Does earning management mediate the effect of capital structure on company value?

Dody Hapsoro\textsuperscript{a}, Maria Immaculata Bahantwelu\textsuperscript{b}
\textsuperscript{a}STIE YKPN Yogyakarta, Indonesia; dodyhapsoro@gmail.com
\textsuperscript{b}STIE YKPN Yogyakarta, Indonesia; mariaimmaculata33@gmail.com

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**ABSTRACT**

This study aims to examine the effect of capital structure on company value with earnings management as a mediating variable. The capital structure is proxied using a debt to equity ratio (DER), company value is proxied using Tobin’s Q and real earnings management is proxied using costs of production activities. The research population is 144 manufacturing companies listed on the Indonesia Stock Exchange (IDX). 204 samples are used in this study. Data used in this study is the secondary data obtained from Indonesia Stock Exchange, contained on www.idx.co.id. The data analysis method used in this study is partial least squares (PLS) method using a WarpPLS 4.0 application. The results of the analysis show that capital structure has a positive effect on company value and real earnings management is proven to partially mediate the effect of capital structure on company value. The results of this study should encourage standard-setting bodies to make stricter regulations on real earnings management practices that tend to cause management to commit fraud.
INTRODUCTION

In general, the purpose of establishing a company, firstly, is to achieve the maximum benefit or profit as much as possible. Secondly, it is to prosper the owners or shareholders of the company and finally to maximize the value of the company as reflected in its share price (Ridwan & Gunardi, 2013). Company value can be increased by paying attention to the influencing factors, such as company size, profitability, profit growth, liquidity and inflation. The maximization of company value is agreed as the main goal of every company, especially profit-oriented ones (Brigham & Houston, 2006). Earnings information can affect investors, creditors, and others in making investment and economic decisions. Managers often manipulate profits to gain personal benefits. This action is known as earnings management.

Chowdhury & Chowdhury (2010) stated that company value is determined by the capital structure. An increase in the amount of debt in the capital structure of a company indicates that the company believes in the prospects of company's income in the future, so that the company does not need to worry about repaying debt and interest. According to Abeywardhana (2017) financial managers are required to be able to create an optimal capital structure by collecting funds from inside and outside the company efficiently, which means that managers' decisions are able to minimize the cost of capital borne by the company or can maximize company performance. Capital costs incurred are direct consequences of decisions taken. Whatever decisions taken by a manager will greatly affect the value of a company.

A fairly large debt of a company can increase its financial risk, namely, the possibility of the company not being able to pay its debts. The risk of default causes the cost to be incurred by the company to overcome this problem, which will potentially reduce its profits. Therefore, companies should improve their capital structure in order to attract investors to invest in companies.

Earnings management is an action taken by management that can affect the level of profit shown (Hung et al., 2017). Earnings management carried out by the manager arises because of an agency problem, namely a conflict of interest between the owner/shareholder (principal) with the manager/management (agent). Agents like company managers have more detailed and broad information about the condition of a company compared to the principal. Basically, such agents have obligation to give a signal about the condition of a company to the principal. Agency conflict can result in asymmetrical information, causing the value of a company to decrease in the future (Panda & Leepsa, 2017).

There are two types of earnings management, namely, accrual earnings management and real earnings management. According to Jones (1991), earnings management through accrual activity manipulation is done by choosing accounting policies that are subjective in order to reduce or increase profits that can be detected through discretionary accruals and non-discretionary accruals. Whereas according to
Roychowdhury (2006) earnings management through real activity manipulation is carried out by management through daily activities of a company during the accounting period, which can be detected in three ways, namely through: 1) operating cash flow, 2) production costs, and 3) discretionary costs.

In the development of empirical research on earnings management, it has been found that managers have shifted from accrual earnings management to real earnings management. Cohen & Zarowin (2010); Graham et al. (2004); Gunny (2005); Roychowdhury (2006) found that managers have shifted away from accrual earnings management to real earnings management after the Sarbanes-Oxley Act (SOX) period.

The shift from accrual earnings management to real earnings management, according to Graham et al. (2004); Roychowdhury (2006) are caused by several factors, namely: 1) accrual manipulation is more often used as a center of observation or inspection by auditors and regulators, so that the choice of accounting methods related to accrual manipulation in a company has a greater risk of audit by the authorities and the company will get sanctions if proven to have deviated from generally accepted accounting standards with the aim of manipulating earnings, 2) only relying on accrual manipulation alone will carry risks because earnings management by relying on discretionary accrual manipulation can only be done at the end of year. This results prompt managers to manipulate earnings to be limited, so that the profit target cannot be achieved if only using discretionary accruals at the end of year.

Based on the above description, the phenomenon of real earnings management is a very interesting issue to be studied further, because earnings management through real activities is considered more revealing a company's ability to manage earnings compared to accrual-based earnings management. Besides, managers are more interested in managing earnings through real activities because they have the opportunity to manipulate real activities during the year to meet profit targets. To increase profits, company managers can produce more than necessary with the assumption that a higher level of production will cause fixed costs per unit of product to be lower. This strategy can reduce the cost of sold goods and increase the profit value. This is one of ways of manipulating real activities that are usually carried out by companies that have poor performance. Management is expected to carry out real activities throughout a company's operating period with the aim of improving its capital structure in the hope of increasing value of the company. Therefore, the purpose of this study is to examine the ability of earnings management to mediate the effect of capital structure on company value.
THEORETICAL REVIEW AND HYPOTHESES DEVELOPMENT

Theoretical Review

Trade-off Theory

Trade-off theory was first introduced by Modigliani & Miller (1963). This theory explains the relationship between capital structure and company value. The trade-off theory in determining the optimal capital structure has considered several factors, including tax, agency costs and financial difficulties. The cost of financial difficulties consists of two things, namely 1) direct costs, i.e. costs incurred to pay administrative costs, attorney fees or other similar costs, 2) indirect costs, i.e. costs incurred due to bankruptcy or because of other companies or other parties do not want to deal with the company normally.

According to Brealey et al. (2011), the trade-off theory has several implications: (1) Companies with high business risk must use less debt than companies that have low business risk, because the greater the business risk, the greater use of debt that in turn it will increase the interest burden, so that it will further complicate finances of those companies, (2) Companies that are subject to high taxes to a certain extent should use a lot of debts because of the tax shield, (3) The target debt ratio will differ from company to company. Companies that have high and stable profitability can obtain debt loans from creditors, because those companies are believed to be able to pay the principal installments of the debt compared to companies with low profitability.

Company Value

The main purpose of a company that goes public is to increase the prosperity of the owners or shareholders of the company through increasing of its value (Salvatore & Brooker, 2001). The company value is very important because the higher company value will be followed by the high prosperity of its shareholders (Brigham & Houston, 2006). Company value is very important because it reflects a company's performance and in turn it also can affect investors' perceptions about the company.

Capital Structure

A good company is a company that is able to manage its capital structure well, because a bad capital structure of a company will have a direct impact on the company's financial position which will ultimately affect the company value. According to Brigham & Houston (2006) capital structure is a comparison or balance between foreign capital and own capital.

Real Earning Management

Earnings management through real activities is the manipulation carried out by management through daily corporate activities during the accounting period. Real earnings management activities start from normal operational practices, which are
motivated by managers who wish to deceive and even mislead stakeholders who want to know the company's performance and conditions.

Roychowdhury (2006) stated that earnings management through manipulation of real activities can be carried out by management through daily corporate activities during the accounting period, which can be detected in three ways, namely: abnormal cash flow operations, abnormal production costs, and abnormal discretionary expenses. Real earnings management is done through reducing discretionary costs which include advertising costs, research and development costs, sales costs and general administrative costs.

**Framework of Thinking**

This study aims to examine the effect of capital structure on company value with real earnings management as a mediating variable. This research model is shown in Figure 1.

![Figure 1: Research Model](image)

**Hypotheses Development**

**The Effect of Capital Structure on Company Values**

Antwi *et al.* (2012) explains that capital structure represents a combination of debt and equity. Determination of the amount of debt and equity aims to find the right capital structure and maximize shareholder wealth. Capital structure is the ratio between debt to equity used by companies to finance fixed assets and current assets (Ahmed *et al.*, 2000).

The research conducted by Ahyar *et al.* (2016); Chowdhury & Chowdhury (2010); Joni & Lina (2010) showed that the capital structure has a positive effect on company value. Interesting findings from those research is that in order to maximize the value of shareholders' wealth (company value), a perfect combination of debt and equity (capital structure) is needed. Financial managers can use debt to form an optimal capital structure to maximize shareholders' wealth. Based on the description above, the researcher proposes the following hypothesis:

**H1:** Capital structure has a positive effect on company value.
The Effect of Capital Structure on Real Earnings Management

Earnings management is the discretion of management over external financial reporting by misusing some authorities related to contracts and differences in accounting treatment with other methods (Malek, 2018). The practice of earnings management has a strong negative effect for debt providers (creditors) because if a company experiences financial difficulties and the fair value of its assets is less than the total liability of its money, the company may have difficulty to pay off.

The result of the study conducted by Naz et al. (2011) stated that capital structure has a negative effect on earnings management. Capital structure explains how a company has financed its overall operations and growth by using diverse sources of funds. The management manipulates capital structure of a company in such a way as to reduce cost of funds and maximize the company’s value. Based on the description above, the researcher proposes the following hypothesis:

H2: Capital structure has a negative effect on earnings management.

The Effect of Real Earnings Management on Company Value

The main purpose of companies going public is to increase the prosperity of the owners or shareholders of those companies through the increasing of company value (Salvatore & Brooker, 2001). Company value is very important because the higher of company value, the higher prosperity of shareholders (Brigham & Houston, 2006). Company value reflects the management's ability to manage company’s wealth. This can be seen from the level of company’s financial performance.

The research conducted by Fernandes & Ferreira (2011) stated that earnings management has a negative effect on company value. Fernandes & Ferreira (2011) further stated that the negative effect of earnings management on company value was found to be very strong in companies with strong investment opportunities and high external financial needs. Based on the description above, the researcher proposes the following hypothesis:

H3: Real earnings management has a negative effect on company value.

Real Earnings Management Mediates the Effect of Capital Structure on Company Value

According to Chowdhury & Chowdhury (2010) company value is determined by the capital structure of a company. Therefore, managers as those who are responsible for the capital structure play important roles in creating an optimal capital structure composition in order to produce the maximum company value. The creation of an optimal capital structure is also expected to be able to minimize the cost of capital that must be borne by the company, so as to maximize company’s performance. These
things are done by managers in order to maximize the company value. In addition to
these methods, there is a possibility that managers make other efforts to maximize the
company value. These efforts include manipulation of real activities in the hope that
such manipulation can improve capital structure and subsequently increase the
company value. Based on the description above, the researcher proposes the following
hypothesis:

**H4:** Real earnings management mediates the effect of capital structure on
company value.

**RESEARCH METHOD**

**Population and Sample**

This study uses manufacturing companies listed on the Indonesia Stock
Exchange (IDX) as samples of the study. This study was conducted for three years,
i.e. from 2015 to 2017. The purposive sampling with criteria was used as sampling
technique, namely: (1) The company publishes financial reports that ended on
December 31 during the period 2015-2017; (2) Financial reports and annual reports
are based on the rupiah currency; (3) The company has complete data related to the
variables used in the study.

**Data Sources**

The type of data used in this study is secondary data. According to Indriantoro
& Supomo (2016) secondary data is the data that is obtained indirectly through
intermediary media, generally, in the form of evidence, notes or historical
reports. Secondary data in this study is the annual reports from manufacturing companies listed
on the Indonesia Stock Exchange. The data was obtained from the Indonesia Stock
Exchange (IDX).

**Operational Definitions of Variables**

**Real Earnings Management based on Costs of Production Activities**

According to Roychowdhury (2006) manipulation of real activities can be done
with excessive production, thereby reducing the cost of goods sold and increasing the
value of profits. The formula for calculating real earnings management from the costs
of production activities is as follows:

\[
\text{PROD}_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t/A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + \beta_3 (\Delta S_{t-1}/A_{t-1}) + \varepsilon
\]

**Explanation:**

- \(\text{PROD}_t\) : Production costs in year \(t\), namely \(\text{PROD}_t = \text{COGS}_t + \Delta \text{INV}_t\)
- \(A_{t-1}\) : Total assets in year \(t-1\)
- \(S_t\) : Sales in year \(t\)
- \(\Delta S_t\) : Sales at year \(t\) minus sales in year \(t-1\)
- \(\alpha\) : Regression coefficient
- \(\varepsilon\) : Error in year \(t\)
The COGS model is estimated using the following equation:

\[
\text{COGS}_t/A_t-1 = \alpha_0 + \alpha_1 (1/A_t) + \beta_1 (S_t/A_t) + \varepsilon \\
\]

The normal inventory growth model is estimated using the following equation:

\[
\Delta\text{INV}_t/A_t-1 = \alpha_0 + \alpha_1 (1/A_t) + \beta_1 (\Delta S_t/A_t) + \beta_2 (\Delta S_{t-1}/A_{t-1}) + \varepsilon \\
\]

Explanation:
\(\Delta\text{INV}:\) Changes in inventory in period \(t\)

**Capital Structure**

According to Brigham & Houston (2006), capital structure is a balance or comparison between debt and equity. The measurement of capital structure in this study is represented by a debt to equity ratio (DER). The calculation formula for capital structure is as follows:

\[
\text{DER} = \frac{\text{Total Debt}}{\text{Capital}} \times 100\% \\
\]

**Company Value**

In this study the company value is represented using Tobin’s Q. The formula of Tobin’s Q according to Chung & Stephen (1994) is as follows:

\[
\text{Tobin’s } Q = \frac{\text{MVCS} + \text{PS} + \text{BVD}}{\text{TA}} \\
\]

Explanation:
\(\text{Tobin’s}\) : Company value
\(\text{MVCS}\) : Market value of common stock
\(\text{PS}\) : Preferred stock
\(\text{BVD}\) : Book value of debt
\(\text{TA}\) : Total asset

**Data Analysis Method**

Structural equation modeling (SEM) method is used as the analytical method and partial least squares (PLS) software is used as the analysis tool. SEM is one of multivariate analysis types in social science. The software used as an analysis tool is WarpPLS version 4.0.

**ANALYSIS AND DISCUSSION**

**Research Object Description**

Manufacturing companies were used as samples in this study that listed on the Indonesia Stock Exchange (IDX). Based on the data obtained, it is known that the total...
manufacturing companies listed on the IDX are 144 companies. However, only 74 companies met the sample criteria. This study was conducted for three years, from 2015 to 2017 and 222 samples data were obtained. However, from the total sample there were 18 outliers financial data that were excluded from the analysis, so the number of final samples in this study was 204.

| No | Explanation                                                                 | Amount |
|----|-----------------------------------------------------------------------------|--------|
| 1  | Manufacturing companies listed on the IDX in the study period from 2015 to 2017. | 144    |
| 2  | The company does not have a complete annual report for 2015-2017 and does not use rupiah. | (38)   |
| 3  | The company did not publish financial statements and annual reports which ended on December 31 during the 2015-2017 period. | (32)   |
| 4  | Total companies that meet the sample criteria | 74     |
| 5  | Total number of samples observed during the three study periods (74 x 3) | 222    |
| 6  | Financial data outliers are excluded from the analysis | (18)   |
| 7  | The number of final samples in this study | 204    |

Table 1
Research Samples

Descriptive Statistical Analysis

Descriptive statistical analysis provides a description of the data about the minimum, maximum, average (mean), and standard deviation of each research variable. The results of the descriptive statistical analysis using SPSS 15.0 are presented in Table 2.

|         | N   | Minimum | Maximum | Mean  | Std. Deviation |
|---------|-----|---------|---------|-------|----------------|
| STM     | 204 | 0.007   | 7.571   | 1.442 | 1.012          |
| NPR     | 204 | 0.002   | 2.886   | 0.549 | 0.517          |
| MLR     | 204 | -4.296  | 66.771  | -1.593| 2.645          |
| Valid N (listwise) | 204 |

Sources: Output SPSS

Table 2 shows that there are 204 samples used in this study. Based on the calculation results during the observation period, the size of capital structure variable (STM) of companies ranged from the lowest (minimum) value of 0.007 to the highest value (maximum) of 7.5705 with an average value (mean) of 1.442 and a standard deviation of 1.012. The standard deviation value is lower than the mean, meaning the level of distribution of capital structure between sample companies is not too high.

Company value variable (NPR) ranges from the lowest (minimum) value of 0.002 to the highest value (maximum) of 2.886 with an average value of 0.549 and a standard deviation value of 1.012. The standard deviation value is lower than the mean,
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meaning the level of distribution of company value among samples of companies is not too high.

Variable real earnings management (MLR) ranges from the lowest (minimum) value of -4.296 to the highest value (maximum) of 66.771 with an average value (mean) of -1.593 and a standard deviation of 2.645. The standard deviation is higher than the mean, meaning that the level of real earnings management distribution among samples of companies is too high.

**Partial Least Square Analysis**

WarpPLS 4.0 analysis is used to see the fit indices model and the results of hypothesis testing. Calculation of fit model values was based on the results of the WarpPLS 4.0 analysis shown in Table 3 and Table 4.

**Table 3**

| Variable | R-Square |
|----------|----------|
| STM      |          |
| MLR      | 0.01     |
| NPR      | 0.15     |

Source: Output WarpPLS 4.0

In PLS analysis, the goodness of fit inner model uses the Stone-Geisser Q-square size in the form of Q-square predictive relevance (Q²) which is calculated based on the R-square value of each variable, so that the Q-square predictive relevance is equal to:

\[
Q^2 = 1 - (1 - R^2_{\text{MLR}}) (1 - R^2_{\text{NPR}}) \\
= 1 - (1 - 0.01) (1 - 0.15) \\
= 1 - (0.99) (0.85) \\
= 1 - 0.8415 \\
= 15.85\% 
\]

Based on the above calculations, the Q-square predictive relevance value of 15.85 percent is obtained. This shows that the capital structure variable and real earnings management can explain the company value of 15.85 percent and the remaining 85.15 percent is explained by other variables outside of this study.

**Partial Least Square Analysis**

This analysis is used to calculate the value of the goodness of fit model, which is calculated by looking at the Average R-Squared (ARS) to show the suitability of the model and the Average Path Coefficient (APC) is used to show the relationship between variables and the Average Variance Inflation Factor (AVIF) is used to show multi collinearity between independent variables.
Model fit indices is a very important measure in processing data with WarpPLS because fit indices show the suitability of a model with the data and show the quality of the model under study. Average R-Squared (ARS) is used to assess the magnitude of the independent, dependent and mediating variables. ARS is said to be good if the ARS value < 0.05. Average Path Coefficient (APC) is used to see the magnitude of the relationship or attachment between variables. APC is said to be good if the APC value < 0.05. Average Variance Inflation Factor (AVIF) is used to see the magnitude of the correlation between the dependent variable or multicollinearity. AVIF is said to be good if the AVIF value < 5. The interpretation of the model fit indicator in this study meets the criteria for the value of goodness of fit model, so model in this study can be used to test hypotheses.

**Hypotheses Testing**

Hypothesis testing is done to determine the effect of independent variables on the dependent variable mediated by mediating variables. Figure 2 shows the results of testing the hypothesis in this study.

From the results of hypothesis testing it can be seen that the arrow direction indicates the effect between variables, the beta symbol (β) shows the coefficient and symbol P is the probability level. The process of hypothesis testing can be done by looking at the beta coefficient and the significance value of P-value. The level of significance used in this study is 5 percent. A summary of the results of hypothesis testing is shown in Table 5.
Table 5
Hypothesis Testing Results

| Hypothesis | Variable | Path Coefficient | P-value | Significance | Result   |
|------------|----------|------------------|---------|--------------|----------|
| H1         | STM → NPR | 0.28             | 0.01    | Significant  | Supported|
| H2         | STM → MLR | -0.10            | 0.04    | Significant  | Supported|
| H3         | MLR → NPR | -0.28            | 0.01    | Significant  | Supported|
| H4         | STM → MLR → NPR | -0.28 | 0.01 | Significant  | Supported|

Source: Data processed

Hypothesis Discussion

Capital structure has a positive effect on company value

The testing results of the first hypothesis indicate that the capital structure has a positive effect on company value. This shows that the higher the capital structure, the higher of company value. This is evident from the results of testing which show that the P-value = 0.01, which is smaller than the specified level of significance (≤ 0.05) and the path coefficient value is positive (0.28). This shows that the use of debt increases the company value. However, this only applies to a certain point because the greater the debt, the greater the financial risk faced by the company. These risks are financial risks, which are risks that occur due to the company's inability to pay interest and principal installments. The results of the first hypothesis testing in this study support research conducted by Joni & Lina (2010); Kusumajaya (2011) which stated that capital structure has a positive effect on company value.

Capital structure has a negative effect on real earnings management

The testing results of the second hypothesis indicate that the capital structure has a negative effect on real earnings management. This is evident from the results of hypothesis testing which show that P-value = 0.04, which is smaller than the specified level of significance (≤ 0.05) and the path coefficient value is negative (-0.10). Therefore, it can be concluded that the second hypothesis stating that capital structure has a negative effect on real earnings management is supported. This means that the more optimal the company's capital structure, the lower the real earnings management practices carried out by the company. The results of testing the second hypothesis in this study support the research of Guna & Herawaty (2010) which stated that leverage negatively affects earnings management.

Real earnings management has a negative effect on company value

The testing results of the third hypothesis indicate that real earnings management has a negative effect on company value. This is evident from the results of testing the third hypothesis which show that the P-value = 0.01, which is smaller than the specified level of significance (≤ 0.05) and the path coefficient is negative (-0.28). Therefore, it can be concluded that the third hypothesis which stated that real
earnings management has a negative effect on company value is supported. This means that if the company practices real earnings management continuously for a long period, it will reduce the company value in the future because the reported earnings information does not match with the actual facts. The results of testing the third hypothesis in this study support the research conducted by Gill et al. (2010) which stated that earnings management has a negative effect on company value.

**Real earnings management mediates the effect of capital structure on company value**

The testing results of the fourth hypothesis show that real earnings management mediates partially the effect of capital structure on company value. This can be proven by the results of the second hypothesis testing which show that capital structure has a negative effect on real earnings management and the results of the third hypothesis testing that show that real earnings management has a negative effect on company value. Thus, the fourth hypothesis is supported which stated that real earnings management mediates the effect of capital structure on company value. However, because the testing results of the first hypothesis indicate that capital structure also influences company value, it can be concluded that real earnings management only mediates partially of the effect of capital structure on company value.

**CONCLUSIONS, LIMITATIONS AND IMPLICATIONS**

Based on the analysis of the testing results concerning the ability of real earnings management in mediating the effect of capital structure on company value, some conclusions can be drawn as follows: (1) Capital structure has a positive effect on company value. The testing results of the first hypothesis in this study support the research results conducted by Ahyar et al. (2016); Chowdhury & Chowdhury (2010); Joni & Lina (2010) which show that the capital structure has a positive effect on company value; (2) Capital structure has a negative effect on real earnings management. The testing results of the second hypothesis in this study support the study of Zamri et al. (2013) which stated that leverage has a negative effect on earnings management; (3) Real earnings management has a negative effect on company value. The testing results of the third hypothesis in this study support the research conducted by Gill et al. (2010) which stated that earnings management has a negative effect on company value; (4) Real earnings management is proven to partially mediate the effect of capital structure on company value. The limitation of this study is that some manufacturing companies as the samples of this study did not publish annual reports and samples in this study is relatively small in number. The results of this study provide the following implications: (1) The results of this study can provide information for companies in considering the decision to use capital structure for the progress and survival of companies in the future; (2) The results of this study are expected to
motivate the standard setting bodies to implement stricter regulations on companies that have the potential to practice real earnings management.

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