

# “Determinants of financing decision: empirical evidence on manufacturing firms in Indonesia”

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# DETERMINANTS OF FINANCING DECISION: EMPIRICAL EVIDENCE ON MANUFACTURING FIRMS IN INDONESIA

## Abstract

This study aims to contribute to the emergence of the literature focusing on exploring the factors influencing the financing decision, as well as examining the relationship between the firm size, profitability and firm growth towards the corporate debt. Questions such as how relevant firm size, profitability and firm growth to debt are, quantitatively, had not been fully answered in the business literature. The purpose of this study is to fill this large gap by examining the role of the firm size, profitability, investment and firm growth for the corporate debt. This study tries to examine the determinants of debt in the financial literature which include size, growth, business risk, and profitability in accordance with the capital structure theory, in manufacturing firms in Indonesia. The sample contained financial data from 150 firms for the period 2012–2017. The results showed that the manufacturing firms in Indonesia had high debt levels, especially the size, profitability, firm growth and profitability had proven to be the debt determinants, which also confirmed the Pecking Order Theory. This study also found that the management preference of manufacturing firms in Indonesia for risk was the risk-seeker or risk-neutral ones. This finding implies that the choice of funding sources originating from debt still provided greater returns compared to the capital cost needed due to business uncertainties.

## Keywords

leverage, firm size, firm growth, business risk, Pecking Order Theory

## JEL Classification

G10, G32

## INTRODUCTION

The firm's funding sources for investment are mostly fulfilled through equity and debt. Decisions about funding sources are one of the most important issues and often result in differences in different research results between the researchers and each other, which caused great controversy in the last few decades. Debt is an instrument that is very sensitive to changes in the corporate value determined by the condition of the capital structure (Modigliani & Miller, 1958). There are several factors influencing the funding decisions. The first one is the firm size. It has a positive effect on the capital structure, because large firms tend to have lower income volatility and net cash flow (Fama & French, 2000). The concept of firm size is quite widely used to the express capital structure (Serrasqueiro & Caetano, 2015).

It was revealed that large firms that diversify tended to take advantage of high debt capacity. Therefore, it could be estimated that large firms tend to issue bigger debt than small firms. Previous empirical studies have been conducted to prove the relationship between the firm size and firm debt. Vithessonthi and Tongurai (2015) showed that differ-

ences in the debt between firms with small and large firm sizes were caused by different behaviors towards investment. Dang, Li, and Yang (2018) had also shown the same thing.

Second, profitability, which shows the firm's ability to convert assets into cash. In the context of capital structure, the concept of liquidity reflects the firm's ability to pay off short-term debts that are due with the available cash. A study by Corneli and Tarantino (2016), Korinek and Simsek (2016), Niemann and Pichler (2017) shows an empirical evidence that liquidity ratios negatively affected the firm's debt structure. It implied that the more available cash, the lower the debt ratio. Third, the firm growth, which can be seen from the increase in the production output, which will increase the revenue (net income) through the increased sales. With the output growth, additional profits are obtained by achieving the economies of scale in producing at a certain amount that will maximize the firm profits. Another source of profit is the bargaining position of suppliers resulting in a second-degree price discrimination.

The higher the proportion of debt, the higher the stock price. However, at a certain point, the increase in debt will reduce the corporate value, because the benefits obtained from the use of debt are less than the costs incurred. Therefore, managers must consider the benefits and costs of the source of funds chosen in making funding decisions. Each funding source has different financial consequences and characteristics. The firm owner prefers the firm to create a certain level of debt to increase the corporate value. In order for the owner's expectations to be achieved, the behavior of the managers and commissioners must be controlled through asset substitution, namely participation in the firm's stock ownership.

Apparently, the event studies about the relationship between the financing decision factors did not attract the researchers' attention. Therefore, they had not produced consistent findings, which used the data from 150 manufacturing firms in Indonesia from 2010 to 2016. This study aims to contribute to the emergence of the literature focusing on exploring the factors influencing the financing decision, as well as examining the relationship between the firm size, profitability and firm growth towards the corporate debt. This study focuses on whether the firm size, profitability and firm growth affect the debt. The research question in this study is what is the effect of firm size, profitability and firm growth towards corporate debt. Hopefully, this study will provide a review of various aspects of firm size, profitability and firm growth. This study provides a strong empirical foundation for firm size, profitability and firm growth towards corporate debt. This study also provides a review of various aspects of firm size, profitability and firm growth.

The remainder of this paper is organized as follows. Section 1 discusses the literature review. Section 2 presents the methodology. Section 3 presents the results. Section 4 discusses the empirical results. Finally, last section concludes.

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## 1. LITERATURE REVIEW

### 1.1. Financing decision

This research is about explaining and exploring the models showing how optimal decisions on financing decisions were focused on improving the firm performance in order to obtain additional funds to support the investment policies, which were based on the foundation of the agency theory.

Financial management literature includes Öztekin (2015), Robinson (1952) who stated that

funding sources can be obtained from inside and outside the firm. Internal funding sources are retained earnings and depreciation, while external funding sources are from creditors, owners, and shareholders in the firm. Meeting the needs of funds which come from credit is such a debt to the firm or called as the debt financing method. The funds obtained from owners and shareholders in the firm are considered as the firm's original capital.

The proportion of the use of the firm's original capital and debt in meeting the firm funds is

called the firm's capital structure. Elsas, Flannery, and Garfinkel (2014) explained that the optimal balance between debt and capital was revealed in the capital structure theory aimed at providing a foundation of thinking to determine the optimal capital structure. A capital structure is considered to be optimal if in a certain level of risk, it can provide a maximum corporate value. According to the agency cost concept, it can maximize the corporate value (Jensen & Meckling, 1976). The theory assumes that the agency costs of debt use increase along with the increasing debt.

Huang, Ritter, and Zhang (2016) revealed that the increasing debt could create an incentive for the shareholders to substitute the asset to a shift risk or to reduce investment (to under-invest) projects with positive NPV. This condition has the potential to create a conflict of interest between the shareholders and the creditors. Increasing the use of debt that is responded to with the equity holders' risk-shifting incentives will reduce the agency costs of debt use or under-investment problems. Therefore, to obtain the optimal debt to equity ratio, it can also be obtained "by trading off the agency costs of debt against the benefit of debt". There are two theoretical frameworks that underlie the selection of funding sources, they are the Static and Pecking Order Theory. The funding decisions with Static Theory are based on the optimal capital structure, namely balancing the benefits of tax savings on the use of debt against the bankruptcy costs (Myers, 1984). While the Static Theory predicts a relationship between the income variability or the volatility of cash flows with the use of debt. This theory aims to balance the firm's original capital with the external capital. As long as there are still many benefits of using the debt, it will be continuously added. However, if there are more sacrifices in using the debt, then the debt is no longer optimal to add (Myers, 1984). Researches which are consistent with the static theory are demonstrated by Gibson and Thirlwall (2016) where in their empirical studies in the United Kingdom (UK) and Italy, they found that the UK financial markets, which were well developed tended to adjust to the long-term optimal leverage target, while the Italy's, which was less efficient financial markets, preferred prioritizing the equity issuance rather than pursuing its optimal leverage ratio.

Decisions about funding sources are one of the most important issues and often result in differences in different research results between the researchers and each other, which caused a great controversy in the last few decades. Debt is an instrument that is very sensitive to changes in the corporate value determined by the condition of the capital structure (Modigliani & Miller, 1958, 1963). The funding decision according to the Pecking Order Theory confirms that funding is based on a source of funding preference in the order of the one with the smallest risk first (Myers & Majluf, 1984). The Pecking Order Theory prefers internal funding sources. If the external fund sources are used, the suggested funding sequence starts with the retained earnings, debt and the last is the issue of equity (Myers & Majluf, 1984). The research results that are consistent with this theory proved that the debt ratios were inversely related to the earnings (Bem, Prędkiewicz, Ucieklak-Jeż, & Siedlecki, 2015; Yegon, Cheruiyot, Sang, & Cheruiyot, 2014).

Profitable firms are more likely to use internal funds and borrow in small amounts (Mun & Jang, 2015; Myers, 1984). An empirical study by Mouton and Smith (2016) showed the validity of the Pecking Order Theory that a firm would only adjust its optimal capital structure to the average level of industrial debt when the level of corporate debt was above the average level of debt of the industry. Conversely, a firm that had an average debt level below the average debt level of its industry did not consider the use of debt as its main priority of funding sources.

## 1.2. Hypotheses development

### 1.2.1. Profitability and leverage

The Pecking Order Theory shows that if a firm is more profitable, more funding comes from internal funding. According to Osazuwa and Che-Ahmad (2016), profitable firms generally borrow in small amounts. Firms that lack profitability tend to have more debts, because their internal funds are not sufficient for their needs and debt is their choice of external funding sources. The debts are preferred over their own capital, because they consider the cost of issuing the long-term debt cheaper than the share issuance cost.

Wahyudi (2005) revealed that the relationship between profitability and capital structure in total effect was more meaningful than the direct effect. Therefore, to understand the effect of profitability on the corporate leverage, it can be seen through the dimensions of the corporate investment, where profitability is an indicator of corporate investment decisions. Furthermore, Wahyudi (2005) stated that in the Pecking Order Theory, the model showed that firms that had large investments tend to have high leverage, whereas the greater the investment opportunity, the greater the firm used the external funds in the form of debt if their internal funds were insufficient. This statement supported what was stated by Ross (1977) that the interaction between investment and capital structure resulted in the profitability to have a positive effect on leverage. Conversely, a firm with a debt level, which was below the average debt level of its industry, did not consider the use of debt as its main priority of funding sources. Therefore, profitability had a negative relationship with the leverage level. Referring to the opinions and findings of the study from Alhassan, Addisson, and Asamoah (2015), Chaibi and Ftiti (2015), Vithessonthi and Tongurai (2015), it was found that they were consistent with the Pecking Order Theory. As a result, an alternative hypothesis that can be proposed in this study is as follows:

*H1: The level of profitability has a negative effect on the level of firm leverage.*

### 1.2.2. Firm growth and leverage

The firm's growth is basically influenced by internal and external factors. Internal factors are factors which come from inside the firm itself, including all things that can affect the firm's performance and they can be regulated and controlled by the firm. For example, the decision to increase the firm capital, to increase labor, to determine the proportion of retained earnings, to determine the firm's strategic actions such as merger, acquisition, determination of debt for investment, managerial structure, etc. On the other hand, external factors are factors which come from outside the firm and cannot be controlled by the firm. For example, raw material prices, competitor behavior, macroeconomic and political conditions, credit interest rates, business climate and market structure, whether monopoly, duopoly, and perfect compe-

tion, duopsony and monopsony. If these factors are positive, it will increase the growth of the firm.

An empirical study by Fama and French (2000), Handriani and Robiyanto (2018), Wahyudi, Pangestuti, Laksana, Hersugondo, and Robiyanto (2018) showed a positive relationship between the growth of firms and investments.

In general, the results of previous studies can be concluded that the firm growth played an important role in using the external funds in the form of debt. Based on these reasons, the second hypothesis can be formulated as follows:

*H2: Firm growth has a positive impact on leverage.*

### 1.2.3. Firm size and leverage

The theory stating the relationship between large firm and its growth was first popularized by Ross (1977). According to him, large firms and growth were the variables that did not influence each other. On the other hand, Huynh, Jacho-Chávez, Petrunia, and Voia (2015) stated that there was an inverse relationship between the firm growth and the firm age based on his study of firm levels in the United States in 2015, which also wanted to prove the two theories. The results obtained were not in line with Huynh et al. (2015). Therefore, there was actually a negative correlation between the size of the firm and its growth, while the theory revealed by Jovanovic proved to be consistent, because, indeed, size as a variable had a significant influence on growth, profitability and variability in the growth of the firm. The concept of firm size is quite widely used to express the capital structure, which had been studied by several researches such as Mc Namara, Murro, and O'Donohoe (2017), Vithessonthi and Tongurai (2015).

A research result by Dang et al. (2018), Giroud and Mueller (2017), Halling, Yu, and Zechner (2016), Hartnell, Kinicki, Lambert, Fugate, and Doyle Corner (2016) showed that the firm size had a positive effect on leverage. Therefore, large firms had a positive relationship with the level of leverage. In general, the results of previous studies can be concluded that the firm size plays an important role in using external funds in the form of debt. Based on these reasons, the third hypothesis that can be formulated is as follows:

*H3: Firm size has a positive impact on leverage.*

#### **1.2.4. Investment and leverage**

Improving the firm's financial performance is not only based on the managers' ability to determine various variations of investment choice. For this reason, a question of which funding sources are used for investment arises. Therefore, the optimal capital structure targeted by the firm is such a combination of their capital and debt, which can balance the risk and return, resulting in the investment value to be maximum. This research was in line with the pecking order postulate, which considers that the debt will generally increase when the investment exceeds the retained earnings, and the debt will decrease when the investment is lower than the retained earnings (Fama & Jensen, 1983). However, according to a complex pecking order model, Myers (1984) argued that in general firms were more concerned with balancing the financing costs in present and in future. Therefore, firms with high investment opportunities will maintain low risk debt capacity to avoid investment funded by the riskier emission of new shares. This balance of financing costs encourages firms with large investment opportunities to have high debt ratios.

Handriani and Irianti (2015) explained that when a firm added debt to finance its investment, then their marginal investment volatility (MVI) would increase to the point where the debt agency marginal cost was equal to the marginal cost of an equity agency. This indicated that the level of firm leverage had a positive effect on the firm investment. Fama and French (2000), Handriani and Irianti (2015) showed that firms with large investments tended to have high debt ratios. Based on the explanation by Fama and French (2000) above, then the fourth alternative hypothesis that can be proposed in this study is as follows:

*H4: Investment has a positive effect on the level of leverage.*

#### **1.2.5. Investment and risk**

Risk refers to the situations where there is more than one possible outcome of a decision and the opportunities of these possibilities are known. Investment uncertainties and business risk may

cause problems for managers in allocating economic resources efficiently. In the corporate sphere, this uncertainty influences the output and production decisions, and manager investment such as how to allocate limited and scarce inputs. When managers are facing the problem of excess cashflow, they have to choose whether it should be invested or to be allocated to real or financial investment (securities). Another case is that when the firms with high growth and complexity of high business competition, they have to consider whether the emission of new shares can provide more benefits than adding new debt to expand, or not. These managers' decisions depend on their attitude to risk.

Study by Koutmos, Bozos, Dionysiou, and Lambertides (2018) also revealed that business risk had a negative relationship with the debt ratio. This showed that firms with big business risks tended to have low debt ratio. The greater the business risk, the greater the use of debt would be and it was going to be more difficult for the firms to repay their debts. It implies that firms with high business risks would use smaller debt than those with low business risks.

Based on the above description by Craig and Howard (2014), Kamoto (2014), the fifth and sixth hypotheses that can be proposed in this study are as follows:

*H5: Investment has a negative effect on the level of risk.*

*H6: Risk mediates investment influence toward leverage.*

#### **1.2.6. Risk and leverage**

Business risk has a negative relationship with the debt ratio. Based on Modigliani and Miller (1958), the addition of debt to a condition of high return variability would result in bankruptcy and lead to higher firm capital costs and lower corporate value. In the firms with high business risks, the firm market value would decrease when the firm added the number of outstanding shares through the issuance of equity. The issuance of these new shares would increase the equity agency costs, resulting in the firm's capital costs to increase. This increase

in the capital cost would further increase the business risk and reduce the market value of the firm's equity.

In the condition where there is high business risk, the debt financing (financial leverage) by firms which face a high asset growth will provide lower level of risk compared to the emission of new shares.

Nanda and Rhodes-Kropf (2016) revealed that investment in businesses which had high business risk would decrease when the firm issued the equity, yet it would increase when the firm issued the debt. Conversely, for firms with high asset growth and low business risk, reducing the use of debt would improve the firm's investment performance. In other words, the higher the business risk, the higher the debt market value needed to finance the firm's investment projects. Born and Pfeifer (2014) added that although their findings indicated that business risk did not significantly affect the leverage, they showed the consistency of the business risk direction coefficient against negative leverage. Referring to the research results by Baker, Hoeyer, and Wurgler (2016), De Angelo and Stulz (2015), Dell'Araccia, Laeven, and Suarez (2017), the

seventh hypothesis that can be proposed in this study is as follows:

*H7: Business risk has a negative effect on the level of firm leverage.*

## 2. METHODOLOGY

The population of manufacturing firms in Indonesia Stock Exchange (IDX) in 2011 was 430 issuers. The sample selection of this study was based on several criteria, such as (1) the firm routinely published financial statements as of December 31st for the fiscal year 2012 up to the fiscal year 2017; (2) the firm had the information related to various measurement variables, such as profitability, risk, firm growth, investment, firm size and leverage. Based on these criteria, there were 150 firms, which met these criteria. The data were obtained through Bloomberg. A complete operational variable definition can be seen in Table 1.

Those indicators are used in the study as proxies for variables used in this study. The usage of those variables was highly related with the research focus.

**Table 1.** Operational variable definition

Source: Various previous studies.

Variables	Indicators	Measurement
<b>Profitability (Prof)</b>		
A measurement of the return level of all equity owned by the firm	ROA	$ROA = \frac{\text{Profit after tax}}{\text{Total asset}}$
<b>Risk (Risk)</b>		
A measurement of relative diversities of the firm's EBIT; the higher the CV, the more profitable the business profit will be	Risk	Coefficient of variation of first difference in EBIT
<b>Firm growth (Growth)</b>		
A proxy for the growth rate of assets and/or the value of sales of the firm	FG	$\Delta \text{Total assets} / \text{Total assets}$
<b>Funding policy (Lev)</b>		
A size (proportion) of use of total debt to finance the whole firm investment	Leverage (Lev)	$Leverage = \frac{\text{Total debt}}{\text{Total assets}}$
<b>Investment (Invs)</b>		
A result of future investment options to benefit from the firm growth prospects	Investment opportunity set (IOS)	$R \& D = \frac{\text{R \& D Expenditures}}{\text{Assets}}$
<b>Firm size (Size)</b>		
A measure of the amount of total wealth (total assets) owned by the firm	Total sales (TS)	Natural logarithm of total asset

## Research model

Risk (Risk):

$$Risk = \beta_1 Invs + e_1. \quad (1)$$

Leverage (Lev):

$$Lev = \beta_2 Prof + \beta_3 Size + \beta_4 Growth + \beta_1 Risk + e_2. \quad (2)$$

Notes: *Prof* – profitability, *Risk* – risk, *Growth* – firm growth, *Lev* – leverage, *Invs* – investment, *Size* – firm size.

## 3. RESULTS

The data analysis was done through a path analysis using LISREL. It covered the profitability, risk, firm growth, investment, firm size and leverage variables. The next step taken was to examine the hypotheses proposed. The hypotheses result can be seen based on the magnitude of *t* value in Table

2. This study would also examine the indirect effect. It comprised all the indirect paths from one variable to another. Hence, the contribution of particular mediating variables could be obscured. The result showed that there was one indirect effect, which was the indirect effect of investment on risk through leverage measured by sobel test. The result can be seen in Table 3.

The data were examined to assess the goodness-of-fit of the model by using Chi-square and Probability, Goodness-of-Fit Indices (GFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Error of Approximation (RMSEA), Expected Cross Validation Index (ECVI), Akaike's Information Criterion (AIC), CAIC, and also Fit Index. The results of the goodness-of-fit test using the indicators can be seen in Table 2.

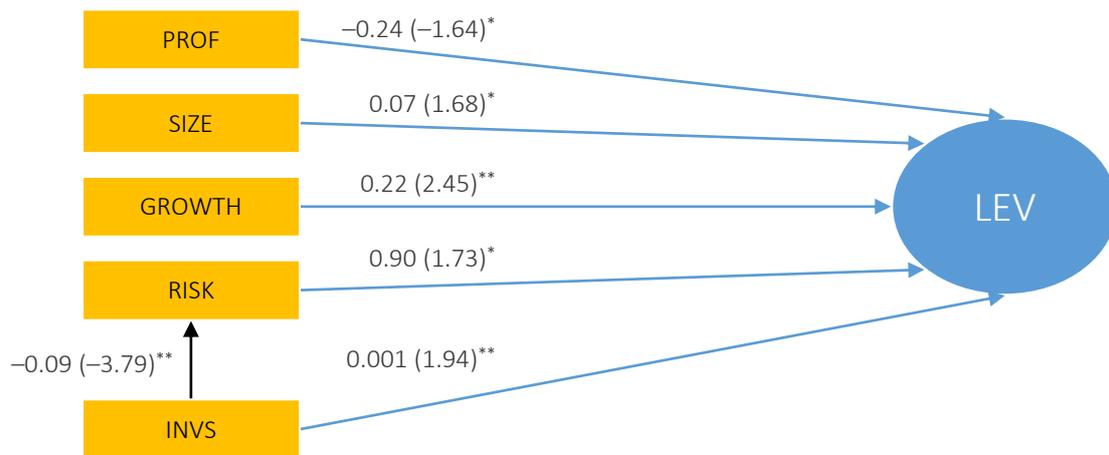
The table shows that all GFI of the model were fit. This can be seen from the model results value, which is by the cut off value description.

**Table 2.** The results of goodness-of-fit test

Source: The result of data processing by LISREL.

Model Fit Indicators	Value	Cut off value	Conclusion
Chi-square and probability:			
Minimum fit function Chi-square	$P = 0.40$	$P > 0.005$	Fit model
Normal theory weighted least square chi square	$P = 0.30$	$P > 0.005$	Fit model
Goodness of fit indices (GFI)	1.05	$P \geq 0.90$	Fit model
Adjusted goodness of fit index (AGFI)	0.95	$P \geq 0.90$	Fit model
Parsimony goodness of fit index (PGFI)	0.86	$P > 0.05$	Fit model
Root mean square error of approximation (RMSEA)	0.00	$< 0.050$	Fit model
<i>P</i> -value for test of close fit (RMSEA)	0.009	$< 0.050$	Fit model
1. Expected cross validation index (ECVI)	0.24	ECVI (0.24) < ECVI for saturated (0.25) model	Fit model
2. ECVI for saturated model			
3. ECVI for independence model	0.20	ECVI (0.20) < ECVI for independence model (2.38)	Fit model
Akaike's information criterion (AIC) and CAIC:			
1. Model AIC	75.99	Model AIC (75.99) < independence AIC (884.11) and Model AIC (293.59) < saturated AIC (311.35)	Fit model
2. Independence AIC	884.11		
3. Saturated AIC	90.00		
4. Model CAIC	293.59	Model CAIC (293.59) < independence (984.11) and Model CAIC (293.59) < saturated AIC (311.35)	Fit model
5. Independence CAIC	984.11		
6. Saturated AIC	311.35		
Fit index: normed fit index (NFI)	$P > 0.90$	0.99	Fit model
Comparative fit index (CFI)	$P > 0.92$	0.98	Fit model
Incremental fit index (IFI)	$P > 0.90$	0.98	Fit model
Relative fit index (RFI)	$P > 0.82$	0.94	Fit model

Source: The result of data processing by LISREL.



Note: \*) significant at  $\alpha = 10\%$ , \*\*) significant at  $\alpha = 5\%$ . Numbers in parentheses are  $t$  values.

Figure 1. Path diagram

Table 3. The direct influence of profitability, risk, firm growth, investment, firm size and leverage

Source: The result of data processing by LISREL.

Variables	Unstandardized estimate	Standardized	$t$ value
<b>Investment to leverage</b>	<b>0.001</b>	<b>0.02</b>	<b>1.94**</b>
Investment to risk	-0.09	-0.66	-3.79**
Risk to leverage	0.90	0.39	1.73*
Profitability to leverage	-0.24	-0.28	-1.64*
Firm size to leverage	0.07	0.45	1.68*
Firm growth to leverage	0.22	0.55	2.45**

Note: \*) significant at  $\alpha = 10\%$ , \*\*) significant at  $\alpha = 5\%$ .

Table 4. The indirect influence of investment, risk and leverage

Source: The result of data processing by Sobel test. Sobel test calculations are obtained from <http://quantpsy.org/sobel/sobel.htm>. Input are provided by LISREL output.

Variable	Statistical test	p value	Standard error	Result
Investment to risk to leverage	2.373	0.012	0.294	$p$ value < 0.05 Accepted

## 4. DISCUSSION

Based on the results of data processing on the profitability, risk, firm growth, investment, firm size and leverage in the industrial manufacturing sector of Indonesia, they indicated that, first, the hypothesis stating that the level of profitability had a negative effect on the level of leverage of the firms had got an empirical support. This can be proved by the value of  $t$  of  $-1.64$ . This results in the first hypothesis to be accepted stating that the level of profitability has very significant negative effect on the firm's debt ratio. This empirical evidence also shows that manufacturing firms in Indonesia with low profitability had high debt ratio and conversely

they had a low debt ratio when the firm's profitability was high. The higher the growth rate, the higher the investment opportunity. This also led to implications for the leverage which got lower. This result was in accordance with the researches that had been done by Baker et al. (2016), Chaibi and Ftiti (2015), Kodongo, Mokoaleli-Mokoteli, and Maina (2015), Vithessonthi and Tongurai (2015).

Second, the hypothesis stating that the firm growth had a positive impact on leverage had got an empirical support. This can be proved by the value of  $t$  of  $2.54$ . This results in a conclusion, where the greater the firm growth, the more debt the firm used to meet the needs of the firm.

The high growth of the firm reflected that the firm had a bright prospect as the influence of the firm growth with a stable level of sales and tended to increase. Thus, it indicated that the firm was able to pay off their liabilities for the debt they used. The high firm growth anticipated the existence of asymmetric information and the firm was expected to use more debt than their equity itself. This finding was also consistent with the research results by Eshima and Anderson (2017), Nason and Wiklund (2018).

Third, the hypothesis stating that the firm size has a positive impact on leverage had got an empirical support. This is evidenced by the value of  $t$  of 1.68. This also indicated that the greater the total assets owned by the firm, the greater the firm size, which led to the greater opportunity or ability of the firm to obtain external funding sources. These results provided an evidence that in Indonesia manufacturing firms, the ones which had large asset sizes tended to issue high debt. Meanwhile, the small-sized manufacturing firms used low debt. This finding was in accordance with the research results by Dang et al. (2018), Vithessonthi and Tongurai (2015).

Fourth, the hypothesis stating that investment has a positive effect on the level of leverage also obtained an empirical support. This is evidenced by the value of  $t$  of 1.94. This showed that the balance of the funding cost encouraged the firms that had large investment opportunities to have high debt ratios. This study also revealed that the increase in the scale of investment would increase the volatility of the firm's cash flows. This condition would encourage the risk-shifting of the shareholders to increase investment funding through debt, as long as the debt risk remained lower than the new share's emission risk. It indicated that when retained earnings as a source of internal funding were no longer sufficient, the increase in the scale of investment would increase the funding requirements for the investments that would be financed by debt. In other words, investment had a positive effect on the firm's debt ratio. This finding was in accordance with the research results by Sodeyfi (2016), Utama and Sulistika (2015).

Fifth, the hypothesis stating that investment has a negative effect on the level of risk obtained an

empirical support, which was shown by the value of  $t$  of  $-3.79$ . This confirmed that the higher the business risk of a firm, the higher the debt ratio for investment. Firms with a high business risk had a high debt ratio. For investors who have a risk-seeker nature, they will be interested in the firms that have high risk, because they will assume that if the risk is high, the return they will get will be higher. Therefore, the firm will easily borrow capital from the creditors.

Sixth, the hypothesis stating that risk mediates the effect of investment and leverage was supported by an empirical evidence where the  $p$  value was 0.012. It was smaller than 0.05, which meant that the mediating role of the risk as a variable could add to the total influence of investment and leverage. Thus, the risk was proven to mediate the influence between investment and leverage. This gave an empirical evidence that the success of investment, which utilized the funding from debt would be higher if it was calculated through the risk path. It confirmed that when the desire for investment in risky real assets got higher – as the funding source was from leverage, aimed to renew the production process through the use of high technology to be more efficient – it would result to an increase in sales, so that the firm's performance would be better in the investors' perspectives.

Seventh, the hypothesis stating that business risk has a negative effect on the level of leverage of the firm obtained an empirical support. This can be proven by the value of  $t$  of 1.73. The result indicated that the higher the business risk, the higher the debt market value needed to finance the operations and investment projects of the firm. This empirical evidence showed that the management preference of manufacturing firms in Indonesia for risk was the risk-seeker or risk-neutral ones. The choice of funding sources originating from debt still provided greater returns compared to the capital cost needed due to business uncertainties. Certainly, in conditions of high business uncertainties, investment portfolios that could provide high returns would be selected by the risk seekers. For manufacturing firms that were profitable and had a high profit variability, the increased risk of capital costs would have an impact on the decreasing real investment and the increasing desire to invest in financial assets through the issu-

ance of shares and/or capital gains. Increasing the stock emissions when there was high business risk would further increase the uncertainties and the cost of the firm's capital due to the increased equity agency costs. Therefore, it would reduce the stock prices or corporate value. In such conditions, the firm tended to issue the debt rather than issuing shares, because the debt agency costs were lower than the equity agency costs, and the benefits of adding debt to corporate value were higher than the benefits of issuing equity. The use of debt

gave a higher degree of return certainty than the issuance of shares. Debt was needed to finance a firm's financial investment such as to buy low-value shares (repurchase of stocks) or to obtain short-term capital gains. While on the other hand, retained earnings were used to fulfill real investment needs in the context of the firm's expansion. These results were in line with the studies by the previous researchers such as Chaibi and Ftiti (2015), De Angelo and Stulz (2015), Dell'Ariccia et al. (2017).

## CONCLUSION

This study is about to scrutinize the financing decision of Indonesian manufacturing firms listed in the Indonesia Stock Exchange by using size, growth, business risk, and profitability as independent variables. The findings showed that manufacturing firms in Indonesia had high debt levels, especially the size, profitability and firm growth had proven to be the debt determinants. This study concludes that investment, risk, firm's size and firm's growth have positive and significant effect on leverage, while profitability have negative and significant effect on leverage, which also confirmed the Pecking Order Theory based on this limited analysis, some further analysis need to make stronger confirmation on the next study. This study also found that investment have negative and significant effect on risk. This shows that the management preference of manufacturing firms in Indonesia for risk was the risk-seeker or risk-neutral ones. So, the choice of funding sources originating from debt still provided greater returns compared to the capital cost needed due to business uncertainties.

This study has some limitations in term of samples used, this study uses only the manufacturing firms in Indonesia, so the conclusion can be applied limited to this sector only. Future study can use various industry as samples and could use different analysis such as partial least square method.

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