Firm Value Determinant of Plantation Companies in Indonesia Stock Exchange

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\section*{ABSTRACT}

The purpose of this study is to determine the effect of capital structure, intellectual capital, and internal factor towards firm value which is moderated by profitability. The research sample used 14 companies of agricultural sector plantation subsector listed on Indonesia Stock Exchange (IDX) period 2014-2018. The data analysis model were used to test the hypothesis of multiple linear regression models and moderated regression analysis (MRA). The method used in this research is panel data analysis using the E-Views 9.0 analysis tool. The result showed that capital structure and intellectual capital had a significant positive effect on firm value while firm size had a significant negative effect on firm value. In addition, profitability is able to moderate intellectual capital, firm size and growth sales towards firm value.

\textbf{Keywords:} Capital Structure, Firm Value, Intellectual Capital, Internal Factor, Moderated Regression

\section*{INTRODUCTION}

Currently, the unstable global economic conditions and increasingly fierce business competition have forced companies to improve their performances to achieve their goals, which are maximizing their value or welfare of the shareholders. According to Sunarsih and Mendra (2012); \textsuperscript{[1]} A bigger appreciation for company shares from investors is believed to be caused by the firm's intellectual capital. Companies that are able to utilize their intellectual capital efficiently tend to increase their value. In managing its business, a company needs an appropriate funding decision to support its performance. Capital structure policy is basically built on the relationship between the decision in choosing the source of funds with the type of investment that must be chosen by the company to be in accordance with the firm's goals (Dadri 2011). \textsuperscript{[2]}

The problem in firm value can also be caused by internal company factors that are related to financial performance. Profitability is one of those internal factors; which is also an important indicator in assessing a firm performance. The higher profitability obtained by a company shows good performance and prospects in that company, therefore investors will respond to the positive signals given by the company and it will increase the firm value (Febrianti 2012). \textsuperscript{[3]} The problems regarding capital structure, intellectual capital, and internal factors that had an impact on firm value can occur in companies in various sectors.

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The agricultural sector is an important and strategic sector that had a role in Indonesia's economic growth, it is marked by a contributor to the national gross domestic product of 12.8% (BPS 2019). [4] The contribution of the plantation sub-sector to GDP (Gross Domestic Product) was 3.3% in 2018 (BPS 2019). [4] The agriculture sector is one of the sectors that are exporting major commodities in Indonesia and is currently experiencing a decline in export performance as much as 15.88% (BPS 2019), [5] where the most important result of the plantation sub-sector is from the palm oil commodity.

Palm oil has become one of Indonesia's export commodities which play a role in Indonesian economy. The decline in export performance also occurred in the export of palm oil products, according to BPS (2019); [5] the value of CPO exports in 2018 was US $ 17.89 billion, which is declining compared to 2017, which was US $ 20.8 billion. One of the factors that can be the cause of the decline in the value of exports is; the price of CPO which continuously declining since 2014 (at US $ 821 / ton) into (US $ 598 / ton) in 2018 (MPOB 2019). [6]

Figure 1. Agriculture sector stock index and IHSG in 2014 – 2019

Stock prices can indirectly show firm value. Based on Figure 1, it can be seen that the movement of stock index performance in the agricultural sector in 2014 - 2019 experienced a negative trend, which is; the stock prices in this sector generally declined. This is not in line with the trend in the movement of the national sector index which is described based on the movement of the stock price index that has increased.

A company generally has a goal to increase its value. Firm value is considered important to reflect firm performance so that it can affect investors' perceptions of the company (Salvatore 2011). [7] Based on Figure 2, the condition of the profitability and firm value of plantation companies from 2014 to 2018 has fluctuated but tends to decline. Profitability is one factor that can describe the firm financial performance and can be related to other factors that affect firm value. Therefore in this study profitability is used as a moderating variable.

The condition of the firm value that continuously declining can be a driving force in conducting research that affects this particular condition. Capital structure, intellectual capital, internal factors owned by the company, and firm value are important indicators that are considered by investors since all of them show the achievement of management in the welfare of the shareholders and firm value within a certain time-frame.
CONCEPTUAL FRAMEWORK AND HYPOTHESES

The research is quantitative research, based on explanation the conceptual framework in the study is as follows:

H1: Capital structure has a significant effect on firm value
H2: Intellectual Capital has a significant effect on firm value
H3: The firm internal factors significantly influence firm value
H3a: Company size has a significant effect on firm value
H3b: The firm dividend policy has a significant effect on firm value
H3c: The firm sales growth has a significant effect on firm value
H4: Profitability is able to moderate the influence of capital structure on firm value
H5: Profitability is able to moderate the influence of intellectual capital on firm value
H6: Profitability is able to moderate the influence of internal factors on firm value
H6a: Profitability is able to moderate the influence of dividend policy on firm value
H6b: Profitability is able to moderate the influence of firm size on firm value
H6c: Profitability is able to moderate the influence of growth sales on firm value

RESEARCH METHOD
This research is causal research which aims to test hypothesis and is a study that explains phenomena in the form of relationship between variable. The sample in this study is the plantation sub-sector companies which are listed on the Stock Exchange in 2014 – 2018. The total population of the study was 16 companies. The sampling method was purposive sampling by making the criteria set, the research sample was 14 plantation companies. The financial statements studied are financial statements from the 2014 - 2018 period. This research used secondary data sources in the form of firm annual financial statements and other relevant data.

The data processing and analysis were done by using panel data regression to test the effect of each variable as well as analysis of the moderation test to see the effect of the interaction between moderator variable and independent variables in influencing the dependent variable. The dependent variable used in this study was the company value (PBV), the independent variables used in this study were capital structure (DER), intellectual capital (VAIC), and company internal factors which use company size (Size), dividend policy (DPR) as well as sales growth (Growth), while the moderator variable used was profitability (ROE). To test the hypothesis, the following panel data regression equations are used:
1. Regression Model 1 (Multiple Regression)
   \[ Y_{it} = \alpha_0 + \beta_1 DER_{it} + \beta_2 VAIC_{it} + \beta_3 DPR_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \mu_{it} \]
   Proving the influence of capital structure, intellectual capital, dividend policy, firm size, and growth sales on firm value.
2. Moderated Regression Analysis (MRA)
   \[ Y_{it} = \alpha_0 + \beta_1 DER_{it} + \beta_2 VAIC_{it} + \beta_3 DPR_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 ROE_{it} + \beta_7 DER*ROE_{it} + \beta_8 VAIC*ROE_{it} + \beta_9 DPR*ROE_{it} + \beta_{10} SIZE*ROE_{it} + \beta_{11} GROWTH*ROE_{it} + \mu_{it} \]
   Proving the moderating variable (profitability) can moderate the relationship between independent variable (capital structure, intellectual capital, dividend policy, firm size, and growth sales) on the dependent variabel (firm value).

Information:
- \( Y \) = Firm Value
- \( DER \) = Debt to Equity Ratio (Capital Structure Ratio)
- \( VAIC \) = Value Added Intellectual Coefficient(Intellectual Capital Ratio)
- \( DPR \) = Dividen Payout Ratio
- \( SIZE \) = Firm Size
- \( GROWTH \) = Growth Sales
- \( ROE \) = Return on Equity (Profitability Ratio)
- \( DER*ROE \) = Interaction of capital structure with profitability
- \( VAIC*ROE \) = Interaction of intellectual capital with profitability
- \( DPR*ROE \) = Interaction of dividend policy with profitability
- \( SIZE*ROE \) = Interaction of firm size with profitability
- \( GROWTH*ROE \) = Interaction of growth sales with profitability

RESULT
Normality Test: The result of the test performed using Jarque-Bera test on the data of plantation companies conducted with Eviews 9 can be seen in Figure 3. It is known that the probability value on the result shows the value of 0.9234 and is greater than the real specified level of 0.05. Based on the result, it can be concluded that the data used in this study were normally distributed.
### Autocorrelation Test:
The data of autocorrelation test is used by researchers to see whether there is a relationship between independent variables and errors. Testing the presence or absence of autocorrelation in this study was carried out using Durbin-Watson (DW) test. The test result showed the value of $d = 2.24599$ and compared to the value of DW-Table with a significance of 5% on the independent variable $k = 5$ and observation $= 70$, therefore the $dL$ values obtained $= 1.49435$ and $dU = 1.73505$, $4 - d = 1.754036$ and $4 - dU = 2.26495$. Based on the calculation result, the detection of positive autocorrelation $dL < d < dU$ means that the test does not believe or cannot be concluded in the detection of positive autocorrelation. From the calculation of detection of negative autocorrelation $(4 - d) > dU$, it can be concluded that there is no negative autocorrelation - therefore the assumption that there is no autocorrelation has been fulfilled.

### Heteroscedasticity Test:
Heteroscedasticity test is performed with the aim of finding out whether or not there is a problem of variable inequality from the residual of one observation to another. Heteroscedasticity test is performed using Breusch-Pagan-Godfrey test. From the heteroscedasticity test with the Breusch-Pagan-Godfrey Test on the data of plantation companies, the value of $\text{Obs} * \text{R-squared}$ with a probability value of 0.903 (Table 2) greater than alpha 0.05 was obtained. Therefore, it can be concluded that this model, after weighting, becomes free from violations of the heteroscedasticity assumption.

### Panel Data Regression Model:
The testing was done by calculating panel data, namely pooled least square (PLS), fixed effect model (FEM) and random effect model (REM). After the three models are formed, the selection of panel data regression model is conducted to identify the best one of the three calculation models. The selection of the model was conducted by performing Chow and Hausman test. Based on the result of Chow and Hausman test, it can be concluded that the best model in this regression model is the fixed effect model. The result of processing the fixed effect panel model is illustrated in Table 3. This result also illustrates the relationship between any independent variable which affects firm value as the dependent variable.

### Hypothesis Test:
In testing hypotheses, the coefficient of determination analysis,
simultaneous influence testing (F-test), and partial effect testing (T-test) will be carried out as follows.

**Analysis of the Coefficient of Determination:** Based on the result of the modeling of fixed effect model in table 3, it shows that this model obtained an R-squared of 0.915988; which means that 91.59% of the independent variables namely capital structure, intellectual capital, dividend policy, company size and company sales growth are able to explain firm value. The remaining 8.41% is influenced or explained by other variables not included in this research model. This result has shown that the model obtained is good.

**Test of Significance of Simultaneous Influence (F-Test):** The test aims to test the effects of independent variables together or simultaneously on the independent variables. Simultaneous test in this study obtained a probability value of F-statistic of 0.000. If the F-stat probabilistic value is smaller than the alpha value of 5% or 0.05, it can be concluded that all independent variables (capital structure, intellectual capital, dividend policy, company size and company sales growth) have proven to have significant effect on the dependent variable (firm value).

Panel Data Regression Equations and Partial Test (t-Test) Based on Table 3, obtained the multiple linear regression equation as follows:

Regression Model: \( PBV = 5.370 + 0.148*DER + 0.0302*VAIC - 0.001*DPR - 0.3499*SIZE + 0.0008*GROWTH + \mu \)

Based on the table 3, the effect of the influence of the independent variable (X) on the dependent variable (Y) on firm value is:

The significant value DER variable is 0.0122 which is smaller than the probability of 0.05 with positive coefficient direction (0.14822), it can be concluded that the variable capital structure of the company (DER) has a positive and significant effect on firm value (Y). H1 hypothesis is accepted. The significant value of the VAIC variable is 0.0399 which is smaller than the probability of 0.05 with positive coefficient direction (0.302), so it can be concluded that the variable intellectual capital (VAIC) has a significant positive effect on firm value (Y). The H2 hypothesis is accepted.

The significant value of the DPR variable is 0.0544 which is greater than the probability of 0.05, so it can be concluded that the variable dividend policy (DPR) has no significant effect on firm value (Y). The H3a hypothesis is rejected. The significant value firm size variable is 0.000 smaller than the probability of 0.05 with negative coefficient direction (-0.3499), it can be concluded that the variable capital structure of the company (DER) has a negative and significant effect on firm value (Y). The H3b hypothesis is accepted. The significant value of the growth sales variable is 0.0544 which is greater than the probability of 0.05, so it can be concluded that the variable growth sales have no significant effect on firm value (Y). The H3c hypothesis is rejected.

**Moderated Regression Analysis (MRA):** This regression analysis can identify how strong is the influence of the dependent variable relationship with independent variables that have interactions with moderator variables. Moderator variable is independent variable which can strengthen or weaken the relationship between the independent variable on the dependent variable, as well as having an influence on the characteristic or direction of the relationship between variables. The moderator variable in this research is profitability (ROE).

<table>
<thead>
<tr>
<th>Table 4. Result of Moderated Regression Analysis</th>
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<tr>
<td>Variable</td>
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<td>SIZE*ROE</td>
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<tr>
<td>GROWTH*ROE</td>
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<td>R-squared</td>
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Based on Table 4, the multiple linear regression equation is obtained as follows.

**Regression Models:**

\[
PBV = -0.044531 + 0.263857(DER) + 0.227895(VAIC) - 0.080432(DPR) - 0.525747(SIZE) + 0.014222(GROWTH) - 0.034391(DER*ROE) + 0.290515(VAIC*ROE) + 0.045776(DPR*ROE) - 0.294554(SIZE*ROE) + 0.036933(GROWTH*ROE)
\]

Based on the table 4, the effect of the influence of the moderating variable (Z) on the relationship of each independent variable (X) to the dependent variable (Y) on firm value. Interaction DER*ROE significance 0.1382 (greater than 0.05), with the direction of the coefficient negative (-0.0343). These results indicate that profitability is unable to moderate the relationship between capital structure and firm value. The H4 hypothesis is rejected.

The interaction of VAIC*ROE is significant at 0.0000 (smaller than 0.05), with a positive coefficient direction (0.2905). These results indicate that profitability is able to accommodate the relationship of intellectual capital with firm value positively. The H5 hypothesis is accepted.

The DPR*ROE interaction is significant at 0.6634 (greater than 0.05), with a positive coefficient direction (0.0457). These results indicate that profitability is not able to moderate the relationship of dividend policy with firm value. The H6a hypothesis is rejected.

The interaction of SIZE*ROE is significant at 0.0000 (smaller than 0.05), with a negative coefficient direction (-0.2945). These results indicate that profitability is able to accommodate the relationship of firm size with firm value negatively. The H6b hypothesis is accepted.

The interaction of Growth*ROE is significant at 0.0293 (smaller than 0.05), with a positive coefficient direction (0.0369). These results indicate that profitability is able to accommodate the relationship of growth sales with firm value positively. The H6c hypothesis is accepted.

**DISCUSSION**

The result of this research indicates the DER prob value is smaller than alpha by 5%, which indicates PBV is influenced by DER. The result of this research stated that an increase in capital structure has a significant positive effect on firm value. Addition of debt carried out by the companies to expand and all of their activities will increase their stock prices; therefore it will affect their PBV value which continuously increasing. Based on Brigham et al., (1990); [8,9] the high rate of using this debt can pose a risk of failing to pay for it, but on the other hand, investors assess the growth of business sales due to increased use of debt can minimize this risk. Therefore, based on the theory of trade off; companies that use debt as their main source of funding can improve their performance and value.

The result of this research also stated that the increase in intellectual capital owned by a company has a significant positive effect on the firm value. Intellectual capital is related to the creation of firm added value which comes from intangible asset capitals; such as knowledge and technology in the firm human resources. Companies' utilization in managing their intellectual capital in creating added value is in accordance to the resource based theory and knowledge based theory - which also forms the fundamental to build human capital involvement in company activities.

Dividend policy is how companies determine how much or what proportion of profit will be distributed as dividends. The result of this research stated that the increase in dividend policy owned by a company has a significant negative effect on the firm value. This research does not support the Bird in the Hand theory, which explained that investors or shareholders prefer companies that provide high dividends, since there is an assumption that getting dividends at this time has a smaller risk compared to capital gains that will be obtained in the future.
This research stated that the increase in company size has a significant negative effect on firm value. In general, the greater the assets, the more capital is invested— which makes more sales and will result on a bigger money circulation and market capitalization. According to Situmorang (2019); a firm efforts to increase its business or size through debt will cause doubt in the investors, due to the amount of the loan interest expense that needs to be paid. Investors will assume the large amount of debt held by the company poses a high risk to the company and can lead to bankruptcy. A large-scale company also reflects a large total asset and inventory. Therefore, there is a possibility that large companies are unable to pay dividends because of the large assets and inventories which accumulated in receivables and inventories (Hirdinis 2019).

The increase in firm sales growth in this research had a significant positive effect on firm value. In theory, sales growth will increase the company's revenue so that the company can expand business units so that firm value will increase. If the company's sales growth is positive and increases, it will indicate a large firm value. The firm sales growth generally reflects investment success in the past and can be used as a prediction of future growth. For investors, firm sales growth can be used as a positive signal and a good development; where this growth has an impact on firm profits and the company also expects a rate of return from investments made.

The result of this study explained that profitability does not moderate the relationship between capital structure and firm value. The results of this study are not in accordance with the research of Irwansyah et al (2017) which states that there is a positive significant relationship between the interaction of capital structure and profitability on firm value. When profitability interacts with capital structure, it can strengthen the relationship of capital structure to firm value. Increased profitability can increase company retained earnings so that internal capital can increase compared to external capital as a source of funding. The high profitability achieved by a company makes the company's internal funds quite fatherly to meet investment needs. Companies prefer internal funds from their own capital, this shows that high profitability results in companies not needing external funding because the company's funding needs have been met. This relates to the pecking order theory where a high level of profit makes the company's internal funds sufficient to meet investment needs.

Partial test on the moderating regression model showed that interaction variables between intellectual capital and profitability had a significant positive effect on firm value. The results of this study are accordance with Herli and Hafidha (2018), namely that profitability is able to be a moderating variable when interacting with intellectual capital on firm value. The increased profitability achieved by the company can strengthen the positive relationship between intellectual capital and corporate value. When a company achieves increased profitability it helps the company to increase and utilize intellectual capital in the form of its resources. The increase in intellectual capital is done by increasing the allocation of funds to increase the company's human resources for employees at various levels by providing training, workshops, seminars, and further education. This result shows that when a company achieves increased profitability, it helps the company to improve and utilize intellectual capital in the form of its resources. When a company is able to utilize its intellectual capital optimally, investors will be interested and cause the firm value to increase.

The results of the study which showed that there was no significant relationship between the interaction of dividend policy with profitability on firm value were not in accordance with Octaviani and Ida (2016) research which proved that the profitability variable was able to
significantly strengthen the effect of dividend policy on firm value. Companies that are able to generate profits to increase the value of the company incorporate activities that will be a positive signal for shareholders. The profit that is worth sharing to investors or shareholders is from the net profit obtained by the company. Investors generally get a return or profit in the form of dividends distributed. Increased profitability will also increase dividend income. When profitability increases, the company will distribute profits to investors in the form of dividends and the theory Bird in the Hand will apply, investors prefer companies that provide benefits in the form of dividends in large amounts.

In this research, the partial test result obtained in the moderating regression model of interaction variables between firm size and profitability makes it possible to indicate that there is a significant relationship; therefore profitability variable moderates the relationship of firm size with firm value. The result of this research is in accordance to Tamba (2016); [15] whom stated that profitability is able to moderate company size when interacting with firm values. When profitability increases the use of company assets will also increase but this increase in assets will decrease the value of the company. This decrease due to the addition of assets can also be caused by an increase in debt and this makes the company risk increases.

The results of this study indicate that when profitability interacts with sales growth will have a significant positive relationship to firm value. When profitability increases, the income or net income increases, so of course the company's revenue will increase. This increase in revenue causes sales growth in the company. Sales growth can reflect a company's success in its past investments. When a company experiences increased sales growth there will be an increase in the amount of revenue at the company. Increasing the income of a company is certainly one of the positive signals that the company can create more profits from increased sales results. This is consistent with Nurhasanah (2019) [16] that there is an interaction between company growth and profitability that can strengthen its relationship with company value, namely a positive relationship.

CONCLUSIONS AND SUGGESTIONS
Conclusions
Based on the research that has been done, the following conclusions can be drawn:
1. Based on the result of the research, firm value is significantly influenced by variables of capital structure, intellectual capital and company size. Firm value has a significant positive relationship with capital structure and intellectual capital, while a significant negative relationship occurs in company size.
2. Profitability is able to moderate intellectual capital, company size and company sales growth to firm value. Profitability is able to strengthen the relationship of intellectual capital and sales growth with firm value, while it can also weaken the relationship of company size to firm value.

Suggestions
The result of this study suggests that companies' management who are trying to increase firm value should pay attention to the three factors which affect it; namely capital structure, intellectual capital and company size. Firm value can be increased by paying attention to the optimum use of funding sources, while still being able to overcome risks. The efficient use of intellectual capital in creating added value is also a way of enhancing firm value.

In investing activities in capital market, an investor should first pay attention to the condition and financial performance of the company. Investors are recommended to choose companies which are able to maintain the amount of debt and capital according to the rules set by the company and government - choose companies which are able to utilize their
intellectual capital efficiently - choose companies which have assets that avoid environmental or social issues, experience good sales growth every year and provide high profits.

This study suggests for the further research to complement the limitations of this study is to examine external factors and internal factors that do not yet exist in this research or specifically examine the components of intellectual capital namely human capital, structural capital, and customer capital as a proxy for intellectual capital which is also seen affect on firm value. Further research is recommended to examine companies in other sectors or the agribusiness sector both upstream or downstream industries so that the results can be compared with the results of this study.

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