HARD CURRENCY PRICES AND INDUSTRIAL EQUITY MARKET INDICES: IMPACT STUDY IN INDONESIA STOCK EXCHANGE

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Abstract- An exchange rate is the rate where a currency can be exchanged with another currency from different country. For years, people have been tried to find the relationship between exchange rates and stock market. There are some reasons for that, first, it will be a factor to determine decisions about monetary and fiscal policy because exchange rate play vital role in a country's level of trade. Second, with knowing the relation between both of them, we can predict future's decision in the stocks market by analyzes the situation of current exchange rates condition in Indonesia. Last, understand the exchange rate-stock market relationship can help the government to mitigate crisis. This paper aims to determine how currency fluctuations affect the business sector through the Industrial index. Currencies that the author uses for this research are 5 Hard Currency, which are US Dollar, Euro, Pound sterling, Japanese Yen, and Australian Dollar. Hard Currency is any currency that is expected to serve as a reliable and stable store of value. For the Industrial Index, author use 10 sectors which are classified in the Indonesian Stock Exchange (IDX). They are agriculture, mining, industrial base and chemical, various industries, consumer goods, property and real estate, infrastructure and utilities, finance, trade, and manufacture.

Keywords: Hard Currency, Stock Market, Industrial Indices, Indonesia, and Relation

Introduction

For years, people try to pursue their dreams to buy a big house, live in big city, and have a sport car by collecting money. The most common way to do that is find a job and then have a regular salary, save the money, and wish someday the money will be enough to buy those things. People have two options to invest their money. There are two types of assets; first are real assets such as land, buildings, or equipment, and knowledge that can be used to produce goods and service and second are financial assets such as stocks and bonds. These products open people's mind that they can have investment return by put some of their money to the investment vehicle. The great news is the investment return is higher than averages; while the bad news is higher return comes with higher risk. To achieve their target to get higher investment return while maintain the risk, people need tools and deep analysis that can help them to put their money in the right basket.

The objective of this research is to identify which currencies have a significant impact for each ten Industrial Indices in Jakarta Stock Exchange and to identify how significant each currencies towards ten Industrial Indices individually and also understand are the currencies affects each Industrial Indices positively or negatively by using secondary data of time-series during period January 2012 until December 2013. The five hard currencies in this paper are USD, AUD, JPY, EUR, and GBP while ten sectors in the Indonesian Stocks Exchange are Agriculture, Mining, Basic Industry, Miscellaneous Industry, Property, Consumer Goods, Infrastructure, Finance, Trade, and Manufacture.

Literature Review

Exchange Rate
Every country has their own currency, as example USA with their USD, Japan with their Yen, Indonesia with their Rupiah, and etc. A country cannot survive alone in this world; they need to somehow connecting, in the bigger issue, work together to fulfill their specific need. In order to help each country to trade their commodity with other country, we know exchange rate to help them trade. Exchange rate is defined by Marc Levinson (14:1999) as a reference against which a currency's value is measured with other currencies in a foreign exchange market.

Foreign Exchange Market
The foreign exchange market supports all other financial markets. Marc Levinson (14:1999) said that exchange rate is directly influencing each country's foreign-trade patterns, determine the flow of international investment and affect domestic interest and inflation rates. Also, according to the Bank for International Settlements, trading in foreign exchange markets averaged $5.3 trillion per day in April 2013. This is up from $4.0 trillion in April 2010 and $3.3 trillion per day in April 2007. This makes foreign exchange market to be the largest financial market in the world. The traders of the market are central banks, large banks, investors, corporations, governments, and etc. So as mention above, those are the reasons why studying exchange rate dynamics become important.

Foreign Exchange Exposure
Many studies have been done to look up the foreign exchange exposure. Empirical studies done by Bodnar and Marston (2002) try to develop a simple model to measure a firm's exposure elasticity to the exchange rate changes without the need to use stock return data. The variables are the percentage of the firm's revenues, expenses denominated in foreign currency and its profit rate. The result of the model shows that foreign exchange exposure elasticity's should be largest for pure exporting and importing firms, especially those with low profit margins and should be smaller for multinational firms that match their foreign currency revenues and costs.

Hard Currencies
There is no clear definition of what are hard currencies actually. Hard currencies may be defined as any currency that is traded worldwide with large amount compare to other currencies by countries in the foreign exchange market. This approach tells that the hard currencies are measured by the desire of the user of the currency to hold that currency. Hard currencies also expected to have a stabile value graphic in long-term period, which also still related to the definition above since no one want to hold unstable value currency. In other word, we may say that any currencies that are traded in small amount compare to other currencies and the value are fluctuating dramatically over time as Soft Currencies.

(In millions of U.S. dollars)	2012-Q4	2013-Q1	2013-Q2	2013-Q3	2013-Q4
Total foreign exchange holdings	10,952,380	11,090,030	11,132,472	11,438,525	11,673,628
Allocated reserves	6,085,677	6,082,530	6,075,796	6,188,818	6,220,795
Claims in U.S. dollars	3,731,276	3,772,395	3,768,362	3,819,363	3,805,744
Claims in Pounds sterling	245,952	236,862	233,091	243,555	249,354
Claims in Japanese yen	248,780	239,914	237,098	239,933	244,804
Claims in Swiss francs	12,943	11,803	11,714	12,214	12,575
Claims in Canadian dollars	86,757	91,597	105,564	108,118	108,533
Claims in Australian dollars	88,511	97,955	100,499	101,123	100,141
Claims in Euros	1,474,397	1,435,117	1,450,987	1,491,583	1,520,969
Claims in other currencies	197,060	196,886	168,482	172,929	178,675
Unallocated reserves	4,866,703	5,007,500	5,056,677	5,249,707	5,452,832

Figure 1. Currency Compositions of Foreign Exchange Reserves

To determine the hard currencies, we will use the table as shown above. Five high currencies based on the definition above are USD, GBP, JPY, AUD, and EUR because over 5 quarters, these currencies have the highest value for allocated reserves in foreign exchange holdings.

Impacts of Exchange Rate Fluctuations
Follow the economic theory, a market-based exchange rate will change depend on the demand and supply of the currency itself. The value of a currency may increase whether the demand of that currency is higher than supply that available in the market, in contrast, the value may decrease whether the supply is higher than the demand. The demand and supply may change over period due to high transaction using that currency. This is very affected by the economic and business condition of the country.

Stock
Common stocks known as equity securities, or equities, represent ownership shares in a corporation. Each share of common stock entitles its owners to vote on any matters of corporate governance put to a vote at the corporation's annual meeting and to a share in the financial benefits of ownership. Preferred stock is an equity investment. The firm retains discretion to make the dividend payments to the preferred stockholders: It has no contractual obligation to pay those dividends. Instead preferred dividends are usually cumulative; that is, unpaid dividends cumulate and must be paid in full before any dividends may be paid to holders of common stock. In contrast, the firm does have a contractual obligation to make timely interest payment on the debt. Failure to make these payments sets off corporate bankruptcy proceedings

Stock Market in Indonesia

Indonesia Stock Exchange (IDX) or in Indonesian known as Bursa Efek Indonesia, is a stock exchange based in Jakarta, Indonesia. History record that capital market has been exist since 1912 in Batavia, thirty-three years before Indonesia declare its independence. The stocks market since that year had been experienced up and down, closed, reopen, and merged (the stock market in Indonesia was divided into Jakarta Stock Exchange and Surabaya Stock Exchange before they merged into Indonesia Stock Exchange) until now become Indonesia Stock Exchange with Main Office in Jakarta.

In IDX, by 2012 they divide the industries into nine industries, which are:
1. Agriculture
2. Mining

3. Basic Industry
4. Miscellaneous Industry
5. Consumer Goods
6. Property
7. Infrastructure
8. Finance
9. Trade

Other than nine industries above, IDX also calculate the Manufacture Industry Index, which is a combination of sector number 3, 4, and 5 above or in other word the Secondary Sector.

Exchange Rate and Stock Market Interactions

Over year, many people have done research in order to find a connection between Exchange Rate and Stock Market. Faathi et al. (2011) attempted to evaluate the effect of exchange rate's fluctuation on capital market's index in Tehran Stock Exchange. They contend that capital market is same like other markets and affected by some of the economic factors and its movement is impressed by changes of such factors. The method of the research is correlation of causal type with time period of the research is from 2003 until 2009. The result is index variations have a significant relation with exchange rate variations and it is possible to predict its change based on exchange rate variations. Sheng and Lan (2011) attempted to investigate the influence of exchange rate fluctuations on Stock-Index Returns in Taiwan's Electronic Industry and eight Sub-Industries from 2007 to 2010. They implied that exchange-rate changes are a major source of profit risk for companies operating under an environment of increasing internalization and globalization that identifying and measuring these influences can improve the risk management strategies for investors in this industry. The research reveals that depreciation of exchange rate negatively affects all of the nine studied stock-index returns. The lag effect suggests that an investor can observe movements of the exchange rate value and successfully act on it by way of buying/selling stocks within the lag period.

Jorion (1991) attempted to examine the pricing of exchange rate risk in the U.S. stock market, using two-factor and multi-factor arbitrage pricing models. Data is presented that the relation between stock returns and the value of the dollar differs systematically across industries. The result shows U.S. industries display significant cross-sectional differences in their exposure to movements in the dollar. The result also indicates that there is little evidence that U.S. investors require compensation for bearing exchange risk. They conclude that exchange rate risk appears to be diversifiable.

Multiple Regressions

In simple linear regression, a criterion variable is predicted from one predictor variable. In multiple regressions, the criterion is predicted by two or more variables. The basic idea is to find a linear combination of each variable that will result the best composition to explain the study. The general purpose of multiple regressions (the term was first used by Pearson, 1908) is to learn more about the relationship between several independent or predictor variables and a dependent or criterion variable.

A line in a two dimensional or two-variable space is defined by the equation Y=a+b*X; in full text: the Y variable can be expressed in terms of a constant (a) and a slope (b) times the X variable. The constant is also referred to as the intercept, and the slope as the regression coefficient or B coefficient. In the multivariate case, when there is more than one independent variable, the regression line cannot be visualized in the two-dimensional space, but can be computed just as easily. In general then, multiple regression procedures will estimate a linear equation of the form:

$$Y = a + b_1X_1 + b_2X_2 + ... + b_pX_p$$

Methodology

Figure 2 Methodology

The objective of this research is to identify which currencies have a significant impact for each ten Industrial Indices in Jakarta Stock Exchange and to identify how significant each currencies towards ten Industrial Indices individually and also understand are the currencies affects each Industrial Indices positively or negatively by using secondary data of time-series during period January 2012 until December 2013. Based on the objective, this research can be categorized into causal relationship because it will explain about one variable affects another.

Identify the problem is the first step of this research. In this step, author states that the research objective is to identify which currencies have a significant impact for each ten Industrial Indices and how much the currencies affect towards the Industrial Indices in Jakarta Stocks Exchange whether it is positively or negatively. The result of this study will be used as a recommendation for traders, investors, investment managers, government, and any other parties to help them decide where they should invest with the actual economic condition.

Data Gathering and Sampling
Data those are used in this study are secondary data. These data are selling price of five currencies and Industrial Indices of ten sectors in Jakarta Stocks Exchange. The data which are needed in this study are sampled daily from January 2012 to December 2013. The data sources of this study are come from Bank Indonesia's website (www.bi.go.id) for the daily selling price of five currencies and ICaMEL (Indonesia Capital Market Electronic Library) for the daily Industrial Indices of ten sectors in Jakarta Stocks Exchange.

Data Analysis
The data used in this study are daily Industrial Indices of ten sectors in IDX and daily selling price of five currencies against rupiah. Firstly the data will be analyzed with descriptive statistics to give a big picture about the data used. After that, we are doing the regression of five currencies to each Industrial Indices using SPSS 17. Then the author will check the accuracy of ten models by using the ANOVA table to check the F-Value and R Square result. The next step is to test the hypothesis, where I have the H_0 is there is no significant impact of any currencies fluctuation to each sector. The

author will also check the significance of the parameter. Last is to check the models that are made through this process with the rill data in 2014.

Descriptive Analysis

The purposes of analyzing the descriptive statistics are to give a big picture about the data and collecting important information of the data. It will give the author a simple summary about the dependent variables, which are ten industrial indices and independent variables, which are five currencies. All of descriptive statistics component for each variable already summarize in a table shown below.

Figure 3 Descriptive Analyses

Variable	Standard Deviation	Mean	Median	Mode
AGRI	199.1552741	2057.4	2034.6	2040.37
MINING	437.6067350	1928.4	1904.8	1877.86
BASIC IND.	63.5871336	491.67	483.9	498.85
MISC. IND.	83.0367416	1273.4	1277.3	1345.89
CONS. GOODS	229.5217175	1653.0	1604.4	1596.87
PROPERTY	77.3554694	349.59	333.86	322.052
INFRASTRUCTURE	104.9594380	895.89	919.11	912.644
FINANCE	54.4393768	555.79	546.45	555.118
TRADE	77.6053546	754.82	740.20	734.641
MANUFACTURE	100.6597844	1136.2	1142.6	1142.65
USD	829.83201	9960.2	9697.0	9653
EURO	1,360.79326	13036	12618	*
GBP	1,485.59274	15694	15189	15474.1
JPY	785.64440	11301	11572	11614.9
AUD	485.63978	9954.1	9946.1	10060.7

*There is no mode in the data series

The result shown in the table can be analyzed as follow,

- The total amounts of data input during January 2012 to December 2013 are 489 data.
- For the dependent variables, Mining Industry shows the highest Industrial Index by 2,847.41 and Basic Industry shows the lowest by 376.47. The mining industry consists of 38 companies by 2013, while basic industry consists of 60 companies.
- In terms of standard deviation, mining sector has the highest standard deviation for the Industrial Indices, while property sector has the lowest standard deviation. Standard deviation is used to measure the volatility of the index or currency. This can be used to conclude mining sector has the highest risk while property sector has the lowest risk.
- For the independent variables, it can be conclude that rupiah is depreciated against five hard currencies because as we see the selling price is getting higher from the beginning of 2012 until the end of 2013. Depreciation of rupiah against hard currency has several impacts; theoretically it will increase export competitiveness in high export companies and cost more rupiah for high import companies. Consequently, price of imported commodities are increase during 2013 and also increase the inflation rate of Indonesia from 1.03% in June 2013 to 3.29% in July 2013. We can conclude that in this condition Indonesia is having a hard time for its people to buy daily needs and economic stability is disturbed by currency depreciation against hard currencies.
- In terms of standard deviation, GBP has the highest standard deviation for the hard currency, while AUD has the lowest standard deviation. As written above, the standard deviation is become a factor to determine the volatility of the data, in this case GBP is fluctuate frequently while AUD is relative smaller.

Classical Assumption Test

Classical assumption is a statistical requirement that must be done in multiple linear regression analysis based on Ordinary Least Square (OLS). The purpose of this test is to make sure that the regression model is not bias or the regression model is Best Linear Unbiased Estimator (BLUE). There are at least four classic assumption tests, namely normality, multicollinearity, autocorrelation, and heteroscedasticity test.

Normality Test

Normality test is used to check whether the data are normally distributed or not. In this study, normality test had been done by observe the spread of data in diagonal axis of a graph. Based on Singgih Santoso (2001) the requirements of the normality test are as follow:

  a. If the data spread around the diagonal line and follow the direction of the diagonal line, and the regression model to meet the assumption of normality.
  b. If the data is spread away from the diagonal line and or not follow the diagonal line, then the regression did not meet the assumption of normality.
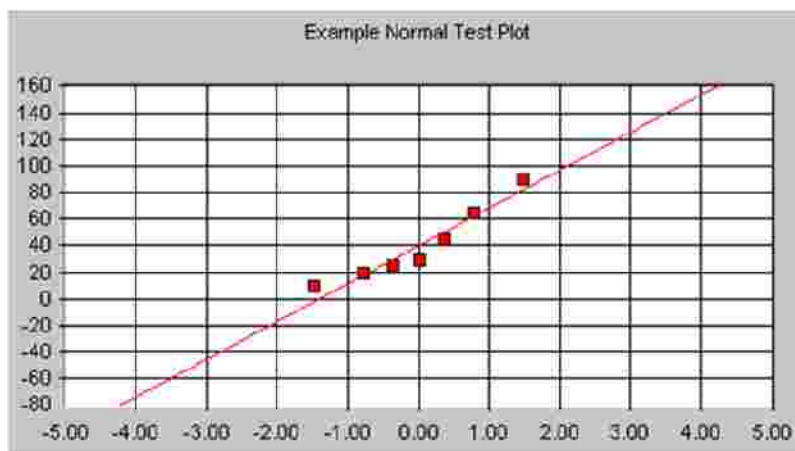

Figure 4 Example of Normal Test Plot

According to Wasserman, Larry (2007), Normal Test Plots (also called Normal Probability Plots or Normal Quartile Plots) are used to investigate whether process data exhibit the standard normal "bell curve" or Gaussian distribution.

First, the x-axis is transformed so that a cumulative normal density function will plot in a straight line. Then, using the mean and standard deviation (sigma) which are calculated from the data, the data is transformed to the standard normal values, i.e. where the mean is zero and the standard deviation is one. Then the data points are plotted along the fitted normal line.

Based on the tests that have been conducted, all of the data used on this research is normally distributed reflecting in the graph observation. One of the data plot are included below:

Normal P-P Plot of Regression Standardized Residual
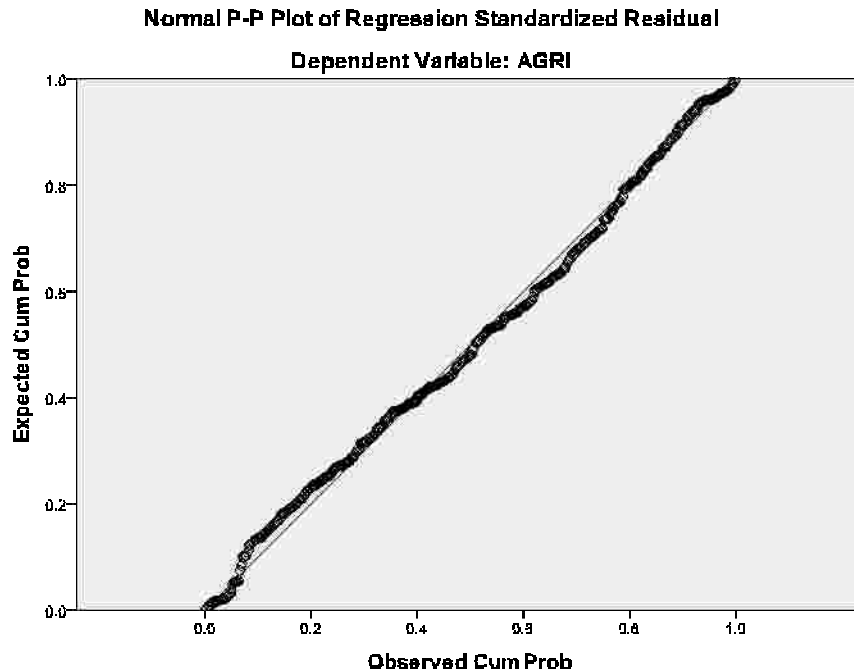
Dependent Variable: AGRI

Figure 5 Normality Graph

Multicollinearity Test

Multicollinearity test is used to test the model whether in which two or more predictor variables in a multiple regression model are highly correlated, meaning that one can be linearly predicted from the others with a non-trivial degree of accuracy. This test aims to find out the correlation between variables individually to the dependent variables. To check multicollinearity, the author use tolerance value and Variance Inflation Factor (VIF) Value, where according to Hair et al. in Duwi Priyatno (2009), a variable have a multicollinearity if the tolerance value is smaller than 0.1 and VIF Value bigger than 10.

Based on the tests that have been conducted, there is a high correlation between three independent variables, which are USD, EUR, and GBP. At this point, the author wants to make an explanation regarding the result of multicollinearity test.

The multicollinearity test result shows that USD, EUR, and GBP have a strong correlation between them. This result is not surprising because in the real economic condition, these currencies show a related movement, where if USD is appreciated against rupiah, EUR and GBP follow this movement. The study's purpose is to understand the impact of hard currencies fluctuation to the Industrial Indices, which chosen hard currencies are based on data of currencies world reserve, which five top currencies are classified as hard currencies. High amount of world reserve in these five currencies shows that these currencies are stable in terms of value compare to other currencies and well known around the world through trade in between.

Autocorrelation Test

Autocorrelation test is used to check a model whether there is a correlation between the residual on time t and residual on time t-1. Autocorrelation existed if there is a correlation among the residuals. To measure the autocorrelation in the regression model, the author used Durbin Watson test. Singgih Santoso (2001) explains there are three criteria of autocorrelation, which are:

a. D-W Value below -2 means that there is a positive autocorrelation in the model
b. D-W Value between -2 and 2 means that there is no autocorrelation
c. D-W Value more than 2 means that there is a negative autocorrelation

Figure 5 Durbin Watson Value Result

D-W Value for AGRI	0.062	D-W Value for PROPERTY	0.109
D-W Value for MINING	0.058	D-W Value for INFRASTRUCTURE	0.082
D-W Value for BASIC IND	0.117	D-W Value for FINANCE	0.120
D-W Value for MISC. IND	0.217	D-W Value for TRADE	0.144
D-W Value for CONS. GOODS	0.104	D-W Value for MANUFACTURE	0.108

Because all D-W Value of our models is between -2 and 2, we can conclude that there is no autocorrelation in the data.

Heteroscedasticity
Heteroscedasticity test is used to see whether there is inequality of variance of the residuals of the observations to other observations. Regression models that meet the requirements are where there is equality of variance of the residual one observation to another observation fixed or called homoscedasticity.
Detection of heteroscedasticity can be done using scatter plots of ZPRED value (predicted value) with ZRESID (residual value). A good model is obtained if there is no particular pattern on the graph, such as collects in the middle, narrowed and then widened or otherwise widened and then narrowed. The statistical test can be used are Glejser test, test Park or White. Several alternative solutions if the model violates the assumption of heteroscedasticity are to transform into a logarithmic form, which can only be done if all the data is positive. Or can also be done by dividing all variables with a variable that is misbehaving heteroscedasticity.
Based on the result, we can see that all of the residuals of the regression are well spread, and even though there are some small residuals that are gathered in the poles, it is normally happen because the amount of data is very large (n= 489).

F-Test and T-Test Findings
For this test, F-Test is conducted to check the accuracy of the model in order to explain the impacts of exchange rate's fluctuation to Industrial Indices in Jakarta Stocks Exchange (JKSE). The F-Test will also be used to check whether the model fits to the population so it will test the independent variables are they affect the dependent variable simultaneously. In this study, the F-Test will check whether USD, AUD, JPY, EUR, and GBP simultaneously are significantly affecting each Industrial Indices.
Different with F-Test, T-Test is conducted to check whether each independent variable is affecting the dependent variable statistically significant. In this study, the T-Test will check whether USD, AUD, JPY, EUR and GBP individually are significantly affecting each Industrial Indices. The result of T-Test will answer the research question no. 1 to check there is at least one currency that is significantly affect the index.

Below is the result of the regression analysis between Industrial Indices as the independent variable and the exchange rate as the dependent variable.

	Constant	Coefficients					Adjusted R square
		USD	AUD	JPY	EUR	GBP	
AGRICULTURE	2709.726	-0.336***	0.027	0.068***	-0.07**	0.17***	67.3%***
	(188.801)	(0.037)	(0.018)	(0.013)	(0.027)	(0.029)	
MINING	3429.502	-1.199***	0.137***	0.289***	0.684***	-0.198***	76.0%***
	(355.521)	(0.070)	(0.034)	(0.024)	(0.050)	(0.055)	
BASIC IND.	802.768	0.048***	0.067***	-0.087***	-0.065***	0.023***	78.7%***
	(48.641)	(0.010)	(0.005)	(0.003)	(0.007)	(0.008)	
MISC IND.	1385.405	-0.159***	0.125***	-0.003	0.071***	-0.041***	65.6%***
	(80.644)	(0.016)	(0.008)	(0.005)	(0.011)	(0.013)	
CONS. GOODS	2016.647	0.472***	-0.064***	-0.208***	-0.254***	0.079***	76.0%***
	(186.190)	(0.037)	(0.018)	(0.012)	(0.026)	(0.018)	
PROPERTY	965.585	0.090***	0.004	-0.101***	-0.076***	0.037***	82.7%***
	(53.347)	(0.011)	(0.005)	(0.004)	(0.008)	(0.008)	
INFRASTRUCTURE	907.953***	0.169***	0.073***	-0.124***	-0.146***	0.055***	72.6%***
	(90.945)	(0.018)	(0.009)	(0.006)	(0.013)	(0.014)	
FINANCE	655.779***	0.051***	0.071***	-0.067***	-0.047***	0.004	77.1%***
	(43.115)	(0.051)	(0.004)	(0.003)	(0.006)	(0.007)	
TRADE	1431.278***	0.046***	0.012***	-0.114***	-0.101***	0.086***	81.9%***
	(54.657)	(0.011)	(0.005)	(0.004)	(0.008)	(0.009)	
MANUFACTURE	1468.931***	0.131***	0.055***	-0.117***	-0.099***	0.028*	69.1%***
	(92.636)	(0.018)	(0.009)	(0.006)	(0.013)	(0.014)	

Figure 6 Regression Result

Note:
The F-Test Statistic significant at critical value of: *) 10%; **) 5%; ***) 1%
The T-Test Statistic significant at critical value of: *) 10%; **) 5%; ***) 1%
All standard errors are in parentheses

F-Test Findings
Based on the result shown above, all F-Test significant level from all indices tested are 0.00. At this point we can conclude that all indices have a very significant relation with five hard currencies because the test result is less than 1% critical value. In terms of R^2, the highest R^2 is shown by Trade sector which has 81.9% R^2. This means that trade sector index movement is 81.9% affected by the five hard currencies while the rest 18.1% may be affected by inflation, interest rate, and any other factor, which are not tested in this study. The high R^2 also might a result of high transaction of using these five hard currencies in that sector.

Meanwhile Miscellaneous Industry shows the smallest R2 by 65.6%. Similar to trade sector, we can conclude that 65.6% of miscellaneous industry's index movement is affected by the five currencies while 34.4% may be affected by undetermined factor such as inflation, interest rate, or etc. In the figure the R^2 result in every model is higher than 65%, at this point, we can conclude that the accuracy of the model is high and the model fits the population so we can continue processing the data.

T-Test Findings
Based on the result shown in Figure 6, there some analysis for the T-Test can be made. Below is the hypothesis test result based on data process:
- For agriculture sector, the hypothesis made was
H_0: There is no significant impact of any currencies fluctuation to agriculture sector
H_1: There is at least one currency fluctuation has a significant impact to agriculture sector
Based on Figure 6, the T-Test significant is at 1% for three currencies, which are USD, JPY, and GBP while it is significant at 5% for EUR and not significant at all for AUD. This means we can reject the null hypothesis and accept the alternative hypothesis because there are five currencies have a significant impact to agriculture sector.

- For mining sector, the hypothesis made was
H_0: There is no significant impact of any currencies fluctuation to mining sector
H_2: There is at least one currency fluctuation has a significant impact to mining sector
Based on the Figure 6, the T-Test significant is at 1% for all five currencies, which are USD, JPY, AUD, EUR, and GBP. This means we can reject the null hypothesis and accept the alternative hypothesis because there are five currencies have a significant impact to mining sector.

- For basic industry sector, the hypothesis made was
H_0: There is no significant impact of any currencies fluctuation to basic industry and chemicals sector
H_3: There is at least one currency fluctuation has a significant impact to basic industry and chemicals sector
Based on the Figure 6, the T–Test significant is at 1% for all five currencies, which are USD, JPY, AUD, EUR, and GBP. This means we can reject the null hypothesis and accept the alternative hypothesis because there are five currencies have a significant impact to basic industry sector.

- For miscellaneous industry sector, the hypothesis made was
H_0: There is no significant impact of any currencies fluctuation to miscellaneous industry sector
H_4: There is at least one currency fluctuation has a significant impact to miscellaneous industry sector
Based on the Figure 6, the T-Test significant is at 1% for four currencies, which are USD, AUD, EUR, and GBP while not significant at all for JPY. This means we can reject the null hypothesis and accept the alternative hypothesis because there are four currencies have a significant impact to miscellaneous industry sector.

- For consumer goods sector, the hypothesis made was
H_0: There is no significant impact of any currencies fluctuation to consumer goods sector
H_5: There is at least one currency fluctuation has a significant impact to consumer goods sector
Based on the Figure 6, the T-Test significant is at 1% for all five currencies, which are USD, JPY, AUD, EUR, and GBP. This means we can reject the null hypothesis and accept the alternative hypothesis because there are five currencies have a significant impact to consumer goods sector.

- For property and real estate sector, the hypothesis made was
H_0: There is no significant impact of any currencies fluctuation to property and real estate sector

H_6: There is at least one currency fluctuation has a significant impact to property and real estate sector
Based on the Figure 6, the T-Test significant is at 1% for four currencies, which are USD, JPY, EUR, and GBP while not significant at all for AUD. This means we can reject the null hypothesis and accept the alternative hypothesis because there are four currencies have a significant impact to property and real estate sector.

- For infrastructure sector, the hypothesis made was

H_0: There is no significant impact of any currencies fluctuation to infrastructure sector
H_7: There is at least one currency fluctuation has a significant impact to infrastructure sector
Based on the Figure 6, the T-Test significant is at 1% for all five currencies, which are USD, JPY, AUD, EUR, and GBP. This means we can reject the null hypothesis and accept the alternative hypothesis because there are five currencies have a significant impact to infrastructure sector.

- For finance sector, the hypothesis made was

H_0: There is no significant impact of any currencies fluctuation to finance sector
H_8: There is at least one currency fluctuation has a significant impact to finance sector
Based on the Figure 6, the T-Test significant is at 1% for four currencies, which are USD, AUD, JPY, and AUD while not significant at all for GBP. This means we can reject the null hypothesis and accept the alternative hypothesis because there are four currencies have a significant impact to finance sector.

- For trade, service, and investment sector, the hypothesis made was

H_0: There is no significant impact of any currencies fluctuation to trade, service, and investment sector
H_9: There is at least one currency fluctuation has a significant impact to trade, service, and investment sector
Based on the Figure 6, the T–Test significant is at 1% for all five currencies, which are USD, JPY, AUD, EUR, and GBP. This means we can reject the null hypothesis and accept the alternative hypothesis because there are five currencies have a significant impact to trade, service, and investment sector.

- For manufacture sector, the hypothesis made was

H_0: There is no significant impact of any currencies fluctuation to manufacture sector
H_{10}: There is at least one currency fluctuation has a significant impact to manufacture sector
Based on the Figure 6, the T-Test significant is at 1 % for four currencies, which are USD, AUD, JPY, and EUR while significant at 5% for GBP. This means we can reject the null hypothesis and accept the alternative hypothesis because there are five currencies have a significant impact to manufacture sector.

Conclusion

Sector Return Significantly Impacted By				
USD	AUD	JPY	EUR	GBP
Agriculture Mining Basic Industry Miscellaneous Ind. Consumer Goods Property Infrastructure Finance Trade Manufacture	Mining Basic Industry Miscellaneous Ind. Consumer Goods Infrastructure Finance Trade Manufacture	Agriculture Mining Basic Industry Consumer Goods Property Infrastructure Finance Trade Manufacture	Agriculture Mining Basic Industry Miscellaneous Ind. Consumer Goods Property Infrastructure Finance Trade Manufacture	Agriculture Mining Basic Industry Miscellaneous Ind. Consumer Goods Property Infrastructure Trade Manufacture

Figure 7 Sector Return Table

In this sub-chapter, the author will explain about the result of the data process based on real economic events and situation. Among five hard currencies, USD is always significant at 1% critical value for every sector, while other currencies may have one or more sector where they are not significant affecting the index movement. At this point we can conclude that USD is the hardest currency that affects Industrial Indices in Indonesia. This finding is consistent with Figure 2.1 in chapter 2 where the table explains about the condition of foreign exchange holdings around the world from Q4-2012 to Q4-2013. All sectors in Jakarta Stocks Exchange will strongly related to USD because USA is one of the biggest export and import country, starting from agriculture products, mining, industrial non oil and gas products, and etc.

Australia is Indonesia's main import country for beef, wheat, and salt. From year to year, the amount of money invested in Indonesia is getting increased. Based on BPS (Badan Pusat Statistik), in 2012 the amount of money invest is around US$ 700 Million, increased 700% from 2011 which only around US$ 100 Million. This is explains why AUD is significantly affecting the Consumer Goods sector and any other sector which related to those three products. In the trade sector, total trade between these two countries reached more than US$ 10 Billion in 2013. Japanese Yen is affecting all sectors except Miscellaneous Industry. Miscellaneous Industry sector is consist of several industries such as automotive, machine, textile and garment, cable, electronics, and etc. In this sector, PT. Astra International Tbk is the top gainer, which the movement of this company usually move the miscellaneous industry index as well. In the data process we found that JPY is not significantly affecting the index. This is happening because even though the company imports small parts and components for Japanese brand like Toyota or Honda, the small parts usually made in Thailand, not Japan. Another cause of this insignificant result of JPY is because usually, the subsidiary of Astra International Tbk is already settle a fixed selling price with their suppliers in Japan to avoid exchange rate risk. These two events are the main cause why JPY is not significantly affecting the miscellaneous industry index. In all other sectors, Japan is the top 3 largest export and import products to and from Indonesia like Agriculture, Mining, Oil and Gas, and Industrial Raw Materials.
Based on the regression result, Euro is significantly affecting all sectors in Jakarta Stocks Exchange. European Countries are the destination for Indonesian products such as crude palm oil (CPO), electronics components and tools, rubber latex, furniture, and etc. These makes several sectors are highly affected by Euro's exchange rate fluctuation. The relation between EU (Europe Union) with Indonesia is one of the key factors of this strong relation. As example, EU and Indonesia have agree to make an act that requires the importer to ensure the legality of the source of woods and paper that imported to EU countries. Pound sterling affects nine sectors except property and real estate; the explanation about the insignificant result is served in the two next paragraphs. England is one of top five export and import countries partner in Indonesia. The amount of money traded is increased

from only US$ 500 Million in 2011 become US$ 1 Billion in 2012 and based on the meeting between Prince Andrew and Mr. Hatta Rajasa in 2013, both countries agreed to doubled the trade money to US$ 7 Billion in 2015. The dominant product mostly same with the EU region, which are furniture, rubber latex, footwear, and cloths.

To explain some other insignificant impact, below the author explain about the possibility of the insignificant result from two sectors, Agriculture and Property, while Miscellaneous Industry has been explained above in Japanese Yen explanation. Agriculture sector shown an insignificant impact from AUD, this may happen because agriculture companies from Indonesia rarely export their goods to Australia during the period, compare to other countries. In 2012, the biggest export destination is China, followed by Japan, USA, and India. This fact explains why USD and JPY are significantly affecting the Agriculture sector. Europe is one of the biggest importers of agriculture products, especially rubber latex and crude palm oil. In 2013, exports to 27 European countries reach around US$ 1.44 billion. Property and Real Estate sector is consisting of two-sub sector, which are property and real estate and construction and building sub sector. In the data result in Figure 4.2, AUD is not significantly affecting the property and real estate sector. This is happen because Indonesia is not importing raw materials for building from Australia so the property and real estate sector is not strongly connected with AUD.

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