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# Determinant Factors of the Public Company's Value which Listed in Indonesia Stock Exchange

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## Abstract

The study was conducted to evaluate and analyze the factors that influence the value of the company, using 3 (three) alternative regression models, namely the stock market value; share price to book value; and the rate of return as a proxy for company value. Using the stratified random sampling technique, 22 companies were listed on the Indonesia Stock Exchange over a 10-year period from 2009 to 2018. The appropriate panel data estimation method for analyzing the regression model in this study used the fixed effect model (FEM). Regression results show that the variable of debt to total asset (DAR), return of asset (ROA) and gross profit margin (GPM) significantly influenced the value of the company measured by price to book value (PBV) as the dependent variable. For further research has to pay attention to differences in industry characteristics and also consider to use of other variables, such as age the company and the level of risk of the company that measures with the market model, so that it is possible to get better estimation results.

**Keywords:** Firm Value, FEM, ROA, GPM, DAR, PBV

## 1. Introduction

The public companies are classified as high-risk investments, because the nature of the instruments is very sensitive to changes, such as changes in politics, economy, monetary, laws or regulations (Karim, 2015). The rate of return and risk are two inseparable factors. In world investment, return and risk have a strong, linear and unidirectional relationship, with the principle that any investment that has a high potential risk will also produce high returns. Public company shares are classified as high-risk investments, because the nature of the instrument is very sensitive to changes, such as changes in the political, economic, monetary, laws or regulations (Karim, 2015).

The return and risk are two inseparable factors. In the world of investment, return and risk have a strong relationship, linear and unidirectional, with the principle that any investment that has a high risk potential will produce a high return (Fahmi, 2014). Stock returns are also influenced by decisions or policies taken by companies such as debt policies. Debt policy is a company funding policy that comes from outside to finance the company's operational activities.

Excessive funding from outside the company has an impact on the high cost of the company and if the domestic economy is unstable, it will result in the company defaulting and increasing the risk of bankruptcy for the company which has an impact on the decline in stock prices. The trade off theory explains the company's balance in utilizing debt funding with higher interest rates and bankruptcy costs (Brigham and Houston, 2001). The use of debt with the right accuracy by the company can provide benefits for the company which will ultimately provide a positive signal for investors.

In previous research, by Mishra and Dasgupta (2019); Widayanti and Haryanto (2013) suggested that financial leverage, has a significant and negative effect on firm performance, while research by Safitri et al. (2015), Anton (2016), and Mishra and Dasgupta (2019) suggests that leverage has a positive and significant effect on firm value. Companies with high debt levels tend to reduce shareholder dividends to be used as retained earnings to finance loan interest. A decision whether the profits earned by the company will be given to investors in the form of dividends or will be retained in the form of retained earnings to finance future investment is known as dividend policy (Sartono, 2012: 281).

Dividend policy is proxied in the dividend pay-out ratio (DPR). The high amount of DPR distributed by companies has resulted in an increase in the value of share prices because investors have better certainty about dividend distribution on their investment (Carlo, 2014). A high DPR can also boost the number of companies shares demand which results in an increase in the company's share price. In a previous study, Putra et al (2014) suggested that the DPR has a significant and negative effect on stock returns, while Carlo (2014) and Anton (2016) research suggests that DPR has a positive and significant effect on firm value which measured by stock returns.

Based on the description above, this research was conducted to identify and analyze the factors that influence firm value such as financial leverage and dividend policy by using three alternative measurements of firm value, namely, Market Price of Stock (Po); Price to Book Value (PBV) and Return on Asset (ROA).

## **2. Literature Review**

### *2.1. Return and Risk of Investment*

Information is a fundamental need for investors in making decisions. Information has meaning if the investor makes transactions on the capital market. Investors in investing will make an estimate of the level of income expected from their investment for a certain period in the future (Tandelilin, 2010). Uncertainty about the level of income or return is the essence of investment, namely that investors must always consider the element of uncertainty which is an investment risk.

The aim of investors to invest is certain to get optimal returns, in addition to dividends, investors also expect stock returns. So before investing, investors carry out an analysis to predict future stock prices so that later they will get the expected rate of return and profit. Returns are divided into two types, namely: Realized Return and expected return. Realized return is a return that has occurred which is calculated based on historical data (ex post data). Realized return is important because it is used as a measure of company performance. Realized return or historical return is useful as a basis for determining the expected return and risk in the future; Expected Return is the return expected to be obtained by investors in the future (Hartono, 2014). According to Fahmi (2015: 357) "risk is uncertainty about a situation that will occur in the future with decisions made based on various current considerations." Husnan (1998: 196) explains that "risk sources are divided into two groups, namely systematic risk, which is the risk that affects all (many) companies, and unsystematic risk, which is the risk that affects one (small group) of companies."

The single index model was developed by William Sharpe (1963), is based on the observation that the price of a security fluctuates in the direction of the market price index" (Hartono, 2014: 407). Stock prices tend to increase when the market price index increases, and vice versa. This shows that the level of profit of a stock has a correlation with market changes (Husnan, 1998: 103). The single index model uses beta in measuring the sensitivity of a

security's profit level to the market (Hartono, 2014: 409). The greater the beta of a stock, the greater the market risk involved in it.

## 2.2. Debt policy

Debt policy is a company funding policy sourced from externally in financing the company's operational activities (Joni and Lina, 2010). The decision to choose the best funding source requires careful analysis of the company's financial managers. Companies are considered risky if they have a large portion of debt. The amount of debt that is too high will cause financial distress and reduce the value of the company, so company managers must be smart and able to control debt (Astuti and Nurlaelasari, 2013). If the use of debt can optimize the company's performance with the support of economic conditions and the company's capacity, external funding policies are allowed. Debt policy is proxied as DAR is used to measure the ratio of all company debt guaranteed by company assets. This ratio measures the level of company solvency.

"Pecking order theory is a policy pursued by a company to seek additional funds by selling its assets. Such as selling buildings, land, equipment (inventory) it owns and other assets, including funds originating from retained earnings". The pecking order theory policy means that companies tend to choose internal sources of funding to meet the company's funding needs. Companies are required to apply the prudential principal policy, by performing mathematical and mature calculations before making a decision. This is done to minimize the risks that may arise due to the implementation of the packing order theory policy (Fahmi, 2015).

According to Brigham and Houston (2001: 33-34) "trade off theory explains the balance of companies in utilizing financing from debt (favorable corporate tax treatment) with higher interest rates and bankruptcy costs." Companies can maximize their value by balancing the costs and benefits of financing with debt (Susilowati and Turyanto, 2011). Companies that use 100% debt are bad, because they increase costs related to bankruptcy (Brigham and Houston, 2001: 34), but accurate analysis of the use of debt can increase company profits (Astuti and Nurlaelasari, 2013).

## 2.3. Dividend Policy

According to Sartono (2012: 281) "dividend policy is a decision whether the profit earned by the company will be distributed to shareholders as dividends or will be retained in the form of retained earnings for future investment financing." A number of considerations and decisions regarding determining the appropriate amount to be distributed as dividends are a difficult financial decisions for management (Suharli, 2007). Dividend policy involves two parties with different interests, namely shareholders and companies. If management increases the portion of earnings per share paid as dividends, the company will improve the welfare of shareholders (Rakhimsyah and Gunawan, 2011). On the other hand, if management chooses to withhold profits, the formation of internal funds will be even greater (Sartono, 2012: 281).

There are several theories about dividend policy as follows:

### a. Dividends Are Irrelevant

Modigliani-Miller (MM) argues that the decision whether the profit earned will be distributed in the form of dividends or will be retained does not affect firm value but is determined by the earning power of the company's assets. So a dividend policy is not a cause for concern in company growth.

### b. Bird-in-the-hand theory

Myron Gordon and John Lintner argue that investors feel safer earning income in the form of dividend payments than waiting for capital gains. Gordon-Litner considers one bird in his hand to be worth more than a thousand birds in the air in the sense that ultimately the retained earnings may never materialize as future dividends.

### c. Tax Differential Theory

Tax differential theory is a theory that states that investors are taxed on dividend profits and capital gains so investors prefer capital gains because the tax on capital gains is only paid after shares are sold, while tax on dividends must be paid annually after dividend payments.

According to Sartono (2012: 290) 67lientele effect classifies investors into two groups. First, investors who like companies that pay high dividends because they seem more profitable and have good prospects. The second is investors who want the company to pay low dividends. This is because investors want to reinvest their income so that for them a large dividend payment means that the tax to be paid is also getting bigger.

Thus, company management must determine the best dividend policy in order to improve company performance and minimize agency costs. To see the size of the dividends paid by the company to shareholders, it can be measured by the dividend payout ratio (DPR). The DPR is a ratio used to measure the level of profits that the company will distribute to investors later in the form of dividends (Nirayanti and Widhiyani, 2014). DPR is a percentage that is earned and given to investors in the form of cash.

### 2.4. Empirical Study

Previous research has been carried out related to this research topic (Aryani et al., 2015; Safitri et al., 2015; Carlo, 2014; Setianan and Adwitya, 2011; Sutanto, 2007). Government policy, politics, economic conditions and other macro factors are other factors that can influence the independent variables used in this study.

This is what causes the author to use the control variable to determine the real relationship between the independent variables including profitability, leverage or debt policy and dividend policy on the dependent variable, namely stock returns. Profitability, liquidity, debt policy and dividend policy are estimated to affect the level of investment opportunities in the company (Nazir et al., 2010), therefore the authors include asset growth as a control variable so that there is no other relationship that affects the independent variable on the dependent variable. used in this study and the results obtained from the study can be known more with certainty (Sugiyono, 2009: 41).

Supadi and Amin (2012) found that EPS and ROA have a positive effect, while DER and Beta have negative and positive effects, but not significant. Safitri et al., (2015) found that ROE, CR and DAR have a positive and significant effect on stock returns. Nirayanti and Widhiyani (2014) found that DPR and PER have a positive and significant effect on stock returns, while DER has a negative and significant effect on stock returns. Carlo (2014) found that ROE and DPR have a positive and significant effect on stock returns, while PER has no significant effect on stock returns.

Nazir et al., (2010) show that the dividend policy (dividend yield and pay-out ratio) has a significant impact on stock price volatility in Pakistan. Size as a control variable has a positive effect, while earning volatility, leverage and assets growth have no effect on stock price volatility. Furthermore, Onsomu and Onchiri (2014) found that there was no significant relationship between dividend policy and stock price volatility in Kenya. Control variables, namely company size, long-term debt and asset growth, were also found to have no significant relationship with stock price volatility in Kenya.

### 2.6. Hypothesis

The company's ability to meet current liabilities, as measured by the ratio of current assets to current liabilities (Current Ratio, CR) is to measure the company's ability to meet short-term obligations. The company's ability to provide cash flow will help facilitate daily operational activities, so that the company's long-term continuity is guaranteed. Previous research has proven that ROE, CR and DAR have a positive and significant effect on stock returns (Safitri et al., (2015). Furthermore, Gill and Mathur (2011), prove that CEO duality and company liquidity affect the performance of service companies in Canada., Farooq and Bouaich (2012) revealed that there is a significant positive relationship between liquidity and company performance in countries that are members of the Mena region.

Profitability is the company's ability to earn profits in relation to sales, total assets, and own capital. Total net income is often compared to measures of other activities or financial conditions such as sales, assets, shareholder equity to assess performance as a percentage of some level of activity or investment. (Sartono, 2012). The company's ability to generate profits is an important factor affecting the company's performance in the market. The level of profit generated, using the measurement of the rate of return on assets, and the rate of return on their own capital and the resulting profit margin are the main indicators for investors in any selected stock investment decisions. The ability to generate profits will affect the stock market price. If the profit generated is relatively high, then investors will maintain their stock portfolio or try to buy these shares. So thus that:

Ha1: The company's liquidity has a positive effect on firm value

Debt policy is a company funding policy sourced from externally in financing operational activities to increase company profits (Joni and Lina, 2010). "Trade off theory explains the balance of a company in utilizing debt financing (favorable corporate tax treatment) with higher interest rates and bankruptcy costs" (Brigham and Houston, 2001: 33-34). The funding process can be said to be successful if the company earns revenue. greater than loan interest expense (Rusliati and Prasetyo, 2011). This must be supported by company considerations with due regard to economic conditions and state policies as well as internal conditions of the company. Thus, the use of debt within the company will not have a negative impact, instead it will have a positive effect on the company, such as an increase in profits, which ultimately increases firm value and is captured as a positive signal for investors (Fama and French, 1998).

In this study, debt policy is proxied in the debt to total assets ratio (DAR). Previous research by Safitri et al. (2015) suggested that DAR has a positive and significant effect on stock returns. Different research disclosed by Widayanti and Haryanto (2013) states that DAR has a negative and significant effect on stock returns, while Putra et al (2014) research states that DAR has no significant effect on stock returns.

Ha2: Debt Policy (DAR) has a positive effect on firm value.

Dividend policy is "a decision whether the profits received by the company will be given to investors in the form of dividends or will be retained in the form of retained earnings to finance future investment" (Sartono, 2012: 281). Bird-in-the-hand theory explains that investors feel safer earning income in the form of dividend payments than waiting for capital gains (Sartono, 2012: 282-289). Investments resulting from dividend policy have a positive impact on firm value (Fama and French, 1998). The high portion of earnings per share paid by the company as dividends is considered to improve the welfare of shareholders (Rakhimsyah and Gunawan, 2011). As a result, potential investors will be interested in investing their funds in companies that affect share price increases. The rate of return on shares will move in the direction of the stock price, because the stock price interprets the rate of return on shares.

In this study, the dividend payout ratio (DPR) is used to measure dividend policy. The DPR is a profit sharing presentation between payments to shareholders and reinvestment (Yusi, 2011). A high DPR provides a positive signal for investors because the amount of dividends distributed by the company reflects the high profit the company receives and is considered to have good prospects in the future. In previous research, Carlo (2014) and Nirayanti and Widhiyani (2014) suggest that the DPR has a positive and significant effect on stock returns. Different research is expressed by Putra (2008) which states that the DPR has a significant and negative effect on stock returns and Musyarofah et al. (2015) which states that the DPR has no significant effect on stock returns.

Ha3: Dividend policy has a positive effect on firm value.

Asset growth is an indicator that can be used to predict the rate of return on shares (Cooper, Gulen and Schill, 2008). Companies with large assets indicate that the company has large cash flow and is captured as a positive signal for investors (Sutanto, 2007). The company hopes to be able to maintain its business continuity (going concern) and make company activities better for a long time. The greater the company's operational results, the greater the trust of outsiders in the company (Setianan and Adwitya, 2011). Research by Setianan and Adwitya (2011) and Sutanto (2007) states that asset growth has a positive and significant effect on stock returns, while research by Nazir et al. (2010) and Onsomu and Onchiri (2014) stated that asset growth does not affect stock price movements as a control variable.

### 3. Research Method

#### 3.1. Population and Sample

The population in this study were all companies listed on the Indonesian Stock Exchange for the period 2009 - 2018. The research sample was taken by strative random sampling, which is a stratified sampling technique from a population based on a certain strata or level, then sampling by simple random sampling.

#### 3.2. Research Variables and Operational Definitions

##### 1) Dependent Variable

###### - Company Shares Price (Po)

The value or price of a company's stock is the main indicator in choosing a stock investment portfolio. The high and low share prices will determine the investment value or the wealth of investors. The value of the company's shares is measured by:

Share value = the logarithm of the stock price

###### - Share price ratio to book value (PBV)

To measure the comparison between the company's present value to the company's historical value. To calculate this ratio is the following formula:

$PBV = \text{Market Price per Share} / \text{Book Value per Share}$

###### - Return on Asset (ROA)

Used to measure the company's ability to generate net profit after tax from each total invested asset. The ROA variable is an important indicator for companies and investors in assessing the company's ability to survive in the long term. ROA is calculated by the following formula.

$ROA = \text{Net Income} / \text{Total Asset}$

##### 2) Independent Variables

###### - Gross Profit Margin (GPM)

GPM is used to measure the company's ability to generate gross profit. This variable is important to measure how efficient the company is in using the company's main resources. GPM is measured by the formula:

$GPM = \text{Gross Profit} / \text{Net Sales}$ .

###### - Current Ratio (CR)

The current ratio, or Current Ratio (CR), is a measure of a company's ability to meet its short-term obligations. The company's ability to meet short-term obligations is very important, because failure to fulfill these obligations will result in disruption of the company's operational activities, which will reduce productivity and the trust of the parties to the company. Current Ratio can be calculated by the following formula:

$\text{Current Ratio (CR)} = \text{Current Assets} / \text{Current Liabilities}$

###### - Debt Policy (DAR)

The indicator used in measuring debt policy is the debt to assets ratio (DAR). According to Fahmi (2014: 72) this ratio measures the ratio of all company debt guaranteed by company assets. The higher this ratio, the greater the amount of loan capital used to invest in assets in order to increase profits for the company. The formula for calculating DAR is as follows.

$DAR = \text{Total Debt} / \text{Total Asset}$

###### - Dividend Policy (DPR)

The indicator used in measuring dividend policy is the dividend pay-out ratio (DPR). The DPR is a profit-sharing presentation between payments to shareholders and reinvestment (Yusi, 2011). Investors tend to be attracted to a

high DPR because the company is considered to have good prospects in the future. The formula for calculating the DPR is as follows.

$$\text{DPR} = \text{DPS} / \text{EPS}$$

### 3) Control Variable

#### - Asset Growth (AG)

The growth of company assets illustrates how much the company uses its funds (Anastassia and Firnanti, 2014). Companies with large assets indicate that the company has large cash flow and is captured as a positive signal for investors (Sutanto, 2007). The way to calculate asset growth is the current total assets minus the previous total assets then divided by the previous total assets. The process of calculating assets is calculated using a formula.

$$\text{Asset Growth (AG)} = \frac{\text{Total Aset}_t - \text{Total Aset}_{t-1}}{\text{Total Aset}_{t-1}}$$

### 3.3. Data analysis

#### - Regression Model

In this study, the regression model is divided into three sub-models with the following regression equation:

Model 1:

$$\text{LnPoi}_{i,t} = \alpha + \beta_1 \text{CR}_{i,t-1} + \beta_2 \text{DAR}_{i,t-1} + \beta_3 \text{ROA}_{i,t-1} + \beta_4 \text{GPM}_{i,t-1} + \beta_5 \text{YDPR}_{i,t-1} + \beta_6 \text{AGR}_{i,t-1} + u_{i,t}$$

Model 2:

$$\text{PBVi}_{i,t} = \alpha + \beta_1 \text{CR}_{i,t-1} + \beta_2 \text{DAR}_{i,t-1} + \beta_3 \text{ROA}_{i,t-1} + \beta_4 \text{GPM}_{i,t-1} + \beta_5 \text{YDPR}_{i,t-1} + \beta_6 \text{AG}_{i,t-1} + u_{i,t}$$

Model 3:

$$\text{ROAi}_{i,t} = \alpha + \beta_1 \text{CR}_{i,t-1} + \beta_2 \text{DAR}_{i,t-1} + \beta_3 \text{PBVi}_{i,t-1} + \beta_4 \text{GPM}_{i,t-1} + \beta_5 \text{YDPR}_{i,t-1} + \beta_6 \text{AGR}_{i,t-1} + u_{i,t}$$

Where:

LnPoi, t = Transform logarithm of the share price of company i, period t.

PBVi, t = the ratio of the share price to the book value of own capital (price to book value, PBV) company i period t

ROAi, t = The rate of return on total assets (ROA) of the company i period t

CRi, t-1 = current asset ratio (current ratio, CR) company i period t-1

DARi, t-1 = ratio of total debt to total assets (debt to total assets, DAR) company i period t-1

GPMi, t-1 = company i gross profit margin (GPM) period t-1

DPRi, t-1 = dividend pay-out ratio to net income (dividend pay-out ratio, DPR) company i period t-1

AGRi, t-1 = The rate of growth of assets (asset growth rate, AG) company i period t-1.

### 3.4. Model Specifications

In the regression model estimation method using panel data, it can be done through three methods of panel regression analysis, namely:

#### - Common Effect Model (CEM)

A regression model that does not pay attention to the dimensions of time or individuals and assumes that the behavior of company data is the same over time is known as Common Effect estimation. This method can use the Ordinary Least Square (OLS) approach or the least squares technique to estimate the panel data model. Multiple linear regression based on the least squares method (MKT) or OLS which is one of the methods often used to estimate a regression line by minimizing the number from the square of the error of each observation to the line (Ghozali, 2013: 96). The regression model equation with Common Effect estimation can be written as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + e_{it}$$

Information :

Yt = dependent variable

$\beta_0$  = intercept



$\beta_1, \beta_2$  = differentiating intercept  
 $X_1, X_2$  = independent variable  
*i* = type of company  
*t* = time  
*e* = error

- Fixed Effect Model (FEM)

A regression model that assumes different intercepts in the equation is known as the Fixed Effect regression model. To estimate panel data with the Fixed Effects model using dummy variable techniques to capture differences in intercepts between companies, but the intercept is the same between times (time invariant). This model also assumes that the regression coefficient (slope) remains between firms and over time. This model is often called the Least Squares Dummy Variable (LSDV) technique with the following equation:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 D_{1i} + \beta_4 D_{2i} + \beta_5 D_{3i} + e_{it}$$

Where:  $D_{1i}$ ,  $D_{2i}$  and  $D_{3i}$  are dummy variables for objects 1,2,3 and 0 for other objects.

- Random Effect Model (REM)

The use of dummy variables in the Fixed Effect model aims to represent ignorance of the real model. This reduces the degree of freedom which in turn reduces the efficiency of the parameter. This problem can be solved by using a random effect model that uses error terms, by estimating panel data where the disturbance variables may be interrelated between individuals and over time. This model is also called the Error Component Model (ECM) or Generalized Least Square (GLS) technique with the following equation:

$$Y_{it} = \bar{\beta}_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + v_{it}$$

Note:  $\bar{\beta}_0$  is an unknown parameter indicating the population mean intercept and  $v_{it}$  is a disturbance variable.

In determining the most appropriate panel regression model estimate to be used, the Chow Test, Hausman Test and LM Test are carried out.

- Chow Test;

It aims to choose the use of the Common Effect Model or Fixed Effect Model as a method of estimating the right panel regression model for our research (Widarjono, 2007: 77). The basis for decision making is by looking at the probability value of F, if the probability value of  $F < 0.05$  then  $H_0$  is rejected and vice versa.

$H_0$ : Common Effect Model

$H_1$ : Fixed Effect Model

- Hausman Test;

It aims to choose the use of the Fixed Effect Model or the Random Effect Model as a method of estimating the appropriate panel regression model for our research. The basis for decision making is by looking at the probability value, if the probability value is  $< 0.05$  then  $H_0$  is rejected, on the other hand if the probability value is  $> 0.05$  then  $H_0$  is accepted.

$H_0$ : Random Effect Model

$H_1$ : Fixed Effect Model

- LM Test:

It aims to choose the use of the Common Effect Model or the Random Effect Model as a method of estimating the appropriate panel regression model for our research. The basis for making the decision is by looking at the probability value at Breusch-Pagan, if the probability value is  $< 0.05$  then  $H_0$  is rejected, on the other hand if the probability value  $> 0.05$  then  $H_0$  is accepted.

$H_0$ : Common Effect Model

$H_1$ : Random Effect Model

## 4. Result and Discussion

### 4.1. Descriptive Analysis

Descriptive analysis is performed to briefly describe each variable used, namely showing the average or mean value of the data determined by dividing the amount of data by the amount of data. The median is to determine the middle location of the data after the data is arranged in order of value. Standard deviation or standard deviation variance to measure the variation in data distribution. The smaller the value of the distribution means that the variation in data values is getting the same. Then the maximum and minimum values of each variable. The value of skewness or the size of the slope, which shows whether the curve is sloping or not in a frequency distribution. Kurtosis or also known as the size of a distribution relative to the normal distribution. to measure the number that can is is and kurtosis.

The results of the descriptive analysis of the variables used in this study are as follows. For the Current Ratio (CR) variable, the average or mean and median values were 229.88 percent and 175.49 percent, while the maximum current ratio value of 953.04 percent occurred at PT. Kawasan Industri Jababeka Tbk, in 2014 and the minimum current ratio was 16.91 percent occurred at PT. Jaya Agra Watti Tbk in 2017. The variable ratio of total debt to total assets (Total Debt to Total Asset, DAR) with an average or mean value of 45.04 percent and a median value of 42.00 percent. For a maximum value of 88.00 percent occurs at PT. FKS Multi Agro Tbk in 2011 and a minimum value of 13.00 percent is found at PT. Multi Indocitra Tbk in 2009.

The mean and median value of the return on assets (ROA) variable were 8.51 percent and 7.05 percent, respectively. The highest ROA of 41.55 percent was found at PT. HM Sampurna Tbk in 2011 and the lowest ROA was at PT. Jaya Agra Watti Tbk in 2018. The gross profit margin variable (GPM) has a mean and median value of 28.24 percent and 24.20 percent, respectively. The highest GPM is at PT. Bumi Serpong Damai Tbk amounted to 74.69 percent in 2015 and the lowest GPM value at PT. FKS Multi Agro Tbk amounted to 1.86 percent in 2009.

The average or mean and median values of the dividend pay-out ratio (DPR) variable are 25.35 percent and 15.96 percent, respectively. The maximum value of the DPR variable is 137.71 percent at PT. HM Sampoerna Tbk in 2013 and the lowest DPR value of 0.00 percent was at PT. Astra Autopart Tbk in 2009, 2010 and 2011, and in 2009 at PT. Ciputra Development Tbk and PT. FKS Multi Agro Tbk. The mean and median value of the stock price to book value (PBV) ratio variable were 1.97 times and 1.42 times, respectively. The maximum value is 16.76 times at PT. Indofood Sukses Makmur Tbk in 2011 and a minimum value of 0.00 times at PT. Jaya Agra Watti Tbk in 2009 and 2010 and PT. Indofood CBP Sukses Makmur Tbk in 2009.

The mean and median value of the asset growth variable (AG) is 15.47 percent and 13.43 percent, respectively. The highest AG value of 97.66 percent occurred at PT. FKS Multi Agro Tbk in 2010. For the lowest AG value of -22.00 percent occurred at PT. FKS Multi Agro in 2014. The mean and median value of the variable Price per share (Price of stock, Po) is Rp. 7,744.41 and Rp. 1115.00. The highest share price was Rp. 94,000, happened to PT. HM. Sampoerna Tbk in 2014. The lowest share price of Rp. 104 occurred at PT. Jababeka Tbk Industrial Estate in 2009.

Table 1: Descriptive Statistic

	CR	DAR	ROA	GPM	DPR	PBV	AG	PO
Mean	229.8814	0.450409	8.511727	28.24764	25.35091	1.973409	15.47614	7744.414
Median	175.4950	0.420000	7.050000	24.20000	15.96500	1.420000	13.43000	1115.000
Maximum	953.0400	0.880000	41.55000	74.69000	137.7100	16.76000	97.66000	94000.00
Minimum	16.91000	0.130000	-8.720000	1.860000	0.000000	0.000000	-22.00000	104.0000
Std. Dev.	176.5108	0.175625	7.298437	16.36633	27.41849	1.774371	16.08191	16769.19
Skewness	2.219780	0.337931	1.780302	0.785164	1.130115	3.782823	1.737456	3.100767
Kurtosis	8.069087	2.307966	7.832201	3.054375	3.974600	27.72614	8.582480	12.33699
Jarque-Bera	416.2156	8.577251	330.2573	22.63146	55.53612	6129.028	396.3584	1151.686
Probability	0.000000	0.013724	0.000000	0.000012	0.000000	0.000000	0.000000	0.000000

Sum	50573.90	99.09000	1872.580	6214.480	5577.200	434.1500	3404.750	1703771.
Sum Sq. Dev.	6823180.	6.754863	11665.51	58660.62	164638.4	689.4977	56639.52	6.16E+10
Observations	220	220	220	220	220	220	220	220

#### 4.2. Statistical Testing Results

The form of data used in this study is panel data, which combines time series data with cross-section data. So there are three alternative estimation models that can be used, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and the Random Effect Model (REM) To find out which estimation model is appropriate to explain the relationship between independent variables and trend variables in this study, the first step is to select one of the three existing models, namely by conducting a model selection test.

In this study, there are three alternative regression models that will be tested using these three estimation methods. The results of the three regression models of the factors that influence firm value are reported in table 2. Based on the results of testing 3 (three) three panel data regression models using three (3) estimation methods, namely CEM, FEM and REM, it was decided that the FEM model was the most appropriate method in estimating the three models used in this study. This is evidenced by the results of the test of selecting the estimation method, namely the Cho-test and the Hausman test. Where the test results of the two test tools are significant, where the probability value of both is smaller than  $\alpha = 0.05$ .

From the three models, it is stated that each variable produces different levels of significance, so that there is no consistency in the results of the three models used. For the current ratio variable, CR is only significant in model 1, while the other two models are not. For the debt to assets ratio variable, DAR is only partially significant in model 3. The variable rate of return on assets (Return on Asset, ROA) has a significant effect on model 1 and model 3. Gross profit margin variable, GPM has a significant effect on all models, while the dividend pay-out ratio, DPR is only has a significant effect on the second model.

Table 2: Hypothesis Testing Results by Using FEM

Variabel	Model 1 (LnPo)	Model 2 (ROA)	Model 3 (PBV)
C	6.610.401*** (0.151202)	-2.527.402 (2.033.889)	1.623100*** (0.286783)
CR(-1)	-2.42E-05*** (4.85E-06)	4.99E-05 (5.90E-05)	0.000146 (0.000109)
DAR(-1)	0.088201 (0.204737)	2.163.146 (2.406.789)	0.685386* (0.365864)
ROA(-1)	0.018293*** (0.005351)	- -	0.043565*** (0.015674)
GPM(-1)	0.021918*** (0.004132)	0.367090*** (0.047750)	-0.011927** (0.005484)
DPR(-1)	-0.000817 (0.001067)	-0.022076** (-0.022076)	-0.001207 (0.002104)
PBV(-1)	- -	-0.01804 (0.185186)	- -
AG(-1)	0.000912 (0.000890)	0.008099 (0.008001)	0.001779 (0.001772)

R-squared	0.980422	0.705543	0.785373
Adjusted R <sup>2</sup>	0.977319	0.658776	0.751285
F-statistic	3.153.063***	1.508.645***	23.03971***
DW-statistic	1.497.059	1.181.559	1.862946
Cho test	219.825.31***	10.200.310***	20.032319***
Hausman test	24.920.544***	35.130.748***	13.689979**

The classical assumption test results found that only model 3, namely the variable stock price to book value ratio (PBV) as a proxy for firm value passed the four classical assumption tests. Lie and Lie (2002) found that the variable market to book value (PBV) ratio generally produces more accurate estimates with a smaller yield bias than other variables. So at this discussion point only analyzes the estimation results in model 3. As described in Table 2, there are three variables that have a significant effect on firm value, namely DAR (-1), ROA (-1) and GPM (-1).

#### 4.3. Discussion

The results of this study prove that the use of debt has a positive impact on firm value. The increase in the amount of debt gives a signal to the market that the company is in the business development phase and that the ratio of debt to total assets is still below 50 percent, namely a new average of 45.04 percent. By increasing the amount of debt, it provides an opportunity for companies to be careful in using funds originating from debt, so that in consideration of investment, companies can not only increase their investment but also be more careful in choosing their investment portfolio (Marchica and Mura, 2010). Thus, the increase in the amount of debt is responded positively by investors, that the company will be able to produce better cash flow in the future (Lewellen and Emery, 1986).

The results of this study support the trade-off theory, where up to a certain level of use of debt, it will increase the firm's value, because the use of debt generates compensation from the value of the tax protection of debt used by the company. The value-added benefit of debt will reach the maximum level when the company's capital structure is optimal, so that the benefits of the value of tax protection will be the same as the additional cost of bankruptcy as a result of the company's failure to meet its debt obligations. So that companies are encouraged to continue to increase their debt until they reach an optimal capital structure (Lin and Chang, 2011).

The variable rate of return on assets (ROA) has a significant positive effect on firm value, while the variable gross profit margin (GPM) has a significant negative effect on firm value. The results of this study are in line with the research by Hermuningsih (2013) that the profitability variable as measured by ROA has a significant positive effect on banking companies in Indonesia. The same results are shown from Chen and Chen's (2011) research that profitability has a positive effect on the value of companies listed on the stock exchange in Taiwan.

The ability to increase debt as an alternative to financing will be carried out by companies, especially loans that offer relatively cheap debt costs, for example by looking for sources of debt abroad that provide relatively cheaper interest on debt compared to domestic loans. The company's ability to increase the rate of return on invested assets and gross profit margin is continuously carried out so that the company's value continues to increase in order to meet the interests of stakeholders, especially investors.

## 5. Conclusion and Sugestion

The regression results show that the variable debt to total assets ratio (DAR), rate of return on assets (ROA) and gross profit margin (GPM) has a significant effect on firm value which is proxied as the ratio of stock price to book value (PBV) as the dependent variable. Companies are advised to always be careful in using sources of debt funds, because in addition to bringing the consequences of fixed expenses in the form of debt interest and loan principal that must be paid, it also results in increased financial risk which to a certain level result in a higher risk of company bankruptcy. The use of debt is only recommended when the company has the ability to generate gross

profit margins and the ability to generate relatively high returns on assets, so that the company's financial risk is in a safe condition. For investors in the capital market, that in choosing stocks for the formation of their investment portfolios, they should choose a company that has a debt to total assets ratio that is in a safe condition or in an optimal capital structure condition and owns company shares with a return on assets and gross profit. relatively high, so that the risk of default on debt can be minimized.

Considering that this research still has several weaknesses, including in the sample selection not paying attention to the characteristics of the industry, it is recommended that further research also focus on the differences in each industry so that the characteristics of each industry can be known. It is recommended in the following research to also use other variables, such as the age of the company and the level of risk of the company as measured by market models and others, so that it is possible to get better estimation results.

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