THE EFFECT OF MACROECONOMICS VARIABLES ON SECTORS' INDEX, THE CASE OF INDONESIA STOCK EXCHANGE MARKET

Doddi Prastuti* and Pristina Hermastuti Setianingrum**

Abstract: *The purpose of this study is to know how the impact of inflation rate, interest rate of return and foreign exchange rate of rupiah against US$ on ten sectors index in Indonesia stock exchange market. The data use in this study is monthly data from January 2009 until December 2014.In this study, our consideration to choose inflation rate, interest rate and foreign exchange rate as macroeconomics variables is because those three variables are monetary variables. The regression result of the study showed that AGRI, BASIC_IND, CONS, FIN, INFRASTC, MANUF, PROPERTY, MISC and TRADE have positive correlation with inflation rate, negative correlation with interest rate and positive correlation with foreign exchange rate. Whereas MINING has negative correlation with inflation rate, positive correlation with interest rate and negative correlation with foreign exchange rate. The effect of independent variables simultaneously on sectors' index as shown by coefficient determination,for all sector indexes are ranges between 0.273 until 0.710. The lowest coefficient of determination is for Agriculture sector, whereas the highest coefficient of determination is for Property index. The test of hypothesis for all sectors' indexes have F = 0.000 < 5% (á). This means that simultaneously the inflation rate (X_1), interest rate (X_2) and foreign exchange rate (X_3) have significant effect on all sectors index. The partial effect of inflation rate (X1), interest rate (X2) and foreign exchange (X3)on sectors' index show different results for different sectors. With á = 5%, partially each of the three independent variables have significant effect on CONS, INFRACTS and PROPERTY. Whereas interest rate partially has significant effect on almost all sectors index except for MINING. Foreign exchange rate partially has significant effect on almost all sectors index except for AGRI.*

Key words: *inflation rates, interest rate, foreign exchange rates, sector indexes*

INTRODUCTION

The business success of the firm determines the dividends it can pay to shareholders and the price it will command in the stock market. Because the prospects of the firm are tied to those of the broader economy, however, valuation analysis must consider the business environment in which the firm operates. For some firms, macroeconomics

* Sekolah Tinggi Ilmu Ekonomi Indonesia (STEI), *E-mail: doddi_prastuti@yahoo.com*

** Sekolah Tinggi Ilmu Ekonomi Indonesia (STEI), *E-mail: pristinao@yahoo.com*

and industry circumstances might have a greater influence on profits then the firm's relative performance within its industry (Bodie, Kane, Marcus 2004)

Macroeconomics is the study of the national economy and the global economy (Parkin, 2010). Macroeconomics variables, such as: GDP, productivity of labor, inflation, Price index, interest rate, etc are used to measure of how economy performance of a country. Those variables are divided into variables that included in real sector and monetary sector. Inflation rate, interest rate and foreign exchange, among others, are variables that are considered as monetary variables.

In this study researchers choose to use inflation rate, interest rate and foreign exchange as independent variables to explain the fluctuation of sectors index in Indonesia stock exchange. This is because in our opinion, variables in monetary sector are expected to have close relationship with variables in financial sector.

Inflation rate is the annual percentage change of the price level (Parkin, 2010). The price level is a weighted average of the prices of the different goods and services in an economy (Samuelson & Nordhaus, 2005).In period of rapid, unpredictable inflation, resources get diverted from productive activity to forecasting inflation. It will be profitable to forecast the inflation rate correctly than to invent a new product (Parkin, 2010). When people expect that inflation rate will increase, usually they prefer to spend their money for consumption today.

Interest rate is the price of money, it can be considered as the cost of holding money. If the interest rate higher people are willing to hold smaller amount of money for their transaction and precautionary needed. When the interest rate is lower people prefer to hold their money rather than to invest it.

Indonesia currently use floating exchange rate regime. Floating exchange rates means that foreign exchange rates is determined by demand and supply in an open market that is presumably free of government interference (Eitman, Stonehill, Moffet 2013). Most of the products produce in Indonesia have some part of import material content, therefore fluctuation of foreign exchange rate of US$ and rupiah is expected to have impact on corporate production cost and in turn it will have impact on net income and stock price of the corporate. Researchers expect that foreign exchange to some degree will have impact on sectors' index.

The Indonesia Stock Exchange market consists of 10 sectors indexes, namely: agriculture (AGRI), basic industry (BASIC_IND),consumer goods (CONS), finance (FIN),infrastructure (INFRASTC),manufacture (MANUF), mining (MINING), miscellaneous industry (MISC), property (PROPERTY) and trade (TRADE). The performance's movements of that sector indexes are not always have the same pattern from time to time.

Based on the above explanation, researchers are interested in studying how each sector index is affected by macroeconomic variables, especially monetary variables, that is: inflation rate, interest rate and foreign exchange rate.

The purpose of this study to evaluate the impact of inflation rate, interest rate of return and US$-rupiah foreign exchange rate on ten sectors index in Indonesia stock exchange market.

Research problem's formulation in this study is: do inflation rate, interest rate and foreign exchange rate have significant effect on sectors index?

THEORETICAL FRAMEWORKS

There are three reasons why people holding money, they are: transaction, precautionary and investing .Factors that influenced the demand for money are: price level, level of income and rate of interest. Price level and level of income have positive correlation with money demand for transaction and precaution. Rate of interest has negative correlation with money demand for investing. When the interest rate is increasing, money demand for investing is decreasing. When the interest rate is decreasing, money demand for investing is increasing.

Inflation denotes a rise in general level of prices. It is measure as follows:

Rate of inflation $_t$ = [(price level $_t$ – price level $_{t-1}$)/ price level $_{t-1}$] x 100. When inflation is rising means that there is a movement of a price index. A price index is a weighted average of the prices of a number of goods and services. In constructing price indexes, economists weight individual prices by the economic importance of each good. The most important price indexes are: consumer price index, the GDP price index and producer price index. (Samuelson and Nordhaus, 2005).

An exchange rate is the price at which one currency exchanges for another currency in the foreign exchange market. The IMF classifies all exchange rate regimes into eight specific categories. These eight categories span the spectrum of exchange rate regimes from rigidly fixed to independently floating. The eight categories are: exchange arrangements with no separate legal tender, currency board arrangements, other-conventional fixed peg arrangements, pegged exchange rates within horizontal bands, crawling pegs, exchange rate within crawling pegs, managed floating with no preannounced path for the exchange rate, independent floating. A nation's choice as to which currency regime to follow reflects national priorities about all facets of the economy, including inflation, unemployment, interest rate level, trade balance and economic growth (Eitman, Stonehill, Moffet 2013).

Garcia, V.F and Liu, Lin (1999) empirically explored the macroeconomic determinant of stock market development by using 15 industrial and developing countries in Asia and America as sample. Among variables are the inflation level, inflation change and standard deviation of 12 month inflation rate, use to measure the macroeconomic stability. It found that macroeconomic stability does not prove significant.

Wongbangpo and Sharma (2002) study of relationship between the macroeconomic variables of GNP, CPI, the money supply, interest rate and exchange rate to stock

return for the ASEAN-5 countries: Indonesia, Malaysia, the Philippines, Singapore and Thailand. For the case of Indonesia, the result of the study showed that the stock index were positively related to growth in output, negatively to the aggregate price level and positively related to interest rates.

Maghayereh investigation on Amman Stock Exchange, Jordan (2003) found that the cointegration test and the vector error correction model illustrate that the stock price index is cointegrated with a set of macroeconomic variables – those are exports, foreign reserves, interest rates, inflation, and industrial production - which provide a direct long-run equilibrium relation with the stock price index.

A study by R.C. Maysami, L.C. Howe and M.A. Hamzah (2004) found that the Singapore's stock market and the property index form cointegrating relationship with changes in the short and long term interest rate, industrial production, price levels, exchange rate and money supply.

Research by Humpe and Macmillan (2007), in whether a number macoeconomic variable scan explain long term stock market movements: a comparison of the US and Japan. Using US data in single cointegration between stock prices, industrial production, inflation and long interest rate, normalized on stock price, suggested US stock prices were influenced negatively by inflation and long interest rate. In Japan, found by two cointegrating vectors. Using normalized on industrial production as the second vector, that industrial production was negatively related to the interest rate and the rate of inflation. An explanation of the difference in behavior between the two stock markets may lie in Japan's slump after 1990 and its consequent liquidity trap of the late 1990s and early 21st century.

The analysis of the effect of international macroeconomic factors of exchange rate and oil price on the stock market exchange price of Brazil, Russia, India, and China did not reveal a significant relationship. As hypothesized, the relationship between exchange rates and stock prices should be positively related. This hypothesis was found to exist between the stock index price and exchange rate for Brazil, India, and China but not for Russia until the MA(12) level, which is possibly explained by the slight decreasing trend in the RBL/USD rate in the latter stages of 2003. (Robert D. Gay, Jr-2008)

Mahmood, W.M.W and N. M. Dinniah (2007) examine the dynamics relationship between stock prices and macro economic variables in six Asian – Pacific countries by using the data on stock indices, foreign exchange rates, consumer price index and industrial production index. The macro economic factors employ seem to produce a near to negligible impact on the performance of stock market returns in any country under investigations whether they are categorized as emerging market, new industrialized countries and developed market with an exception for Thailand and Hong Kong. The Hong Kong shows relationship between exchange rate and stock price.

Hosseini, Ahmad and Lai (2011) studied the role of macroeconomic variables on stock market index in China and India. The effect of increases in inflation on stock

market indices is positive in both countries. The contemporaneous effect of inflation on current Chinese stock index is positive and significant but this effect lagged one month though positive is insignificant. In comparison, In India the contemporaneous effect is negative but insignificant. However, the lagged effects are negative and significant.

RESEARCH METHOD

Methods and Research Design

Research method of this study is explanatory; to explain the effect of the inflation rate, interest rate and foreign exchange rate as independent variables to sectors' index. Researchers use secondary data using time series monthly data from January 2009 to December 2014.

Population and Sample

Population in this study is the data of inflation rate, interest rate, foreign exchange rate and sectors' indexes since those indexes are created in the Indonesia stock exchange. Researchers use purposive sampling method. The interest rate researchers used is monthly deposit rate of state own bank. Sample in this study is all those variables from January 2009 to December 2014.

Our consideration to choose 2009 until 2014 as sample period is because in our opinion the economic condition in 2009 can be considered to be relatively experienced recovery condition after the recession in 2008.

In this study, our consideration to choose inflation rate, interest rate and foreign exchange rate as macroeconomics variables is because those three variables are monetary variables. In our opinion this monetary variables ideally should have closely related to financial market compare to other macroeconomic variables.

Sources of the Data

This study uses secondary data. Researchers use data from the central statistic bureau, central Bank (Bank Indonesia) and Indonesia stock exchange market.

Statistical Analysis

This study uses multiple regression analysis technique, using SPSS program. The model is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3$$

Where:

Y   =   sectors' index

X_1 =   inflation rate

X_2 = interest rate

X_3 = foreign exchange rate

a = Intercept

$b_1, b_2 b_3$ = regression coefficient.

Since there are ten sectors' indexes in the Indonesia stock exchange market, researchers will have ten regressions. The ten sectors' indexes are: agriculture (AGRI), basic industry (BASIC_IND), consumer goods (CONS), finance (FIN), infrastructure (INFRASTC),manufacture (MANUF), mining (MINING), miscellaneous industry (MISC), property (PROPERTY) and trade (TRADE). Researchers will evaluate and analyze the effect of independent variables on each sector's index.

The null and alternative hypotheses

The test of the significance of the relationship between the dependent variable and the explanatory variables is as follow:

Ho: $\beta_{1,2,3} = 0$.

Inflation rate (X_1), interest rate (X_2) and foreignexchange rate (X_3) simultaneously do not have significant effect on sectors index (Y).

Ha: $\beta_{1,2,3} \neq 0$.

Inflation rate (X_1), interest rate (X_2) and foreignexchange rate (X_3) simultaneously have significant effect on sectors index (Y).

Researchers will also run the partial F-test criterion of regression model to determine the contribution of an explanatory variable.

Ho : $\beta i \leq 0$

Partially independent variable i does not have significant effect on sectors index

Ha: $\beta_i > 0$

Partially independent variable i has significant effect on sectors index

Where i are: inflation rate, interest rate and foreign exchange rate

Researchers will use a level of significant (á) of 5%. The test of hypotheses will be calculated for each sectors index.

Researchers also calculate the coefficient of multiple determination and the coefficient of partial determination. The coefficient of multiple determination represents the proportion of variation in Y that is explained by the set of explanatory variables selected. The coefficient of partial determination (r-par) measure the proportion of the variation in the dependent variable that is explained by each explanatory variable while holding constant the other explanatory variable

RESULT OF THE STUDY

Analysis of Research Variables

The table below showed average monthly data of inflation rate, interest rate and foreign exchange rate. From 2009 until 2013 interest rate decreased and only in 2014 it was increased. During that period, inflation rate tend to increased except in 2012. From 2009 to 2011 foreign exchange rate of rupiah against US$ become stronger, but since 2011 it was weaker.

Table 1
**Average monthly data of inflation, interest rate and foreign exchange rate**

	INFLATION (%)	*INT_RATE* (%)	*FOREX* (Rp/US$)
2009	0.23	8.18	10,356.17
2010	0.30	6.53	9,078.25
2011	0.31	6.48	8,766.83
2012	0.28	5.25	9,323.67
2013	0.32	5.67	10,024.75
2014	0.34	7.76	11,772.75

Sources: statistical bureau, Bank Indonesia, data processed

The two figures below shows the graphs of average monthly index for ten sectors. During January 2009 to December 2014 of ten sector indexes in Indonesia stock
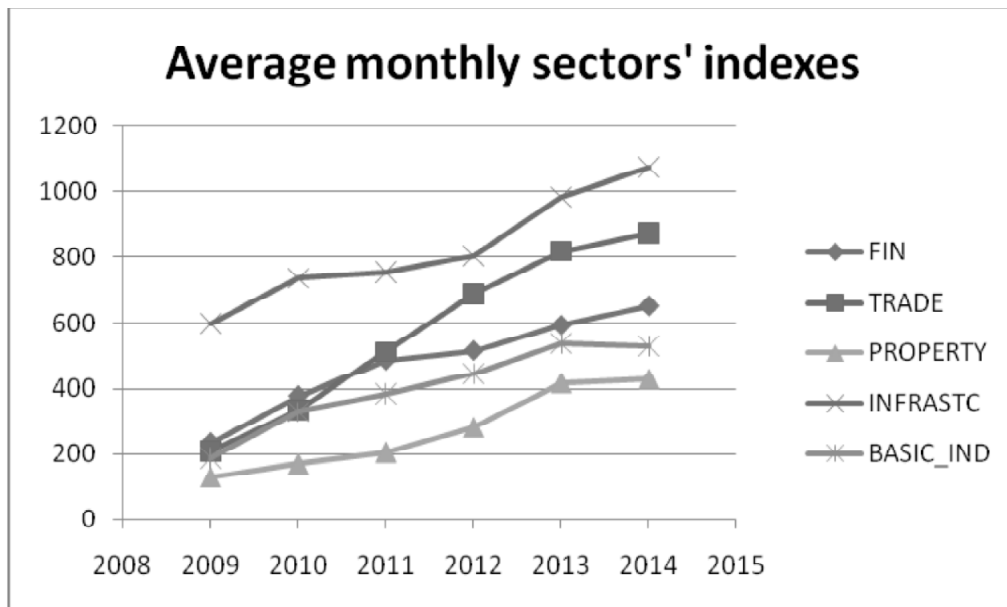
Sources: IDX, data processed
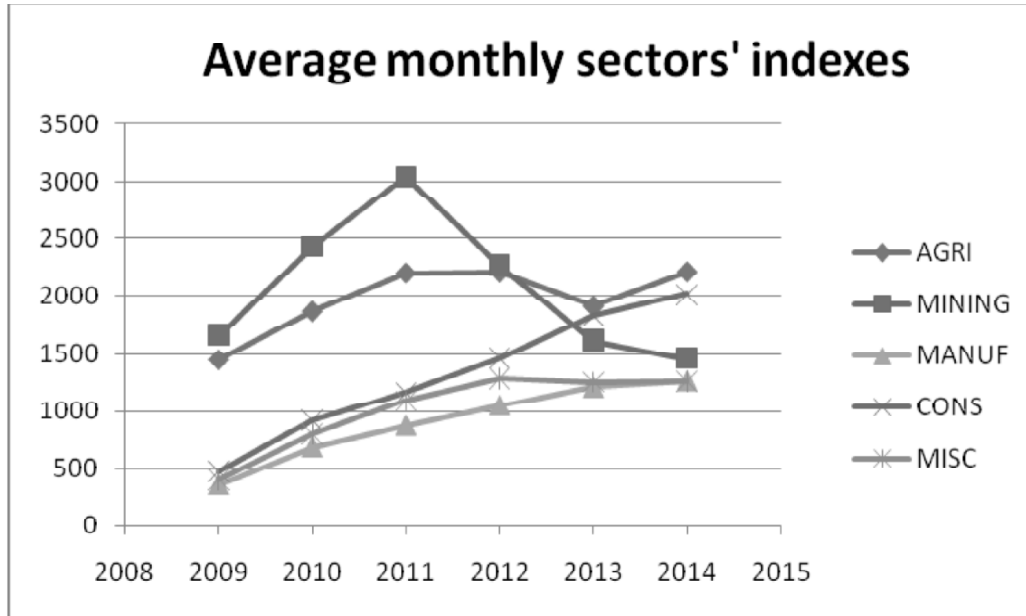
Sources: IDX, data processed

exchange market, using average monthly 'data of sector indexes, it can be seen on the figure below that MANUF, TRADE, FIN, INFRASTC, CONS and PROPERTY indexes had relatively similar pattern, they had positive growth. During that period CONS, TRADE and MANUF indexes showed steady increase with decreasing rate. Whereas PROPERTY, INFRASTC and FIN showed that from 2009 until 2013 they increased with decreasing rate but in 2013 they increased with increasing rate. On the other hand, BASIC_IND, AGRI, MINING and MISC are all had fluctuate growth both positive and negative growth during that period.

From the figure above researchers can also see that mining and agriculture indexes both have quite different pattern with the other eight indexes. From 2009 to 2011 mining and agriculture indexes are first increased and then after that period those indexes experienced decreasing trend.

Test of Classical Assumptions

1. Test of multi-collinearity

   A multicollinearity exist when the value of Variance Inflation Factor $> 1/\alpha$. Researchers set $\alpha = 5\%$, so $1/\alpha = 20$. VIF for $X_1 = 1.030$ VIF for $X_2 = 1.670$ and VIF for $X_3 = 1.654$. All VIF values for the independent variables are less than 20. Therefore there is no multicollinearity among independent variables in our regression model

2. Test of heteroscedasticity

Test of heteroscedasticity can be examined from scatter diagram, when the scatter diagram has specific pattern then it means there is a heteroscedasticity. Due to limited pages allowed in this paper researchers cannot show the entire scatter diagram for ten sectors index. The scatter diagram as a result of run data using SPSS 16 show there are no heteroscedasticity appear on ten sector index.

3. Test of autocorrelation

The Durbin-Watson (DW) test for ten sectors index are: .246; .322; .269; .235; .324; .256; .372; .232; .458; .271. Since for all indexes the value of DW are $-2 \leq DW \leq 2$; there are no autocorrelation.

4. Test of normality

The result of normal probability plots for all index show that the data are normally distributed.

ANALYSIS OF REGRESSION RESULT

The table below shows summary of regression result, R square and F sig for ten sectors indexes.

Table 2
The summary of the regression result, R square and F sig

No	Sector Index	Regression	R square	F sig
1	AGRI	$Y = 2525.650 + 58.018 X_1 - 166.793 X_2 + 0.054 X_3$	.273	.000
2	BASIC	$Y = 198.129 + 30.917 X_1 - 104.744 X_2 + 0.090 X_3$	.659	.000
3	CONSUMER	$Y = -483.777 + 140.022 X_1 - 406.470 X_2 + 0.448 X_3$	.668	.000
4	FINANCE	$Y = 182.886 + 37.254 X_1 - 104.510 X_2 + 0.098 X_3$	.535	.000
5	INFRASTUCTURE	$Y = 187.683 + 57.248 X_1 - 104.946 X_2 + 0.132 X_3$	.561	.000
6	MANUFACTURE	$Y = 256.325 + 71.866 X_1 - 260.968 X_2 + 0.238 X_3$	.652	.000
7	MINING	$Y = 6825.121 - 45.402 X_1 + 90.942 X_2 - 0.539 X_3$	.686	.000
8	MISCELLANEOUS	$Y = 1065.147 + 39.559 X_1 - 280.298 X_2 + 0.182 X_3$	.596	.000
9	PROPERTY	$Y = -228.8 + 37.719 X_1 - 86.593 X_2 + 0.107 X_3$	.710	.000
10	TRADE	$Y = -190.174 + 37.518 X_1 - 198.428 X_2 + 0.209 X_3$	.695	.000

Sources: statistical bureau, Bank Indonesia, IDX, data processed

The regression result of the study showed that AGRI, BASIC_IND, CONS, FIN, INFRASTC, MANUF, MISC, PROPERTY and TRADE have positive correlation with inflation rate (X_1), negative correlation with interest rate (X_2) and positive correlation with foreign exchange rate (X_3). Whereas MINING has negative correlation with inflation rate, positive correlation with interest rate and negative correlation with foreign exchange rate.

The interpretation of regression result of AGRI for example is as follow: the intercept of 2525.650 estimates the expected index of Agriculture when monthly inflation rate, interest rate and foreign exchange rate are zero. The b_1 of 58.018 means

that with given number of interest rate and foreign exchange, the AGRI is estimated to increase by 58.018 for each 1% increase of inflation rate. The b_2 of 166.793 can be interpreted to mean that with given number of inflation rate and foreign exchange rate, the AGRI is estimated to decrease by 166.793 for each 1% increase in interest rate. The b_3 of 0.054 means that with given number of inflation and interest rates, the AGRI is estimated to increase by 0.054 for every Rp1 increase of rupiah value against US$ exchange rate (or the rupiah is getting weaker against US$ by Rp1). The other indexes have similar interpretation with the above AGRI example; the difference is only for different number.

The interpretation for the regression result of MINING is as follows: the intercept of 6825.121estimates the expected index of Mining when monthly inflation rate, interest rate and foreign exchange rate are zero. The b_1 of -45.402 means that with given number of interest rate and foreign exchange, the MINING is estimated to decrease by 45.402 for each 1% increase of inflation rate. The b_2 of 90.942 can be interpreted to mean that with given number of inflation rate and foreign exchange rate, the MINING is estimated to increase by 90.942 for each 1% increase in interest rate. The b_3 of -0.539 means that with given number of inflation and interest rates, the MINING is estimated to decrease by 0.539 for every Rp1 increase of rupiah value against US$ exchange rate (or the rupiah is getting weaker against US$ by Rp1).

ANALYSIS OF COEFFICIENT OF DETERMINATION RESULT

The coefficient of multiple determination represents the proportion of variation in Y that is explained by the set of explanatory variables selected which are, in this case: inflation rate, interest rate and foreign exchange rate.

The coefficient of determination for ten sector indexes range from 0.273 for AGRI to 0.710 for PROPERTY. The coefficient of determination for PROPERTY of 0.710 means that from the sample, 71% of the variation in property index can be explained by the variation in inflation rate, interest rate and foreign exchange rate. The coefficient of determination for AGRI of 0.273 means that from the sample, 27,3% of the variation in agriculture index can be explained by the variation in inflation rate, interest rate and foreign exchange rate whereas the other 72.2% was explained by other factor.

TESTING OF HYPOTHESIS: SIMULTANEOUS RELATIONSHIP

The null and alternative hypotheses are as follow:

Ho: $\beta_{1,2,3} = 0$.

Inflation rate (X_1), interest rate (X_2) and foreign exchange rate (X_3) simultaneously do not have significant effect on sectors index (Y).

Ha: $\beta_{1,2,3} \neq 0$.

Inflation rate (X_1), interest rate (X_2) and foreign exchange rate (X_3) simultaneously have significant effect on sectors index (Y).

The null hypothesis may be tested by utilizing an F test. As indicated in the table 2 above, the F sig for all sectors index are .000; using α = 5% then for all sectors F sig < 5%. This means that researchers can reject Ho (accept Ha) and conclude that there is a significant effect of inflation rate, interest rate and foreign exchange rate simultaneously on sectors index.

TESTING OF HYPOTHESIS: PARTIAL RELATIONSHIP

Table 3
The summary of t-sig and r partial of the regression model

No	Sector's Index	t-sig			r partial		
		X_1	X_2	X_3	X_1	X_2	X_3
1	AGRI	.329	.000	.185	.118	-.471	.160
2	BASIC_IND	.050	.000	.000	.235	-.787	.717
3	CONSUMER	.035	.000	.000	.252	-.762	.775
4	FINANCE	.078	.000	.000	.212	-.687	.644
5	INFRASTUCTURE	.019	.000	.000	.281	-.641	.705
6	MANUFACTURE	.075	.000	.000	.214	.778	.730
7	MINING	.550	.066	.000	-.073	.221	-.786
8	MISCELLANEOUS	.382	.000	.000	.106	-.762	.585
9	PROPERTY	.008	.000	.000	.317	-.767	.813
10	TRADE	.192	.000	.000	.158	-.796	.795

Sources: statistical bureau, Bank Indonesia, IDX, data processed

Table 3 above shows the summary of t sig and r partial of the regression model for each sector index. Using á of 5%, the value of t-sig of inflation rate < 5% appear on the following sectors index: consumer, infrastructure and property. This means that inflation rate, partially, has significant effect on those indexes. Whereas the t-sig of inflation rate > 5% appear on the following sectors index: agriculture, finance, manufacture, mining, miscellaneous and trade. Therefore inflation rate, partially, does not have significant effect on those indexes.

The value of t-sig >5% only appear in mining index. This means that interest rate, partially, has no significant effect only for mining index. Whereas interest rate, t-sig < 5% appear on the other nine sectors index. Therefore interest rate has significant effect on those nine sectors index.

For the foreign exchange rate, the value of t-sig < 5% appears on nine indexes, that is: basic industry, consumer, finance, infrastructure, manufacture, mining, miscellaneous, property and trade. Foreign exchange rate does not have significant effect partially to agriculture index.

The coefficient of partial determination (r-par) measures the proportion of the variation in the dependent variable that is explained by each explanatory variable while holding constant the other explanatory variable.

Researchers will take the consumer index as an example to explain the result of r-par. Researchers choose the consumer index because all three independent variables: inflation rate, interest rate and foreign exchange rate each has significant effect on consumer index, partially. For consumer index an r-par X_1 of .252, the r-square is .0635 this means that 6.35% variation in consumer index can be explained by the variation of inflation rate, holding interest rate and foreign exchange rate constant. Inflation rate and consumer index have positive correlation. An r-par X_2 of -.762, an r-square of .5806, means that 58.06% variation in consumer index can be explained by the variation of interest rate, holding inflation rate and foreign exchange rate constant. Inflation rate and consumer index have negative correlation. An r-par X_3 of .775, an r-square of .6006 means that 60.06% variation in consumer index can be explained by the variation of foreign exchange rate, holding inflation rate and interest rate constant. Foreign exchange rate and consumer index have positive correlation.

CONCLUSION

From the analysis of the regression result it is obvious that inflation rate, interest rate and foreign exchange rate simultaneously have significant effect on all sectors index.

Inflation rate, partially, has significant effect only on consumer index, infrastructure index and property index. Interest rate, partially, has significant on almost all sectors index except for MINING. Whereas, foreign exchange rate partially has significant effect on nine sectors index; it has no significant effect only on AGRI.

The result of the study shows that variation on inflation rate, interest rate and foreign exchange rate simultaneously can explain 53.5% to 71% of variation on sectors index. Only on agriculture index the value of R-square is.273.

The regression result shows that generally inflation rate, interest rate and foreign exchange rate consecutively have positive, negative and positive correlation with sectors index. Only on MINING the correlation pattern has different sign. Inflation rate, interest rate and foreign exchange rate consecutively have negative, positive and negative correlation on mining index.

References

Berenson, M.L. and Levine, D,M *Basic Business S*tatistics, *Conceptsand Applications,*6th edition, Prentice Hall 1996.

Eitman, K.E, Stonehill, A.I, and Moffet, MH *Multinational Business Finance*. 13th edition Pearson Global Edition, 2013.

Gay Jr, Robert D Study of Effect of Macroeconomics Variables on Stock Market Returns for four emerging Economies: Brazil, Russia, India and China. *International Business & Economics Research Journal* – March 2008 Volume 7, Number 3 1.

Garcia, V. F., and Liu, L. Macroeconomic Determinants of Stock Market Development. *Journal of Applied Economics,* May 1999, Vol II, No. 1, 29-59.

Hosseini. S. M, Ahmad, Z., and Lai, Y. W. The Role of Macroeconomic Variabel on Stock Market Index in China and Braziil, *International Journal of Economics and Finance,* November 2011, Vol 3, No. 6.

Humpe, A. and Macmillan P. Can macroeconomic variables explain long term stock market movements ? A comparisonof the US and Japan. Centre for Dynamic Macroeconomic Analysis, Working Paper Series, CDMA 07/20, October 2007, University of St Andrews, United Kingdom.

Maghayereh, A. Causal Relationshipamong Stock Prices and Macroeconomic Variabels in the Small Open Economy of Jordan, *JKAU: Econ & Adm* 2003, Vol. 17, No. 2, pp 3-12.

Mahmood, W. M. W and Dinniah, N. M. Stock Return and Macroeconomic Influences: Evidence from the Six Asian – Pacific Countries. Article in SSRN Electronic Journal. January 2007. Available at http://www.researchgate.net/publication/228228922.

Maysami, R. C., Howe, L. C. and Hamzah, M. A. Relationship between Macroeconomic Variables and Stock Market Indices: Cointegration Evidence from Stock Exchange of Singapore's ALL-S Sector Indices, *Journal Pengurusan* 24(2004) : 47-77.

Parkin, M. *Economics.* 10th edition, Pearson International 2010.

Samuelson, P. and Nordhaus. *Economics.* 17 edition, International edition, Mc Graw Hill Irwin 2005.

Wongbanpo, P. & Sharma, S. C. Stock market and macroeconomic fundamental dynamic interactions: ASEAN-5 countries. *Journal of Asian Economics*, 13, 27-51, 2002.