Analysis of the Influence of the World's Oil Prices, Inflation, Interest Rate, and Rupiah / US Dollar Exchange Rate on the Return of Mining Sector's Shares Registered in Indonesia Stock Exchange in 2010 - 2015

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Abstract. *The large amount of mineral yield in Indonesia has made the mining sector one of the most active sectors in the stock market. This encourages investors to invest on Indonesia's mining sector. However, there has been a significant degradation in the return of the mining sector's shares from the value of 48.59% in 2010 to 40.75% in 2015. This research aims to discover whether the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate pose an influence, either partially or simultaneously, on the return of the mining sector's shares. Macroeconomic factors studied in this research are the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate which are the variables allegedly influencing the return of the mining sector's shares. The sample of this research is the secondary data on the closing price of the return of the mining sector's shares, the world's oil prices (West Texas Intermediate), inflation, interest rate, and exchange rate in 2010-2015. Multiple linear regressions is the methodology of this research, utilising the SPSS 2.1 programme and including the classic assumption test, hypothesis test (t-test and f-test), regression model analysis, and the coefficient of determination test (R^2). The result shows that the world's oil prices (West Texas Intermediate) has a significant positive influence on the return of the mining sector's shares while interest and exchange rates pose a significant negative one. On the other hand, inflation has no significant effect on the return of the mining sector's shares. Based on the results of this research, in order to anticipate the return of the mining sector's shares dropping because of the degrading prices of the world's oil, companies are suggested to suppress production costs to maximize profits and increase the price and return of their shares. Implications Also, since a high interest rate means the fall of shares return, companies should improve their performance so that investors are convinced to invest and get a good return from their investment. Finally, to anticipate the fall of shares return caused by the waning Rupiah / US Dollar exchange rate, companies could try to improve the quality of their mineral yields so that they can be sold with better prices, gaining maximum profits for the companies, and attracting investors with high shares return value.*

Keywords. *World's oil prices; inflation; interest rate; Rupiah / US Dollar exchange rate; shares return.*

I. INTRODUCTION

Indonesia is the largest tin producer to two in the world, copper the fourth largest in the world, nickel fifth largest in the world, gold and coal eighth-largest in the world, Indonesia has become one of country important in the field of mining in the world developments that occurred in the index mining stocks can be shown by changes in the price of shares traded on the stock exchange.
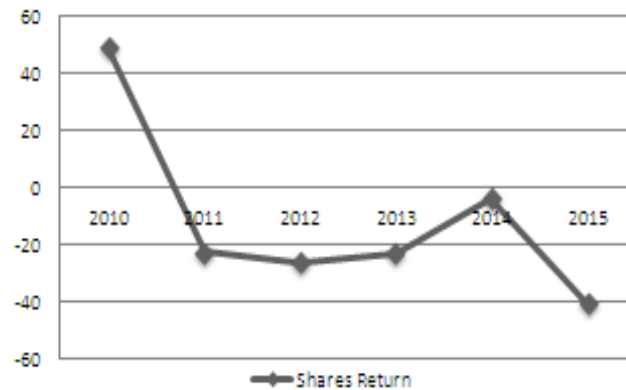
Mineral yield dominated by the kinds which can be turned into an energy source is the substitute for the world's oil. This is the reason why the dynamics of the world's oil prices will be followed by the prices of the mining sector's shares. This is supported further by the results of a research by Wook and Ratti (2007: 90) which shows a positive correlation between the world's oil prices and the index of share prices.

Mining companies perform relatively intense international trading activities through the export of mineral yield. Because of this, a mining company is normally very sensitive towards exchange rates' fluctuation as this potentially influences its internal condition which, in turn, could bring risk of loss on the company. The dropping rate of Indonesian Rupiah could also cause the accumulation of a company's debt and the escalation of production costs.

According to Sunariah (2006:168), a high level of inflation could cause the degrading profitability of a company which will also reduce the payment of dividend and people's purchasing capabilities. Conclusively, a high level of inflation correlates negatively with the economy of the stock market.

Interest rate is the price connecting the present and the future (Mankiw, 2006:231). An increasing interest rate will cause a reduction of share investment hinted by investors withdrawing and transferring their shares to savings or deposits (Tandelilin, 2001:90).

Figure 1. Degradation in the return of the mining sector's shares.

Graph Stock Return Mining Sector 2010 – 2015 (Source: Processed Data)

In the same period stock returns mining sector increased from -26.40% to -4.21% in 2014, except in 2015 stock returns declined significantly Yag reached -40.75%.

Based on the above description, the researchers intend to study the influence of the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate on the return of the mining sector's shares. Thus, the title "Analysis of the Influence of the World's Oil Prices, Inflation, Interest Rate, and Rupiah / US Dollar Exchange Rate on the Return of Mining Sector's Shares Registered in Indonesia Stock Exchange in 2010 - 2015" was chosen.

II. RESEARCH OBJECTIVES

Based on the issues explained beforehand, the following are the objectives of this research:

1. To determine whether the world's oil prices have any partial influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.

2. To determine whether inflation has any partial influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.

3. To determine whether interest rate has any partial influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.

4. To determine whether Rupiah / US Dollar exchange rate has any partial influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.

5. To determine whether the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate simultaneously influence the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.

III. LITERATURE REVIEW

A. Stock / Share

Stock or share is a valuable document published by a company (issuer) which states that an investor in possession of said valuable document reserves the right of ownership of the company's assets (Tandelilin, 2001:110).

B. Shares Return

Return is the profit expected by an investor for the investment he/she has made. The objective of an investing investor is to maximise the return. Return is one of the factors motivating investors to invest and is also the reward for an investor's courage in dealing with the risks of his/her investment (Tandelilin, 2001:121).

C. World's Oil Prices

Witjaksono (2010:134) states that the general rise in oil prices will promote the rise in the prices of the mining sector's shares and their return. This is because the increase of oil prices generally promotes the price increase of all mineral yields.

D. Inflation

Inflation is the percentage of the upsurge of prices in a certain year compared to the year before (Sukirno, 2010:56). According to Nopirin (2000:134), the kinds of inflation based on its nature are creeping inflation, galloping inflation, and hyper inflation.

E. Interest Rate

According to Boediono (1996:71), interest rate is the price to be paid whenever an exchange between one Rupiah in the present and one Rupiah in the future takes place. An abnormal rise in interest rate will bring problems in the business world in the form of the obligation to pay interest charge. This will surely reduce a company's profits.

F. Exchange Rate

The rupiah exchange rate is the exchange rate of rupiah amount needed to buy one US $ (Sukirno, 2010:120)

IV. METHODOLOGY

From the data obtained, this research is a quantitative one since it refers to the calculations of data in the form of numbers. The variables of this research include dependent and independent ones, explained as follows:

1. Dependent variable (Y) is the variable explained or influenced by the independent one. The dependent variable of this research is the return of the mining sector's shares.
2. Independent variable (X) is the variable not affected by other variables. The independent variables of this resesarch are the world's oil prices (X1), inflation (X2), interest rate (X3), and Rupiah / US Dollar exchange rate (X4).

A. Population

Data population of this research consists of 40 mining companies registered in Indonesia Stock Exchange in 2010-2015.

B. Data Collection Technique

The data of this research is the secondary kind. It was downloaded from the official website of Indonesia Stock Exchange which is www.idx.co.id, www.bi.go.id, and www.opec.org.

C. Data Analysis Technique

Research data is analysed by performing the the classic assumption test (consisting of normality, heteroscedasticity, multicollinearity, and autocorrelation tests), hypothesis test (t-test and f-test), regression model analysis, and the coefficient of determination test (R^2).

V. RESULTS

Based on the results of the classic assumption test, the data has satisfied the elements required, normally distributed, and is free from the issues of heteroscedasticity, multicollinearity, and autocorrelation. Thus, the analysis can be taken to the next level which is the multiple linear regressions analysis and hypothesis test.

Table 1.Results of T-test Calculations

Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.737	1.980		.878	.384
World's Oil Prices	.357	.161	.445	2.062	.044
1 Inflation	1.436	.720	.304	1.995	.177
Interest Rate	-.415	.186	-.035	-2.235	.016
Rupiah / US Dollar Exchange Rate	-.632	.001	-.297	-2.329	.046

Dependent Variable: Shares Return

The world's oil prices variable has the significance value of 0.044 (< 0.05) and calculated-t value larger than table-t value (2.062 > 1.996). Thus, H0 is rejected. It can be concluded that there is a significant partial influence between the world's oil prices and shares return.

The inflation variable has the significance value of 0.177 (> 0.05) and calculated-t value below table-t value (1.995 < 1.996). Thus, H0 is accepted. It can be concluded that there is not a significant partial influence between inflation and shares return.

The interest rate variable has the significance value of 0.016 (< 0.05) and calculated-t value below table-t value (-2.235 < 1.996). Thus, H0 is rejected. It can be concluded that there is a significant partial influence between interest rate and shares return.

The exchange rate variable has the significance value of 0.046 (< 0.05) and calculated-t value below table-t value (-2.329 < 1.996). Thus, H0 is rejected. It can be concluded that there is a significant partial influence between Rupiah / US Dollar exchange rate and shares return.

Table 2. Results of F-test Calculations

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	34.382	4	8.586	23.362	.004[b]
1	Residual	19.522	67	.368		
	Total	53.904	71			

Dependent Variable: Shares Return

Simultaneously, all independent variables have a significant influence on the dependent variable. This is proven by the value of calculated-f which is larger than the table-f (23.362 > 2.510) and the significance value of 0.004 (< 0.05). Thus, H0 is rejected. It can be concluded that simultaneously, the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate have significant influence on the return of the mining sector's shares.

Table 3.Results of Coefficient of Determination Calculations (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.799[a]	.638	.611	.60690

Predictors (Constant): world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate

Based on the above table, an R^2 value of 0.638 (63.8%) was obtained. This shows that the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate contribute 63.8% influence on the return of the mining sector's shares. In other words, the variance of the independent variables in the model explains the 63.8% variance of the dependent variable. The remaining 36.2% variance is influenced by other factors not included in this research.

Table 4. Results of Multiple Linear Regressions

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.737	1.980		.878	.384
World's Oil Prices	.357	.161	.445	2.062	.044
Inflation	1.436	.720	.304	1.995	.177
Interest Rate	-.415	.186	-.035	-2.235	.016
Rupiah / US Dollar Exchange Rate	-.632	.001	-.297	-2.329	.046

Dependent Variable: Shares Return

From the above data, the obtained regression equation is:

$Y = \alpha + b1X1 + b2X2 + b3X3 + b4X4 + c$

$Y = 1.737 + 0, 357X1 + 1,436X2 - 0,415X3 - 0,632X4$

VI. SUMMARY OF RESEARCH RESULTS

Hypothesis World's Oil Prices Statistics Significance value 0.044 (< 0.05) Calculated-T > Table-T (2.062 > 1.996), Result Influential, Description Most of the mineral yields are substitute for oil as an energy source. When the price of oil declines, the same thing happens to the price of the substitute. This brings profits, reduces the request for shares, and thus reduces the price of the shares. As the price of the shares goes down, the shares return goes down as well.

Hypothesis Inflation Statistics Significance value 0.177 (> 0.05) Calculated-T < Table-T (1.995 < 1.996), Result Uninfluential, Description The current level of inflation is still categorised as normal. The rising price of mineral yields does not reduce the people's buying

capabilities. The request for mineral yields is not influenced by price increases caused by inflation. This means the price and return of the shares is also not affected.

Hypothesis Interest Rate Statistics Significance value 0.016 (< 0.05) Calculated-T > Table-T (2.235 > 1,996), Result Influential, Description The high level of interest rate pushes investor to invest in savings or deposits with lower risks compared to shares. This causes the accumulation of mining sector's shares with low prices and return.

Hypothesis Rupiah / US Dollar Exchange Rate Statistics Significance value 0.046 (< 0.05) Calculated-T > Table-T (2.329 > 1.996), Result Influential, Description The waning exchange rate causes the increase in production costs and selling prices. This reduces request, resulting in the fall of the prices and return of the shares.

Hypothesis World's Oil Prices, Inflation, Interest Rate, and Rupiah / US Dollar Exchange Statistics Significance value 0.004 (< 0.05) Calculated-F > Table-F (23.362 > 2.510), Result Influential, Description The fluctuation of the return of the shares is influenced by the prices. The forming of the prices is influenced by the requests and offers of the investors motivated by both internal and external factors. The world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate are external factors.

VII. CONCLUSION

From this research, some conclusions were ascertained, as follows:

1. Partially, the world's oil prices pose a significant influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.
2. Partially, inflation does not pose a significant influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.
3. Partially, interest rate poses a significant influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.
4. Partially, Rupiah / US Dollar exchange rate poses a significant influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.
5. Simultaneously, the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate pose a significant influence on the return of the mining sector's shares registered in Indonesia Stock Exchange in 2010-2015.

The results of this research prove that the world's oil prices, inflation, interest rate, and Rupiah / US Dollar exchange rate pose a significant influence on the return of the mining sector's shares. This is in accordance with a prior research conducted by Suyanto (2007:99). Meanwhile, the fact that inflation does not pose a significant influence on the return of the mining sector's shares also fits the results of a prior research conducted by Sukirno (2010:172).

Based on the results of this research, in order to anticipate the return of the mining sector's shares dropping because of the degrading prices of the world's oil, companies are suggested to suppress production costs to maximise profits and increase the price and return of their shares

Also, since a high interest rate means the fall of shares return, companies should improve their performance so that investors are convinced to invest and get a good return from their investment.

Finally, to anticipate the fall of shares return caused by the waning Rupiah / US Dollar exchange rate, companies could try to improve the quality of their mineral yields so that they can be sold with better prices, gaining maximum profits for the companies, and attracting investors with high shares return value.

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