

The effect of Gold Value and US dollar exchange rate against the Jakarta Islamic Index

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Abstract: This research aimed to determine the effect of Gold value and US dollar exchange rate against Jakarta Islamic Index. The population of this research is the stock of Muslim law that incorporated inside Jakarta Islamic Index period 2007-2011. Technique of data analysis is Vector Autoregression Model (VAR). The result caused Jakarta Islamic Index was being increased positively up to its peak at fourth period it was being decreased and began stable at fifth period in short term. The respond of Jakarta Islamic Index (JII) against different L-dollar showed that JII was being increased negatively up to third period and next decreased up to fifth period and stable at the next period. Based on the analysis result of variance decomposition, the contribution of L-golden and L-dollar against Jakarta Islamic Index was very small, about 1.7% and 1.8%.

Keywords: Gold Value, US dollar Exchange Rate , Jakarta Islamic Indeks, VAR

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I. INTRODUCTION

The current economic and industrial development has accelerated highly so that this condition is responded by the company with high demand for capital or big fund in order to fulfill the maximum production capacity. Therefore, the company can publish the stock in the business of obtaining such capital, even there is no exception stocks were published by companies that execute their business using the system of Muslim law, then publishing Muslim law stock. It is incorporated in the Jakarta Islamic Index (JII) sold on the Jakarta Stock Exchange. Based on the research conducted by Sujono (2002), there was empirical evidence in research where the variables like macro, Interest of SBI deposit, the amount of money circulated and rupiah exchange rate against dollar have a significant influence on the Composite Stock Price Index. Then, the research was conducted by Ruhendi and Johan (2003) individually and simultaneously in each variable of the rupiah against the dollar and stock index of Dow Jones New York Exchange has influence againts JCI in BEJ .

Furthermore, Arifin (2004) said that gold is one of safe investation, risk-free and liquid because gold was received by any countries, so gold can affect the stock prices. In an open economy of the Islamic capital market which is incorporated in the Jakarta Islamic Index as well as IHSG including world capital market performance may be affected by macro indicators including gold price movements. Moreover, this research wanted to prove empirically reciprocal influence among Jakarta Islamic Index (JII), rupiah exchange rate against US dollar and gold price fluctuation in period of 2007-2011.

Problems of the study

Here are the problems of the study:

1. How is the effect of Gold Price against JII?
2. How is the effect of Rupiah Exchange rate against JII?

II. REVIEW OF LITERATURE

Indicator of the economy in a country is Capital Market that can support the economy of the country (Robert Angg. 2007). Capital market is identically with the place where the capitals traded between the parties have surpluses to those who are strapped for cash. One of the form of the capital market is the stock market of Muslim law, traded on BEJ. Muslim-traded stocks have an index called the Jakarta Islamic index. Research related to the Jakarta Islamic index has been carried out as determined by Muhammad (2013) "Analysis of Factors influencing Jakarta Islamic index with monthly data in 2004 - 2011." The study used multiple linear regression to inflation outcomes, the Crucible, the world gold price and DJIMI, influence simultaneously to Jakarta Islamic index, while partially gold price and DJIMI have positive and significant influence to JII, while inflation influence negatively and it does not significant then the exchange rate have negative and significant influence to JII. A second study by Fahrudin (2006) also conducted a similar study

which is about the influence inflation, money supply, exchange rate and interest rate against JII. From research done shows that inflation has a negative effect on the JII although it doesn't has significant, the money supply has positive effect on JII while the interest rate give negative effect. Bun Lenny and Sarwo Edy Handoyo (2008) conducted a study on the effect of variable interest rates SBI, exchange rate USD / USD and oil prices on Stock Price Index (CSPI).

According to result of study during the period January 1, 2006 until June 30, 2008, JCI is significantly affected by world oil prices and interest rates SBI, while the exchange rate USD / USD has no significant effect on the JCI level of 95 percent. In the investments, investors can make various options such as gold, because it is a metal that considered valuable (Bouchentouf, 2007). The history of gold since ancient times has a high-value item that can be used as jewelry, a medium of exchange and the hedge of value. In the recent development, the role of gold has shifted to serve as a medium of investing (Kusnandar, 2007).

Research relating to the relation of gold to the stock price and the dollar exchange rate has been carried out by July Vesiania et al in 2012 on the characteristics of gold as Safe heaven and hedge assets against stocks and the dollar in Indonesia which her research that gold has a higher safe heaven than stocks in represented by JCI and the dollar. In this study, the influence of gold and the dollar against the Islamic Jakarta index, where using VAR as a methodology in view of the mutual influence between the variables studied.

III. Methodology

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The research method using descriptive analysis method through library research supported by quantitative analysis using econometric model that is Vector Auto regression Model (VAR). Vector Error Correction Model (VECM). VAR was simply can explain the causality between the variables that was investigated by adding intercepts. This method was first developed by Sim (1980). The data used in this study is time series with the period 2007-2011 in 1,000 days.

As the college assignment in econometric subject, researchers in this study wanted to examine the effect of gold price and exchange rate RP / dollar against JII data used daily data in January 2007 until December 2011. The model of VAR and VECM in this study is :

$$rJII_{t-p} = f(rJII_{t-p}, LGold_{t-p}, LDollar_{t-p})$$

$$LGold_{t-p} = f(LGold_{t-p}, LDollar_{t-p}, rJII_{t-p})$$

$$LDollar_{t-p} = f(Ldollar_{t-p}, LGold_{t-p}, rJII_{t-p})$$

There are several tests that must be passed to determine the right model in this study, the tests are

1. Stationery Data Test
2. Optimal Lag Length Test
3. Granger Causality Test
4. Co-Integration Test

IV. FINDINGS AND DISCUSSION

1. Stationary Data Test

The Test that commonly used is *test augmented Dickey-Fuller* (ADF) where the value of ADF is greater than the critical value, it is accepting Ho which means there is a unit root and it was not stationary. Contrarily, if the value of the ADF is less than the critical value of 5%, it means rejecting Ho because no roots units and data stationer.

Table 1. ADF Test Results

Variables	Unit Root	Include in test Equation	ADF Test Statistic	Critical Value 5%	Information
JII	Level	intercept	-30.33852	-2.864222	Stationer
LGold	Level	intercept	-1.4584475	-2.864222	Not stationer
	First Diff.	intercept	-33.63880	-2.864225	Stationer
Ldolar	Level	intercept	-1.490134	-2.864222	Not stationer
	First Diff.	intercept	-34.332254	-2.864225	Stationer

The result of test obtained from all of the variables already stationary. Therefore, hence the model followed by the first VAR model different or VECM.

2. Optimal Lag Length Test

Table 2 Optimal Lag Length Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	3589.165	NA	1.50e-07	-7.201135	-7.186364	-7.195520
1	8707.693	10195.94	5.24e-12	-17.46123	-17.40215*	-17.43877
2	8731.892	48.05750	5.08e-12	-17.49175	-17.38836	-17.45245
3	8761.128	57.88522	4.88e-12	-17.53238	-17.38468	-17.47624*
4	8770.870	19.22985*	4.87e-12*	-17.53388*	-17.34186	-17.46088

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

3. VAR Stability Test Results

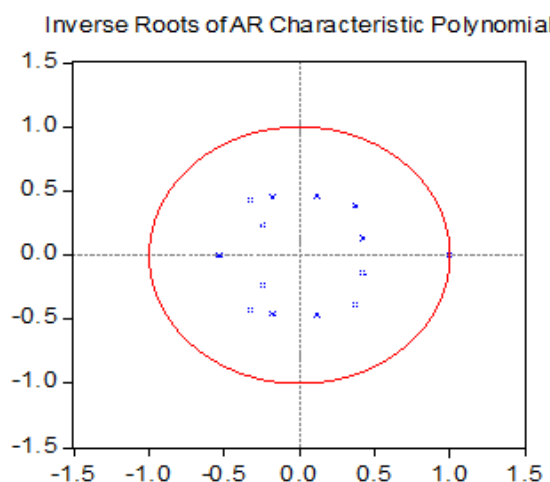
Table 3 Stability Test Results Model

Root	Modulus
0.996859 - 0.001622i	0.996860
0.996859 + 0.001622i	0.996860
-0.328609 - 0.430166i	0.541319
-0.328609 + 0.430166i	0.541319
-0.534877	0.534877
0.370665 - 0.383388i	0.533272
0.370665 + 0.383388i	0.533272
-0.180609 - 0.454365i	0.488945
-0.180609 + 0.454365i	0.488945
0.115391 - 0.463167i	0.477325
0.115391 + 0.463167i	0.477325
0.418343 - 0.133460i	0.439116
0.418343 + 0.133460i	0.439116
-0.247843 - 0.233890i	0.340780
-0.247843 + 0.233890i	0.340780

No root lies outside the unit circle.

VAR satisfies the stability condition.

From the table above, there is no root characteristic and modulus that the number is more than 1. While Figure 1 shows that the point of the inverse roots of AR polynomial is inside the circle.



4. Granger Causality Analysis Results

Granger Causality Test inter variable study sought to determine and prove the direction of short-term relationships inter variable.

Table 4 Granger Test Results Causality

Pairwise Granger Causality Tests

Date: 03/08/10 Time: 13:07

Sample: 1 1000

Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
LDOLAR does not Granger Cause JII	996	3.41531	0.00876
JII does not Granger Cause LDOLLAR		12.1367	1.2E-09
LGOLD does not Granger Cause JII	996	4.41791	0.00152
JII does not Granger Cause LGOLD		3.39921	0.00900
LGOLD does not Granger Cause LDOLLAR	996	7.08611	1.3E-05
LDOLLAR does not Granger Cause LGOLD		2.64013	0.03259

In the table 4 above, all variables have reciprocal relationship or two-way direction that significantly on level 5 % against lag 4. Meanwhile, value of the dollar exchange rate in 4 days ago affect JII and gold prices, otherwise the value of the dollar exchange rate is also influenced by the value of JII and gold on past. Also, the gold price of JII against the dollar exchange rate.

5. Cointegration Test Results

There will be found the number of possible relationships in Johansen's Cointegration test based on all the variables in the equation system.

Thus the variable JII also possible to get the balance long-term correlation stability and long-term movements.

While in the short term, each of the variables adapted to achieve a long-term equilibrium. It was seen from table 5 below.

Date: 03/09/10 Time: 08:22
 Sample (adjusted): 6 1000
 Included observations: 995 after adjustments
 Trend assumption: Linear deterministic trend
 Series: JII LDOLAR LEMAS
 Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.216326	247.9688	29.79707	0.0001
At most 1	0.004036	5.425478	15.49471	0.7621
At most 2	0.001408	1.401577	3.841466	0.2365

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.216326	242.5433	21.13162	0.0001
At most 1	0.004036	4.023901	14.26460	0.8568
At most 2	0.001408	1.401577	3.841466	0.2365

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b*S11*b=I):

JII	LDOLAR	LEMAS
125.7504	-1.837946	0.472670
2.539516	-4.652516	-3.762286
2.423080	11.96325	-2.267914

MODEL OF JAKARTA ISLAMIC INDEX

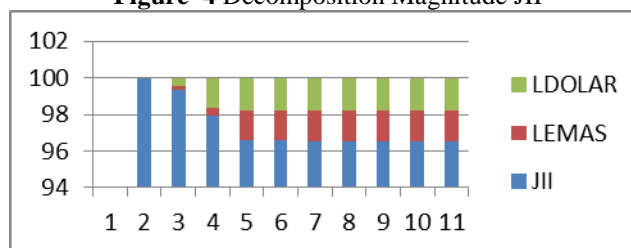
6. Impulse Analysis Response.

Table 6 The Difference Response Jakarta Islamic Index

Model JII	Defference JII Response
L-Gold Difference Shock	Positive, stable starting period 5
Growth of the L-Dollar difference	Negative until the end of period 3 and positive until the end of the 4th period and stable on the 6th period onwards

7. Analysis of Variance Decomposition

Figure 4 Decomposition Magnitude JII



8. VECM Estimation Analysis

VECM estimation results can be seen in Table 7 below, the results were considered significant when the probability value <0.05 or t-statistic > 1.98.

Table 7 VECM Estimation Results

Short-term		
Variable Name	Coefficient	t-statistics
CointEq1	1.00000	-0.913878
D (JII)	-1.178754	[-14.1004] *

D (LEMAS)	-0.120272	[-1.92775]
D (LDOLAR)	-0.106581	[-3.55321] *
D (JII (-1))	0.167424	[2.29519] *
D (JII (-2))	0.102034	[1.68790]
D (JII (-3))	0.040016	[0.84477]
D (JII (-4))	0.021457	[0.67171]
D (LEMAS (-1))	0.098885	[2.13184] *
D (LEMAS (-2))	0.143719	[3,08072] *
D (GLASS (-3))	0.186633	[3.98400] *
D (LEMAS (-4))	0.016371	[0.34865]
D (LDOLAR (-1))	-0.23381	[-2.30446] *
D (LDOLAR (-2))	-0.399745	[-3.86513] *
D (LDOLAR (-3))	-0.227022	[-2.19646] *
D (LDOLAR (-4))	-0.11215	[-1.10447]
Long-term		
LEMAS (-1)	0.003759	[1.76608]
LDOLAR (-1)	-0.014616	[-2.35278] *

V. CONCLUSION

From the results of these studies found that JII Index is increasing positively continue to peak in the next 4th period then it was decline and stable from fifth period rivals in the short term. JII response to different L-dollar is seen that the negative Jii is increasing up to 3 further declined steadily until the period to 5 and stable in the next period. Based on the analysis of variance decomposition, the contribution of LGold and L-dollar against a very small Jakarta Islamic Index which ranges from 1.7% and 1.8%. The greatest contribution of the Jakarta Islamic Index itself is 96.5%.

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