

The Best Indicator of Capital Structure to Predict Firm's Performance

Kristyana Dananti*

Faculty of Economics, Universitas Kristen Surakarta

Mardanung Patmo Cahjono*

Faculty of Economics, Universitas Kristen Surakarta

Mujiyono

Faculty of Economics, Universitas Kristen Surakarta

— *Review of* —
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The aim of this study is to find the model of capital structure influencing a firm's performance. The capital structure is proxied by Short Term Debt to Total Assets Ratio, Long Term Debt to Total Assets Ratio, Total Debt to Total Assets Ratio, Short Term Debt to Total Equity Ratio, Long Term Debt to Total Equity Ratio, and Total Debt to Total Equity Ratio. The firm's performance is measured by the Gross Profit Margin, the Net Profit Margin, the Return on Assets, the Return on Equity, the Current Ratio, the Quick Ratio, the Sales Growth, and lastly, the Stock Price. The result of the regression analysis shows that the Short Term Debt to Total Assets Ratio and the Long Term Debt to Total Assets Ratio are the best indicators of capital structure which significantly influence the firm's performance, as measured by the Current Ratio.

Keywords: indicator, capital structure, performance, regression

1. INTRODUCTION

Every firm, regardless of size, needs funds to function. Consequently the onus is on the financial managers to make the appropriate capital structure decisions. Capital structure decisions have a strategic role for the welfare and survival of the company. The selection of the firm's capital structure will determine the allocation of cash flows, which was derived from the creditors as well as the owners. In addition, the capital structure will affect the total market value of the company (Priya, et al, 2015; Hoque et al., 2014).

Determination of the capital structure can result in a complex situation. While generating capital via debts can leverage firm capabilities to get a return, which improve the welfare of the stakeholders, it also increases the risk of the firm due to the increased liability in the form of the interest payments and the principal installments. From the capital structure consideration, deciding on the capital structure decisions is no simple matter either. Depending on the country as well as on the industry, the relationships between the capital structure and the firm's performance will differ. Gill et al. (2011) concludes that there is a positive relationship between a well managed capital structure and the profitability of the company in the United States. This conclusion is also supported by Muritala (Nigeria, 2012), Ali, Zia and Razi (Pakistan, 2012), and Leon (Sri Lanka, 2013). However, Chinaemerem and Anthony (2012), as well as Arowoshegbe and Idialu (2013) concluded that in Nigeria, the converse applies. In a separate study, Kipesha and James (2014) argued for a negative trade-off between capital generation via debt and the corporate performance in Tanzania.

As such, it is necessary to do a separate research on the influence of the capital structure to the firm's performance in Indonesian economy in order to be able to provide a sound capital structure policy's planning.

2. THEORY AND HYPOTHESIS DEVELOPMENT

2.1. Capital structure

The decisions on capital structure, especially those related to capital generation will significantly affect the value of the company. Currently there are three major theories which are widely used as the basis for research in the field of capital structure, namely the trade-off theory, the pecking order theory, as well as the agency cost theory.

The trade - off theory attempts to achieve the optimal debt ratio by considering the costs and benefits of using debt to raise capital (Bradley et al., 1984). Meanwhile, the pecking order theory states that the company will prioritize to raise the capital internally. Only in the case that it is not feasible that the company will attempt to raise the capital externally, usually via issuing debt bonds (Brealey and Myers, 2003). At the other hand, the agency theory states that the decision on the capital structure depends strongly on the agency costs faced by companies. This theory assumes the debt has fixed obligations in the form of principal installments as well as the interest repayment which will be written against the company's cash flow. As such this will urge caution to the company managers when utilizing company resources (Jensen and Meckling, 1976).

In this research, the capital structure is proxied by the Short Term Debt to Total Assets (STD/TA) Ratio, the Long Term Debt to Total Assets (LTD/TA) Ratio, the Total Debt to Total Assets (TD /TA) Ratio, the Short Term Debt to Total Equity (STD/TE) Ratio, the Long Term Debt to Total Equity (LTD/TE) Ratio, and finally the Total Debt to Total Equity (TD/TE) Ratio.

2.2. The firm's Performance

Performance is defined as a result of a process. A measure of the firm's performance depends not only on the efficiency of the company itself but also depends on the markets where the company is operating. In the financial sector, a firm's performance is also termed as financial stability or financial health. There are several aspects that can give good indication of a firm's performance, namely the revenue, the return on equity, the return on assets, the profit margin, the sales growth, the capital adequacy, the liquidity ratios and the stock prices. Depending on the type of company, the financial ratios would be more impactful than others (Putra, et al., 2014). IGI Global (2016) argues in manufacturing firms, the asset turnover ratio and the inventory turnover are key ratios to monitor the performance of the company, whereas for financial institutions, the stock prices, cash flow, revenue and the operating profit are the key ratios to monitor the performance. In this study, the performance is evaluated via the Gross Profit Margin (GPM), Net Profit Margin (NPM), Return on Assets (ROA), Return on Equity (ROE), the Current Ratio (CR), Quick Ratio (QR), Sales Growth (SG), and Stock Prices (SP).

2.3. Hypothesis Development

Capital structure decision will yield a leverage ratio that improves the power of assets and equity through sales to get the gross profit margin as well as the net profit margin. As such, the profitability is inevitably affected by this capital structure. The presence of current liabilities (short term debt) in the capital structure affects the firm's

liquidity as measured by the current and quick ratio. The appropriate capital structure decisions will enhance the corporate value as reflected in the performance of the market which is subsequently measured by the stock price.

Some empirical studies demonstrated that the capital structure has a positive effect on the performance of companies in Jordan (Zeitun and Tian, 2007). On the other hand, Younus, et.al. (2014), concluded that there is a weak positive correlation between capital structure and corporate performance in Pakistan. This is further supported by Salim and Yadav (2012) who conducted research in Malaysia. However in Pakistan (Amjed, 2011; Muhammad, Shah and Islam, 2014); India (Jaisawal, Srivastava and Sushma, 2013); Jordan (Al-Taani, 2013); Kenya (Mwangi, Macau, and Kosimbei, 2014); Nigeria (Akeem, et.al., 2014) the capital structure has a negative effect on the performance of the company. Based on these studies, we propose the following hypothesis

Hypothesis null: indicator of capital structure hasn't influence to firm's performance in Indonesia.

3. RESEARCH METHOD

3.1. Population And Sample

The population observed in this study consists of the non banking companies registered in the Indonesia Stock Exchange (IDX) in the period of 2014-2015. As for the group of samples analyzed, we selected the 50 biggest market capitalization in IDX. The data required is reported in this study. Based on this criteria, a total of 31 firms was studied.

3.2. Method of Analysis

The regression method of data analysis was adopted in this study. To be specific, the Ordinary Least Square (OLS) technique was adopted. Science this study sets out to test indicator of capital structure influence to firm's performance. The regression analysis will provide the answer on the correlation level from each independent variable on the dependent variable. The multiple regression analysis used in this study is as follows:

$$GPM_{it} = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(1)$$

$$NPM_{it} = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(2)$$

$$ROA_{it} = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(3)$$

$$ROE_{it} = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(4)$$

$$CR_{it} = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(5)$$

$$QR_{it} = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(6)$$

$$LnSG_{it} = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(7)$$

$$SP = \alpha + \beta_1(LTD/TA)_{it} + \beta_2(STD/TA)_{it} + \beta_3(TD/TA)_{it} + \beta_4(LTD/TE)_{it} + \beta_5(STD/TE)_{it} + \beta_6(TD/TE)_{it} + \varepsilon_{it} \dots\dots\dots(8)$$

notes:

<i>GPM</i>	= <i>Gross Profit Margin</i>	<i>LDT/TA</i>	= <i>Long Term Debt to Total Assets Ratio</i>
<i>NPM</i>	= <i>Net Profit Margin</i>	<i>STD/TA</i>	= <i>Short Term Debt to Total Assets Ratio</i>
<i>ROA</i>	= <i>Return on Assets</i>	<i>TD/TA</i>	= <i>Total Debt to Total Assets Ratio</i>
<i>ROE</i>	= <i>Return on Equity</i>	<i>LTD/TE</i>	= <i>Long Term Debt to Total Equities Ratio</i>
<i>CR</i>	= <i>Current Ratio</i>	<i>STD/TE</i>	= <i>Short Term Debt to Total Equities Ratio</i>
<i>LnSG</i>	= <i>Logaritma linier Sales Growth</i>	<i>TD/TE</i>	= <i>Total Debt to Total Equities Ratio</i>
<i>SP</i>	= <i>Stock Price</i>	β_1, β_2, \dots	= <i>Regression Coefficient</i>
		β_6	
α	= <i>Constant</i>	ε_i	= <i>Standard error</i>

3.3. Ordinary Least Square (OLS) Regression Model Test

Multiple linear regression analysis based on the ordinary least square (OLS) must satisfy the assumptions of the classical regression model; that the residuals are normally distributed, free from multicollinearity, autocorrelation and heteroscedasticity phenomenon (Gujarati, 2015).

Normality test is a statistical tool to determine the distribution of residual data. If the asymp sig-two tailed Kolmogorov-Smirnov test > 5%, then the data distribution is normal. Multicollinearity is a condition in which it is evident that there is a strong correlation between two or more independent variables in the multiple regression model. If the Variance Inflation Factor (VIF) value > 10 or the tolerance value < 0.1, then there is a problem of multicollinearity.

Autocorrelation is the correlation between the residuals on one observation with another observation on a regression model. Autocorrelation test in the linear regression model should be done when using a time series data. Autocorrelation can be detected using various types of analysis, for example the Durbin Watson Analysis. Criteria for free from autocorrelation is $dl < DW < 4-du$ at $k =$ the number of the independent variables while $n =$ the number of samples.

Heteroscedasticity test is used to assess whether there is an inequality variance of residuals for all observations in a linear regression model. If the assumption of heteroscedasticity is not satisfied, then the regression model is not credible as a forecasting tool. Heteroscedasticity test can be done from the scatter plot between the standardized regression predicted values against the regression standardized residual. If the spread of the plot is random and does not adhere to a pattern then the data set does not satisfy the heteroscedasticity test.

4. RESULT

4.1. Ordinary Least Square (OLS) Regression Model Test

The normality test shows that the distribution of residuals data are normal. The asym-sig two tailed Kolmogorov –Sminov test have the value as follows,

Table 1.
Output Normality Test

Regression Model	The Asymp Sig-Two Tailed Kolmogorov-Smirnov Test
1.	0.535*
2.	0.049*
3.	0.093*
4.	0.011**
5.	0.058*
6.	0.016**
7.	0.220*
8.	0.198*

**Significant at 1%

*Significant at 5%

Source: SPSS output, processed secondary data

Multicollinearity test shows that there are no multicollinearity problem at the LTD/TA Ratio, the STD/TA Ratio, and the TD/TE Ratio. However, there is a multicollinearity problem at the STD/TE Ratio. The problem occurs because the existence of looping of independent variables within the model. For the next, the STD/TE Ratio can be removed from the model.

Table 2.
Output Multicollinierity Test

Independent Variable	Collinearity Statistics	
	Tolerance	VIF
LTD / TA	.118	2.520
STD / TA	.397	8.488
STD / TE	.096	10.366
TD / TE	.244	4.106

Dependent Variabel: GPM, NPM, ROA, ROE, CR, QR, LNSG, SP

Excluded Independent Variable: TDTOTA, LTDTOTE

Source: SPSS output, processed secondary data

The resulting heteroscedasticity test shows a scatter plot (see Fig. 1) that has a wide spread and does not conform to a certain pattern. This indicates there is no a heteroscedasticity problem.

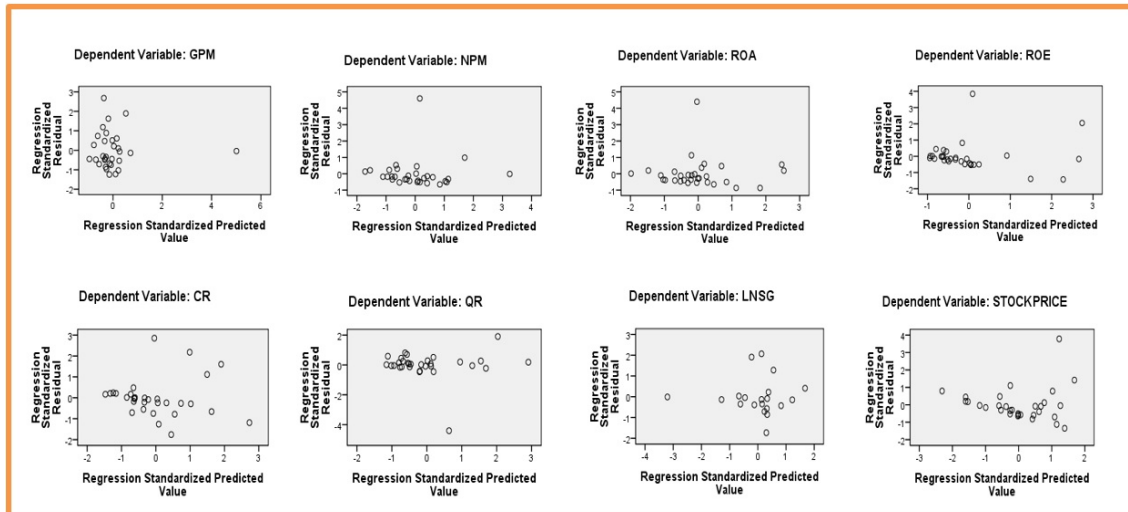


Figure 1. Scatter Plot of Heteroscedasticity Test

Based on the value of $k = 4$, $n = 31$ and $\alpha = 5\%$ then the value of $d_l = 1.1602$, while the value of $d_u = 1.7386$. With the Durbin Watson (DW) statistic value at tabel 3 as follows,

Tabel 3.
Output Autocorrelation Test

Dependent Variable	Durbin Watson Value	Autocorrelation
GPM	1.517	Inconclusive
NPM	2.034	No
ROA	2.424	No
ROE	2.483	No
CR	1.805	No
QR	1.918	No
LNSG	1.647	Inconclusive
SP	2.034	No

Source: SPSS output, processed secondary data

4.2. Regression Analysis

This study aims to examine the effect of the capital structure on the firm's performance, as well as to identify the indicator in the capital structure which has the most dominant influence on the financial performance of companies in various non-Banking industries in Indonesia. The Ordinary Least Square (OLS) result obtained from the analysis is as follows:

Tabel 4.
Predictor of Firm's Performance

Details	GPM	NPM	ROA	ROE	CR	QR	LnSG	SP
Constant	0.439	0.176	0.176	0.026	6.918	3.994	26.805	25011.42
p value	(0.002)*	(0.383)	(0.230)	(0.948)	(0.000)*	(0.005)*	(0.000)*	(0.029)*
LTD/TA	-0.017	0.289	-0.0183	0.024	-6.538	-5.843	-0.772	-76874.11
p value	(0.961)	(0.599)	(0.644)	(0.983)	(0.013)*	(0.117)	(0.756)	(0.015)*
STD/TA	-0.499	-0.036	0.035	0.509	-18.234	-9.282	7.969	28529.01
p value	(0.508)	(0.975)	(0.967)	(0.825)	(0.002)*	(0.232)	(0.318)	(0.651)
TD/TA				Excluded Variable				
LTD/TE				Excluded Variable				
STD/TE	0.077	-0.028	0.067	0.465	2.743	1.297	-1.651	-12824.64
p value	(0.730)	(0.935)	(0.787)	(0.497)	(0.086)	(0.568)	(0.444)	(0.493)
TD/TE	0.030	0.003	-0.003	0.008	-0.137	0.117	0.048	4496.70
p value	(0.397)	(0.953)	(0.933)	(0.941)	(0.582)	(0.747)	(0.854)	(0.138)
R	0.417	0.196	0.250	0.488	0.725	0.379	0.545	0.493
R ²	0.174	0.038	0.062	0.238	0.526	0.143	0.297	0.243
F Value	1.368	0.258	0.432	2.029	7.219	1.088	1.581	2.091
p value	(0.272)	(0.902)	(0.784)	(0.120)	(0.000)*	(0.383)	(0.231)	(0.111)

Source: SPSS output, processed secondary data

* : Significant at $\alpha = 5\%$

Result of the OLS estimation technique shows the coefficient of determination (R^2) of the model where CR as the dependent variable is $R^2 = 0.526$. This translates to about 52.6% of systematic variation in the dependent variable (the firm's performance) can be explained from the variation of its independent counterpart (the capital structure). The F-test which measures the existence of a linear relationship between the dependent and independent variable reveals that a significant relationship exists between the variables. The F-value of 7.219 is higher than the critical F value at 5% level of significance. This indicates that the indicators of capital structure do influence firm's performance.

Analysis of Long Term Debt and the Total Assets (LTD/TA) Ratio as proxies of the capital structure and Current Ratio (CR) as proxies of the firm's performance shows that a significant negative relationship exists as indicated by the p value of the t-ratio estimates is smaller than 5% level of significance. This indicates that as LTD/TA ratio decreases by 1 point, the firm's performance increases by 6.538 point.

The result also suggests that a significant negative relationship exist between the Short Term Debt and the Total Assets (STD/TA) Ratio as the proxies of capital structure with the Current Ratio as the proxies of the firm's performance given that the p-value is smaller than the 5% level of significance threshold. This indicates that as STD/TA ratio decreases by 1 point, the firm's performance increases by 18.234 point.

At the other hand, the regression model with the stock price (SP) as the dependent variable has the $R^2 = 0.243$, which means that about 24.3% of systematic variation in the dependent variable (firm's performance) can be explained by the independent variable (capital structure) variation. The F-value of 2.091 is smaller than the critical F value at 5% level of significance. This indicates that there is not enough evidence to accept that the indicators of capital structure analysed influence firm's performance.

However, the analysis of the parameters estimates and their t- ratio, which are indicative of the individual statistical significance of the explanatory variable, shows

that a significant negative relationship exists between the Long Term Debt to Total Assets (LTD/TA) Ratio as the proxies of the capital structure and the Current Ratio as the proxies of the firm's performance given that the p-value is smaller than the 5% level of significance threshold value. This indicates that as LTD/TA ratio decreases by 1 point, the firm's performance increases as the proxies stock price increases by Rp76,874.11.

Futhemore, the result also shows that there is not enough evidence to accept that a significant positive relationship exists between the Short Term Debt to Total Assets (STD/TA) Ratio as the proxies of the capital structure and the stock price as the proxies of the firm's performance given that the p-value is higher than the 5% level of significance threshold value. As such, the regression coefficients can not be interpreted.

5. CONCLUSION, IMPLICATION, LIMITATION AND SUGGESTION

5.1. Conclusion and Implication

Regression model with GPM, NPV, ROA, ROE, CR, LnSG as the proxy for the firm's performance can not be predicted with the capital structure indicator that was analyzed which shows small value of R^2 . Based on regression analysis, the STD / TA Ratio and the LTD / TA Ratio are the best indicators of capital structure that significantly affect the firm's performance as measured by CR. Taken together, STD / TA Ratio , LTD / TA Ratio, STD / TE Ratio, TD / TE Ratio significantly influence the CR. Hence, this study accept the hypothesis that the indicator of capital structure has influence on the firm's performance.

The result have implication that partially, the STD / TA Ratio and LTD /TA Ratio as the indicator of capital structure can be used to predict the firm's liquidity as the firm's performance indicator in Indonesia. As such, the investors can identify the amount of leverage utilized by a specific company and compare it to the leverage used by other companies to help analyze the company's risk exposure; generally, the companies that finance a greater portion of their capital with debt are considered riskier than those companies who do not rely on debts as much. The value of the short-term debt account is very important when determining a company's performance. If the account is larger than the company's cash and cash equivalents, it can be concluded that the company may be in a poor financial health and does not have enough cash to pay off its short-term debts.

The STD / TE Ratio, TD / TE Ratio are another leverage ratio that compares a company's current liability to the total shareholder's equity and the total liabilities to the total shareholders' equity. This is a measurement of how much suppliers, lenders, creditors and obligors have committed to the company versus what the shareholders have committed. To a large degree, the debt-equity ratio provides another vantage point on a company's leverage position. In this case, comparing the total liabilities to the shareholders' equity, as opposed to total assets in the debt ratio. Similar to the debt ratio, a lower percentage means that a company is using less leverage and has a stronger equity position. Partially, STD/TE Ratio and TD/TE Ratio do not significantly affect the firm's performance. Nevertheless, STD/TA Ratio, LTD/TA Ratio, STD/TE Ratio, TD/TE Ratio have significant influence on the CR.

5.2. Limitations

This study has several limitations that can be improved upon by future studies. The limitations are: (1) adjusted R square value is 52.6%, which means the ability of independent variable to explain dependent variable is moderate, there are 47.4% to be explained from other independent variables that can be added to the model. (2) There is a multicollinearity problem at the STD / TE Ratio. (3) There are inconclusive of autocorrelation at the GPM and LNSG as dependent variable.

5.3. Suggestions

Based on the description of limitations, we offer the following suggestions on future studies. Firstly, we need to include other variables as the optimal capital structure classification. This hopefully will improve the ability of independent variables to explain the dependent variables. Secondly, the multicollinearity problem can be avoided by eliminating the corresponding variables in this problem or by increasing the amount of data to be observed. Thirdly, future study have run test to get better result of autocorrelation test.

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