FIRM VALUE: AUTOMOTIVE INDUSTRY RESEARCH

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ABSTRACT
The automotive industries and their components growth the manufacturing sector in Indonesia. This industry creates many jobs and drives various other industries. The research aims to analyze the firm value of automotive companies based on capital structure and sales growth. The population of this research is the automotive industries and their components listed on the Indonesia Stock Exchange. The sample was taken using a purposive sampling method, and the data was proceed using multiple linear regression analysis methods. The results showed that the capital structure had a negative effect on firm value using debt to equity ratio (DER), and had a positive effect using long-term debt to equity ratio (LDER). While sales growth has a non-significant positive effect on the firm value of automotive companies.

Keywords: firm value, capital structure, price book value, debt to equity ratio, long-term debt to equity ratio, sales growth

BACKGROUND
Investment can be made in many industrial sectors, one of which is in the automotive industries and their components. The automotive industries and their components have become important industries in the manufacturing sector in Indonesia. Its development is supported by the number of sales of vehicles in Indonesia. Based on sales data from 2015 to 2018, Indonesia became the largest automotive market in the Southeast Asia region (ASEAN), with positive moving sales growth (ASEAN Automotive Federation, 2019). In terms of production, the high demand for this industry has made vehicle manufacturing companies quite developed in Indonesia. In 2017, Indonesia has become the second largest carmaker in Southeast Asia after the country of Thailand and controls around 50% of car production in the ASEAN region.

The development of this industry also helped increase the rate of absorption of new labors in Indonesia and moved the economy to a better direction. Indonesia’s economic growth which is quite stable and the area of Indonesia are also participating in increasing the high demand for national automotive. In fact, to establish car manufacturing facilities, Indonesia is still very dependent on foreign direct investment. However, the development of this industry is quite attractive to investors to invest their shares in automotive sector industries and their components.

The main purpose of the company is to maximize the wealth or firm value (value of the firm). Maximizing firm value is very important for a firm, because maximizing the firm value also means maximizing the prosperity of shareholders and corporate stakeholders (Hery, 2017; Sahar, 2012). Firm value is the market value of outstanding debt securities and firm equity, which describes investors' perceptions of the level of success of industries that are often associated with price and stock returns. This value is the price will be paid by investors if the industry is sold (Husnan & Pudjiastuti, 2015); (Keown, Martin, Petty, & Scott, 2008). High stock prices make the firm value also high. A high firm value will create high returns so that it will foster investor confidence in the firm's current performance and also in the firm's future potential growth.

Capital structure is one of the factors that influence firm value. According to (Margaretha, 2011) the capital structure describes the firm's permanent financing consisting of long-term debt and own capital. Funding decisions will influence investor decisions in investment.
The firm growth is one of the factors that determine the firm's capital structure. Sharpness and trends in earnings and sales are keys to analyzing growing industries (Tambunan, 2008).

Based on the background that had been stated, this study looked at how the influence of the capital structure on firm value in the Automotive industries and their Components listed on the Indonesia stock exchange, and how the effect of sales growth on the firm value in Automotive industries and their Components listed on the Indonesia stock exchange.

**LITERATURE REVIEW**

**Firm Value**

Firm value is the market value of outstanding debt securities and firm equity, which describes investors’ perceptions of the level of success of industries that are often associated with price and stock returns. This value is the price that the investor will pay if the industry is sold (Husnan & Pudjiastuti, 2015); (Tandelilin, 2010); (Keown et al., 2008). In addition to the company’s revenue, the main purpose is to control firm risk, because there is a potential implication between risk management and firm value (Krause, 2016).

Firm value is the theoretical price to acquire a firm and to compare a firm with another firm (Setianto, 2016). And the firm value is intrinsic value, namely the present value of all cash flows that the company will obtain during its lifetime, and this means the future prospects (Tandelilin, 2010). Firm value can be measured by several ratios, including Earning Per Share (EPS), Price Earning Ratio (PER), and Price Book Value (PBV). Price Book value (PBV) is the result of a comparison between stock prices and book value.

According to (Fahmi, 2018) one of investors’ ways to measure firm value is to use the Price Book Value (PBV) ratio. Price book value is used to measure the performance of stock market prices on the value of the book, with the aim that investors can predict stocks that are overvalued or undervalued. The Price Book Value (PBV) formula is as follows:

\[
\text{Price Book Value} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}
\]

**Capital Structure**

Capital structure is closely related to the source of funds used to finance a firm's investment project. Capital structure theory explains how the effect of changes in capital structure on firm value. Capital structure is one of the factors that influence the value of firm value, and is a specific combination of equity and long-term debt used by the firm to fund its operations (Margaretha, 2011). The specific combination of equity and long-term debt used by the firm to finance its operations aims to create a mix of permanent (long-term) sources of funds that will be used by firms (Sawir, 2004); (Tandelilin, 2010).

The purpose of the capital structure is to assess and know the ability of firms to fulfill obligations and to find out how much the firm's capital is financed by debt (Kasmir, 2012). According to (Fahmi, 2018) there are several ratios that can be used in measuring capital structure, namely: 1) Debt Ratio, 2) Longterm Debt to Equity Ratio, 3) Short Debt to Asset Ratio and 4) Debt to Equity Ratio. In this study, the effect of capital structure on firm value was observed by using 2 financial ratios, namely Debt to Equity Ratio and Longterm Debt to Equity Ratio.

\[
\text{Debt to Equity Ratio} = \frac{\text{Total Debt}}{\text{Total Capital}}
\]

\[
\text{Longterm Debt to Modal Ratio} = \frac{\text{Long-term Debt}}{\text{Total Capital}}
\]
Sales Growth
Firms that have high growth rates must provide sufficient capital to maintain the survival of their firms and maintain their position in general economic development. Sales growth is very beneficial for the firm and also for investors to make a decision. According to (Rangkuti, 2008) the benefits of sales growth can be used by firms to predict sales in the future so that they can make the right decisions in terms of production and provide valuable information to estimate future growth.

There are several types of growth ratios used to measure sales growth 1) Sales, 2) Net profit after tax, 3) Earnings per share, 4) Dividends per share and 5) Market prices per share. In this study, researchers used measurements of sales growth with the following formula (Harahap, 2018).

\[
\text{Sales Growth} = \frac{\text{This year Sales} - \text{Last year Sales}}{\text{Last year Sales}}
\]

Relationship among Research Variables:
Relationship of Debt to Equity Ratio to Price to Book Value (BPV)
This ratio was used to determine the amount of funds provided by creditors to the owner of the firm so that this ratio serves to find out every Rupiah of capital used as collateral for debt. The higher the value of Debt to Equity Ratio (DER) was, the higher the risk of the firm (Koto, 2013). Conversely, the lower the value of Debt to Equity Ratio (DER) was, the lower the risk of the firm and to increase the firm value. Funding sourced from debt did not reduce returns for investors as long as the benefits of debt were greater than the burden incurred. However, a large use of debt will lead to an increase in expectations of higher returns for investors (Harahap, 2018); (Tandelilin, 2010). Based on the relationship of these two variables, H1 Debt to Equity Ratio (DER) had a negative effect on Price Book Value (PBV) in automotive industries and their Components listed on the Indonesia Stock Exchange.

The relationship of Longterm Debt to Equity Ratio (LDER) to Price to Book Value (BPV)
This ratio showed the percentage of own capital used as collateral for long-term debt which was calculated by comparing long-term debt with own capital, the higher the ratio showed the firm’s inability to fulfill its long-term debt obligations. Conversely, the lower the ratio, the better, because it means the company had the ability to pay long-term debt. The use of long-term debt can provide benefits to firms and shareholders, because long-term debt can reduce tax obligations. Conversely, if the firm uses its own capital, the dependence on outside parties decreases, but the capital is not a tax deduction (Fahmi, 2018). In addition, the use of bonds as an alternative source of long-term financing was also more profitable for firms and investors because bond interest tends to be lower than dividend distribution to investors. This of course would be able to increase the firm value and could also increase the prosperity of shareholders. Based on the relationship to these two variables, the research hypothesis was H2. Longterm Debt to Equity Ratio (LDER) had a negative effect on Price Book Value (PBV) in automotive industry and its Components listed on the Indonesia Stock Exchange.

Relationship of Sales Growth to Price to Book Value.
Sales growth had an important role in working capital, by knowing how much sales growth, investors were able to predict the amount of profit that would be obtained by a firm for the future so that it became an attraction for investors to invest. The higher the growth rate of sales every year in a firm, the investor would be more interested in investing so that it would increase the firm value. Sales growth was also used by many parties such as firm owners, investors, creditors, and other parties to see the prospects of a firm. By looking at sales data in the past, firms can optimize existing resources to develop firm value or existing stock prices (Pantow, Murmi, & Trang, 2015).

H3. Sales growth had a positive effect on the Price Book Value in the automotive industries and their Components listed on the Indonesia Stock Exchange.
The 4th hypothesis would observe the effect of the three dependent variables simultaneously. H4. Debt to Equity Ratio (DER), Longterm Debt to Equity Ratio (LDER), and sales growth simultaneously affected the Price Book Value (PBV).

RESEARCH METHOD

Conceptual Framework

![Figure 1. Conceptual Framework](image)

This study used an associative approach which aimed to determine the effect and relationship of two or more variables. The population in this study was 13 automotive industries and their Components listed on the Indonesia Stock Exchange. The criteria for this study in taking samples were:

1. Industries that had been running or operating for more than 5 years.
2. Industries that published financial statements annually for 5 years consecutively.
3. Industries that did not have financial data according to the variables tested in the 2013-2017 period.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>The automotive manufacturing sub-sectors and their components listed on the Indonesia Stock Exchange at the end of the Observation period, namely 2017.</td>
<td>13</td>
</tr>
<tr>
<td>Industries that did not have complete financial statements for the period 2013-2017.</td>
<td>2</td>
</tr>
<tr>
<td>Industries that did not have financial data according to the variables tested</td>
<td>6</td>
</tr>
<tr>
<td>Number of final samples</td>
<td>6</td>
</tr>
<tr>
<td>Number of observation data</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 1. Data Sample

Based on the sampling criteria, this study used 6 industries data observed for 5 years, the 2013-2017 period, with the number of observational data was 30 data.

The data analysis model used to answer the problem of this research was multiple regression analysis, which aimed to predict changes in the value of the dependent variable due to the effect of the value of the independent variable.

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon \]

Description:

- \( Y \) = PBV
- \( \alpha \) = value \( Y \) if \( X_1, X_2 = 0 \)
- \( \beta_1, \beta_2, \beta_3 \) = Direction number of coefficient regression
- \( X_1 \) = Debt to Equity Ratio (DER)
- \( X_2 \) = Longterm Debt to Equity Ratio (Utang Jangka Panjang)
- \( X_3 \) = Firm Growth
- \( \epsilon \) = Standard error
RESULT

Classic Assumption Test
If multiple regression could be used, then the classic assumption test which aimed to obtain valid analysis results was done first. The following was a test to determine whether a classic assumption was fulfilled or not.

Normality Test
The normality test was done to observe whether the dependent variable and its independent regression models had normal data distribution. The normality test used in this study used the Kromogrov Smirmov test, based on the results of the normality test, it was assumed that the distributed data was normal.

<table>
<thead>
<tr>
<th>Model</th>
<th>Correlations</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zero-order</td>
<td>Partial</td>
</tr>
<tr>
<td>PBV</td>
<td>0.151</td>
<td>Normal</td>
</tr>
<tr>
<td>DER</td>
<td>0.271</td>
<td>Normal</td>
</tr>
<tr>
<td>LDER</td>
<td>0.254</td>
<td>Normal</td>
</tr>
<tr>
<td>Growth</td>
<td>0.849</td>
<td>Normal</td>
</tr>
</tbody>
</table>

Multicollinearity Test
This test was used to find out whether there was a high correlation between the independent variables.

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zero-order</td>
<td>Partial</td>
</tr>
<tr>
<td>DER</td>
<td>0.147</td>
<td>-0.084</td>
</tr>
<tr>
<td>LDER</td>
<td>0.261</td>
<td>0.247</td>
</tr>
<tr>
<td>SALES</td>
<td>0.008</td>
<td>0.110</td>
</tr>
<tr>
<td>GROWTH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the table above, it could be concluded that there were no symptoms of multicollinearity among the independent variables indicated by the Tolerance value, each independent variable was greater than 0.1 and VIF was less than 5. Then it can be concluded that further analysis could be done with multiple regression models.

Heteroscedasticity Test
This test was used to determine the inequality of variance from the residuals of an observation to another observation in a regression model. The form of testing used was informal method or the scatterplot graph method.
Figure 2. Heteroscedasticity Test Results

From the results of the scatterplot, it could be concluded that there was no heterocedasticity in the regression model. So that, the regression model could be used, therefore testing using multiple linear regressions could be done.

Multiple Linear Regression
Data analysis in this study used multiple linear regression analysis; this study aimed to see the effect of independent variables on the dependent variable using multiple linear regression analysis.

<table>
<thead>
<tr>
<th>Table 4. Multiple Linear Regression Analysis Test Coefficients*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
</tr>
<tr>
<td>DER</td>
</tr>
<tr>
<td>LDER</td>
</tr>
<tr>
<td>SALES GROWTH</td>
</tr>
</tbody>
</table>

* Dependent Variable: PBV

Based on the calculations performed, the results of the multiple linear regressions above could be interpreted as follows:

1. The value $a = 0.866$ showed that if the value of the Price Book Value (PBV) dimension consisted of Debt to Equity Ratio (DER), Longterm Debt to Equity Ratio (LDER), and sales growth was zero value, then Price Book Value (PBV) in the Automotive industries and their Components was 0.866. Or it could be said, Price Book Value (PBV) was still 0.866 if it was not affected by the variable Debt to Equity Ratio (DER), Longterm Debt to Equity Ratio (LDER), and sales growth.

2. $\beta_1 = -0.119$ meaning that the Debt to Equity Ratio (DER) had a negative effect on the firm's Price Book Value (PBV), where if the Debt to Equity Ratio (DER) risen by 1%, then the firm's Price Book Value (PBV) would decrease by 0.119 or 11.9%.

3. $\beta_2 = 0.377$ meaning that Longterm Debt to Equity Ratio (LDER) had a positive effect on the firm's Price Book Value (PBV), where if Longterm Debt to Equity Ratio (LDER) risen by 1%, then the firm's Price Book Value (PBV) would increase by 0.377 or 37.7%.

4. $\beta_3 = 0.117$ meaning that sales growth had a positive effect on the firm's Price Book Value (PBV), where if sales growth risen by 1%, the Price Book Value (PBV) would increase by 0.117 or 11.7%.

Hypothesis testing
Partial Significant Test (t Statistic Test)
Partial test (t-test) is done to test whether the independent variable (X) partially has a significant relationship or not to the dependent variable (Y) to test the significance of the relationship used (Sugiyono, 2012).

<table>
<thead>
<tr>
<th>Table 5. Partial Test Results (t test)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
</tr>
<tr>
<td>DER</td>
</tr>
<tr>
<td>LDER</td>
</tr>
<tr>
<td>SALES GROWTH</td>
</tr>
</tbody>
</table>
The results of testing the statistics $t$ in the table above could be explained as follows:

1. **Effect of Debt to Equity Ratio (DER) on Price Book Value (PBV)**
   
   \[ t_{\text{count}} \text{ Debt to Equity Ratio was } -0.428 \text{ lesser than } t_{\text{table}} \text{ namely } -2.05183 \text{ with sig } 0.672 \text{ bigger than } \alpha = 5 \% \text{ (sig } 0, 672 > 0.05). \] Therefore $H_0$ was accepted, this showed that partially the relationshiof Debt to Equity Ratio had negatif effect insignificantly on Price Book value.

2. **Effect of Long-Term Debt to Equity Ratio (LDER) on Price Book Value (PBV)**
   
   \[ t_{\text{count}} \text{ Longterm Debt to Equity Ratio was } 1.302 \text{ lesser than } t_{\text{table}} \text{ namely } 2.05183 \text{ with sig } 0.204 \text{ bigger than } \alpha = 5 \% \text{ (sig } 0, 204 > 0.05). \] Therefore $H_0$ accepted, this showed that partially relationship of Longterm Debt to Equity Ratio had positif effect insignificantly on Price Book value.

3. **Effect of Sales Growth on Price Book Value (PBV)**
   
   \[ t_{\text{count}} \text{ sales growth was } 0.567 \text{ lesser than } t_{\text{table}} \text{ namely } 2.05183 \text{ with sig } 0.576 \text{ bigger than } \alpha = 5 \% \text{ (sig } 0, 576 > 0.05). \] Therefore $H_0$ was accepted, this showed that partially the relationship of sales growth had positif effect insignificantly on Price Book value.

**F Test (Simultaneous Test)**

The F statistical test is performed to test whether the independent variable (X) simultaneously had a significant relationship or not to the dependent variable (Y).

<table>
<thead>
<tr>
<th>ANOVA$^b$</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>1.626</td>
<td>3</td>
<td>.542</td>
<td>.771</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>18.289</td>
<td>26</td>
<td>.703</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>19.915</td>
<td>29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^a$ Predictors: (Constant), SALES GROWTH, DER, LDER  
$^b$ Dependent Variable: PBV

To test the statistical hypothesis above, the F test was performed at the level $\alpha = 5\%$ with $F_{\text{count}}$ for $N= 30$ was as follows:

\[ F_{\text{table}} = \frac{\text{df}_1 \times \text{df}_2 \times \text{MS}_1}{\text{MS}_2} = 2.98 \]

Based on the result, it could be seen that $F_{\text{count}} = 0.771$ and $F_{\text{table}} = 2.98$.

Decision making criteria:

\[ H_0 \text{ was accepted if } : F_{\text{count}} < 2.98 \text{ or } F_{\text{count}} < 2.98, \]
\[ H_0 \text{ was rejected if } : F_{\text{count}} > 2.98 \text{ or } F_{\text{count}} > 2.98 \]

From the ANOVA (Analysis of Variance) test in the table above it could be seen that $F_{\text{count}}$ was 0.771 with a significant level of 0.521 while $F_{\text{table}}$ was 2.98. Based on the result, it could be seen that $F_{\text{count}} < F_{\text{table}}$ (0.771 < 2.98) meaning that $H_0$ was accepted. So, it could be concluded that the Debt to equity Ratio, Longterm Debt to equity Ratio, and Sales Growth variables simultaneously had effect insignificantly on Price Book Value in Automotive industries and their Components.
The effect of Sales Growth on that study variable then its long life. From the a relationship, Book Value (PBV), with the amount of profit or decrease in the firm's total capital due to an increase in total capital, this did not cause firm risk or cost burden so it did not interfere with the amount of profit or decrease in the firm's profits and also the firm value through Price Book Value (PBV), because the effect on Price Book Value (PBV) was not too big because the relationship was not significant.

Based on the ability to pay debt, the lower the ratio was, the better the company would be in paying all its obligations. That means that the lower the value of the Debt to Equity Ratio (DER), the value of the Price Book Value (PBV) variable would get increase, and vice versa. A firm, under any circumstances should not have a debt that was greater than the amount of its own capital, or in other words Debt to Equity Ratio (DER) should not be more than 50%, so that guaranteed capital (debt) was not greater than the guarantee (own capital) (Riyanto, 2013).

This finding was different from the research conducted by (Koto, 2017), (Utami & Prasetiono, 2016), (Sari & Chabachib, 2013), (Limbong & Chabachib, 2016), and (Misran & Chabachib, 2017) stated that Debt to Equity Ratio (DER) had positive effect significantly on Price Book Value (PBV). And in Permatasari and Azizah's research (Permatasari & Azizah, 2018) and (Christiania & Putri, 2017) in a variable manner, DER had positive effect insignificantly on PBV variables.

The effect of Longterm Debt to Equity Ratio (LDER) on PriceBook Value (PBV)
Based on the findings of research conducted by the researchers, partially Longterm Debt to Equity Ratio (LDER) variable had positive effect insignificantly on Price Book Value (PBV) meaning that even though there was an increase in total long-term debt but it was still followed by an increase in total capital, this did not cause firm risk or cost burden so it did not interfere with the amount of profit or decrease in the firm's profits and also the firm value through Price Book Value (PBV), because the effect of Price Book Value (PBV) was not too big because the relationship was not significant.

From the ability to pay long-term debt, the lower the ratio, the better the company will pay all its long-term obligations. Meaning that the lower Longterm Debt to Equity Ratio (LDER) variable then Price Book Value (PBV) variable got increase, and vice versa. The findings of this study were the same as the research conducted by (Apsari, Dwiatmanto, & Azizah, 2015) stated that Longterm Debt to Equity Ratio had insignificant effect on firm value.

The effect of Sales Growth on Price Book Value (PBV)
The firm's ability to increase sales in a company tended to affect the income or profit of a firm. The higher the growth rate of sales each year in a company was, the more interested investors would be to invest their shares so that it would increase the firm value or the value of the shares and vice versa. The findings of this study were in line with the research conducted by (Pantow et al., 2015), and (Sari & Chabachib, 2013) that partially had positive effect insignificantly on the firm value (PBV).

The Effect of Debt to equity Ratio, Longterm Debt to equity Ratio, and Sales Growth Simultaneously on Price Book Value

For companies, it was important to decide wisely in using funds from loans, both Debt to equity ratio, Longterm Debt to equity ratio as debt ratio to avoid big business risks, because even though debt tended to stabilize the financial situation of the firms but this condition certainly must be adjusted to the circumstances of the firms and how the firms maximize the debt fund. With capital, the firm would get funds to make production so that the firm was able to carry out the survival of its company by conducting production and marketing. The use of debt wisely or with the maximum in a firm would be able to increase sales and create shareholders’ prosperity and loyalty, and would even attract other potential investors.

CONCLUSION

The research findings partially showed that Debt to Equity Ratio (DER) had negative effect insignificantly on Price Book Value (PBV). Based on the research findings, it can be concluded that there was compatibility between the findings of research with theory, opinions and previous researches namely partially there was no significant effect of Debt to Equity Ratio on Net Profit Margin, but there was a negative effect. The research findings partially also showed that Longterm Debt to Equity Ratio (LDER) and Price Book Value (PBV) had positive effect insignificantly on Price Book Value (PBV). Simultaneously, the research conducted on 6 Automotive industries and its Components showed that Debt to Equity Ratio (DER), Longterm Debt to Equity Ratio (LDER) and Sales Growth had positive effect insignificantly on Price Book Value (PBV).

REFERENCE


