

Speed of Leverage Adjustment (A Study on Manufacture Companies Listed in Indonesian Stock Exchange)

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Abstract

This study aimed to test the speed of adjustment of manufacturing companies listed in Indonesia Stock Exchange (BEI) in the period 2010-2014, particularly in terms of testing the factors that affect the speed of adjustment toward target leverage. Based on the dynamic trade-off theory, companies adjust the leverage to the optimum level, which is predicted to advance the target company's leverage and speed adjustment is calculated using the partial adjustment models. After that, testing is done using five independent variables (profitability, company size, growth, distance, and current liabilities) and the dependent variable is the speed of adjustment. This study used a sample of 66 manufacturing companies to form 330 observations (panel data), using census method. Analysis of panel data regression results show that the profitability variable has a positive influence on the speed of adjustment, but not significant, while the variable firm size, distance, and current liabilities are negatively and significantly influence the speed of adjustment, as well as variable growth of the company shows positive and significant impact on the speed of adjustment. The average adjustment leverage manufacturing company in Indonesia is still very slow, at 4.5% per year. The suggestion which may be given to companies is company funding policy must be considered so that companies can immediately adjust their leverage levels, so that companies can minimize cost to be borne by them and avoid potential bankruptcy and reduction of value of company.

Keyword : Leverage, speed adjustment, Profitability, Company Size, Growth Company, Distance, and Current Liabilities.

1. Introduction

Capital structure is the balance of long term funding of a company shown by comparison of long term debt with owner's equity. Optimal capital structure of a company is defined as a capital structure which will maximize the stock price of the company and minimize cost of capital (Brigham and Houston, 2014). Capital structure theories describe that appropriate capital structure can influence value of company, so that financial manager is demanded to work hard to achieve a combination, which will be the target of company's leverage. Pecking order theory shows

that there is certain hierarchy in funding decision by company, so that the company doesn't have to pay attention to optimal capital structure, which will be inappropriate in the long term because it doesn't describe cost to be borne by the company if it's not in optimal capital structure. Overall, trade-off theory shows that company should balance benefit and cost due to debt usage, so company should have target leverage. Graham and Harvey (2001) perform a survey which shows that 81% sample companies in their study consider target leverage when making funding decisions. The main purpose of the companies in determining debt policy isn't only to minimize weighted average cost of capital but also to reach financial flexibility.

In dynamic approach, the actual leverage at a time isn't the same as targeted leverage. Targeted leverage is specified and predicted. Targeted leverage depends on characteristics of company and also can change due to change of external factor. Dynamic approach is performed by seeing the direction of change and the speed of company in reaching its optimal leverage, which is known as adjustment speed. Adjustment speed of company considers cost of adjustment spent by the company compared with loss when the company's leverage deviates from its target. Company may leave its capital structure at the current leverage level and not adjust to targeted leverage due to adjustment cost. If adjustment cost exceeds benefit, company will delay recapitalization, increasing the distance toward targeted leverage (Leary and Roberts, 2005).

Beside knowing targeted leverage, company must know when to change its capital structure or how fast it react to any condition faced by the company by adjusting capital structure to its target leverage. Factors determining adjustment speed are also important for company to decide the right time to adjust leverage. Faster adjustment by company signals low recapitulation cost, optimal overall cost of capital and financial flexibility (Camara, 2012).

Manufacture sector is the main pillar of industrial development in every country, including Indonesia. The capital structures of manufacturing companies in Indonesia are still dominated by debt than owners' equity. Debt usage can increase value of company but can also increase potential for bankruptcy, which can reduce the value of company. Therefore, manufacturing companies should pay attention to appropriate funding policies to increase the values of their companies. Originality for this paper shows: *partial adjustment model* (PAM) Speed of Leverage Adjustment (A Study on Manufacture Companies Listed in Indonesian Stock Exchange). Location of study: auditor in Jakarta, Indonesia.

2. Literature Review

Dynamic trade-off theory states that optimal capital structure of company is constantly adjusted and is a function of exogenous and endogenous factors of change (Getzmann *et al*, 2010). Fischer *et al* in Getzmann *et al* (2010) formulates a dynamic capital structure choice theory with cost of adjustment and finds evidence that specific effect of company is related with its debt level. Cost of adjustment is the reason company doesn't fully adjust to its target leverage ratio. In the dynamic approach, actual leverage at a time isn't the same as targeted leverage.

Dynamic approach is performed by seeing the direction of change and the speed of company in reaching its optimal leverage, which is known as adjustment speed. Adjustment speed is speed of balancing capital structure at targeted leverage level (Surwanti, 2015). Targeted leverage level varies, enabling deviation between target leverage

and observed leverage (Heshmati, 2001).

Flannery and Hankins (2007) in their study reveal that adjustment speed slows due to higher cost of adjustment, and adjustment speed accelerates when it's predicted that deviation will have bigger impact of cost. Mitani (2007) assumes that cost of adjustment toward targeted leverage level comes from additional cost of external funding required by company for adjustment, such as costs of legality and company administration, and bank fee.

Drobtz and Wanzenried (2006) prove that the adjustment speed of non-financial companies in Switzerland is influenced by the amount of deviation of capital structure to target. This study also shows that variables of character of company and macroeconomic condition of Switzerland influence the adjustment speed of the capital structures of the companies, in which adjustment speed will be higher in good economic condition.

Kim *et al* (2006) study the dynamic capital structures of 617 manufacturing companies in Korea listed in KIS2003 in 1985-2002 period. Their research result shows that manufacturing companies in Korea make bigger adjustments of their capital structures after the crisis in 1997 and start to use internal funding than debt. Their research result also shows that variables current liabilities, distance, dan investment positively influence adjustment speed, while variables crisis and trend have negative effects.

Surwanti (2015) study the adjustment speed of non-financial companies listed in Indonesian Stock Exchange in 2001-2011 period. Companies in Indonesia adjusted to targeted leverage and their adjustment speed is around 41,25% per year. The research result shows that variables distance, size, and underleverage condition have negative effect on adjustment speed, while variables profitability and interest rate have negative but insignificant effect. Positive effect of adjustment speed is shown by variable company growth, economic growth (growth of Gross Domestic Product/GDP), and good macroeconomic condition.

Faster adjustment by company signals low recapitulation cost, optimal overall cost of capital and financial flexibility (Camara, 2012).

3. Data Sample, Variables, and Methods

3.1 Data and Sample

This study used panel data from 66 manufacturing companies listed in Indonesian Stock Exchange in 2010-2014 period. Sampling was performed using census method with population criteria (1) company never delisted during the observation period, (2) audited financial statement, and (3) positive EBIT.

3.2 Variables and Methods

The analysis method used in this study was panel data regression, where the selected model was taken from Likelihood Ratio (Chow Test) and Hausman's Test.

The variables used to predict target leverage were leverage measured from ration of long-term debt to total asset as the dependent variable, while the independent variables were Basic Earning Power which is company profitability measured from EBIT/total asset, TANG or tangibility measured from fixed asset/total asset, SIZE or company size based on total asset measured from LnTA, GROWTH or growth of company asset, and NDTs or non-debt tax shield measured from depreciation/total asset.

The variables used to test factors influencing company were Basic Earning Power which is company profitability measured from EBIT/total asset, SIZE or company size based on total asset measured from LnTA, GROWTH or growth of company asset, DIST is the gap between actual leverage and target leverage, and CL is ratio of current liabilities to total company debt.

4. Model Analysis and Research Hypothesis

4.1 Model Analysis

To obtain the estimated value of the speed of adjustment is done by manufacturing companies in Indonesia Stock Exchange period 2010 to 2014, then performed a panel regression using inventory adjustments (stock adjustment), also known as partial adjustment model (model of partial adjustment). The test is conducted by linking leverage on leverage a certain period in the previous period and leverage targeted or predictive leverage. Prediction leverage targets using an equation adapted from Wetty (2013) the following:

$$LV_{it}^* = \alpha_0 + \alpha_1 BEP_{it} + \alpha_2 TANG_{it} + \alpha_3 SIZE_{it} + \alpha_4 GROWTH_{it} + \alpha_5 NDTs_{it} + \mu_{it} \dots(1)$$

Where Leverage is the ratio of long-term debt to total assets, BEP (basic earning power) is profitability, TANG is tangibility, SIZE is the size of the company based on total assets, GROWTH is the growth of the company's assets, and NDTs are non-debt tax shield.

Once the target leverage predictive done, it can estimate the value of the speed of adjustment to the method of partial adjustment model (PAM), which was adapted from Drobetz and Wanzenried (2006) the following:

$$LV_{i,t} - LV_{i,t-1} = \delta_{i,t} (LV_{i,t}^* - LV_{i,t-1}) \dots(2)$$

By substituting the equation (1) to the equation (2), then the equation:

$$LV_{it} = (1 - \delta_{it})LV_{it-1} + \delta_{it}LV_{it}^* + \varepsilon_{it} \dots(3)$$

δ_{it} a parameter adjustments made by the company. δ_{it} represents the magnitude of the adjustment between two different time periods, or can we conclude that the equation (3) is designed to capture the speed of change from the previous year's target debt ratio.

If $\delta_{it} = 1$ or 100%, meaning capital structure adjustment is done quickly, which is done in the span of one period. If the results show $\delta_{it} < 1$ or <100%, means adjustments made by the company are not optimal, so are not on target leverage. The results of calculations can also show $\delta_{it} > 1$ or > 100%, meaning that the adjustments made by the company more than expected, so the company needs to make adjustments again, because it has not at the level of the target debt ratio. But if the calculations there is a negative sign $\delta_{it} < 0$, Saadah and Prijadi (2012) explains that there is a reversal that is a response to the current leverage position

After obtaining the estimated value of the speed of adjustment, then testing the factors that affect the speed of adjustment to the following equation:

$$\delta_{it} = \beta_0 + \beta_1 BEP_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 DIST_{it} + \beta_5 CL_{it} + \mu_{it} \dots(4)$$

Where δ_{it} is the speed of adjustment, BEP (basic earning power) is a profitability measure of EBIT / Total Assets, SIZE is the size of the company based on total assets (LnTA), GROWTH is the growth of the company's assets, DIST is a gap between leverage actual and target leverage, and CL is the ratio of current liabilities to total debt of the company.

4.2 Research hypothesis

This study was focused on factors influencing leverage adjustment speed of company. The research hypotheses were: H1: The higher the profitability of company, the lower the leverage adjustment speed of company. Companies with high profit rate tend to be more comfortable to be in non-targeted capital structure than making adjustment of capital structure due to risk of declining value of company as a result of asymmetric information. Company may make adjustment if it's condition deviates by far (risk of asymmetric information equal to benefit of adjusting capital structure) from targeted capital structure. Conversely, companies with low profit rate will try to make adjustment of capital structure faster due to lower burden to adjust capital structure.

H2: The bigger the company size, the lower the leverage adjustment speed of company. Big companies tend to use more expensive public debt, so in adjustment they reduce debt usage by reducing debt level and choosing to use equity. Big companies also may have bigger internal capital, so debt level is reduced using internal funding.

H3: The higher the company growth level, the higher the leverage adjustment speed of company. Growing companies more easily change their capital structure compositions than companies without growth or with small growth. Companies with opportunity to grow or large growth more easily get regular external funding, so the cost to get additional capital is lower.

H4: The further the distance between target leverage and actual leverage, the higher the leverage adjustment speed of company. When capital structure of company isn't at its target, there will be costs (bankruptcy cost and financial distress) to be borne by the company. Therefore, the further the distance (deviation) between actual and target capital structures, the higher the cost borne by company. This motivates company to accelerate adjustment.

H5: The higher the current liabilities ratio of company, the higher the leverage adjustment speed of company. Company with bigger short term debt than long term debt has ability to more easily and quickly adjust to new leverage level than company with smaller short term debt than long term debt. Current liabilities can be fulfilled more easily and quickly than non-current liabilities, because the burden is borne by company in short term, so the company can more easily get additional credit from external party to reach its target capital structure.

5. Results and Discussion

The descriptive statistics of variables used to test the hypotheses are:

Tabel 1. descriptive statistics

Variable	Min.	Max.	Mean	Std. Dev
Speed Adjustment (SOA)	-0.106	0.190	0.045	0.105
profitability (BEP)	0.001	0.856	0.152	0.130
Company size (<i>Size</i>)	25.083	33.095	28.376	1.586
Company growth (<i>Growth</i>)	-0.214	0.854	0.161	0.157
<i>Distance</i> (DIST)	1.152	4.805	2.560	0.707
<i>Current Liabilities</i> (CL)	0.218	0.990	0.714	0.177

Based on Table 1 above, the average leverage adjustment speed of manufacturing companies in Indonesia in 2010-2014 period was 0.045 or 4,5% per year (SOA<1, SOA<100%), so it's concluded that the adjustment made by manufacturing companies in Indonesia was still very slow. This might be due to slowing global economy, lowering the performance of manufacturing companies in Indonesia, so the companies were trapped in certain funding patterns to maintain financial stability and value of company.

Saadah and Prijadi (2012) state that negative adjustment value shows a reversal, which is a response of current leverage position. Positive and negative signs during the observation period also show that, firstly, company might not have any target leverage ratio to reach so there was no clear adjustment pattern to capture, secondly, company had target leveragebut was trapped in time and cost consideration in the adjustment process.

The hypothesis test of the study on factors influencing leverage adjustment speed of manufacturing companies in Indonesia used fixed effect model(FEM). Model Fixed Effect was selected from using Likelihood Ratiotest and Hausman test (appendix Tables 5 and 6). The result of the test on factors influencing the leverage adjustment speed of manufacturing companies in Indonesia is presented in the following table:

Table 2.Factors that affect the speed of adjustment of leverage.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	68.60371	5.886507	11.65440	0.0000
BEP?	0.011001	0.085964	0.127976	0.8983
SIZE?	-47.49389	4.114504	-11.54304	0.0000
GROWTH?	0.860646	0.386361	2.227573	0.0269
CL?	-1.059728	0.349517	-3.031981	0.0027
DIST?	-5.769160	1.675035	-3.444202	0.0007
R-squared	0.929025	F-statistic		48.06315
Adjusted R-squared	0.909696	Prob(F-statistic)		0.000000

Based on the regression results of variables profitability, company size, company growth, distance, and current liabilities on adjustment speed presented in table 2 above, the following multiple regression equation model is formulated:

$$SOA = 68.604 + 0.011 BEP - 47.494 SIZE + 0.861 GROWTH - 5.769 DIST - 1.060 CL$$

Based on the model test results that have been obtained, it can be presented a summary of hypothesis testing as follows:

Table 3. hypothesis summary

Influence	Hypothesis	Result	Significant	Information
BEP → SOA	-	+	Non Significant	H1 reject
SIZE → SOA	-	-	Significant	H2 accept
GROWTH → SOA	+	+	Significant	H3 accept
DIST → SOA	+	-	Significant	H4 reject
CL → SOA	+	-	Significant	H5 reject

The research result showed that bigger the profit rate received by company didn't influence the adjustment speed of the company. This didn't confirm the first hypothesis that the higher the profitability, the lower the adjustment speed. Profitability which didn't significantly influence adjustment speed might be due to adjustment cost consideration by company. The cost borne by company if it wasn't at its targeted leverage level might be lower than the cost borne in the company made any adjustment, so the amount of profit rate of the company didn't influence the leverage adjustment speed of the company. Myers (1984) assumes that the insignificance of the influence of profitability on the leverage adjustment speed of company also rises another possibility that the condition of manufacturing companies in Indonesia is still stuck in "neutral mutation," which refers to certain funding patterns or habits.

The research result showed that company size had negative and significant influence on adjustment speed. It confirmed the second hypothesis that the bigger the company size, the lower the adjustment speed. Flannery and Rangan (2006) state large companies tend to use more expensive public debt, so in adjusting the companies reduce their debt usage by reducing debt level and prefer to use their equities. Moreover, large company may have large internal capital, so debt level is reduced using internal funding.

The research result showed that company growth had positive and significant influence on adjustment speed. It confirmed the third hypothesis that the higher the company growth, the higher the adjustment speed. Growing companies or companies with high growth more easily changed their capital structures than companies that didn't grow or had small growth. It's because company with high growth has financial flexibility, were the company can choose its funding alternative. Surwanti (2015) also describes that companies with high growth tend to more easily change their capital structures by changing the new capital compositions they get. Moreover, companies with high growth more easily get regular external funding.

The research result showed that distance had negative and significant influence on adjustment speed. It didn't confirm the fourth hypothesis that the further the distance between target leverage and actual leverage, the higher the adjustment speed. Surwanti (2015) argues that slow adjustment may be because company needs to adjust its internal funding through dividend policy. If fixed cost in adjustment is high and process in adjustment is considered less beneficial for company, the company may make adjustment without making any external transaction in capital market, so adjustment to targeted leverage level is performed internally through dividend policy.

This research result showed that current liabilities negatively influenced adjustment speed. It didn't confirm the fifth hypothesis that the higher the current liabilities of company, the higher the adjustment speed. It could be due to high transaction cost borne by company to reduce its current liability ratio compared with the cost borne by the company if it wasn't in the targeted debt ratio level. Moreover, this could be because company should slowly adjust by reducing its long term debt ratio and fulfilling unmet funding needs through equity, issue of shares or usage of internal fund, so later the company slowly could reduce its short term debt level.

6. Conclusion

The average adjustment of manufacturing companies in Indonesia was still very slow, i.e. 4,5% per year. This might be due to slowing global economy, lowering the performance of manufacturing companies in Indonesia, so the companies were trapped in certain funding patterns to maintain financial stability and value of company.

The research results showed that profitability had positive but insignificant influence on adjustment speed. It might be because the condition of manufacturing companies in Indonesia was still stuck in "neutral mutation," which refers to certain funding patterns or habits. Negative and significant influence on adjustment speed was shown by variables company size, distance, and current liabilities, while positive and significant influence was shown by variable company growth. The suggestion which may be given to companies is company funding policy must be considered so that companies can immediately adjust their leverage levels, so that companies can minimize cost to be borne by them and avoid potential bankruptcy and reduction of value of company.

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