, and, 5. Table 3 shows the result between LTDTC and the financial performance in 5 years' period from 2014-2018. There is a negative relationship with ROE and ROA with 95% and 99% confidence level respectively. This means the increase in long term debt will result in decreasing ROE and ROA. TQ shows no correlation with long term debt activity.Table 4 shows the correlation of capital structure and financial performance for DC. It shows negative impact with ROE and significant negative relationship with ROA. Table 5 shows correlation of DE to financial performance. There is no correlation between DE and financial performances indicator. As for the control variables, SG shows significant relationships with financial performances when using LTDTC, DC, and DE. Therefore, H1 is reject as the correlation is negative or has no correlation instead.

In this paper, Industries are used as control variables. The base industry used is Industry 2 which is Consumer Cyclical sector. When compared to the base industry, a negative result means it generates more profit than the base industry. In contrast, positive number indicates the industry has more profit than the base industry. In Table 3 where LTDTC is used as the capital structure measure, it shows how in terms of ROE, the base industry generates the most profit compared to the other 5 industries. However, compared to ROA and TQ, only I1 (consumer non-cyclical) has lower performance compared to the base industry. Similar result can be seen in Table 5, with ROE performance of base industry being higher than the other 5 industries. ROA and TQ show a different result with only I1 having lower performance compared to base industry.

Different result however, can be seen in Table 4 in whichDC used as a measure of capital structure. ROE and ROA of all the industries except for I5 which is basic materials show negative correlation result. For TQ it has similar result as other capital structure measures with higher TQ compared to the base industry except for I1. Therefore, H2 is an accept, all regression results show positive correlation between sales growth and financial performance with all capital structures as measure. H3 is partly accepted as only on TQ with I3 (energy) are seen with positive correlation. I1 shows negative correlation on ROA with LTDTC as the measure. The positive correlation TQ result signifies firms have bigger amount of market performance if they expand.

	ROE	ROA	TQ
LTDTC	-0.0887** [-207]	-0.107* [-2.53]	0.0417 [1.05]
SG	0.2018* [5.11]	0.205* [5.27]	0.0193* [5.27]
I1	-29.42 [-1.04]	-55.386** [-1.99]	-47.688 [-1.82]
I3	-28.965 [-1.18]	9.503 [0.39]	90.653* [4.00]
I4	-20.809 [0.74]	5.416 [0.19]	26.84 [1.04]
I5	-10.363 [-0.41]	28.091 [1.12]	39.019 [1.65]
No.Observation	625	625	625
P-Value	0.000	0.000	0.000
R-Squared	0.0492	0.0760	0.1222
Adj R-Squared	0.0400	0.0671	0.1137
Root MSE	176.92	174.41	164

Table 3: The Correlation of Capital Structure and Financial Performance; LTDTC

The upper number is coefficient. The number in brackets is the t value. P<0.01 is indicated by * and P<0.05 is indicated by **

	ROE	ROA	TQ
	-0.126*	-0.203*	0.0238
DC	[-3.09]	[-5.10]	[0.63]
	0.201*	0.204*	0.194*
SG	[5.11]	[5.34]	[5.29]
	-26.35	-51.97	-49.33
I1	[-0.94]	[-1.90]	[-1.89]
	-36.84	-5.534	90.46*
I3	[-1.50]	[0.23]	[3.95]
	-30.157	-10.535	27.94
I4	[-1.06]	[-0.38]	[1.06]
	-21.07	9.583	40.12
I5	[-0.82]	[0.38]	[1.67]
No.Observation	625	625	625
P-Value	0.000	0.000	0.000
R-Squared	0.0572	0.1041	0.1212
Adj R-Squared	0.0481	0.0954	0.1127
Root MSE	176.17	171.73	164.1

Table 4: The Correlation of Capital Structure to Financial Performance; DC

The upper number is coefficient. The number in brackets is the t value. P<0.01 is indicated by * and P<0.05 is indicated by **

	ROE	ROA	TQ
	-0.084	0.0141	0.029
DE	[-0.21]	[0.36]	[-0.78]
	0.20*	0.202*	0.195*
SG	[5.04]	[5.16]	[5.33]
	-25.31	-51.42	-48.28
I1	[-0.89]	[-1.84]	[-1.84]
	-22.94	16.55	88.13*
I3	[-0.94]	[0.69]	[3.91]
	-18.46	8.2098	25.78
I4	[-0.65]	[0.29]	[0.99]
	-6.93	31.74	38.07
I5	[-0.27]	[1.26]	[1.61]
No.Observation	625	625	625
P-Value	0.000	0.000	0.000
R-Squared	0.0427	0.0667	0.1215
Adj R-Squared	0.0334	0.0576	0.1130
Root MSE	177.52	175.29	164.07

Table 5: The Correlation of Capital Structure to Financial Performance; DE

The upper number is coefficient. The number in brackets is the t value. P<0.01 is indicated by * and P<0.05 is indicated by **

V. CONCLUSION

This paper analyzes the correlation between capital structure consists of ROE, ROA, and financial performance of firms whose commodities are the top 5 most exported in Indonesia. With the total of 125 firms, 625 panel data is gained with 5 years (2014-2018) analysis period.

From the regression results, capital structure has mostly negative relationship or no correlation to financial performances. Debt to capital and long term debt has a significant negative relationship with ROE and ROA. Any increase in debt financing, even long term debt financing will result in decreasing ROE and ROA. Long term debt affects both financial performance indicator negatively with ROA having the most significant effect. Therefore, Hypotheses 1 which assumed a positive relationship between capital structure and financial performance is a reject. In all results, sales growth shows significant positive impacts with each capital structure measure towards financial performance. The increase of sales growth affects the increase of financial performance along with the market value. Hypotheses 2 which assumed sales growth has a positive relationship with financial performance is an accept. Tobin's Q shows no correlation at all with financial performances, however, it shows positive correlation on Industry 3 with each capital structure used as measure. Hypotheses 3 which assumed a positive relationship between industry and financial performance is partly accepted.

It can be concluded that long term debt affects financial performance negatively which means firms should go for short term debt financing. In contrary with the paper fromMaina L.K, Olweny T, and Wanjau K (2018),although cheaper, long term debt has more information asymmetry and uncertainty. For debt to capital, it has also a negative effect. Firms within the 5 commodities listed are encouraged to finance with equity rather than debt. The result is similar with paper by Le T.P.V.(2015) stating that an increase in debt would result in decrease in financial performance due to high interest rate impact on the cash flow.

The limitation of this study is using only 5 years' period of time and no consideration of economic condition that might affect the result. Moreover, the number of companies used as samples are only 125 companies and more than half are dominated by 2 industries. Future research should focus on a more specific analysis on each industry, take consideration of macroeconomic factors, and take a longer time span for a more accurate result.

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