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## Optimisation of Capital Structure and Firm Value

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**Abstract:**

*This study aims to examine the influence of capital structure towards firm value. The sample of this research consists of 101 manufacture companies listed in the Indonesian Stock Exchange during the period 2012 – 2015.*

*The results of this study indicate that the higher the capital structure with Debt to Equity Ratio (DER) and Long term Debt to Asset Ratio (LDAR) are indicators of a higher firm value, while lower Long term Debt to Equity Ratio is an indicator of a lower firm value.*

*The study has found a positive correlation between Debt to Equity Ratio (DER) and Long term Debt to Asset Ratio (LDAR) to firm value, and a negative correlation of Long term Debt to Equity Ratio (LDER) to firm value.*

*However, the capital structure with Debt to Asset Ratio (DAR) did not seem to have an influence on the firm value.*

**Keywords:** *Capital Structure, Debt to Equity Ratio, Debt to Asset Ratio, Long term Debt to Equity Ratio, Long term Debt to Asset Ratio, Firm Value, Price to Book Value.*

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## 1. Introduction

The capital structure is the ratio between debt, equity and assets (Dewi *et al.*, 2014). These components are in line with the characteristics of manufacturing companies with the majority consisting of debt, equity and assets. They can be used as an alternative to determine the composition of an optimal capital structure to increase the firm value and at the end, the firm value will potentially enhance the prosperity of the owner. The importance of those three properties gives a fundamental reason to conduct investigation about capital structure and firm value in manufacturing companies. This important consideration lead us to our main purpose of this study.

We investigate the connection between capital structure and the company's firm value in manufacturing companies. Optimizing firm value is the company's goal which can be achieved through the implementation of financial management functions, where choosing financial strategies will effect other financial decisions and have an impact on firm value (Fama and French, 1998).

The level of Composite Stock Price Index (CSPI) tended to decrease between January and December 2013, based on the Indonesian Stock Exchange (IDX) recording, although the reduction was not significant compared to the closing Price Index in December of 2012. The Purchase Manager Index (PMI) of manufacturing in August 2013 decreased to 48.5% compared to the previous month (50.7%). This decrease is the fourth consecutive one since May 2013 and the lowest in the last 15 months.

Business activities in Indonesia fell at a fast pace since January 2012. This reduction happened due to the reduction of production, exports, and obtained contracts. The main factor that caused this phenomenon is the domestic demand and weaken exports which was affected by the business climate that made some companies reduce their production for the first time since January 2013.

Gultom *et al.* (2013) said that the factors that affect the firm value, include capital structure, liquidity, company size, and profitability. Febrianti (2012) mentioned that investment decisions, dividend policy and capital structure affect the firm value. Febrianti also found evidence that the debt policy positively but not significantly affect the firm value. Muhyarsyah (2007) research is consistent with the findings of Modigliani and Miller (1963) that by including the corporate income tax the use of debt will increase the firm value (Bratamangala, 2017).

According to Bukit (2011), capital structure has a significant positive effect on firm value. The study addresses whether the firm value of manufacturing companies listed in Indonesian Stock Exchange can be explained by the literature regarding firm value. The study reinforces the trade-off theory in manufacturing in developing countries. The capital structure is the key to improve productivity and company performance (Hermuningsih, 2013; Effendi and Disman, 2017).

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## 2. Literature Review

### 2.1 Trade-off Theory

Trade off theory explains that if the position of the capital structure is under an optimal point, then any additional debt will increase the firm value (Cahyanto *et al.*, 2014). Trade off theory refers to the idea that companies choose how much debt financing and how much finance equity is used by balancing costs and benefits. The trade-off theory basically can balance the cost of debt and debt benefits received by the company. This theory explains that companies are generally financed by equity and debt. Gomez *et al.* (2014) said that an important purpose of the trade-off theory is to explain the fact that companies are usually financed partly with debt and partly with equity.

### 2.3 Hypotheses

#### 2.3.1 Debt to Equity Ratio (DER)

Some previous researchers employ debt to equity ratio (DER) as an indicator to measure capital structure and provide justification that DER can increase firm value. Hermuningsih (2013) stated that the capital structure measured by debt to equity ratio has significant positive effect on firm value. The investors are not only focused on profit, but also consider the level of risk which is owned by the company, if investors decide to invest their capital in that company. The level of risk can be reflected in the company's debt to equity ratio, which shows how much equity capital owned by the company can be using to pay company's debt. Kiprop (2014) showed that the capital structure affects the firm value. Kiprop's study confirmed that the trade-off theory prevailed in that the capital structure which will be adopted by an organization will be the balance between taxes and the debt levels used and the risk of bankruptcy. Thus, the research hypothesis can be stated as follows:

$H_1$ : *Debt to equity ratio has a positive influence on firm value.*

#### 2.3.2 Debt to Asset Ratio (DAR)

Assets are one of the capital structure components (Dewi *et al.*, 2014). The investors are not only oriented towards the profit, but also consider the level of income that will be received by the company. Based on Ross *et al.* (2005) the trade-off theory explains that company will lend something to a point where the tax benefits of the additional debt will equal to the cost that is coming from the possibility of financial difficulties (financial distress costs). Increasing rates of return will raise shares' price leading to optimal capital structure (Resi, 2005). Thus, the research hypothesis can be stated as follows:

$H_2$ : *Debt to asset ratio has a positive influence on the firm value.*

#### 2.3.3 Long term Debt to Equity Ratio (LDER)

The study conducted by Hermuningsih (2013) concluded that the capital structure significantly and positively affects the firm value. If long term debt has been chosen

as part of the capital structure, then the capital structure will take risk and return into consideration. The increasing rate of return will enhance stock price. This condition will optimize the capital structure (Resi, 2005). Trade off theory states that the use of debt will increase the firm value to a certain point. Gomez *et al.*, (2014) said that an important function of trade off theory is to describe the fact that the companies usually finance themselves using debt and equity in equal proportion. Thus, the research hypothesis can be stated as follows:

$H_3$ : *Long term Debt to equity ratio has a positive influence on the firm value.*

#### **2.3.4 Long term Debt to Asset Ratio (LDAR)**

Trade off theory basically requires balancing between debt and cost of the debt. Brigham and Houston (2007) say that with the existence of tax benefits, the fulfillment of the funds through debt would be relevant. It is because debt interest will reduce income after tax and this condition will increase the firm's value by using its debt. Antwi *et al.* (2012) stated that it is suggested to use bigger portions of long term debt to finance operating activities since this can increase the firm value. The company will describe the proportion of debt that will be used by the company to finance its assets by comparing long-term debt with the assets of the company. The purpose of this description is to show management's behavior in determining the long-term capital structure of the company (Joni and Lina, 2010). Thus, the research hypothesis can be stated as follows:

$H_4$ : *Long term Debt to asset ratio has a positive influence on the firm value.*

### **3. Data and Methodology**

#### **3.1. The Model of the Study**

We use multiple linear regression to test our proposed hypothesis. The variables are selected according to the analysis hypotheses development. Dependent Variable in this study is firm value which is measured by Price to Book Value (PBV) as follows:

$$PBV = \frac{\text{Market Price per Share}}{\text{Book value per Share}}$$

Independent variables are:

(i) Debt to Equity Ratio (DER) which has been calculated as follows

$$DER = \frac{\text{Debt Total}}{\text{Equity Total}}$$

(ii) Debt to Asset Ratio (DAR) which has been calculated as follows

$$DAR = \frac{\text{Equity Total}}{\text{Asset Total}}$$

(iii) Long term Debt to Equity Ratio (LDER) which has been calculated as

$$\text{LDER} = \frac{\text{Long term Liabilities}}{\text{Equity Total}}$$

(iv) Long term Debt to Asset Ratio (LDAR) which has been calculated as

$$\text{LDAR} = \frac{\text{Long term Liabilities}}{\text{Asset Total}}$$

In order to test the hypotheses, the following models have been developed by using Ordinary Least Square (OLS) methodology.

**Model Research :**

$$Y = \alpha + \beta_1\text{DER} + \beta_2\text{DAR} + \beta_3\text{LDER} + \beta_4\text{LDAR} + e$$

Where:

Y = Firm Value;

DER = Debt to Equity Ratio;

DAR = Debt to Asset Ratio;

LDER = Long term Debt to Equity Ratio;

LDAR = Long term Debt to Asset Ratio;

e = Error Variable.

### 3.2. Population and Sample Selection

This study uses a content analysis approach to examine the information cited by manufacturing companies listed from 2012-2015. We gather firm-year observations as our sample which represented Indonesia's manufacturing companies. Data were collected from the annual reports between 2012 until 2015 to measure firm value. The manufacturing industries were chosen for several considerations. First, it is observed that a substantial portion of the GDP comes from manufacturing industries. Second, the manufacturing industries invest a huge amount of investable funds.

## 4. Results and Discussion

Table 1 shows the statistical descriptive analysis of dependent and independent variables related to optimization capital structure to firm value in manufacturing companies listed in the Indonesian Stock Exchange (IDX) between the period 2012 to 2015.

**Table 1.** Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
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Dependent Variable					
PBV	404	-17,41	27,35	1,502916	2,8217957
Independent Variables	404	-31,04	70,83	1,130396	4,8026130
DER					
DAR	404	0,04	16,00	1,210149	6,5036696
LDER	404	-21,00	51,50	0,46224	3,2809895
LDAR	404	0,0031	2,52	0,191863	0,3251821
Valid N (listwise)	404				

The results in Table 1 indicate that the average value (mean) of firm value variable with Price to Book Value (PBV) is 1.502916, which indicates that on average, manufacturing companies in Indonesia have a good company performance supported by the use of an optimal capital structure to increase the firm value. The standard deviation of the firm value is (PBV) 2.8217957, and the size of the deployment ratio of price to book value (PBV) is relatively high. PBV ratio in the manufacturing sector is more diverse. Debt to equity ratio (DER), debt to asset ratio (DAR), long-term debt to equity ratio (LDER) have high standard deviations which indicate the disseminate size of DER, DAR, and LDER in the manufacturing sector.

Table 2 indicates the regression analysis of optimization capital structure and firm value which supports the significant impact of Debt to Equity Ratio (DER), Long term Debt to Equity Ratio (LDER), Long term Debt (DAR), Asset Ratio (LDAR) to the dependent variable Price to Book Value (PBV).

**Table 2. Regression Analysis**

Variable	Coefficient	Std. Error	P-Value
<b>Constants</b>		0,087	0,003
<b>DER</b>	0,510	0,059	0,000
<b>DAR</b>	-0,064	0,046	0,167
<b>LDER</b>	-0,154	0,048	0,002
<b>LDAR</b>	0,172	0,058	0,003
<b>Adj. R2</b>	0,223		
<b>F-Statistic</b>	27,283		

Dependent Variable: PBV

The coefficient of determination (adjusted R-Square) in Table 2 is low, 22.3%, which means that variations of the firm value can be explained by the independent variables used in the equations model of this study very weakly.

### 5. Conclusion

Hypothesis testing results show that the capital structure with debt to equity ratio

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(DER) as an indicator has a positive significant effect on firm value. This result indicates that firm value will increase as DER becomes higher. Companies with a higher debt to equity ratio (DER) will likely show that the companies are able to balance between cost of debt and debt benefits received by the company. It is because manufacturing companies have a high firm value that will attract investors to invest their capital. In addition, due to the characteristics related to debt components. The study supports the trade off theory. Companies with debt to equity ratio (DER), which has not reached the optimum point, will be able to increase firm value that will benefit the owner of the company.

Based on the results of this study, investors are more likely to use debt to equity ratio (DER) as an indicator of capital structure in manufacturing. Therefore in Indonesia, composition of capital structure is an essential component that will be considered as a factor that will increase firm value. As a result, the performance of the company is increased by balancing the costs while received benefits and management will be able to minimize the cost of capital. This will result in greater benefits that manufacturers receive. A high firm value will attract investors to invest in these manufacturing companies and will result in improving the firm's operations.

This result is in line with the trade-off theory where increasing debt by balancing cost and benefits will enhance the firm value. The results of this study are consistent with Kiprop (2014), Bukit (2012) and Moniaga (2013).

Long term debt to asset ratio (LDAR) has a positive effect on the firm value with a significance level of 0.003. These results indicate that the higher long-term debt to asset ratio (LDAR), the greater the firm value. This means that when the company benefits from tax reductions in interest expense from large loans, the company will be likely to use external funds in the form of long-term debt to finance the company's assets for the company's operations.

Manufacturing companies in Indonesia are concerned on long-term debt to asset ratio (LDAR) as an indicator of capital structure to enhance firm value. They also consider the returns on financial assets using long-term debt. Firm value has become a successful benchmark in valuing past and future management's performance. Stakeholders can find that the manufacturing industry in Indonesia is a good creditor so that stakeholders can provide long term debt to this industry in order to finance their assets. Indonesian manufacturing companies are able to manage composition of capital structure and this will result in increasing firm value by adding long term debt. Our finding is consistent with Chowdhury and Chowdhury (2014) and Manu *et al.* (2014).

On the other hand, long term debt to equity ratio (LDER) has a negative effect on firm value with a significance level of 0.002. These results indicate that the greater the long term debt to equity ratio (LDER) of the company, the lower the firm value. This means that the greater the level of long term debt compared to its capital, the

greater the risk borne by the company and this will increase the chances of the company's financial difficulties or increase the chances of bankruptcy. This is in accordance with the trade off theory. This is because the trade off theory can determine the optimal level of capital structure, thereby reducing the cost of the financial difficulties of adding debt (Myers, 1984; Suryanto, 2014; Pontoh, 2017).

Manufacturing companies in Indonesia use long term debt in higher proportion than equity. This condition means long term debt cannot influence firm value or cannot improve firm performance. This means the company's performance declines and can give an unpleasant signal to investors because investors assume that the company is unable to pay its obligations. In general, the use of long-term debt compared to capital in a manufacturing company in Indonesia will slightly increase the firm value. This is in accordance with the theory of trade off. The results of this study are consistent with Hendri (2015), Apsari *et al.* (2015) and Manu *et al.* (2014).

On the other hand, the capital structure with indicator the debt to asset ratio (DAR) had no significant effects on the firm value. It can be said that if the company is liquidated, the company will be able to pay the debt by selling assets, which also means that the pattern of financing is derived from debt assets.

Manufacturing companies in Indonesia tend not to use debt to asset ratio (DAR) as an indicator of capital structure. They also tend to use a lot of long term debt and short term debt to finance company assets. This condition simply prevents firm value and firm performance from growing. Another reason why firm value and firm performance do not increase is because investors pay less attention on manufacturing companies in term of using external financing in the form of long term debt and short term debt to finance their assets.

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