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## **Pecking Order and Trade-off Theory in Capital Structure Analysis of Family Firms in Indonesia**

### **Abstract**

The purpose of this study was analyzed the determinants of policy decisions of capital structure of family firms listed on the Indonesia Stock Exchange (IDX) in 2012-2016. The company's capital structure was measured by using debt to equity ratio (DER). Determinants of capital structure used include profitability (ROA), asset structure, growth (growth), firm size (size) and business risk (risk). This research was a quantitative research with a kind of causal research. Using a sample of 38 family companies in Indonesia listed on the Indonesia Stock Exchange (IDX). Hypotheses testing method of multiple linear regression. The result showed that ROA had negative effect not significant to DER. The asset structure had a significant positive effect on DER, growth had no significant negative effect to DER, size had no significant positive effect on DER, and risk had significant negative effect on DER. The average family firm in Indonesia still uses Pecking Order Theory in the application of capital structure.

**Keywords:** Pecking Order Theory; Family Firm; Capital Structure; Trade-off Theory.

**JEL Classification:** G31; G32; G34

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### **Abstrak**

*Tujuan dari penelitian ini adalah untuk menganalisis faktor-faktor penentu keputusan kebijakan struktur modal perusahaan keluarga yang terdaftar di BEI (Bursa Efek Indonesia) tahun 2012-2016. Struktur modal perusahaan diukur dengan menggunakan debt to equity ratio (DER). Faktor penentu struktur modal yang digunakan diantaranya profitabilitas (ROA), struktur aktiva, pertumbuhan (growth), ukuran perusahaan (size) dan risiko bisnis (risk). Penelitian ini merupakan penelitian kuantitatif dengan jenis penelitian kausal. Menggunakan sampel 38 perusahaan keluarga di Indonesia yang terdaftar di Bursa Efek Indonesia (BEI). Pengujian Hipotesis metode regresi linear berganda. Hasil penelitian menunjukkan ROA berpengaruh negatif tidak signifikan terhadap DER, Struktur aktiva berpengaruh positif signifikan terhadap DER, Growth berpengaruh negatif tidak signifikan terhadap DER, Size berpengaruh positif tidak signifikan terhadap DER, Risk berpengaruh negatif signifikan terhadap DER. Rata-rata perusahaan keluarga di Indonesia masih menggunakan Pecking Order Theory dalam penerapan struktur modal.*

**Kata Kunci:** Struktur Modal; Perusahaan Keluarga; Pecking Order Theory; Trade-off Theory

Nowadays business competition is increasing with the growth of small to large scale businesses. It is challenge for businesses to create a good business and public interest as consumers. Some forms of business ownership are also owned and managed by a family, where the owner and also the business manager are part of the family itself, the business is often referred to as a family business. The family business has characteristics with the ownership or involvement of two or more of the same family members in the life and function of the business. Family business grows and evolves from generation to generation, through a leadership succession which the first generation is considered the founding generation, then followed by second generation, where it is a generation that will develop a family business that will be pioneered. Then follow by next generation as third generation.

Some weakness of family business is deep emotional relationship may lead problem or nepotism, lacking the courage to take the risk and there are clashes between family interest and firm interest caused tolerance to the incompetence and close to the actually potential person (Kusumawati & Juniarti, 2014). The greater of the family ownership will greater the family incentives to place family members or affiliates to hold important positions in the firm management as a firm director or as a board of commissioners member. Family ownership is empirically proven has a negative effect on the implementation of corporate governance (Wirawan & Diyanti, 2013). The firm's political relationship is not empirically proven to negatively affect on the corporate governance implementation. This deficiency can be a problem in making funding policy, because it is feared to the existence of conflict interest. Conflict of interest arising not only between managers and shareholders but has shifted between controlling and non controlling shareholders. The family as the controlling shareholder will make decisions according to the family wishes so that it is vulnerable to create conflict (Cahyadi & Sanjaya, 2014).

The study of the fulfillment of firm funding sources is often known as capital structure theory. Capital structure theory looks at how the composition of long-term debt with ideal stocks to obtain optimal capital structure. Optimal capital structure is evident from the improvement of the welfare of the company owners, but there is still no common agreement regarding the study of how to realize optimal capital structure. One study of capital structure is to maximize the use of debt up to a certain level to obtain tax savings due to interest payments. This theory is often called the trade-off theory. There are several factors that can be considered in the application of trade-off theory such as: sales stability, asset structure, leverages operating, growth rate, tax and management attitude (Brigham & Houston, 2014).

In addition to the Trade-off Theory, there is an opposite theory known as Pecking Order Theory. Pecking Order theory shows that firms prefer to use retained earnings to pay dividends and finance new investments. The Pecking Order theory predicts a negative relationship between profit and debt ratio, in addition to this theory also shows that the observed capital structure of the firm has a positive relationship with size, growth and wealth or firm assets (Harjito, 2011).

Factors that determine the perspective of Pecking Order Theory is when firms get profit use of debt as a source of firm funds is not the primary. The relationship between profit level or firms profitability with debt levels, based on Pecking Order Theory has a negative direction. It can be interpreted, if profitability increases, then the firm debt level will decrease, on the contrary if profitability decreases then the debt level will increase (Harmono, 2012; Wardianto, 2013).

The purpose of this study is to analyze the determinants of capital policy decisions of firms listed on the IDX (Indonesia Stock Exchange), especially in the firm's family ownership. This research is a continuation of previous research conducted by

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Harjito (2011), Nuswandari (2013), and Zulfa (2014). Based on the research that has been done, found that profitability, asset structure, growth, firm size, and business risk have an effect on the firm's debt ratio. The results will be gained from this research is whether the capital structure used by family firms in Indonesia refers to Pecking Order Theory or Trade-off.

### HYPOTHESES DEVELOPMENT

The Company can calculate the optimal capital structure by considering the increase of firm value and the cost that will arise. This theory states that the level of profitability implies a larger debt because it is less risky for the lender. In addition, the firm ability to pay interest shows greater debt capacity. Therefore, profitability and ability to pay interest have a positive effect on capital structure. According to research conducted by Harjito (2011) Nuswandari (2013), and Zulfa (2014) show that profitability has a negative and significant effect on capital structure. Different research results conducted by Kepakisan (2015) found that profitability has a positive effect on capital structure. Based on previous studies, it can be formulated hypothesis as follows:

H<sub>1</sub>: profitability has effects on the capital structure.

The asset structure represents the amount of asset that can be guaranteed. Firms whose capital is embedded in fixed assets will prioritize the fulfillment of capital on their own capital, while debt is a complement. This is relevant to the conservative financial structure policy, which states that the amount of capital itself can at least cover the amount of fixed assets plus other assets of a permanent nature, while firms whose assets consist mostly of current assets will tend to prioritize the fulfillment needs of funds with debt. Research conducted by Harjito (2011) shows that the asset structure has a positive and

significant effect on capital structure. Wimelda & Marlinah (2013) and Zulfa (2014) found that asset structure has a positive effect on capital structure. Based on the research that has been done by previous research, it can be formulated hypothesis as follows:

H<sub>2</sub>: the asset structure has an effect on capital structure.

Firm growth is an indicator to assess future prospects by measuring total asset changes. Firms whose assets continue steadily indicate that the company is in stage of expansion. Of course, growing firm need large funds, so sometimes they need to take external financing in the form of debt. The research conducted by Firmanti (2011), Nuswandari (2013), Zulfa (2014), and Kepakisan (2015) found that growth had a positive effect on capital structure. Based on previous studies, it can be formulated hypothesis as follows:

H<sub>3</sub>: growth has an effect on capital structure.

Firm size describes the size of a company. The firm size has an effect on the firm's capital structure. This is because large-scale firms will be easier in getting investors who want to invest and in terms of credit acquisition than small firms, the greater firm size the greater the opportunity the firm obtains external funding. Research conducted by Harjito (2011), Nuswandari (2013), and Wimelda & Marlinah (2013), and Zulfa (2014) showed that firm size has a positive and significant effect on capital structure. Based on the research that has been done by previous researchers, it can be formulated hypothesis as follows:

H<sub>4</sub>: firm size has effect on capital structure.

Business risk is the level of risk associated with financing the firm's assets by not using long-term debt. It means that if the business risk is greater, then the debt ratio is smaller. A firm has a small

business risk when the demand for its product is stable, input prices and products are relatively constant, price of product can be adjusted immediately with increase in cost, and sales decrease. If other things remain the same, the lower business risk, the higher optimal debt risk. Research by Nuswandari (2013) showed that business risk negatively affects on the capital structure. Subsequent research was conducted by Wimelda & Marlinah (2013) and Sari (2016) stated that business risk has a positive effect on the capital structure. Based on previous studies that have been done, it can be formulated hypothesis as follows:

H<sub>5</sub>: business risk has an effect on capital structure.

**METHOD**

The type of research is quantitative research. Variables in this study include (Subramanyam & Wild, 2013):

The regression model used to test this research is multiple regressions:

$$SM = \alpha + \beta \text{ PROF} + \beta \text{ ASSET} + \beta \text{ GROWTH} + \beta \text{ RISK} + \beta \text{ SIZE} + e$$

SM : capital structure (DER)

PROF : Profitability (ROA)

ASSET : structure assets

Growth: Growth opportunities

SIZE : firm size

RISK : business risk

β : coefficients regression

e : random error

This research uses a causal research. The sample in this research is taken by using purposive sampling technique. This research uses the documentation method in data collection process that is by

**Table 1.** Operational Definition and Measurement of Research Variables

Variable	Definition	Proxy	Measurement
<b>Dependent Variable</b>			
Capital Structure	Permanent spending that reflects long-term debt to equity	Debt to Equity (DER)	DER= (Total Liabilities)/(Total Equity)
<b>Independent Variable</b>			
Profitability	The ability of the firm makes a profit in relation to sales, total assets and equity	Return on Asset (ROA)	Return on Asset= EBIT/(total assets)×100%
Structure of assets	Relative composition of fixed assets owned by the firm.	Structure of assets (SA)	Structure of assets = (tangible assets)/(total assets).
Growth opportunities (growth)	Firms that have predicted high growth in the future will prefer use stock to fund the firm's operations	Growth opportunities ratio (Growth)	Growth= (Changes in tangible assets) / (Changes in total assets)
Firm size (size)	Level of sales, the number of personnel involved and total assets	Size	Size=Ln total assets
Business risk	Risks from a firm when it is unable to cover its operational costs and is affected by the stability of revenues and costs	Business Risk	Business Risk = σ EBIT/Sales

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record, copying and quoting written data related to research problem either from document source or books, magazines, internet etc on pecking order theory, trade off theory, capital structure and family firm in Indonesia. This study uses time series and cross section data, called pooling data. Data taken from the firm's annual report listed on the Indonesia Stock Exchange (BEI) during 2012-2016. Sampling procedures include: (1) the firm included as family firms listed on Indonesia Stock Exchange (BEI) for 2012-2016. (2) The firm is a manufacturing company. (3) The firm has published the financial statements from 2012-2016. (4) At least 5% of the shares are owned by the family.

## RESULT

**Table 2.** Classic Assumption Test Result

Classic Assumption Result	Result
Normality Test (K-S)	Satisfy
Heteroscedasticity Test (Glejser)	Satisfy
Multicollinearity Test (VIV and Tolerance)	Satisfy
Auto-Correlation Test (Durbin-Watson)	Satisfy

Normality test aims to test whether in a regression, dependent variable, independent variable or both have a normal distribution or did not have a normal distribution, one of the test methods use a graphical analysis method, normally plot or histogram graph (Ghozali, 2013). Normality data can also be tested through statistical analysis, one of them can be seen through the Kolmogorov-Smirnov test. The decision-making guidelines are as follows: if the value of sig. (significant) or probability value  $< 0.05$  distributions are unnormal, but if the sig value. (Significant) or probability value  $> 0.05$  distribution is normal. The sig value. is 0.094. The decision-making guidelines for the Kolmogorov-Smirnov normality test are  $0.094 > 0.05$ . Thus, the tested data was normally distributed.

Multicollinearity test to determine whether there are independent variables that have similarities with other independent variables in one model. The multicollinearity test seen from the Variance Inflation Factor (VIF) is not more than 10 and the tolerance value is not less than 0.1, so it can be said that the model is freed from multicollinearity  $VIF = 1 / \text{tolerance}$ , if  $VIF = 10$  then  $\text{tolerance} = 1/10 = 0.1$ . If higher the VIF will lower the tolerance. The VIF value from ROA variable, asset structure, growth opportunities, firm size and business risk is not more than 10 and the tolerance value is not less than 0.1. Thus, the assumption of multicollinearity is fulfilled with VIF ROA value of 3.196 and tolerance of 0.313, VIF value of asset structure of 1.037 and tolerance of 0.964, VIF value of growth probability of 1.012 and tolerance of 0.989, VIF value of firm size of 1.116 and tolerance of 0.896, VIF value of business risk equal to 3,307 and tolerance 0,302.

The heteroscedasticity test is to tests whether a regression model has a similarity or inequality of variance between one observation and another. Heteroscedasticity test was conducted by using the Glejser Test which showed that the parameter coefficient for all independent variables used in this study was not significant at the 0.05 level. Data is not heteroscedasticity if the value of independent variables tested has a result sig value  $> 0.05$  (Ghozali, 2013). Independent variables ROA, SA, growth, size and business risk did not heteroscedasticity. It's seen from the sig value greater than 0.05 ( $\text{sig} > 0.05$ ). The sig value for the ROA variable is 0.828, the asset structure variable is 0.242, the growth variable is 0.254, the firm size variable is 0.194 and the business risk variable is 0.158.

Autocorrelation test to determine whether there is correlation between confounding variable ( $t_1$ ), in certain period with the previous period interrupt variable ( $t-1$ ). The autocorrelation test is done with Durbin Watson Test. Durbin Watson's value is 1.905. The assumption that must be met is  $du \leq d \leq$

4 - du. Based on Durbin Watson’s value, the autocorrelation assumption in this study is  $1.816 \leq 1.905 \leq (4 - 1.816 = 2, 284)$ . Thus, the assumption of autocorrelation is fulfilled with Durbin Watson being between du and 4-du.

Based on the results of multiple linear regression analysis in Table 3, the regression equation is obtained:

$$DER = 17.037 + 0.114ROA + 1.007SA - 0.025Growth + 0.028Size - 3.253Risk$$

Based on Table 3, the results of testing the effect of ROA on DER obtained by probability significance value is  $0.945 > 0.05$  with positive beta coefficient. It means that the hypothesis that stated profitability measured by ROA has effect on the capital structure is rejected. The result of testing the influence of asset structure to DER obtained probability significance value  $0.000 < 0,05$  with positive beta coefficient. It means that the hypothesis stated that asset structure has a positive effect on capital structure is accepted. Result of testing of effect the growth to DER obtained by probability significance value  $0,276 > 0,05$  with negative beta coefficient. It means that the hypothesis stated that the growth has effect on the capital structure is rejected. The result test thr effect of size to DER obtained by probability significance value  $0,144 > 0,05$  with positive beta coefficient. It means that the hypothesis stated that the firm size has effect on the capital structure is rejected. The effect of business risk to DER obtained by probability significance value  $0,006 < 0,05$  with negative beta coefficient. It means the hypothesis stated that the business risk has effects on the capital structure is accepted.

## DISCUSSION

### The Effect of Profitability Ratio (ROA) to Firm’s Capital Structure (DER)

The results show that profitability does not affect the capital structure. The results of this study support Sansoethan & Suryono (2016) research profitability has no effect on capital structure and Naur & Nafi (2017) states that profitability has no significant effect on capital structure. This research also differs from Firnanti’s research (2011), Harjito (2011), Indrajaya, Herlina and Setiadi (2011), Nuswandari (2013), Wimelda & Marlinah (2013), Zulfa (2014), and Kepakisan (2015) where profitability has an effect to the capital structure.

The results of this study found that firms tend to choose retained earnings to finance most of the funding needs, so the higher the level of profitability, the smaller the proportion of debt in the firm capital structure (Agustini & Budiyanto, 2015). If profitability increases, then the firm is considered capable to generate profit. Firms often prefer to use the profits to finance most of the funding needs and do not choose to use debt.

Firms that tend to choose retained earnings to finance most of the funding needs using Pecking Order Theory in determining its capital structure. Internal funds are preferred from external funds because internal funds allow firm to not open themselves to outside investors. In contrast to trade off theory which states that higher profitability encourages greater debt levels (Firnanti, 2011). The Pecking Order theory states that firms with high levels of profitability will have large net cash flows. The

**Table 3.** The Result of Multiple Regression Analysis and Hypotheses Test

Variable	Coefficient Beta	Sig.	Result	Hypotheses
ROA terhadap DER	0.114	0.945	Unsignificant	Rejected
Struktur Aset terhadap DER	1.007	0.000	Significant	Accepted
Growth terhadap DER	-0.25	0.276	Unsignificant	Rejected
Size terhadap DER	0.28	0.144	Unsignificant	Rejected
Business Risk terhadap DER	-3.25	0.006	Significant	Accepted

cash flow will be retained earnings for the firm to meet its investment needs in the future (Zulfa, 2014). The results of this study indicate that firm family in Indonesia still use internal funds as the capital structure of the firm and refers to Pecking Order Theory this is reviewed from the effect of profitability ratios (ROA) to the firm's capital structure (DER).

### **The Effect of Asset Structure on the Firm's Capital Structure (DER)**

The result showed that assets structure had positive effect on the capital structure. It can be concluded if the asset structure increases then DER will also increase. The results of this study support the research of Harjito (2011), Indrajaya, Herlina and Setiadi (2011), Wimelda & Marlinah (2013) and Zulfa (2014) where asset structure variable has positive and significant effect on capital structure. This research is different from research of Kepakisan (2015) where asset structure variable has no effect on capital structure.

The company will have a tendency to borrow more if its assets increase. The firm that has large assets as debt guarantees tends to use larger debt as well. It is in accordance with Trade-off Theory, which states that the firm's assets will affect positively and significantly affect the firm's leverage (Harjito, 2011). Firms that have more assets will find it easier to obtain external financing because they can be used as collateral. Other things can be because the use of internal and external funding can increase the firm's assets to run its operational activities (Wimelda & Marlinah, 2013). The research of this study has different result from the research of (Ilat & Pontoh, 2014) it said that there's a negative relationship between debt and fixed asset investment, because the company will tend to avoid debt and use their own capital including retained earnings to be used in fixed asset investment.

### **The Effect of Growth Opportunities on the Firm's Capital Structure (DER)**

The results showed that growth had no effect on DER. This supports the research of Harjito (2011), Indrajaya, Herlina, & Setiadi (2011) and Sansoethan & Suryono (2016) where the variable growth has no significant effect on capital structure. This research is different from the research of Firnanti (2011), Nuswandari (2013), Wimelda & Marlinah (2013), Zulfa (2014), Kepakisan (2015) and Naur & Nafi (2017) where the variable of growth effect to capital structure. Judging from the direction, the results of this study is different from the previous research results that the growth has a positive effect on capital structure.

The results of this study contradict the Trade-off Theory, which states that a company with rapid growth will rely on external funds, in this case funds from debt. In addition, the cost of emissions selling common shares will often be higher than the cost of issuing bonds. As a result, companies with rapid growth will have higher debt than slow-growing companies (Harjito, 2011). The results of this study indicate that the family firm in Indonesia refers to Pecking Order Theory of this matter in terms of the effect of firm growth opportunities to the firm's capital structure (DER).

### **The Effect of Firm Size on the Capital Modal Structure (DER)**

The results showed that firm size did not affect DER. This study supports the research of Firnanti (2011), Kepakisan (2015), Sansoethan & Suryono (2016) and Naur & Nafi (2017) where size has no effect on capital structure. This research is different from the research of Harjito (2011), Indrajaya, Herlina, & Setiadi (2011), Nuswandari (2013), Wimelda & Marlinah (2013), Zulfa (2014) and Wiagustini & Pertamawati (2015) that stated firm

size had significant effect on the capital structure. In terms of direction, this research supports Harjito (2011), Indrajaya, Herlina, & Setiadi (2011), Nuswandari (2013), Wimelda & Marlinah (2013), Zulfa (2014) and Wiagustini & Pertamawati (2015) studies, firms have a positive effect on capital structure.

The results of this study found that the firm size does not guarantee the interest of investors or creditors in investing funds to the firm, so the firm size does not significantly affect the capital structure (Firnanti, 2011). These results also indicate the ease of accessibility to the capital markets is the flexibility and ability of firms to create debt or generate larger funds with the firm's record having a higher dividend payout ratio, and that ability does not see whether the firm is large or small. Judging from the influence of firm size (size) on the firm's capital structure (DER), the family firm in Indonesia refers to Pecking Order Theory in determining its capital structure.

There's a different result from (Guo & Leinberger, 2012), the result is there's a negative relationship exists between the debt ratio and the size. Firms that have a larger capacity to generate sizable net operating cash flows can better support their asset growth and hence are less likely to use external debt financing. Firms tend to prefer internal financing to external financing, and debt to equity when external financing is required.

### **The Effect of Business Risk on the Firm Capital Structure (DER)**

The result of the research shows that business risk has negative effect to DER. It can be concluded that the higher the business risk, the firm's capital structure will decrease, the influence is significant. The results of this study support the results of research Nuswandari (2013). The results of this study are different from Firnanti's (2011),

Indrajaya, Herlina and Setiadi (2011) and Naur & Nafi (2017) studies which stated that business risk has no effect on capital structure.

The results of this study are in line with pecking order theory. Firms with high business risks tend to avoid funding using debt, compared to firm with low business risk. Firms with high business risk generally prefer to use internal funds rather than using debt or issuing shares. The higher the business risk, the capital structure will lower (Mohammed (2012) and Nuswandari, 2013).

An important finding of this study can be concluded that the average family firm in Indonesia still adheres to Pecking Order Theory as a reference to determine the firm's capital structure.

## **CONCLUSION AND SUGGESTIONS**

### **Conclusion**

Based on the results of research profitability, growth opportunities, and firm size does not affect the capital structure, so it is concluded that profitability, growth opportunities, and company size in the family company manufacturing sector in Indonesia tend to refer to Pecking Order Theory in the capital structure. The asset structure has a positive and significant effect on capital structure (DER). This suggests that the firm will have a tendency to borrow more if its assets increase. This is in accordance with Trade-off Theory, which states that the firm's assets will affect the amount of debt (leverage) firm. Business risk has a negative and significant effect on capital structure. This suggests that firms with high business risks tend to avoid funding using debt, compared to firms with low business risk. Firms with high business risk generally prefer to use internal funds rather than using debt or issuing shares. The higher the business risk, the capital structure will lower, this is in accordance with the Pecking Order Theory.



## Suggestions

For a family firm manufacturing sector in Indonesia that has a large profitability, growth opportunities, and firm size, the firm should consider increasing the diversification of external funding sources, so that firm can maximize its industrial

capacity. For further research, it is better to stratify the asset structure of large, medium, and small firms as the asset structure has a contribution in determining the capital structure policy. Other research variables that affect capital structure such as: dividend policy, solvency, and firm prospect in the future become interesting thing to be studied.

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