Conference Paper

The Determinants of Capital Structure in Manufacturing Companies Listed on the Indonesia Stock Exchange with the Firms' Size As a Moderating Variable

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Abstract

The determinants of capital structure have been debated among financial management researchers. This debate is caused by different research result about the determination of capital structure. The capital structure is a financing mix of short-term debt, long-term debt, and equity. This study investigates the determinants of capital structure in Manufacturing Companies listed on the Indonesia Stock Exchange. Tangibility, profitability, growth opportunities, business risk are used as independent variables, capital structure proxied by debt to equity ratio (DER) as dependent variables and firm size as a moderating variable. The population in this study is Manufacturing Companies listed on the Indonesia Stock Exchange (IDX) during the period 2010–2016; sampling technique used was purposive sampling and data analysis was done using panel data regression. The result shows that there is no significant impact of tangibility, profitability, and business risk to capital structure. The capital structure is significantly positively affected by the growth opportunities at Manufacturing Companies. Meanwhile, firm size as a moderating variable strengthens the positive and significant relationship between asset structure and capital structure. On the basis of these empirical findings, the determinants of capital structure are influenced by the growth of the firms. The firm's size strengthens the positive and significant relationship between asset structure and capital structure.

Keywords: DER, tangibility, profitability, growth opportunities, business risk, firm size

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1. Introduction

The capital structure is the combination of internal financing and external financing of the firm. According to Sugiarto (2009) internal financing composed of equity, preference share capital and shareholder's funds and external financing composed of long term debt and short term debt of the firm. Internal financing using profits as a source of capital for new investment rather than obtaining capital elsewhere distributed as dividends to

firm's owners or other investors. External financing is the phrase used to describe funds that firms obtain from outside of the firm

In this study capital structure proxied by the Debt Equity Ratio (DER) which is the ratio of total debt of the firm with total equity or capital owned by the firm.

DER shows the level of company risk, where the high of DER, the higher the company's risk caused by funding from external from debt greater than equity. Many reasons companies use external financing (debt). One source of their enthusiasm for debt financing appears to be the perception that higher leverage will increase return on equity and earnings per share of the firm (Higgins). Furthermore, debt has an advantage in the corporate taxes as interest is deductible as an expense (Horne, 2002)The manufacturing industry is an industry that dominates companies listed on the Indonesia Stock Exchange (IDX), it can be seen from the number of companies listed on IDX increasing every period. The companies not only required to produce products, but also must be able to manage their capital structure. The following data regarding the capital structure of several manufacturing companies as measured by DER listed on the IDX from 2012-2018.

TABLE 1: DER ratios of several manufacturing companies for 2012–2016.

Company Name	Capital Structure (DER)				
	2012	**2013**	**2014**	**2015**	**2016**
Indocement Tunggal Prakarsa Tbk	0.1718	0.1579	0.1654	0.1580	0.1330
Unilever Indonesia Tbk	1.9423	1.9857	1.6027	2.2584	2.5596
Gudang Garam Tbk	0.5601	0.7259	0.7521	0.6708	0.5911
Ultrajaya Milk TbkUltrajaya Milk Tbk	0.4439	0.7052	0.2878	0.2654	0.2149
Akasha Wira International Tbk	0.8606	0.6657	0.7067	0.9892	0.9966
Source: Data processed.					

From Table 1 above shows the value of the DER ratio of manufacturing companies has fluctuated. For the Indocement Tunggal Prakarsa Tbk company the DER ratio in 2012 amounting to 0.171815 experienced a decrease in 2013 of 0.157960 and experienced an increase in 2014 of 0.165431. This is due to the value of the company's own capital, Indocement Tunggal Prakarsa Tbk, from 2012 increased from 19,418,738 to 22,977,687. Contrast to Gudang Garam Tbk company whose DER value has increased from 2012 to 2013, from 0.560166 to 0.725924. This is caused by an increase in the amount of debt and equity by the company.

There are reliably important factors of determinants that usually turn up in extant literature and have a demonstrable effect on capital structure choices of firms. According to Mazur (2007) determinants of capital structure consist of financial situation, growth

opportunities, size of the firm, product uniqueness, business risk, tax shields, dividend Policy. Kouki and Said (2012) the determinants of capital structure consist of firm size, tangibility, growth opportunities, the non-debt tax shield, the bankruptcy risk, profitability and risk. In this study the determinants of capital structure consist of tangibility, profitability, sales growth, business risk and firm size as moderating variables.

Asset structure (tangibility) is a comparison between fixed asset and total assets of the firm that can determine the amount of financing allocated to each asset. Asset structure plays an important role in determining the capital structure. Each company will have a different asset structure between companies. Companies with the highest asset liquidity may increase debt capacity only when the bond covenants impose restrictions on the disposition of assets. The fact that a company possesses fixed assets to a large extent can be considered by its creditors as a guarantee that will allow them to recover their funds in the case of financial distress experienced by the borrower corporation (Serghiescu and Vaidean, 2014).

Previous research shows that there are differences in the results of research on the effect of the asset structure on capital structure. Hadianto (2008) and Awan (2011) shows that there is a positive and significant relationship between asset structure and capital structure. According to Nivorozhkin (2005) increasing the percentage of tangible assets in the total assets will be perceived by investors as a positive measure and increasing the level of debt. To contrast with the results of Amidu (2008) and Yolandafitri (2013) shows a negative and significant relationship between asset structure and capital structure. Large holdings of tangible assets may imply that a firm has already a stable source of return, which provides more internally generated funds and discourages it from turning to external financing is predicted by the pecking order theory.

Furthermore, the factor that influence capital structure are profitable. In this study profitability is measured using Return On Assets (ROA) compared the rate of return of the company assets by linking net income to total assets owned by the firm. Profitability is the company's ability to generate profits from various company activities. A high level of profitability indicates that the company has a strong internal source and comes from its own capital derived from retained earnings. According to the pecking order theory predicts a negative correlation between the profitability of a company with total debt based on that company first turn toward internal financing resources (Serghiescu and Vaidean, 2014). Myers (1984) the companies prefers to finance their investment first, by internal resources, then by borrowing capital. Related to Fadli (2010), Yuliati (2010) and Yolandafitri (2013) who showed that the profitability have a significant negative relation of capital structure with proxied debt to equity ratio.

A contrast to the trade-off theory established a positive correlation between these variables given that a higher profitability implies a higher income that can be exempt from taxes (Kraus and Litzenberger, 1973). Myers (2001) the trade-off theory claims that a firm will borrow up to the point where the marginal value of the tax reduction or tax shield on the interest paid for the contracted loans will be balanced by an increase in the present value of the bankruptcy. Related to the research Wardani (2010) showed the research result a positive and significant relationship between the level of profitability to the level of DER.

Growth opportunities are also considered as a determinant of capital structure in this study. Growth opportunities also represent a potential ability of investment. Investors require specific information for decision-making to invest in various areas such as growth opportunities and leverage ratios. Financial analysis is comparing the ratio of financial leverage growth opportunities to the conclusion that in companies with different levels of debt, at what level their growth opportunities (Filsaraei et al., 2016). Related to Awan et al. (2010) the result, their study found a positive relationship between the growth opportunities and debt levels of the corporate firms. Contrast with Mahmmoudi et al. (2013) examine the relationship between growth opportunities and debt at a low level of growth opportunities showed a significant negative relationship between growth opportunities and leverage level of debt in the firms with a low growth opportunity. Danielson (1996) examines the negative relationship between leverage and growth opportunities in companies with high growth opportunities

A further factor in determining of capital structure is business risk. Operating leverage *is* associated with fixed costs in operating expenses. The greater the fixed costs in operating expenses, the greater the business risk. Increased leverage in the capital structure increases the probability of bankruptcy (Baxter, 1967). Ward (1993) business risk is affected by volatility in earnings and earnings become volatile when the environment is uncertain. Companies with high business risk will reduce the use of debt as a source of funding so that the risk of the company does not increase or in other words risky companies will borrow less (Chen and Hammes, 2003). Business risk is often associated with operating leverage. Decreased leverage, an increase in the reliance on debt is not likely to exert a significant effect on the probability of bankruptcy. Empirical findings in Indonesia indicate a negative relationship between capital structure and business risk. This research was conducted by Hidayati (2010) and Yolandafitri (2013) showed the result research that business risk negatively affects the capital structure. Contrast with Sari (2016) showed business risk has a positive effect on the capital structure

Firm size plays an important role in the capital structure. Small firms usually use external sources in their capital structure only if the internal sources are exhausted. Small firms choose internal funding sources with a pecking order of personal and retained earnings, debt and issuance of new equity (Hussain and Matlay, 2007). According with the pecking order theory small firms borrow as their investment needs rather than an attempt to achieve an optimal capital structure (Daskalakis and Psillaki, 2008). The larger firms can more easily access the capital market compared to small firms. The larger firms the easier it is to get an external financing in greater amounts, especially from debt. In this study firm size as a moderating variable which will interact with the relation between independent variables and a dependent variable.

2. Literature Review

2.1. Capital structure

The capital structure theory explains whether there is an influence of changes in capital structure on firm value, if investment decisions and dividend policies are held constant. In other words, if the company replaces part of its own capital with debt or vice versa, whether the stock price will change. But if the capital structure changes, the value of the company changes, the best capital structure will be obtained. Capital structure that can maximize company value or stock price is the best capital structure (Husnan & Pudjiastuti, 2006: 293)

2.2. Components of capital

Structure The capital structure of a company generally consists of several components, namely: (1) Equity, Equity is capital that comes from the owner of the company and which is embedded in the company for a certain amount of time. Own capital comes from internal sources and external sources. Internal sources come from profits generated by the company, while external sources come from capital derived from company owner's shares. (2) Retained Earnings, that is not divided is cumulative profit after tax collected since the company was established and not distributed as *dividends* to shareholders. The company's internal funds invest in business operations to finance business operations or to expand the business and belong to the owners of limited liability companies. (3) Long-(*term debt long term debt*), long-term debt is debt with a long term, generally more than ten years. This long-term debt is generally used to finance the expansion of

the company (expansion) or modernization of the company, because the capital requirements for these purposes include a large amount.

2.3. Theory of capital structure

2.3.1. The traditional theory

The traditional theory is most widely adopted by practitioners and academics. They choose between the two approaches above. This approach assumes that up to a *leverage* certain, the risk of the company does not change. So that both K_d and K_{eare} relatively constant. However, after *leverage* or certain debt ratios, debt costs and capital costs increase.

2.3.2. Modigliani and Miller

Modigliani and Miller (MM) in 1958 examine more deeply the theory of capital structure with its statement, that the value of a company that uses debt (VL) is the same value as a company that does not use debt (VU) in its capital structure or VL = VU; however, this MM theory is based on some unrealistic assumptions, such as (Brigham, 2011: 179): There are no brokerage fees, no taxes, no bankruptcy fees, investors can borrow at the same level as companies, all investors have information the same about the company's investment opportunities in the future, EBIT is not affected by the use of debt. Then MM entered the tax factor in his analysis and concluded that the value of the company with debt is higher than the value of the company without debt (preposition 1)

2.3.3. Tradeoff theory

Stiglitz (1969) which was supported later by Rubenstein (1973), stated that companies that continue to increase debt will pay the greater interest and the possibility of a decrease in net income, then the company will experience financial difficulties (*financial distress*) which results in bankruptcy accompanied by the emergence of the various costs associated with *financial distress* and the cost of bankruptcy. In this condition, investors will give a higher interest rate to companies that will go bankrupt so that aarises *trade-off between* the tax advantages of increasing debt to bankruptcy costs in order to achieve an optimal capital structure.

2.3.4. Agency theory

In the theory *trade off*, the optimal capital structure is obtained from the balance between *tax shields* due to debt with bankruptcy costs and agency costs. This theory states that in a company there will be a conflict of interest between the parties involved in it, this conflict occurs because of the interests of the owner (*principal*) and management (*agent*) which sometimes are not always in line. An *agent* (the person who receives the duty or authority) does not always act in accordance with the interests *principal's* (the person who gives the task and authority), this often occurs in the diffuse *ownership* where the shareholders (*principals*) lose more *power* to control the manager (*agent*), as a result managers can use company resources more freely and inefficiently.

2.3.5. Pecking order theory

Donaldson (1961) in Rais (2010: 23) who introduced the first time about the hypothesis *pecking order*, that the determination of capital structure is carried out as follows: (a) Companies prefer internal funding sources in their funding decisions (retained earnings and depreciation), (b) Determination of the target payment ratio is based on investment opportunities and future cash flow gains. (c) The company will not increase or decrease its dividend payments except for certain reasons. (d) If there is an excess of funds from internal funding sources after being used for investment, the excess funds are used for securities investments, debt payments, increased dividend payments and company acquisitions.

2.3.6. Signaling theory

MM assumes that everyone both investors and managers have the same information about the company's prospects. This is referred to as symmetric information (*symmetric information*). But in reality managers often have better information than outside investors. This is referred to as asymmetric *information and* has an important influence on optimal capital structure. To see why, we will look at two situations, a situation where a company manager knows that prospects will greatly benefit companies *Favorable* and other situations where the manager knows that the future looks unprofitable for the company *Unfavorable*.

2.4. Hypotheses

2.4.1. Structure of assets (H_1)

According to the tradeoff theory ccompanies with the higher asset liquidity may increase debt capacity because the more asset liquidity is the more collateral would be. Companies that have fixed assets in large amounts will prefer debt as a source of funding because these assets can be used as collateral.

H_1: Asset structure has a positive effect on the capital structure

2.4.2. Profitability (H_2)

According to the pecking order theory predicts a negative correlation between the profitability of a company with total debt based on that company first turn toward internal finance was exhausted. Profitable firms have more profit which will be used as retained earnings. Retained earnings used as source of firms funding and firms do not to depend so much on external finance.

H_2: Profitability has a negative effect on the capital structure

2.4.3. Growth (H_3)

According to Brigham & Houston (2006) if other things are considered the same, that firms with high growth will tend to look to external financing to fit the growth. In accordance with the signaling theory which states that a company with high growth will tend to avoid selling shares and prefer to use external funds in the form of debt

H_3: Growth has a positive effect on the capital structure

2.4.4. Business risk (H_4)

Companies with high business risk will reduce the use of debt as a source of funding so that the risk of the company does not increase or in other words risky companies will borrow less

H_4: Business risk negatively on the capital structure

2.4.5. Firms size (H$_5$)

Small firms are often managed by very few managers whose main goal is to minimize intrusion in their business and that is why internal funds will be placed in the first place of their financial preferences. Asset structure interacts with size: Large firms have a larger asset compared to smaller companies. So, the more asset is the more collateral would be if firms using external funds on their capital structure. Profitability interacts with size: Large firms have a less the risk of bankruptcy compared with a smaller firm because larger firms tend to be more diversified than smaller. If two firms with same profitability, larger firms will get more external finance (Chen). Growth interacts with size: Small companies the probability of facing financial constraints is higher and that makes it harder to gain access to external sources. The growth of small companies is more sensitive to internal finance than that of larger firms (Cressy and Olofsson, 1997). Business risk interacts with size: Large company may be able to take advantage compared with a small company of economies of scale in issuing long term debt and may even have bargaining power over creditors.

H$_{5.1}$: Firms size strengthens the positive influence of the asset structure with DER

H$_{5.2}$: Firms size weakens the negative influence of profitability with DER

H$_{5.3}$: Firms size weakens the positive influence of growth with DER.

H$_{5.4}$: Firm size strengthens the negative influence of business risk with DER

3. Methodology

3.1. Research design

The type of research is descriptive methods with a verification approach to examine the relationship of two or more variables that have been formulated as hypotheses. The population of the study comprised all the Manufacturing Companies listed on The Indonesia Stock Exchange (IDX) during the five year period 2012-2016 totaling 132 companies. Technique sampling used purposive technique, sampling, so that of the 132 companies that became the population, the number of companies sampled was 56 companies. The study used secondary data that was extracted from annual reports during the five year period (2012-2016).

3.2. Operational definition of variables

The dependent variable is capital structure proxied by debt to equity ratio (DER) which is calculated from total debt divided by total equity. The independent variables include asset structure (X_1), profitability (X_2), growth opportunities (X_3), business risk (X_4). Asset structure calculated from fixed asset divided by total asset. Profitability calculated by Earning After Tax divided by Total Asset. Growth opportunities calculated by total asset of the previous year reduced total assets, current year divided by total asset of the previous year. Business risk calculated by the standard deviation of EBIT. In this study considered firm size as the moderator variable which will interact with the dependent variable. Firm size calculated by line of total asset.

3.3. Estimation model

Data processing method of estimating the research model and then testing the hypothesis of the estimation results. Based on the hypothesis test can be known the relationship between the dependent variable and the independent variable. The dependent variable in this study is Capital Structure (DER), the independent variable is the Structure of Assets, Profitability, Company Growth, and business risk and the moderating variable are firm's size. To examine the effect of asset structure, profitability, company growth and business risk to *leverage are* used multiple linear regression analysis with the following formula:

$$DER_{it} = \alpha_o + \alpha_1 SA_{it} + \alpha_2 PRF_{it} + \alpha_3 Growth_{it} + \alpha_4 RBisk_{it} + \varepsilon_{it} \qquad (1)$$

The capital structure is described with DER, SA_{it} is the assets structure, PRF_{it} is profitability, $growth_{it}$ is the company's growth and $RBisk_{it}$ is business risk. To test the second hypothesis that are testing the interaction effect of the firm with asset structure, profitability, company growth and business risk on *leverage,* multiple regression analysis with *interactive model is used,* as follows:

$$DER_{it} = \beta_o + \beta_1 SA_{it} + \beta_2 PRF_{it} + \beta_3 Growth_{it} + \beta_4 RBiskit + \beta_5 SA.Size +$$
$$+\beta_6 PRF.Size + \beta_7 Growth.Size + \beta_8 RBisk.Size + \varepsilon_{it} \qquad (2)$$

4. Result and Discussion

4.1. Descriptive statistics

This section describes the results of descriptive statistics of the sample variance. Descriptive statistics table explains the minimum, maximum, mean and standard deviation values.

TABLE 2: Descriptive statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
(X1) Structure of Assets	280	0.04028	1.45001	0.3555479	0.18673241
(X2) Profitability	280	0.00054	3.20689	0.1173182	0.27913030
(X3) Growth	280	−0.98878	1.91812	0.1413478	0.21105780
(X4) Riskbis	280	0.00940	3.62386	0.5322412	0.64035048
(Y) DER	280	0.12484	7.39646	0.9388415	0.90402510
Valid N (listwise)	280				

Table 2 illustrates the descriptive statistics of the sample variance. Capital structure was measured using the *Debt To Equity Ratio* (DER). The mean DER was 0.9388415 which indicate that DER constitute 94% of the capital structure. The maximum DER value is 7.39646 owned by Jembo Cable Company Tbk. The maximum value of 7.39646 indicates that the company using the debt to operating activities greater than its equity. For the minimum DER value owned by Duta Pertiwi Nusantara Tbk. Constitute 0.12484 which means companies prefer to use their equity rather than using debt. While the standard deviation was 0.9040 which means that the distribution of DER data from the average value is 0.9040. Mean value of Asset Structure was 0.3555479 or 35% with a standard deviation was 0.1867324 This indicates that on average the company has a fixed asset of 35.55% of the total assets. The minimum values of fixed asset was 0.04028 owned by Duta Pertiwi Nusantara Tbk, which indicate 4.028% of the company's assets consisting of fixed assets. The maximum value of fixed asset was 1.45001 owned by Unilever Indonesia Tbk, which indicate that 145% of the assets of the company consisting of fixed assets.

The profitability ratio used in this study is ROA (*Return on Assets*). The mean ROA was 0.1173182 with a standard deviation was 0.279130. Which indicate that the average sample company is able to get net profit of 11.73% of the total assets owned by the company in one period. The minimum values of ROA was 0.00054 owned by the Tjiwi Kimia Tbk Paper Mill, which indicates the company has a profit of 0.054% of all the operating income. The maximum values of ROA were 3,20689 owned by PT. Merk Tbk, which indicates the firm earns a profit of 320.689% of the total income earned by the

company. Company growth is a variable that is considered in the capital structure deci-sion The mean of growth was 0.1413478 with a standard deviation of 0.21105780. Which indicate the average sample company experienced a growth of 14.13478% compared to the previous year. The minimum values of growth was -0.98878 owned by the Tjiwi Kimia Tbk Paper Mill, which indicate there was a decline in growth to reach 0.98878% from the previous year experienced by. This company has a negative number because there is a decrease in retained earnings that is so high. The maximum values of growth was 1.91812 owned by Unilever Indonesia Tbk

The mean of business risk was 0.5322411 with a standard deviation of 0.64035049. Which indicate the average sample business risk is 53.22%, which means that the com-pany has a large business risk. The minimum values of business risk was 0.00940 owned by Tjiwi Kimia Tbk Paper Mill, which indicate the company has a business risk of 0.94% of all the income it owns. The maximum value of business risk was 3,62386 owned by Tiga Pilar Sejahtera Food Tbk, which indicate the firm has a business risk of 362,386% of the total income earned by the company.

4.2. Collinearity diagnostics

Collinearity diagnostics observes the multicollinearity factor in this study variables so that the linear regression model could be applied for data analysis. Testing the correla-tion between independent variables using variance inflation factor (VIF) and tolerance value (Ghozali, 2005: 91). If the value is VIF less than 10 (VIF < 10) or value tolerance is greater than 0.10, it can be concluded that the model has no symptoms of multicollinear-ity.

TABLE 3: Multicollinearity test.

Variable	Coefficient Variance	Incentered VIF	Centered VIF
(Constant)			
Assets Structure	0.109238	6.262273	1.350093
Profitability	0.042120	1.369398	1.163183
Growth	0.063545	1.454911	1.003307
Riskbis	0.010549	2.592628	1.533250
C	0.026548	9.443502	NA
Note: A Dependent Variable: DER			

Level of tolerance should remain below 1 and the value for VIF should be between 1 and 10. Table 3 showed all variables have significant levels of values for VIF. There is no multicollinearity and regression model is suitable to test the data.

4.3. Regression data panel model

In this study, the regression model used is panel data regression. In the data panel regression analysis, there are two models namely fixed effect models and random effect models. In determining the method that will be used Hausman Test to estimate the model. The Hausman specification test has been to determine which one of the alternative panel analysis methods, fixed effect model and random effects model among the 3 panel regression models should be applied. The result of the model the panel data regression was analyzed by the random effects model in this study

$$DER_{it} = \alpha_o + \beta_1 Sa_t + \beta_2 PRF_{it} + \beta_3 Growth_{it} + \beta_4 RBis_{it} + \varepsilon_{it} \qquad (4.1)$$

$$DER_{it} = \alpha_o + \beta_1 Sa_{it} + \beta_2 PRF_{it} + \beta_3 Growth_{it} + \beta_4 RBis_{it} + \beta_5 Size_{it} + \varepsilon_{it} \qquad (4.2)$$

$$DER_{it} = \alpha_o + \beta_1 Sa.Size_{it} + \beta_2 PRF.\, Size_{it} + \beta_3 Growth.Size_{it} + \beta_4 RBis.Size_{it} + \varepsilon_{it} \qquad (4.3)$$

$$DER_{it} = \alpha_o + \beta_1 Sa_{it} + \beta_2 PRF_{it} + \beta_3 Growth_{it} + \beta_4 RBis_{it}$$
$$+ \beta_5 Sa.Size_{it\backslash} + \beta_6 PRF.\, Size_{it} + \beta_7 Growth.Size_{it} + \beta_8 RBis.Size_{it} + \varepsilon_{it} \qquad (4.4)$$

TABLE 4: Estimation of hypothesis.

Variable	Panel 1 (Press. 4.1)	Panel 2 (Press. 4.2)	Panel 3 (Press. 4.3)	Panel 4 (Press. 4.4)	Conclusion
SA	0.880919	0.035388		−3.501158***	H_{1is} not supported
PRF	−0.039266	−0.038504		0.017202	H_2 not supported
Growth	0.287937*	0.287511*		1.308946	H_3 supported
RBIs	0.017131	0.018423		0.148708	H_4 not supported
Size		0.004226			
Sa.Size			0.007571	**0.229326***	$H_{5.1}$ supported
PRF.Size			-0.003073	**−0.003417**	$H_{5.2}$ not supported
Growth.Size			0.018702***	**−0.066253**	$H_{5.3is}$ not supported
RBis.Size			0.001713	**−0.020547**	$H_{5.4is}$ not supported
R^2	**0.027387**	**0.027445**	**0.026755**	**0.039092**	
Adj R^2	**0.013240**	**0.009698**	**0.012598**	**0.010726**	
F.Test	**1.935848 ***	**1.546452**	**1.889957**	**1.378114**	

Note: *** significant on α 1%; ** significant at α 5%; and * significant at α 10%.

This table present regression using panel data with random effect. The asset structure variable has a negative impact to DER with coefficient values was 0.880919 which means a positive effect on DER and not significant. This does not support the hypothesis$_1$ which

states that the asset structure has a negative effect on DER. The profitability variable has a negative effect was -0.039266 which means that it has a negative effect on DER and not significant. Variable *growth* has a negative impact to DER with value was 0.287937 which indicate a positive effect on DER and significant at α 10%. These results support the Hhypothesis$_3$ which states that *Growth* has a positive effect on DER. Business risk variables also have a negative coefficient with value was -0.017131 which means a positive effect on DER and not significant. It does not support the hypothesis H$_4$ of this study is that the business risk of a negative influence on the *DER*. Based on Table 4 also note that the *adjusted* R^2 of 0.013240 which shows the meaning that the proportion or percentage of total variation in the dependent variable (capital structure) is explained by the independent variable (asset structure, profitability, growth and business risk) of 1.3%.

From Table 4 showed variables firm size does not change the effect of asset structure, profitability, growth and business risk to DER. This can be seen from the coefficient value of each variable. The asset structure has a positive coefficient value of 0.035388, profitability has a negative coefficient value was -0.038504 against leverage, growth has a positive coefficient of 0.287511 and business risk has a negative coefficient value of 0.018423. Table 4 showed that growth has a significant effect on DER with firm size as moderating variables. In the estimation results of Table 4 showed the results of the regression of independent variables that are interacted with the moderation variable size. Here it can be seen that each independent variable has a negative coefficient. The asset structure variable that is interacted with size has a coefficient of -0.020645, profitability has a negative coefficient of -0.015411, coefficient growth a negative of -0.003317 and a coefficient of growth -0.004313 of leverage.

Table 4 and equation 4.4 presents the regression estimation results of all independent and dependent variables that have been entrusted with variable firm size as a moderating variable. Based on the estimation of asset structure variables have a positive coefficient value of 0.007571, profitability has a negative coefficient value of -0.003073 and the growth variable has a positive was 0.018702 and signed to DER at α 1%. For business risk variables have a positive coefficient value of 0.001713 to leverage. Tabular results show that business risk is not significant at α 1%, α 5% and α 10%.

In the estimation results of Table 4 equations 4.4, it can be seen the effect of firm size as a moderating variable. The firm's size can change the effect of asset structure, profitability, growth and business risk on DER. The asset structure has a positive coefficient value of 0.229326 against DER and is significant. These results support the hypothesis 5.1 that firm size weakens the negative influence of the asset structure to

leverage corporate. From Table 4 panels 4 also known that the profitability variable has a negative coefficient value of -0.003417 to the DER and not significant at $\alpha = 1\%$.

Growth with the moderating effect can change the effect of growth on DER with a negative coefficient value of -0.066253. The table results show that Growth has a negative and insignificant effect on DER. This result does not support the hypothesis H5.3 which states that firm size weakens the negative influence of the company's growth on the company's DER. While the business risk variable after being interacted with size has a negative coefficient of -0. 020547 with DER. Table 4 showed the influence business risk is not significant. These results do not support the hypothesis H5.4 Company Size strengthens the negative influence of Business Risk on DER company.

5. Result and Discussion

5.1. Effect of asset structure on DER (H$_1$)

Based on the results of processing the sample data tested using reviews, the asset structure has a positive and not significant effect on DER. According to Brigham & Houston (2011) companies that have large amounts of assets tend to use debt. These assets can be used as collateral when companies use forests in their capital structure. This is in accordance with the trade-off theory where the company will use debt as a source of funding for the company when the company has a good asset structure. According to Myers (1977) the greater the fixed assets, the greater the collateral / corporate guarantee that can reduce the company's financial distress costs. with assume other things are constant, then when the company's fixed assets increase, the use of debt will also increase. In addition, the higher the guarantee given by the company to creditors will increase the amount of debt that can be given by the creditor to the company. Frank and Goyal (2007) and Saeed (2007) also stated that companies that have a larger proportion of asset structure will be easier to assess their assets so that the problem of information asymmetry becomes lower and it will make equity less costly so that there is a negative relationship between asset structure and ratio leverage.

The results of this study are contrary to the results of Amidu (2007), Kardeniz (2008), Nanok (2008) and Yolandafitri (2013) states that asset structure has a negative and significant influence on capital structure. The results of this study are supported by the pecking order theory and previous research which shows a negative and significant relationship between asset structure and leverage theory. Pecking order according to Harris and Raviv (1991) companies with a high level of fixed assets was larger firms, where

the company can issue equity so that there is no need to issue new debt. Conversely, companies with fixed assets low which are owned by small companies, of course, have a more expensive cost to issue new equity, because issuing new equity will only reduce their stock prices to undervalued, so that debt is the best way.

5.2. Effect of profitability on DER (H$_2$)

From the results of the research conducted, variable *profitability* has a negative and insignificant relationship to DER in Manufacturing companies listed on the IDX. This significance value indicates that changes in profitability do not affect the capital structure. Profitability is a measure of the extent to which the company's ability to generate profits by utilizing its resources. A high level of profitability indicates that the company has a strong internal funding source, namely retained earnings. This will cause the company to have a relatively low optimal debt ratio because most of the funding needs can be met from retained earnings.

According to *Pecking order theory* states that companies tend to use internal resources first to meet their funding needs and only then involve external sources if there are still deficiencies in funding. Companies with a high level of profitability, will have a large net flow of funds. The net fund flow will be used as *retained earnings* for the company to fulfill its investment needs in the future. Companies with high profit levels will relatively maintain a low debt ratio, this is due to the company's ability to generate funds from internal sources. The results of this study are in line with Myers (1984), Titman and Wessel (1988), Rajan and Zingales (1995), Fama and French (2002), Barker and Wurgler (2002), Puteh (2011), Amidu (2007), Cloud, Rashid & Rehman (2011), Yuliati (2010), Indrajaya, Herlina & Setiadi (2011) which states that profitability has a negative influence on debt.

5.3. Effect of growth on DER (H$_3$)

Based on the results of research conducted, that the variable of *Growth* in the object of research of manufacturing companies has a positive and significant influence $\alpha = 10\%$ on the capital structure, which means the higher the *growth opportunity* , the higher the capital structure. Likewise, the lower the *growth opportunity*, the lower the capital structure. The company's growth is one of the important components that is the basis for companies to conduct funding both internally and externally. If other things are considered the same, then companies that have faster growth must rely more on

external capital. In addition, the emission costs associated with the sale of common stock will exceed the emission costs that occur when the company sells debt, encouraging companies experiencing rapid growth to rely more on debt. But at the same time the company often faces higher uncertainty, tends to reduce their desire to use debt.

The results of this study are in line with the research of Novione and Rusmala (2016) which states that company growth has a positive and significant effect on the capital structure. According to Weston & Brigham (2005) companies with rapid growth will tend to use debt compared to companies with slow growth.

The results of this study contradict the findings of Chung (1993) and Rajan and Zingales (1995), Yuliati (2010) and Yolandafitri (2013) which in their research showed that *growth* has a negative and significant effect. According to the theory of *pecking order theory*, where a company will use internal funds first to finance the company's operational activities and then use debt but only at the point where the use of the debt will reduce the *value of the* company. If the company continues to use debt, then the possibility of *financial distress* will also increase and cause companies to use the proportion of debt use optimally. Fluctuations in terms of income encourage companies not to use too much debt, this is because debt is funding at a fixed cost.

5.4. The influence of business risk on Leverage (H$_4$)

Based on research conducted, the variable business risk is positively and insignificantly correlated with the capital structure. Business risk is often associated with operating leverage. Operating leverage is associated with fixed costs in operating expenses. The greater the fixed costs in operating expenses, the greater the business risk. If a high-risk company is experiencing a decline in sales, the resulting profit will decrease due to the amount of the fixed costs. Because there is a decrease in profits, the company is not available enough funds to pay off the debt and interest so that it threatens the occurrence of bankruptcy.

According to Gitman (2009) business risk is a risk from the company when it is not able to cover operational costs and is affected by the stability of income and costs. Companies with high business risk tend to avoid funding by using debt compared to companies with low business risk. Companies with a high level of business risk will tend to reduce the use of debt in their capital structure. This is because the risks borne by the company getting bigger and threaten risk bankruptcy. If a company with high business risk has a large debt, the debt will incur a fixed interest expense until the debt is repaid. In the research in the manufacturing company showed that the increase in business risk greatly affected

the reduction of debt policy. This is because the average manufacturing company has a low business risk.

5.5. Influence size as a moderating variable the relationship of independent variables to the dependent variable

Influence Size as a moderating variable the relationship between asset structure variables with DER is firms size strengthens the positive influence of asset structure on capital structure company. Firms size interacts with the asset structure where the large company has a large assets can be used by the company to be used as collateral when the company uses debt as a source of funding. Companies with large amounts of fixed assets can use more debt because fixed assets can be used as good collateral for company loans. This is in accordance with tread-off theory where companies that have a good asset structure, will have a high profit debt ratio (Dincergok and Yalciner, 2011).

6. Conclusion

Based on data analysis and discussion that has been done, it can be concluded as follows: The structure of assets has a positive effect on DER. This is in accordance with the hypothesis trade-off theory which states that the higher the asset structure, the company will use debt as a source of funding. Profitability has a negative effect on the capital structure. This result is in accordance with the hypothesis pecking order which states that the greater the profitability of the company, the less the company will be in using debt. Growth has a positive effect on the capital structure. This result is not in accordance with the hypothesis pecking order which states that companies that are experiencing high growth should use a greater proportion of equity funding, so that there is a negative relationship between Growth and the capital structure. Business risk has a positive effect on capital structure This result is not in accordance with the hypothesis pecking order which states that companies with a high level of business risk will tend to reduce the use of debt in their capital structure. This is because the risks borne by the company are not getting bigger and threatening bankruptcy. Size strengthens the positive influence of asset structure on the company's capital structure.

References

[1] Arianto, T. and Kartini. (2008). Struktur kepemilikan, profitabilitas, pertumbuhan aktiva dan ukuran perusahaan terhadap struktur modal pada perusahaan manufaktur. *Journal keuangan dan perbankan*, vol. 12, no. 1, pp. 11–21.

[2] Awan, T. N. and Majed, R. (January 2011). Analysis of the determinants of capital structure in sugar and allied industry. *Journal of Business and Social Science*, vol. 2, no. 1.

[3] Azazi, A. (July 3, 2008). Determinan struktur modal perusahaan go public di Bursa Efek Jakarta. *Jurnal Penelitian Universitas Tanjungpura,* vol. IX.

[4] Baker, M. and Jeffrey, W. (February 2002). Market timing and capital structure. *The Journal of Finance,* vol. LVII, no. 1.

[5] Barclay, M. J., Smith, C. W., and Watts, R. L. (1995). The determinants of corporate leverage and dividend policies. *Journal of Applied Corporate Finance*, vol. 7, no. 4, pp. 4–19.

[6] Christianti, A. (August 2008). Pengujian pecking order theory (POT): Pengaruh leverage terhadap pendanaan surplus dan deficit pada industri manufaktur di Bursa Efek Indonesia. *Jurnal Riset Akuntansi Dan Keuangan,* vol. 4, no. 1, pp. 86–99.

[7] Cooper, D. R. and Pamela, S. (2006). *Metode Riset Bisnis. Terjemahan Budijanto & Didik Djunaedi*. Jakarta: Grafindo.

[8] De Angelo, H. and Masulis R. W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics*, vol. 8, no. 1, pp. 3–29.

[9] Donaldson, G. (1961). *Corporate Debt Capacity: A Study of Corporate Debt Policy and the Determination of Corporate Debt Capacity*. Boston: Graduate School of Business Administration, Harvard University.

[10] Daskalakis, N., Eriotis, N., and Vasiliou, D. (2009). Testing the pecking order theory the importance of methodology. *Qualitative Research in Financial Market*, vol. 1, no. 2, pp. 85–96.

[11] Firnanti, F. (2011). Faktor-faktor yang mempengaruhi struktur modal perusahaan manufaktur di Bursa Efek Indonesia. *Jurnal Bisnis dan Akuntansi,* vol. 13, no. 2, pp. 119–128.

[12] Frank, M. Z. and Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics*, vol. 67, pp. 217–248

[13] Handayani, S. and Dwi Rachadi, A. (2009). Pengaruh ukuran perusahaan terhadap manajemen laba. *Jurnal Bisnis dan Akuntansi*, vol. 11, no. 1, pp. 33–56.

[14] Harris, M. and Raviv, A. (1991). Capital structure and the informational role of debt. *The Journal of Finance*, vol. XLV, no. 2.

[15] Harris, M. and Raviv, A. (1991). The theory of capital structure. *The Journal of Finance*, vol. 46, no. 1, pp. 297–355.

[16] Hisham, N. and Ahmed, H. J. A. (2009). Revisiting capital structure theory a test of pecking order and static order trade off model from Malaysian capital market. *International Research Journal of Finance and Economics*.

[17] Jensen, M. and Meckling, W. (1976). Theory of the firm managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, vol. 3, no. 4, pp. 305–360.

[18] Ju Chen, L. and Chen, S. Y. (2009). How the Pecking Order Theory Explain Capital Structure. Taiwan: *School of Business and Operation Management Chang Jung Christian University*.

[19] Karedeniz, et al. (2009). Determinants of capital structure: evidence from Turkish lodging companies. *Journal of contemporary Hospitality Management*, vol. 21, no. 5.

[20] Khrisnan. (1996). Determinants of capital structure: An Empirical Analysis of Firms In Industrialized Countries. *Managerial Finance*, vol. 22, no. 2.

[21] Magaretha, F. and Ramadhan, A. R. (2010). Faktor-faktor yang mempengaruhi struktur modal pada industri manufaktur di Bursa Efek Indonesia. *Jurnal Bisnis dan Akuntansi*, vol. 12, no. 2, pp. 119–130.

[22] Mazur, K. (2007). The determinants of capital structure choice: evidence from polish companies. *International Atlantic Economic Society*.

[23] Mayangsari, S. (2001). Analisis faktor-faktor yang mempengaruhi keputusan pen-danaan perusahaan: Pengujian pecking order hyphotesis. *Media Riset Akuntansi, Auditing dan Informasi*, vol 1, no. 3, pp. 1–26.

[24] Myers, S. C. and Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, vol. 13, pp. 187–221.

[25] Myers, S. (2001). Capital structure. *Journal of Economic Perspectives*, vol. 15, no. 2, pp. 81–102.

[26] Oetomo, K., Marciano, D., and Wijaya, L. I. (March 2008). Pengujian teori pecking order pada kondisi high uncertainty dan low uncertainty. *Jurnal Manajemen dan Bisnis*, vol. 7, no. 1.

[27] Prabansari, Y. and Hadri, K. (2005). Faktor-faktor yang mempengaruhi struktur modal perusahaan manufaktur yang go public di BEJ. *SINERGI*, pp. 1–15

[28] Psillaki, M. and Daskalakis, N. (2009). Are the determinants of capital structure country or firm specific. *Small Business Economics*, vol. 33, pp. 319–333.

[29] Rajan, R. G. and Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, vol. 50, no. 5, pp. 1421–1460.

[30] Seftianne and Handayani. (2011). Faktor-faktor yang mempengaruhi struktur modal pada perusahaan public sektor manufaktur. *Jurnal Bisnis dan Akuntansi*, vol. 13, no. 1, pp. 39–56.

[31] Sheikh, N. A. and Zongjun, W. (2011). Determinants of capital structure an empirical study of firms in manufacturing industry of Pakistan. *Managerial Finance*, vol. 37, no. 2.

[32] Sugiarto. (2009). *Struktur Modal, Struktur Kepemilikkan perusahaan, Permasalahan Keagenan dan Asimetri Informasi.* Yogyakarta: Graha Ilmu.

[33] Titman, S. and Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance*, vol. 43, no. 1, pp. 1–19.