

The Effect of Investment Opportunity Set and Company Growth on Firm Value: Capital Structure as an Intervening Variable

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This study aims to analyse the effect of firm size, investment opportunity set, sales growth on firm value and capital structure. This study uses secondary data collected from Bloomberg financial data and the Indonesian Stock Exchange website. The data used is in the form of manufacturing company financial statement data during 2014-2018. There are 167 manufacturing companies in Indonesia. The sampling method used in this study was purposive sampling. 120 samples were analysed using multiple linear regression analysis. Based on the results of hypothesis testing, firm size and sales growth have a positive and significant effect on capital structure. Investment opportunity set has a significant negative effect on capital structure. Firm size, investment opportunity set, and capital structure have a significant positive effect on firm value. Variable sales growth does not have a significant negative effect on firm value. In this study, capital structure can only mediate firm size to firm value.

Key words: *Firm size, IOS, sales growth, capital structure, firm value.*

Introduction

Firm value is the main aspect that investors will see before investing funds in a company (Chabachib et al.,2019). One factor that underlies investors decisions to invest their capital is the existence of high returns. For this reason, an investor needs information about stock valuations. One factor that has an influence on firm value is capital structure. Capital structure is the proportion of a company's long-term permanent funding as indicated by debt, preferred stock equity, and common stock (Horne & Wachowicz, 2012). Capital structure becomes important because in running a business it is inseparable from the need for funds which will



affect the survival of the business and the return obtained by the company. Firm size is one of the factors that has an influence on capital structure and firm value. This is because the larger the firm size, the greater the funds needed for production activities. Large companies will be given more confidence to increase debt, as large companies are considered to be able to generate greater revenue to pay these debts.

The factor which influences the company's next value is the investment opportunity set (IOS). The investment is carried out in the hope that it will provide a large profit for the company, which will make the company's value increase. Furthermore, the factors that can affect the capital structure and firm value are sales growth. Sales growth gives a picture of the company's achievements in the past, where sales growth is used in predicting the company's achievements in the future (Dharmawan, 2015). This research was conducted because of the inconsistency of the results from previous studies. Table 1. represents the gap between various studies regarding capital structure and firm value.

Table 1: Research Gap

| Variable | Researcher | Research Result |
|---|---|--------------------------|
| Capital Structure on Firm Value | Hermuningsih, (2013) and Hirdinis, (2019) | Significant Positive |
| | Mahirun & Kushermanto, (2018) | Significant Negative |
| Firm size on Capital Structure | Mahnazmahdavi et al., (2013), | Significant Positive |
| | Soukotta & Chabachib, (2012) | Significant Negative |
| | Purwohandoko, (2017) | Not Significant |
| Firm size on Firm Value | Mahirun & Kushermanto, (2018) | Significant Positive |
| | Hirdinis, (2019) | Significant Negative |
| | Emanuel & Rasyid, (2019) | Significant Negative |
| | Hermuningsih, (2013) | Negative Not Significant |
| Investment Opportunity Set on Structure Modal | Suaryana & Udayani, (2013) | Significant Positive |
| | Tilehnoei & Shivaraj, (2014) | Significant Negative |
| | Wibowo, (2016) | Not Significant |
| Investment Opportunity Set on Firm Value | Sudiani & Wiksuana, (2018) | Significant Positive |
| | Giriati, (2016) | Significant Negative |
| | Mahirun & Kushermanto, (2018) | Not Significant |
| Sales Growth on Capital Structure | Mahnazmahdavi et al., (2013) | Significant Positive |
| | Soukotta & Chabachib, (2012) | Significant Positive |
| | Hermuningsih, (2013) | Negative Not Significant |
| Sales Growth on Firm Value | Astutiningrum, (2019) | Significant Positive |
| | Emanuel & Rasyid, (2019) | Significant Negative |
| | Mahirun & Kushermanto, (2018) | Positive Not Significant |

Source: Various journals and research (2020)

Literature Review

Trade-off Theory

Trade-off theory explains that debt can increase a firm value, but only to a certain point. If it exceeds a certain point, debt can actually reduce firm value. Serrasqueiro and Caetano (2015) suggested that the optimal capital structure does exist. Companies with maximum firm value will find their optimal capital structure with the costs exchanged for the benefits of using debt (Cuong & Canh, 2012). The essence of trade-off maintains that capital structure is the result of trade-offs from the tax advantages of using debt and the costs arising from the benefits of using debt. Even though the trade-off model cannot determine the capital structure optimally, it makes an important contribution: companies with high assets should use less debt and companies that pay high taxes should use more debt than companies with low taxes (Hermuningsih, 2013).

Hypothesis Development

Firm Size on Capital Structure

Firm size is the size of a company that is shown by the size of the total assets (Soukotta & Chabachib, 2012). If the firm size gets bigger, then the capital structure will increase significantly. Higher sales indicate that companies need large funds for sales activities. Besides internal funds, another alternative that can be used by companies is external funds. This is in line with the pecking order theory, which holds that if a company's internal funds are insufficient, the company can pass another alternative by using debt (Dharmawan, 2015). Thus, the greater the firm size, the greater the number of loans of a company. This is in line with finding of Dharmawan (2015) that firm size has a significant positive effect on capital structure.

H1: Firm size has a positive effect on capital structure

Firm Size on Firm Value

The great size of a company indicates that the company has good growth and development and stable sales conditions. Signalling theory explains that a stable company will give a signal to investors that the company has good prospects, thus the level of investor confidence will increase to invest more in the company (Chabachib et al., 2019). Investors will be interested in investing by buying company shares, which in turn will increase the company's stock price. The company's rising stock prices indicate that there is an increase in the firm value. For large companies especially, it is a must to give a signal to investors. This statement is in accordance

with the results of research by Astutiningrum (2019), Mahirun and Kushermanto (2018), that firm size has a positive effect on firm value.

H2: Firm size has a positive effect on firm value

Investment Opportunity Set (IOS) on Capital Structure

Companies that have high growth potential have high investment opportunities that require high funding, which is not enough if only funded by internal companies (Na'imah, 2019). Pecking order theory explains that there is an influence of growth opportunities on the company's capital structure. Companies with high growth will, therefore, need more capital for activities and will have the opportunity to borrow more funds. Trade-off theory by Jahanzeb, Bajuri, and Karami, (2013) suggests that the addition of debt is permitted if it is still below the optimal point and so long as the benefits are greater. However, when the debt exceeds the optimal point it can be detrimental to the company. Companies with high investment opportunities can increase debt and have a great chance of getting a lot of loans (Sudiani & Wiksuana, 2018).

H3: Investment opportunity set has a positive effect on capital structure

Investment Opportunity Set (IOS) on Firm Value

Firm value is not determined by the proportion of debt but is determined by the selection of investment opportunities and asset placement (Chabachib., 2019). Pecking order theory explains that companies can use internal funds as funding, and then retained earnings. They may then choose to issue debt, or finally issue equity as a last resort (Jahanzeb et al., 2013). Investment decisions cannot be directly observed by outsiders, so it is called the Investment Opportunity Set (IOS). IOS provides an overview of the value of a company, which can be seen or determined based on company expenses in the future. Investment decisions are important because achieving company goals can only be done through corporate investment activities (Sudiani & Wiksuana, (2018).

H4: Investment opportunity set has a positive effect on firm value

Sales Growth on Capital Structure

Pecking order theory explains that there is an influence of growth opportunities on the company's capital structure, companies that grow rapidly will require greater capital and will have the opportunity to borrow more funds (Suaryana & Udayani, 2013). Pecking order theory explains that the growth of companies with debt has a positive relationship. The high funding

requirements used for operational activities and to expand more broadly increases the expectation that the company will borrow more funds (Sanjaya & Martono, 2012).

H5: Sales growth has a positive effect on capital structure

Sales Growth on Firm Value

Sales growth indicates the company's progress, so there are good prospects for the company (Dharmawan, 2015). Signalling theory explains a company with good quality intentionally sends signals to the market so that investors can assess the company's good performance and consider that company as a place to invest. One of these signals is sales growth. Investors consider sales growth as an indicator when looking at the prospects of the company they may choose to invest in. This statement was supported by research conducted by Astutiningrum (2019), who found that sales growth had a positive effect on firm value.

H6: Sales growth has a positive effect on firm value

Capital Structure on Firm Value

Signalling theory emphasises the importance of information sent by companies in investment decisions from outside parties. Starting from the asymmetric information, the company must give a signal to the market that the company has good prospects and performance (Wahyudi, Achmad, & Pamungkas, 2019). One of these signals is using a large portion of debt. It is expected that, by signalling that the company is stable, the company can attract investor confidence to buy the company's shares. Signalling theory explains that capital structure has a positive effect on firm value (Ramdhonah, Solikin, & Sari, 2019). The statement is in accordance with the results of research Hirdinis, (2019).

H7: Capital structure has a positive effect on firm value

Firm Size on Firm Value and Capital Structure

A growing company will need a large amount of funds for its operations and sales. In addition to internal funds, the use of debt will be recommended for large companies that have good stability (Chabachib et al., 2019). Pecking order theory states that if a company's internal funds are inadequate, the company can pass another alternative by using debt (Hermuningsih, 2013). The use of debt will be able to increase the level of company sales where company profits will increase. When company profits increase, the price of shares will rise and the firm value will increase. Hermuningsih (2013) found that there was a significant positive effect of firm size on firm value through capital structure.

H8: Firm size has a positive effect on firm value and capital structure

Investment Opportunity Set (IOS) on Firm Value and Capital Structure

Companies with high growth potential have high investment opportunities, so the company will need large funds. Internal funds may not only be sufficient to fund investment, another alternative is to use debt (Irwandi et al., 2019; Pamungkas, Ghozali, & Achmad, 2018). Pecking order theory explains that the use of internal funds is the company's first choice. The company will then choose to use debt if internal funds are inadequate (Jahanzeb et al., 2013). A large debt, if it can be used efficiently, can increase profits. If the company can then utilize the borrowed funds as an opportunity to see and make investment opportunities, the company can attract the trust of investors which will make the company's value increase.

H9: Investment opportunity set has a positive effect on firm value and capital structure

Sales Growth on Firm Value and Capital Structure

Pecking order theory explains that companies can use internal funds as first funding, then retained earnings, then issue debt, and finally issue equity as a last resort (Jahanzeb et al., 2013). Pecking order theory also explains how a company that is growing makes financial decisions. The use of debt by growing companies is expected to increase sales. This indicates that the company has a stable and good prospects (Chabachib et al., 2019; Utomo & Pamungkas, 2018; Utomo, Pamungkas, & Machmuddah, 2018). This will provide a signal to investors to invest by buying company shares. So, sales growth with a high use of debt can also make the firm value increase.

H10: Sales growth has a positive effect on firm value and capital structure

Research Method

Population and Sample

The population of this research is all manufacturing companies on the Indonesia Stock Exchange. As of January 2019, 197 companies are listed on the Indonesia Stock Exchange. This research uses purposive sampling technique as follows:

Table 2: Research Samples

| Criteria | Total |
|---|-------|
| Companies listed or listed on the Indonesia Stock Exchange in 2014-2018 | 641 |
| Manufacturing companies listed on the Indonesia Stock Exchange in 2019 | 167 |
| Manufacturing companies published 2014-2018 financial statements | 129 |
| Manufacturing companies that have complete data for measurements. | 61 |
| Total data observed during 2014-2018 (61 company x 5 years) | 305 |
| Data outlier | (185) |
| Research data after outliers (24 companies x 5 years) | 120 |

Source: Data developed by researchers, 2020

The data obtained by researchers are sourced from the IDX website, namely www.idx.co.id and Bloomberg data.

Analysis Method

The analysis technique of this research is descriptive statistical test, classic assumption test, multiple regression analysis test, and hypothesis testing using SPSS version 25.0. This study uses the multiple regression analysis method to see the relationship between the influence of independent variables on the dependent variable directly and indirectly by involving intervening variables. The regression model is as follows:

$$\text{DER} = \alpha + \beta_1\text{SIZE} + \beta_2\text{IOS} + \beta_3\text{SALES} + e_1 \dots \dots \dots (1)$$

$$\text{TOBIN'SQ} = \alpha + \beta_1\text{SIZE} + \beta_2\text{IOS} + \beta_3\text{SALES} + \beta_4\text{DER} + e_2 \dots \dots (2)$$

Sobel Test

The Sobel test method is used to test the influence of the intervening variable. The Sobel test is a procedure for testing intervening or mediating variable hypotheses, which was first developed by Ghazali (2013), Preacher and Leonardelli (2001). The Sobel test is done by calculating the indirect effect of X1 to Y by calculating the effect of X1 to Y (a) and X2 to Y (b) or ab. The standard error coefficients a and b are Sa and Sb. For the standard error the indirect effect is called Sat, which is calculated by the formula:

$$\text{Sab} = \sqrt{a^2sb^2 + b^2sa^2 + sa^2sb^2}.$$

Table 3: Variable Operational Definitions

| Variable | Measurement | Scale | Source |
|----------------------------|---|-------|------------------------------|
| Firm Size | Firm Size = Ln Total Asset | Ratio | Hirdinis, (2019) |
| Investment Opportunity Set | MBVE = Outstanding Shares x Closing Price/ Total Equity | Ratio | Mahirun (2018) |
| Sales Growth | Sales = Sales (t) – Sales (t-1)/ Sales (t-1) | Ratio | Soukotta & Chabachib, (2012) |
| Capital Structure | Debt to Equity = Total Debt/ Total Equity | Ratio | Soukotta & Chabachib, (2012) |
| Firm Value | Tobin's Q = ME + Debt/ Total Assets | Ratio | Soukotta & Chabachib, (2012) |

Source: Various journals and research (2020)

Discussion

The results of the descriptive statistical analysis have been carried out as follows:

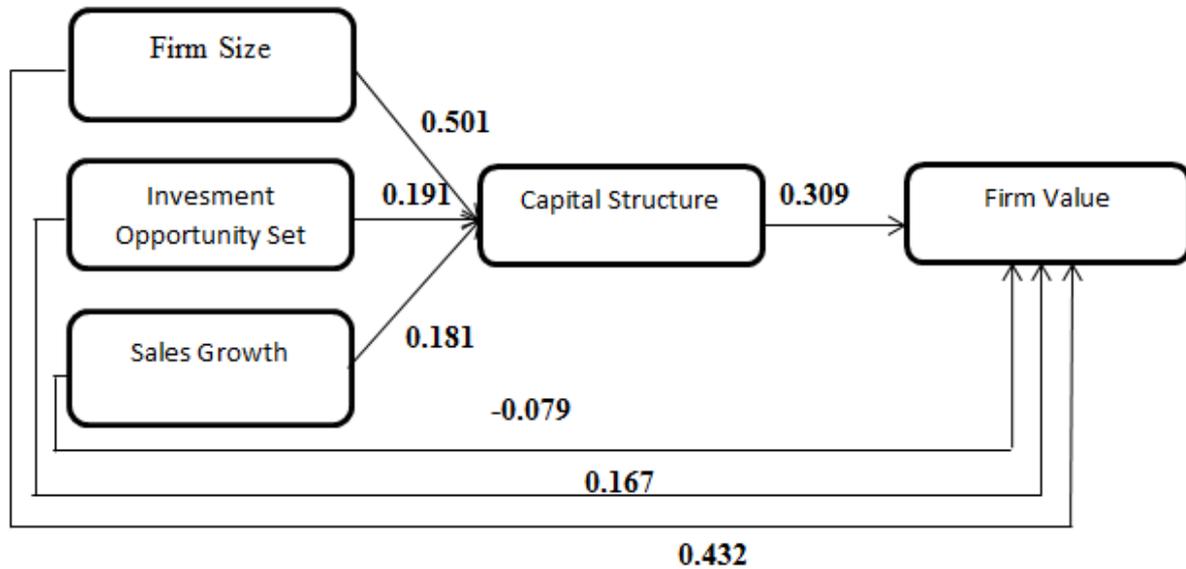
Table 4: Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|--------------------|-----|---------|---------|---------|----------------|
| SIZE (LN) | 120 | 25,1207 | 32,9592 | 30,0855 | 31,2781 |
| IOS | 120 | 0,0000 | 4,7581 | 0,7538 | 0,6703 |
| SALES GROWTH | 120 | -0,2404 | 0,7791 | 0,0863 | 0,1393 |
| DER | 120 | 0,0000 | 2,0384 | 0,6389 | 0,4531 |
| TOBINSQ | 120 | -0,0065 | 1,9201 | 0,9016 | 0,3927 |
| Valid N (listwise) | 120 | | | | |

Source: Bloomberg data processed (2020)

In this study, the capital structure variable is used as an intervening variable.

Figure 1. Hypothesis Testing Results



Source: Secondary data processed, 2020

Based on this description, the results of the hypothesis testing summary are presented in Table 5. The following are the results of the mediation test of capital structure variables on the effect of firm size variables, investment opportunity set, sales growth on firm value by calculating the Sobel Test.

Table 5: Hypothesis Test Result

| | Path | Direct Effect Coefficient | p-Value | Conclusion |
|----|--|---------------------------|---------|------------|
| H1 | Firm Size → Capital Structure | 0,129 | 0,000 | Accepted |
| H2 | Firm Size → Firm Value | 0,432 | 0,000 | Accepted |
| H3 | Investment Opportunity Set → Capital Structure | -0,129 | 0,028 | Rejected |
| H4 | Investment Opportunity Set → Firm Value | 0,167 | 0,030 | Accepted |
| H5 | Sales Growth → Capital Structure | 0,181 | 0,028 | Accepted |
| H6 | Sales Growth → Firm Value | -0,079 | 0,283 | Rejected |
| H7 | Capital Structure → Firm Value | 0,454 | 0,002 | Accepted |

Source: Secondary data processed, 2020

The Sobel Test is used to see indirect effects. This strategy is considered to have more statistical power than other formal methods. In full is the following formula:

$$Sab = \sqrt{a^2sb^2 + b^2sa^2 + sa^2sb^2}$$

Information: a : coefficient of the direct effect X to Z

b : direct effect coefficient Z to Y

Sa: standard error of the coefficient a

Sb: standard error of the coefficient b

1. Effect of Size on Firm Value through Capital Structure

$$\begin{aligned}
 2. \text{ Sab} &= \sqrt{a^2sb^2 + b^2sa^2 + sa^2sb^2} \\
 &= \sqrt{(0,454)^2(0,022)^2 + (0,129)^2(0,144)^2 + (0,144)^2(0,022)^2} \\
 &= \sqrt{0,000103 + 0,00034 + 0,0000103} \\
 &= \sqrt{0,0004533} = 0,02129 \\
 t \text{ hitung} &= \frac{ab}{\text{Sab}} = \frac{0,454 \times 0,129}{0,02129} = 2,75
 \end{aligned}$$

t value 2.75 > 1.98 (t table) so that the capital structure can mediate the firm size against the firm value at a significance of 5%.

The Effect of Investment Opportunity Set on Firm Value Through Capital Structure:

$$\begin{aligned}
 \text{Sab} &= \sqrt{a^2sb^2 + b^2sa^2 + sa^2sb^2} \\
 &= \sqrt{(0,454)^2(0,058)^2 + (-0,129)^2(0,144)^2 + (0,144)^2(0,058)^2} \\
 &= \sqrt{0,00068 + 0,00034 + 0,000068} \\
 &= \sqrt{0,001088} = 0,0329 \\
 t \text{ hitung} &= \frac{ab}{\text{Sab}} = \frac{0,454 \times (-0,129)}{0,0329} = -1,78
 \end{aligned}$$

The t value is 1.78 < 1.98 (t table) so that the IOS relationship to the firm's value cannot be mediated by the capital structure at a significance level of 5%.

Effect of Sales Growth on Firm Value Through Capital Structure:

$$\begin{aligned}
 \text{Sab} &= \sqrt{a^2sb^2 + b^2sa^2 + sa^2sb^2} \\
 &= \sqrt{(0,454)^2(0,264)^2 + (0,587)^2(0,144)^2 + (0,264)^2(0,144)^2} \\
 &= \sqrt{0,0071 + 0,0143 + 0,00144} \\
 &= \sqrt{0,02284} = 0,1511 \\
 t \text{ hitung} &= \frac{ab}{\text{Sab}} = \frac{0,454 \times 0,587}{0,1511} = 1,76
 \end{aligned}$$

The t value is 1.76 < 1.98 (t table) so the relationship of sales growth to the firm value cannot be mediated by the capital structure at a significance level of 5%. However, at a significance level of 10%, capital structure can mediate sales growth to firm value.

Table 6: Hypothesis Test Result

| | Variable | t count | t table | Information | Conclusion |
|-----|-----------------|---------|---------|--|------------|
| H8 | SIZE | 2,75 | 1,98 | t count > t table, then mediate | Accepted |
| H9 | IOS | 1,78 | 1,98 | t count < t table, then cannot mediate | Rejected |
| H10 | SALES GROWTH | 1,76 | 1,98 | t count < t table, then cannot mediate | Rejected |

Source: Secondary data processed, 2020

Discussion

Pecking order theory suggests that the greater a company, the greater the need for funds. The company will use internal funds, but if internal funds are insufficient the company can choose to use debt as an alternative to finance company activities. Large companies will have the ease of obtaining loans that are used in increasing the level of sales or company activities. Therefore, the first hypothesis (H1), which states that there is a positive and significant influence of firm size on capital structure, is accepted. The results of the study are in line and supported by Mahnazmahdavi, (2013) who found that firm size has a significant positive effect on capital structure. Signalling theory explains a company that is stable and has good quality will give a signal for investor, hence the level of investor confidence will increase to invest in the company. Regression results show that firm size variables have a positive and significant effect on firm value. The second hypothesis (H2), which states that there is a positive and significant influence of firm size on firm value, is accepted. The results of the research on hypothesis 2 are supported by the results of research conducted by Astutiningrum (2019), Mahirun and Kushermanto (2018).

Companies that will invest in the future can make different funding decisions, depending on the choice of company expenditure for future needs. Investment opportunities in the future with high profits are intangible assets of the company, which cannot be financed by debt. Companies with high opportunities tend to have a high market to book equity ratio and low debt. The company will use internal funds as the first choice to finance the company's investments as described in the pecking order theory. So, the third hypothesis (H3), which states that there is a positive and significant influence on the capital structure IOS, rejected. The results of the study are in line with the results of research conducted by Tilehnouei and Shivaraj (2014). According to Gaver and Gaver (1993), investment opportunity set (IOS) is the firm value, the amount of which depends on expenditure as determined by management in the future, which at present are investment choices expected to generate large returns. Regression results show that IOS has a significant positive effect on firm value. The company's growth gives a sign that the company has good prospects in the future which is expected to have a high rate of return on investment for investors. So, the fourth hypothesis (H4), which states that there is a

significant positive influence of IOS on firm value, is accepted. The results of the study are in line with research conducted by Sudiani and Wiksuana (2018).

Trade-off theory explains that companies with high growth will need high funds as well, so companies are expected to borrow funds or use external funds, in this case debt (Jahanzeb et al., 2013; Serrasqueiro & Caetano, 2015). This statement is in line with what is explained in the pecking order theory by Johl, Kaur, & Cooper (2015), who state that debt and growth opportunities have a positive relationship so companies that are growing will tend to use debt in high amounts. Therefore, hypothesis five (H5), which states that there is a positive effect of sales growth on capital structure, is accepted. The results of this study are supported and in line with research conducted by Trang, Murni, and Pantow (2015). Sales growth indicates the company's progress, so there are good prospects for the company (Dharmawan, 2015). Signalling theory states that companies that have good quality intentionally send signals to the market so that investors can assess the company's good performance as a reason to invest. The sixth hypothesis (H6), which states that there is a positive relationship between sales growth and firm value, is rejected. The results of the study are the same as the research conducted by Mahirun & Kushermanto (2018), Trang et al. (2015), who find that sales growth has no significant negative effect on firm value.

Signalling theory emphasises the importance of information sent by the company on investment decisions from outside the company. Because the information is asymmetrical, the company must give a positive signal to the market that the company has good prospects and performance. One of them is by using a large portion of debt. A stable company will provide information on the use of debt, which means the company has good prospects and growth. This attracts investors to invest capital and increase the firm value. The seventh hypothesis (H7), which states that there is a significant positive effect of capital structure on firm value, is accepted. The results are in line with research conducted by Dharmawan (2015), Hirdinis (2019). These results can be seen from the t value of 2.75, which is greater than t table of 1.98 with a significance level of 0.05. High funding requirements mean that the company cannot only rely on internal funds, and therefore encourages companies to use external funds or loans to finance company activities. Signalling theory explains the existence of companies with increasing total assets, indicating that the company is a company that has good quality and good prospects. This will give a positive signal to investors to invest shares. Hypothesis eight (H8), which states that firm size has a positive relationship with firm value mediated by capital structure, is accepted. Dharmawan (2015) found that capital structure can mediate firm size against firm value.

Based on the Sobel Test, IOS has an indirect positive effect on firm value through capital structure, meaning that the capital structure can mediate the relationship of IOS to firm value. These results can be seen from the calculation of t count of -1.78, which is smaller than t table

of 1.98 with a significance level of 0.05. Pecking order theory explains that companies will choose to use internal funds as the first choice. Hypothesis nine (H9), which states that there is a positive effect of IOS on the firm value mediated by the capital structure, is rejected. The results of this study are in line with the results of research conducted by Yanti et al. (2018), who found that capital structure cannot mediate the relationship between investment opportunity set on value. Based on the Sobel Test, it was found that capital structure cannot mediate the relationship of sales growth with firm value. This can be seen from the t count of 1.76, which is smaller than t table of 1.98 with a significance level of 0.005. Hypothesis ten (H10), which states that there is a positive effect on sales growth on firm value mediated by capital structure, is rejected. The results of the study are in line with research conducted by Hermuningsih (2013), who found that capital structure cannot mediate the relationship of sales growth to firm value.

Conclusion

The results showed that firm size has a positive effect on capital structure and firm value. The results showed that investment opportunity set (IOS) has a negative effect on capital structure. However, the results of the study show that investment opportunity set (IOS) has a positive effect on firm value. Sales growth has a positive effect on capital structure, but sales growth has no effect on firm value. The results showed that the capital structure had a significant positive effect on firm value. The results showed that capital structure can mediate firm size against firm value. However, the results of the study indicate that capital structure cannot mediate the investment opportunity set relationship with firm value. The study was only conducted at manufacturing companies in Indonesia, so the results of the study cannot be generalized to all companies in Indonesia. Future studies are suggested to add other variables that can have more influence on capital structure and firm value. Further research is also expected to broaden the sample of companies, which only comprises companies in the manufacturing sector, to companies in all non-financial sectors.

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