Capital Structure Adjustment Speed: Evidence From Indonesian Property, Real Estate, and Construction Building Firms

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ARTICLE INFORMATION

ABSTRACT

This study examines the capital structure based on dynamic trade-off theory in property, real estate, and construction building companies in Indonesia. We have used a data panel from 17 companies over the years 2018 to 2021. There are two stages of testing in this study. First, we estimate the target leverage using Random Effect Model and then find the capital structure adjustment speed using Fixed Effect Model. The results of this study prove that profitability has a negative and significant effect on the company's capital structure, firm size has a positive and significant effect on the company's capital structure, while growth does not influence it. This study also revealed that property, real estate, and construction building companies in Indonesia adjusted their capital structure toward optimal capital structure, where the adjustment speed was 25% per year or took 4 years to achieve their optimal capital structure. This study suggests government policies encouraging people's purchasing power to support economic recovery.

Keywords: Capital Structure, Dynamic Trade-Off Theory, Firm Size, Growth, Profitability, Speed of Adjustment.

INTRODUCTION

Capital structure is a critical funding policy for companies to maximize company value. Riyanto in Hermuningsih (2013:133) explained that the capital structure is part of the financial structure that reflects the balance between the external capital and the amount of own capital.

Generally, companies study the situation, draw conclusions about the optimal capital structure, and determine a target capital structure. If the company's actual capital structure is below its target, the company will raise capital through external financing. However, if the company's actual capital structure is above its target, the company will prefer to use equity (internal financing).

When a company chooses to use debt, it gains tax benefits (Menacer et al., 2019:69). In addition to tax utilization, creditors also do not have voting rights. However, the use of debt also has several disadvantages, namely having a repayment maturity, a high debt ratio will pose a risk of bankruptcy, and the risk of liquidation if the company's profit cannot meet the cost of principal or interest on the debt.

Companies can also choose funding policies from their internal financings, such as share capital, retained earnings, and capital reserves. However, internal funding sourced from the sale of shares will affect the shareholding portion, which also impacts the voting rights of the majority shareholders. Effective capital structure management can provide the availability of funds to support the company's growth and improve the company's financial performance (Simiyu et al., 2017:29).

Previous research on the structure of capital presented two grand theories on which capital structure research has been based to date, namely Trade-off Theory and Pecking Order Theory. The development of leverage that occurs from time to time becomes the pioneer of the development of trade-off theory into dynamic trade-off theory.

Dynamic trade-off theory explains that the company adjusts its capital structure over time towards its optimal capital structure. However, in practice, the company must face adjustment costs so that the adjustment process is not carried out in full on its target leverage ratio (optimal capital structure). The costs that the company must incur to balance the leverage affect the speed of adjustments made by the company.

Pecking Order Theory assumes that companies have a hierarchy of funding decisions: choosing internal funding first and then external funding (Saputra et al., 2015:57). The internal financing deficit becomes the basis for the company to use external financing.

Research by Surwanti (2015) on non-financial companies listed on the Indonesia Stock Exchange shows that the company's optimal leverage is influenced by several variables of company characteristics. In addition, non-financial companies in Indonesia make adjustments to their capital structure towards an optimal capital structure with an adjustment speed of 41.25% every year. It means that non-financial companies in Indonesia need 2.4 years to achieve their optimal capital structure.

Mawitjere (2016) also researched the speed of adjustment of capital structure in manufacturing companies in Indonesia from 2010-2014, where the results showed that

the speed of adjustment of manufacturing companies in Indonesia was an average of 3.3% annually.

The results of research by Memon et al. (2015) on 90 companies in Pakistan show that the characteristics of the company and macroeconomic factors affect the optimal leverage of the company, and the speed of adjustment of its capital structure is about 60% per year or takes less than 2 years to achieve its optimal capital structure.

Research conducted by Saadah & Prijadi (2012) on manufacturing sector companies shows that the speed of adjustment of companies in each subsector is different. Their study also revealed that trade-off and market timing theories are fundamental theories in explaining the behaviour of the capital structure of manufacturing companies in Indonesia.

Previous studies conducted in Indonesia have shown that companies in Indonesia have an optimal capital structure and make adjustments to their capital structure from time to time. Still, no recent research has been conducted on capital structure adjustments during the Covid-19 pandemic. Therefore, this study was conducted to see how quickly companies in Indonesia made adjustments to their capital structure by including the research period during the Covid-19 pandemic.

However, this research is limited to the Property, Real Estate, and Building Construction subsectors. The selection of this subsector is interesting because the company's performance in this subsector was greatly affected by the Covid-19 pandemic but was able to survive due to government incentives and a substantial need for buildings for housing, storage/warehouse space, and the construction of communication facilities and activities supporting community activities.

LITERATURE REVIEW

The Optimal Capital Structure

Modigliani & Miller (1958) explain that if there is a capital structure targeted at the company, it indicates that there are imperfect market conditions. Market imperfections vary between times and can be caused by the company's internal and external factors. Various established capital structure theories explain the ratio of targeted debt between companies applied in a static approach, using the observed debt ratio as a proxy for the company's target leverage ratio. This ratio of target leverage becomes the company's optimal capital structure.

The capital structure in the static approach does not explain the target debt ratio that is the reference for the optimal capital structure of the company, so the static method can only describe the actual capital structure. In capital structures that use a dynamic approach, the actual leverage at a time cannot be the same as the targeted leverage. This targeted leverage is specified and estimated. To obtain target leverage, the company needs to know the factors from within the company that can affect the capital structure.

Mawitjere (2016) uses company characteristic factors to estimate the target leverage, which is the optimal capital structure, namely profitability, size, tangibility, growth, and current liabilities. Research that uses company characteristics as dependent variables to estimate the optimal capital structure was also conducted by Mihalca (2011). The

results showed that the profitability variable significantly negatively affects leverage, and the *size* variable positively affects *leverage*. In contrast, the growth variable does not significantly influence the *l*everage variable. Research results from Albart *et al.* (2020) also use *the variables of profitability* and *firm size* in testing the optimal capital structure of the company, where the variable profitability does not affect *leverage* while the *variable firm size* significantly has a positive influence on *leverage*.

In this study, the concept used to determine *target leverage* is to use the company's characteristic factors, namely *profitability*, *firm size*, and *growth*, while the debt to equity ratio is a proxy of the target leverage. Therefore, the first hypothesis to estimate the *target leverage* in this study is as follows:
H1a : The Company's profitability affects leverage.
H1b : Company size affects leverage.
H1c : The Company's growth affects leverage.

Capital Structure Adjustment Speed
In addition to knowing the target leverage, the company needs to know how quickly the company reacts by making adjustments to the capital structure when there is a change to its leverage target; in other words, the company must know when it is necessary to make changes in the capital structure.

A dynamic approach is carried out by looking at the direction of change and how quickly the company reaches its leverage targets, which is known as the speed of adjustment of the capital structure. The speed of adjustment of the capital structure will show different results at each enterprise and at different periods, even at different levels of development of the country's economy.

Nosita's research (2012) shows that companies in Indonesia adjust their capital structure with an estimated adjustment speed value of 0.4078 or 40.78%, meaning that companies in Indonesia need 2.45 years to make optimal adjustments to the capital structure. Mawitjere et al. (2016) also researched the capital structure speed adjustment, which is more specific to manufacturing sector companies. The results of his research show that the adjustments made by manufacturing sector companies are still very slow, which is 4.5% per year. The results of this study are supported by Kewal (2019), which states that manufacturing and property companies in Indonesia make adjustments to the capital structure, but at a very slow pace, which is 12.8% annually or takes 7.81 years to achieve optimal capital structure adjustments. Based on this research, the second hypothesis in this study is:

H2 : Firms in Property, Real Estate, and Construction Building adjust the capital structure towards an optimal capital structure.

Based on the explanation and formulation of hypotheses, this research model can be seen in Figure 1.

Figure 1. Research Framework
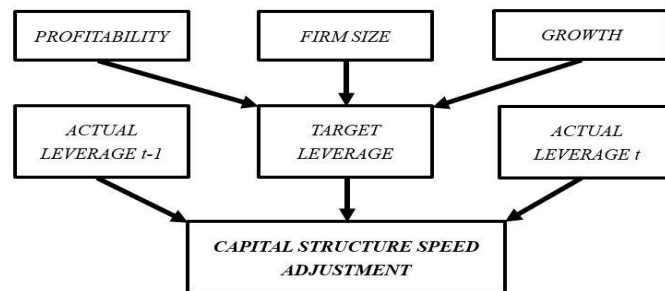
RESEARCH METHOD

This study uses panel data from the *property*, *real estate*, and *construction building* sub-sector companies listed on the Indonesia Stock Exchange from 2018-2021. The sampling technique uses the purposive sampling method, namely with the criteria for financial statements using rupiah currency, the IPO (*Initial Public Offering*) date before the observation period, and having complete financial statement data according to the proxies used in this study. The data sources in this study were obtained from www.testing.idx.id and www.finance.yahoo.com.

This research consists of two stages. The first stage is to determine the estimated leverage target using the variables of profitability, size, and growth. The second stage determines the capital structure adjustment speed that estimates using the variable target leverage and leverage of the previous year. In addition, after finding the value of the target leverage, the first stage of testing is also carried out to answer the first hypothesis.

The first hypothesis testing of this study refers to the research of Albart et al. (2020), where the dependent variable used is *leverage* with a proxy *debt to equity ratio* (*Total Debt / Total Equity*). The first independent variable in the first hypothesis test is *profitability* which is calculated by *Earnings Before Interest and Taxes* (EBIT) / *Total Assets*. The second independent variable to test the first hypothesis of this study is *Firm Size*, where *the Natural Logarithm of Total Assets* (Ln *Total Assets*) is a proxy for *firm size*. Furthermore, the *Growth* variable is the third independent variable in the first hypothesis test that we use the growth of company assets over time. The use of proxies on each of the independent variables to test the first hypothesis is based on the research of Mihalca (2011), Nosita (2012), Surwanti (2015), Mawitjere (2016), and Albart et al. (2020).

Furthermore, the second hypothesis test in this study used the firm's actual leverage as dependent variable, while the target leverage and the previous year's *leverage* are independent variables. Target Leverage is an unobservable variable, so it must be estimated as carried out in the first stage of testing. Table 1 shows the measurements of the variables used in this study.

Table 1. Variable Measurement

No.	Variable	Connotation	Measurement	Source
1	Profitability	PROF	$\dfrac{EBIT}{Total\ assets}$	Mihalca (2011); Surwanti (2015); Mawitjere (2016)
2	Company Size	SIZE	$(Ln)\ Total\ Assets$	Mihalca (2011); Surwanti (2015); Mawitjere (2016); Albart et al. (2020)
3	Company Growth	GROWTH	$\dfrac{Total\ Assets_t - Total\ Assets_{t-1}}{Total\ Assets_{t-1}}$	Nosita (2012); Surwanti (2015); Mawitjere (2016)
4	Leverage	LV_{it} (actual leverage)	$\dfrac{Total\ Debt}{Total\ Equity}$	Albart et al. (2020)
		LV_{it-1} (leverage of previous year)	$\dfrac{Total\ Debt_{it-1}}{Total\ Equity_{it-1}}$	
		LV_{it}^* (leverage target)	Estimated target leverage	
5	Speed of Adjustment	δ_{it}	$(LV_{it} - LV_{it-1}) = \delta_{it}(LV_{it}^* - LV_{it-1})$ $\delta_{it} = \dfrac{LV_{it}^* - LV_{it-1}}{LV_{it} - LV_{it-1}}$	Drobetz and Wanzenried (2006); Nosita (2012); Surwanti (2015); Mawitjere et al. (2016); Kewal (2019)

The first stage of this study tests the first hypothesis and determines the *target leverage,* which is the company's optimal capital structure. Drobetz & Wanzenried (2006), Nosita (2012), and Mawitjere (2016) use the following equation in their research, and we will apply the equation to test our first hypothesis:

$$LV_{it}^* = \alpha_0 + \alpha_1 PROF_{it} + \alpha_2 SIZE_{it} + \alpha_3 GROWTH_{it} + \mu_{it}$$

By assuming that the *leverage* level of the period *t* is equal to the target *leverage*, then the change in the capital structure can be calculated through the following equation:

$$LV_{it} - LV_{it-1} = LV_{it}^* - LV_{it-1}$$

In making adjustments, the company needs costs that may provide convenience or even provide difficulties for the company to adjust its *leverage* ratio. It can affect the speed of adjustment, which is a factor that describes the *desired magnitude of* adjustment between two time periods. Taking into account the speed of adjustment, the equation used to test the second hypothesis in this study is as follows:

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

To answer the second hypothesis in this study, the estimation value of δ_{it} used as indicators of the adjustment of capital structures. Based on the indicators of capital structure adjustment, there are criteria that we can set as a reference for the capital structure adjustment speed. If $\delta_{it} = 1$ or 100% means that adjustments are made quickly, and the company's capital structure is at its optimal point. If $\delta_{it} < 1$ or <100% means that the company's capital structure is below its optimal capital structure and the adjustments made are not optimal. Meanwhile, if $\delta_{it} > 1$ or >100% means that the company has *overadjusting* (Nosita, 2012).

RESULTS

Table 2 shows the descriptive statistical values of each of the variables used in the study.

Table 2. Descriptive Statistics

Variable	Min.	Max.	Mean	Std. Dev.
PROF	0.003969	0.192326	0.078271	0.052356
SIZE	28.02636	33.25199	30.31431	1.383995
GROWTH	-0.247105	0.479717	0.070199	0.122808
LEVt	0.007205	6.212993	1.017407	1.082556
LEVb	0.007205	6.533484	0.992052	1.185151
LEVtar	10.879338	13.1210891	12.146429	0.6044097
N	68			

Based on the descriptive statistical results of variables shown in Table 2, we can see that the average value of the Profitability (PROF) is 7.8%, the Firm Size (SIZE) is 30.31431, the Company Growth (GROWTH) is 70.2%, the Actual Leverage (LEVt is 1,0174, the previous year's leverage (LEVb) is 0.9920, and the target leverage (LEVtar) is 12.146.

The standard deviation of the profitability is lower than the average value, which shows that the company's profitability levels are relatively identical. The average value of size is also not around the minimum value, which means that the company's size is dominated by large companies with a high average asset. Meanwhile, the minimum value of the growth shows a negative value which indicates that there are companies that have experienced a decrease in assets which may be caused by weakening global economic conditions due to the *Covid-19* pandemic.

Table 3. Results of *Estimated Target Leverage* with REM Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11.12862	4.689131	-2.373279	0.0206**
BEP	-4.330403	2.434707	-1.778613	0.0801*
SIZE	0.410737	0.154353	2.661018	0.0098***
GROWTH	0.486725	0.618943	0.786381	0.4345
R^2	0.156564			

Note. ***sig. p<.01; **sig. p<.05; *sig. p<.10

The first hypothesis test was carried out using panel data regression. The results of model testing through the Hausman test showed that the selected model was a *Random Effect Model* (REM). Based on the regression results shown in Table 3, Hypothesis 1a

states that the profitability variable affects leverage in the direction of the negative coefficient is acceptable. It is indicated by a coefficient value of -4.3304 and a significance value of 0.0801 (*p-value* < α=0.10). Hypothesis 1b states that the size variable also affects the leverage with a positive coefficient. So that H1b is acceptable. It is indicated by a coefficient value of 0.4107 and a significance value of 0.0098 (*p-value* < α=0.05). Meanwhile, the test results of Hypothesis 1c state that the growth does not influence the company's leverage, where the significance value is 0.4345 (*p-value* < α = 0.05). The regression results in this first stage have met the testing of classical assumptions.

Table 4. Test Results of The Capital Structure Adjustment Speed

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15.47920	3.485118	-4.441514	0.0001***
LEVB	0.749226	0.088396	8.475828	0.0000***
LEVTAR	1.296952	0.286690	4.523889	0.0000***
R^2	0.937441			

Note. ***sig. p<.01

The model selected to estimate the speed of adjustment in the second hypothesis test is the *Fixed Effect Model* (FEM). Based on the results presented in Table 4, it can be concluded that the property, real estate, and construction building sub-sector companies are adjusting their capital structure towards their optimal capital structure. It is indicated by the value of the LEVb coefficient of 0.749226 and the estimated value δ_{it} of 0.250774 (1-0.749226). The results of this test prove that Hypothesis 2 in this study is accepted, where the significance value of each variable is 0.000 (*p-value* < α = 0.05) and the R value^2 is 0.937. The regression results in this second stage have met the classical assumption test.

DISCUSSION

The results of this study show that a company's profitability has a significant negative influence on the company's leverage, which means that companies that obtain an increase in profit will prefer to use retained earnings instead of using debt to finance their operational activities and investments. The results of this study follow *the pecking order theory,* which explains that companies prefer internal funding and then make external funding another alternative option in the event of an internal funding deficit. The results of this study support Mihalca (2011) research which revealed that the company's profitability has a negative and significant effect on the company's leverage.

Furthermore, the results of this study prove that *size* has a positive and significant influence on the company's *leverage*. Large companies have financial flexibility. They can choose to increase their debt ratio with a low-interest rate. Large companies have a lower probability of default, so banks will be willing to provide more loans. The results follow the *trade-off theory* that indicates a positive relationship between a company's size and the probability of bankruptcy from increasing leverage. The results is similar with Drobetz & Wanzenried (2006), Mihalca (2011), and Albart et al. (2020).

The results show company's growth does not influence leverage. Companies with high asset growth have financial flexibility, so they use debt to save taxes or even reduce the

use of debt to avoid financial distress. The results of this study support the results of Nosita (2012).

This research shows that companies adjust the capital structure towards their optimal capital structure. It shows by the coefficient of leverage for the previous year (0.749226). It indicates that companies are still *underleveraged* with an adjustment speed value (δ_{it}) of 0.250774 (1-0.749226) or 25% per year. It can be concluded that the company takes 4 years (1/0.25) to achieve its optimal capital structure.

Based on a report from Bank Indonesia, there was an increase in the debt ratio of property companies in Indonesia, while equity and assets decreased. It is also shown in this study's descriptive statistics (Table 2). The decline in global economic conditions due to the *Covid-19* pandemic has severely suppressed the performance of companies in this sub-sector. Still, they survive due to tax incentives issued by the government. It has encouraged an increase in residential mortgages to reach 9.32% (YoY) and apartment mortgages to reach 10.93% (YoY) in September 2021 (Sunarsip CNBC Indonesia, 2021).

The results of this study prove that companies in the property, real estate, and construction building sub-sectors adjusted their capital structure towards an optimal capital structure, even though their financial performance was depressed due to the *Covid-19* pandemic.

CONCLUSION

This research provides empirical evidence that property, real estate, and construction building sub-sectors in Indonesia follow *the dynamic trade-off theory* in determining their capital structure policies. The company adjusts its capital structure, and there is *target leverage* that is determined by the characteristics of the company. These characteristic variables of the company may affect the time it takes for the company to adjust its capital structure.

Property, real estate, and construction building sub-sector companies in Indonesia are proven to adjust their capital structure by 25% per year, where complete adjustments take 4 years. This slow adjustment may be due to the impact of the *Covid-19* pandemic, so government policies are needed to encourage people's purchasing power to support economic recovery.

LIMITATION
This research has several limitations that need to be corrected by subsequent studies. First, the variables to determine the target leverage still do not explain the optimal composition of the capital structure, so it is necessary to add other variables of company characteristics and macroeconomic variables. Second, this study is only limited to determining the value of the capital structure adjustment, so it is necessary to conduct further research regarding the factors affecting the speed of adjustment.

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DECLARATION OF CONFLICTING INTERESTS

There is no conflict between the authors' interests, work, and responsibilities in the study.

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APPENDIX

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