The impacts of fundamental and macroeconomic factors on the stock price of oil palm plantation companies in Indonesia Stock Exchange (IDX)

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ABSTRACT

The oil palm plantation companies in this study were the selected companies listed on the Indonesia Stock Exchange. This study aimed to determine the impacts of fundamental and macroeconomic factors on the stock price of the oil palm plantation companies in IDX. The determination of the research area was based on the designed method (purposive sampling) consisting of PT Astra Agro Lestari Ltd, PT PP London Sumatra Indonesia Ltd, and PT Tunas Baru Lampung Ltd. The data was collected using literature review method with secondary data sources in the form of time series data of stock prices, fundamental and macroeconomic factors in the period from January 2006 up to June 2016. The results of this study indicated that the movement of stock prices of oil palm plantations in Indonesia Stock Exchange was influenced by the fundamental and macroeconomic factors which consist of ROE (Return on Equity) with a regression coefficient of -133.35, DER (Debt to Equity Ratio) with a regression coefficient of -26.37, and EPS (Earning per Share) with a regression coefficient of 15.47. The macroeconomic factors consist of Rupiah exchange rate with a regression coefficient of -0273 and the CPO (Crude Palm Oil) price with a regression coefficient of 0.859. The investors can consider the overall internal and external factors, which are based on the company's financial ratios and macroeconomic conditions.

ABSTRAK

Perusahaan perkebunan kelapa sawit dalam penelitian ini merupakan perusahaan terpilih yang terdaftar di Bursa Efek Indonesia. Penelitian ini bertujuan untuk mengetahui pengaruh faktor fundamental dan faktor makroekonomi terhadap harga saham perusahaan perkebunan kelapa sawit di BEI. Penentuan daerah penelitian berdasarkan pada metode yang disengaja (purposive sampling) yang terdiri dari PT Astra Agro Lestari Tbk, PT PP London Sumatra Indonesia Tbk, dan PT Tunas Baru Lampung Tbk. Pengumpulan data dilakukan menggunakan metode studi pustaka dengan sumber data sekunder berupa data time series harga saham, faktor fundamental, dan faktor makroekonomi periode Januari 2006 – Juni 2016. Hasil dari penelitian ini menunjukkan bahwa pergerakan harga saham perkebunan kelapa sawit di Bursa Efek Indonesia dipengaruhi oleh faktor fundamental dan faktor makroekonomi yang terdiri dari variabel ROE (Return on Equity) dengan koefisien regresi -133,35, DER (Debt to Equity Ratio) dengan koefisien regresi -26,37, dan EPS (Earning Per Share) dengan koefisien regresi 15,47. Faktor makroeonomi terdiri dari Kurs rupiah dengan koefisien regresi -0,273 dan Harga CPO (Crude Palm Oil) dengan koefisien regresi 0,859. Para investor dapat mempertimbangkan faktor internal dan faktor eksternal secara keseluruhan, yaitu berdasarkan rasio keuangan perusahaan dan kondisi makroekonomi.

1. INTRODUCTION

The plantation sub-sector in the year of 2013 - 2014 played the biggest role in the formation of agricultural GDP with the contribution reaching 28.21 percent. The fair contribution of plantation subsector toward the agricultural GDP is supported by some plantation commodities, which have important and strategic value in Indonesia. The oil palm

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has become the mainstay of commodities. As based on the value and volume of the plantation commodities, oil palm occupies the first position. In addition, the value and export volume have increased from year to year, compared to other commodities, which tend to decrease (Dirjenbun 2015).

The rapid growth of plantation commodities is generally associated with the company engaged in the field of agribusiness, both upstream industrial companies and downstream industrial companies. Basically, a company always needs some funds to finance its operation. Their fund can be obtained from outside the company, for example from the loans and claims. For some companies, which have been well-known or go public, the efforts to raise funds for their operations can be obtained through the sale of shares to the investors. The media used by the company in selling its shares to the public is the capital market.

There are quite a lot of agricultural companies especially those engaged in the field of oil palm plantations sub-sectors in Indonesia which have joined and registered their companies in the capital market, therefore the development of the number of the listed public companies illustrates the options for the investors to invest their capital. However, investors should understand the market because the stock market is always changing. According to Samsul (2006), the change in the stock price may be affected by a company's financial performance and the risk of a company that can be seen from the durability of the company facing economic cycle such as a condition of economic growth, interest rates, inflation, Rupiah exchange rate and world oil prices or the price of major commodities.

The occurring phenomenon is the currency exchange rate fluctuation, which is indicated by the weakening of rupiah against the US dollar, which reached Rp 14,000 per US$ 1 in August 2015. This will affect the share prices traded in the Indonesia Stock Exchange. One of the impacts is that the price of Crude Palm Oil (CPO) commodity decreased, and it affected in the weakening of stock prices in oil palm plantation companies.

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Agro Lestari Ltd, PT PP London Sumatra Indonesia Ltd, and PT Tunas Baru Lampung Ltd.

Based on such explanation, the three oil palm plantation companies should be reviewed to determine their existence and the performance in the stock market. The information that can be used as the stock analysis materials is by determining the influence of the company's internal and external factors on the stock prices. The company's internal factors can be observed through a fundamental approach that consists of the company's financial ratios namely ROA (Return on Assets), ROE (Return on Equity), EPS (Earning per Share), and DER (Debt to Equity Ratio). Whereas, the external factors are observed from the macroeconomic conditions comprising the BI Rate, rupiah exchange rate against the US dollar, and the price of CPO (Crude Palm Oil) on the stock price movement for oil palm plantation companies. Therefore, this study is expected to describe the factors that may affect the company's stock price, so the capital owners can decide to invest in the oil palm plantation companies.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

According to Murhadi (2013), theoretically, there are several macroeconomic variables that affect the stock price movement, such as (1) inflation, (2) exchange rates, (3) the price of oil and the price of major commodities.

Based on the research conducted by Artha (2014), it is stated that the fundamental factors affecting the stock prices were Earning Per Share (EPS), Price Earnings Ratio (PER), Book Value Pershare (BVP), Return on Asset (ROA), Return on Equity (ROE), Return on Investment (ROI), Price Book Value (PBV), Debt to Equity Ratio (DER). Whereas, the macroeconomic and technical factors were affected by the stock market trends, BI Rate, the world oil price, and the rupiah exchange rate. The results of the T test found that the variable which has significant effect was the Return on Assets (ROA). This study also explained that the fundamental factors of the companies in agricultural sector were dominated by PT Astra Agro Lestari Ltd (AALI), followed by PT London Sumatra Ltd, and PT Sinar Mas Agro Ltd. The three companies had positive performance. The EPS values of these companies provided high value which means that the companies can provided great benefits to the investors in the form of dividends or gain.

Based on the research conducted by Woroanindya (2015), it is stated that in her study, the fun-

damental factors significantly and positively impacted on the stock prices were Return on Equity (ROE) and Price Earnings Ratio (PER). Whereas, the research conducted by Hanum (2009) states that the fundamental factors of ROE significantly influenced and had negative values on the stock prices of the companies.

Based on the research conducted by Pasaribu (2008), he states that growth, profitability, and efficiency of a company simultaneously and partially had significant impact on the stock prices in eight industries: agriculture, mining, chemical and basic, various industries, consumer goods, property and infrastructure, as well as trade. This study also shows that the Earning per Share (EPS) is a variable that had a dominant impact on the agricultural industries. In addition, a research conducted by Lisandri (2013) states that based on the partial test, only PER (Price Earnings Ratio) variables and EPS (Earnings per Share) variables which had significant and positive values on the stock prices of agricultural companies in Indonesia Stock Exchange.

Based on a research conducted by Rohmanda (2014), it is stated that the study was conducted on the basis of differences in sensitivity between industrial sectors in the Indonesia Stock Exchange (IDX) and the debate about the influences of some domestic macroeconomic data toward the stock prices. The independent variables used in the study were the rupiah exchange rate against the US dollar, inflation, and the BI rate. Whereas, the dependent variables used were the stock price IDX Sectoral Indices. Based on the partial test (t test), it was found that the rupiah exchange rate significantly influenced the stock price index of agricultural sectors. Meanwhile, the research conducted by Kewinoto (2015), states that the result of the t test showed that the price of and the sales volume of CPO had significant impact and had positive value on the stock prices of companies producing oil palm (CPO).

Based on the theoretical basis and the previous researches, the hypothesis in this study is the movement of the stock prices in the oil palm plantation companies in Indonesia Stock Exchange is influenced by fundamental factors consisting of ROA (Return On Assets), ROE (Return on Equity), EPS (Earning Per Share), and DER (Debt to Equity Ratio) and macroeconomic factors comprising the BI rate, rupiah exchange rate, and the commodity price of CPO (Crude palm Oil).

3. RESEARCH METHOD

The study area was determined based on the de-

signed method *(purposive sampling)*. The study chose agricultural companies engaged in oil palm plantations as the study area namely, PT Astra Agro Lestari Ltd, PT PP London Sumatera Ltd, and PT Tunas Baru Lampung Ltd which were listed on the Indonesia Stock Exchange with AALI, LSIP, and TBLA stock codes. The research method was descriptive analysis method and the data collection was obtained using literature review method with secondary data sources in the form of data per trimester of the stock prices, fundamental factors, and macroeconomic factors in period of January 2006 - June 2016 which were obtained from the companies' financial statements, *Indonesia Stock Exchange (IDX)*, Bank Indonesia, LQ45, *Yahoo finance*, Bank Indonesia, and the Commodity Futures Regulatory Agency.

This study tested the hypothesis about the impacts of fundamental and macroeconomic factors on the stock prices in the oil palm plantation companies in Indonesia Stock Exchange by using multiple linear regression method with SPSS. The steps on multiple linear regression analysis are as follows (Rosadi 2012): 1) determine the dependent variables (Y) and the independent variables (X). 2) build models, estimate the models, and the selection of the best variables.

Multiple linear regression model of the previous process variables are as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e. \tag{1}$$

Description:

Y = the oil palm plantation company's stock price (Rp).

X1 = the ROA (Return On Asset) of the oil palm plantation company (%).

X2 = the ROE (Return On Equity) of the oil palm plantation company (%).

X3 = the DER (Debt to Equity Ratio) of the oil palm plantation company (%).

X4 = the EPS (Earning Per Share) of the oil palm plantation company (Rp).

X5 = BI Rate (%)

X6 = Rupiah exchange rate (Rp)

X7 = the Crude Palm Oil price (Rp/kg)

a = the intercept parameter (constants)

b = the regression coefficient of each independent variable.

e = residual.

The test of the significance of independent variable was done partially by using *t-test* which will test the hypothesis:

H_0 : no independent variables that significantly affects the responses.

H_1 : at least one independent variable significantly affects the responses.

t-test statistic values:

$$t = \frac{a_i}{SE\ (a_i)}. \tag{2}$$

The level of significance (α = 5%), with the testing criticism area as the following:

H_0 is accepted if the probability value *(P-Value)* of the t-test > 5%

H_0 is rejected if the probability value *(P-Value)* of the t-test < 5%

Decision-making:

If H_0 is accepted, it means there is no independent variables that significantly impact the responses.

If H_0 is rejected, it means at least one independent variable, which significantly impacts the responses.

The regression equation will be tested as a whole using the F-test to test the hypothesis:

H_0 : Simultaneously, the independent variables do not significantly impact on the responses.

H_1 : Simultaneously, the independent variables significantly impact on the responses.

F test statistic values:

$$F_{reg} = \frac{R^2\ (N-m-1)}{m\ (1-R^2)}. \tag{3}$$

The level of significance (α = 5%), with the area of criticism:

H_0 is accepted if the probability value *(P-Value)* of the F-test > 5%

H_0 is rejected if the probability value *(P-Value)* of the F-test < 5%

Decision-making:

If H_0 is accepted, it means simultaneously the independent variables do not significantly impact on the responses.

If H_0 is rejected, it means simultaneously the independent variables significantly impact on the responses.

Finding out the coefficients of determination using *R-square* test (R^2). The *R-square* value is used to measure how far the ability of the model explains the variations of the dependent variables. The *R-square* value is between 0 and 1. The value close to 1 means that the variations of the independent variables in explaining the variations of the dependent variables provides almost all the information needed to predict the variations of the dependent variables.

Classic assumption test was also used in this study. According to Sunyoto (2011), the classical assumption test can be done in the following ways:

Multicollinearity Test

This test is determined by *the variance inflation factor* (VIF). The independent variables do not experience multicollinearity indications if the VIF < 10.

Heteroscedasticity Test

This test was performed by observing the *scatterplot* graph as the results of SPSS output. The data contains heteroscedasticity indications if the points resulted from the data processing between ZPRED and SPRED on a *scatter plot* graph have a regular pattern, either narrow, wide or wavy.

Normality test

This test was done using statistical method and normal *probability plot* graph method. A normal distribution of the data is statistically significant if the value of skewness or kurtosis ratio is in the range between -2 and +2 and the real data line follows a diagonal line.

Autocorrelation

This test was performed using the Durbin-Watson test. Autocorrelation does not occur if DW value is between -2 and +2 or $-2 \leq DW \leq +2$.

4. DATA ANALYSIS AND DISCUSSION

To achieve the best model with multiple linear regression analysis, data adjustments based on the classical assumption test and estimate statistic were done in this study, it can be seen in Table 1.

Classical Assumption Test

1. Data adjustment I

The data adjustment I was done by using all independent variables considered to impact on the dependent variables namely ROA, ROE, EPS, DER, BI Rate, and the rupiah exchange rate, as well as the commodity price of CPO toward the stock price. The data used was data per trimester in the period of January 2006 - June 2016 or with the samples (n) as much as 126 panel data of the selected oil palm plantation companies.

2. Data adjustment II

Variables with multicollinearity irregularities were obtained in the data adjustment I, what could be done was to eliminate one or more independent variables that had a high correlation coefficient or caused multicollinearity (Sunyoto 2011). Variables which had a high correlation coefficient value were ROA and BI Rate with r value of more than 0.50, so the two variables were omitted in the analysis of the data adjustment II. The data used in the process was the same as in the data adjustment I.

3. Data adjustment III

In the data adjustment II, the distribution of the variables obtained was not normal, cutting the data

Table 1
Classical Assumption Test

	Data Adjustment I	Data Adjustment II	Data Adjustment III
Variable	All independent variables	Eliminating ROA and BI Rate	Eliminating ROA and BI Rate
Classical assumption test: Multicollinearity			
Heteroscedasticity	Not fulfilled by Var ROA	Fulfilled	Fulfilled
Normality	Fulfilled	Fulfilled	Fulfilled
Autocorrelation	Not fulfilled by ROA, ROE, EPS, and BI Rate	Not fulfilled by ROE and EPS	Fulfilled
	Unfulfilled	Unfulfilled	Fulfilled
Adj-R^2	0.635	0.621	0.679
F-test	32.102	42.010	42.495
Sig.	0.000	0.000	0.000

Table 2
The Result of F test, Adjusted R-Square and t-test

Variable	Regression coefficients (B)	t-test	Signification
constants	3561.787	0.735	0.464
ROE	-133.359	-2.769	0.007*
DER	-26.371	-3.234	0.002*
EPS	15.477	10.649	0.000*
Kurs	-0.273	-0.698	0.487**
CPO Price	0.859	2.623	0.010*
Adjusted R-Square =			0.679
F-hitung =			42.495
Signifikasi =			0.000

* : Significant
** : Not significant

could be done to normalize the data, it was possible that there were outliers data (far from the average), for example was a very high value or a very low value. (Sunyoto 2011). Variables which distribution was not normal were variable ROE and variable EPS. Therefore, in the data adjustment III, cutting outliers at a certain time was done, which was the data that had far different values. Cutting Data outliers was done so that the samples (n) turned to 99 data which was obtained from the panel data of the selected palm oil companies.

Results of Multiple Linear Regression Analysis
Through the results of the classical assumption test in the data adjustment III, all of the data used had met all four criteria of classical assumption test. Thus, the studied models were eligible to be tested. This test could be performed by multiple linear regression analysis by calculating the coefficient of determination (R2), testing the regression equation using F-test (simultaneous test) and t test (partial test), it can be seen in Table 2.

The results of F test and Adjusted R-Square
According to the Table 2, the statistical value of the

F test is 42 495 with the significance of 0.000 which was less than the significance level 5%, then H0 was rejected, which means that the regression equation was significant, thus it can be concluded that variable ROE, DER, EPS, and the rupiah exchange rate, as well as the CPO price all together had a significant impact on the stock prices of oil palm plantation companies.

Based on Table 2, the value of Adjusted R-Square was 0.679. This means that 67.9% diversity of variable ROE, DER, EPS, and the rupiah exchange rate, as well as the CPO prices could explain thediversity of the stock prices of palm oil plantation companies. While the rest, 32.1% (100% - 67.9%) could be explained by the diversity of other variables outside the model of this study.

Partial Test Results (t test)
Based on Table 2, the regression coefficients of each variable could be included in the regression equation as follows:
$$Y= a + b_2X_2 + b_3X_3 + b_4X_4 + b_6X_6 + b_7X_7. \qquad (4)$$
Stock Price = 3561.78 - 133.35 ROE - 26.37 DER + 15.477 EPS - 0.273 Exchange rate + 0.859 CPO Price
The constant value (a) was 3561.78 which

means if there is no change in the variable ROE, DER, EPS, and the rupiah exchange rate, as well as the CPO prices, the stock price of oil palm plantation companies was Rp 3561.78. Based on the regression equation, variable ROE, variable DER, and the rupiah exchange rate had a negative value which suggests the opposite effect, while variable EPS and CPO price had a positive value or directionally impacted on the stock price.

Discussion
The Impact of Return on Equity on the Stock Prices
According to the t test results, the obtained t-calc on the variable ROE was -2.769 with the significance of 0.007. Because 0.007 < 0.05, variable ROE partially had significant impact on the stock prices of oil palm plantations. Based on ROE regression coefficient that was -133.35, it indicated that the variable of ROE had a significant and negative impact on the stock prices. This means that the higher the ROE, the lower the stock price of oil palm plantation companies, and vice versa. According to Siswoyo (2013), a good ROE value in a company is ROE which has a high value (positive) because the higher the ROE, the better the company's ability to make a profit.

However, in this study, the ROE had a negative value. This can be explained that according to the understanding, ROE is a ratio used to measure a company's ability to earn profit from its capital or equity. In this case, the capital of the company would be used in various purposes of the company itself, not only for operations but also for the payment of the loan or debt that must be repaid by the company. Therefore, a negative ROE value can be caused by a company, which has a value of liabilities, or debts whose value is quite high, and the payment comes from the company's capital. So in this case, there was a relationship with the ratio of Debt to Equity Ratio (DER), which is the ratio used to measure the company's ability to pay the debt or capital owned. That is, the proportion of capital owned by the company is more widely used for debt repayment, so the obtained profits are lower and this will make investors do not want to invest in the company, and it causes the demand for stocks reduced and that ultimately causes the stock price fall.

The Impact of DER (Debt to Equity Ratio) on the Stock Prices
According to the t-test results, the obtained t-calc on the variable DER was -3.234 with the significance of 0.002. Because 0.002 < 0.05, then the variable DER partially had significant impact on the stock prices of oil palm plantations. Based on the DER regression coefficients that was -26.37, this indicated that the variable DER had significant and negative impact on the stock prices of oil palm plantation companies. This means that the higher the DER value, the lower the stock prices of oil palm plantations, and vice versa. According to Salim (2010), the resulting value of the DER will be better if it is less than 1 or 100%, so it can be concluded that a company is able to pay the entire debt using the capital owned. It supports the research that the impact of DER variable has a negative direction toward the stock prices of oil palm plantation companies.

The Effect of Earning Per Share on the Stock Prices
As refrerred to the t-test results, the obtained t-calc on the variable EPS was 10.64 t-test with the significance of 0.000. Because 0.000 < 0.05, then the variable EPS partially had significant impact on the stock prices of oil palm plantations. Based on the EPS regression coefficient, which was 15.47, it indicated that the variable EPS had positive value and impact on the stock price of oil palm plantation companies. This means that the higher the EPS value, the higher the stock prices of oil palm plantation companies, and vice versa.

According to Murhadi (2013), EPS reflects earning per share to be obtained by the shareholders, if all the income is distributed in the form of dividends, then the higher the EPS, the better. Based on this description, it supports the research, which has a positive EPS value. This will certainly attract investors because the condition of the profit is high, and it will make the dividends, which will be shared higher, so the stock prices are also high.

The Impact of Rupiah Exchange Rate on the Stock Prices
Based on the t-test results, the obtained t-calc on the variable rupiah exchange rate was 0.698 with the significance of 0.487. Because 0.487 > 0.05, then the variable rupiah exchange rate partially did not have significant impact on the stock prices of the oil palm plantation companies. Based on the regression coefficient of rupiah exchange rate, the obtained value was -0.27, it indicated that the rupiah exchange rate had negative value and impacted not significantly on the stock prices of palm oil plantation companies. This means that the higher the val-

ue of the rupiah exchange rate (depreciation), the lower the stock prices of oil palm plantation companies, and vice versa, the lower the value of the rupiah exchange rate (appreciation), the higher the stock prices.

The Impact of CPO (Crude Palm Oil) Price on the Stock Prices

According to the t-test results, the obtained t-calc on the variable CPO price was 2.62 with the significance of 0.010. Because 0.010 < 0.05, then the variable CPO price partially had significant impact on the stock prices of oil palm plantations. Based on the regression coefficients of CPO price, the obtained value was 0.859, this indicated that the CPO price had positive value and impacted on the stock prices of oil palm plantation companies. This means that the higher the CPO price, the higher the stock prices of oil palm plantation companies, and vice versa, the lower the CPO price, the lower the stock prices.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

The stock prices of oil palm plantations in Indonesia Stock Exchange were simultaneously influenced by the fundamental and macroeconomic factors which consist of ROE, DER, EPS, and the rupiah exchange rate, as well as the CPO price. Variable ROE and variable DER had significant impacts and negative value with regression coefficients of -133.35 and -26.37 and variable of EPS and variable CPO price had significant impacts and positive values with regression coefficients of 15.47 and 0.859, whereas variable of rupiah exchange rate affects not significantly and has a negative value on the stock price of oil palm plantations with a regression coefficient of -0.27.

The recommend for investors if they want to invest in an oil palm plantation company, they can consider the internal and external factors as a whole, which are based on the financial ratios of the company's ROE, DER, and EPS and see the macroeconomic conditions by considering the prices of the company's mainstay commodities, the CPO (Crude Palm Oil) price.

This research has limitations including: (1) this study only analyzed three oil palm plantation companies. (2) This study used only fundamental variables comprising financial ratio of ROE, DER, and EPS and macroeconomic variables consisting of rupiah exchange rate and the CPO price to analyze the movement of the stock prices, while other factors beyond the research considered constant.

Therefore, the future studies are expected to be able to do in-depth studies.

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