

THE DETERMINANTS ON JAKARTA ISLAMIC INDEX: AN APPROACH OF VECTOR ERROR CORRECTION MODEL (VECM)

AGUS TRI BASUKI

Universitas Muhammadiyah Yogyakarta

SALMA NUR KARIMA

Universitas Muhammadiyah Yogyakarta

ABSTRACT

This research aims in analyzing the relationship between a number of variables influencing the Jakarta Islamic Index (JII). The study employs monthly series data panning from the period of October 2012 to March 2016. Variables used in this research are Jakarta Islamic Index, exchange rate, oil price, FTSE Malaysia and gold price.

The analytical instrument used in this research is Vector Error Correction Model (VECM) to establish the short-run and long-run relationship. The result indicates that in the short-run, gold price negatively influencing JII and oil price positively influencing JII. However, in the long-run all variables are significantly influencing JII. Exchange rate and oil price are positively influencing JII, while gold price and FTSE Malaysia are negatively influencing JII.

Keywords: Jakarta Islamic Index (JII), Exchange Rate, Vector Error Correction Model (VECM)

A. Research Background

The need of capital either for company or for person tends to increase each year. The increasing activities can be seen from the increasing of production rate. In order to ease the society's activities in rising capital; the government along with the related institutions should be able to create environment for the capital market participants. Furthermore, government has power to create a strict regulation for the participants to prevent the confusion in the market.

Capital market is a part of financial market that functions as both for economic and financial function. As economic function; capital market allocates fund from the fund issuer to the fund-seeker. While as financial function; capital market gives return (capital gain) for the fund issuers based on the types of investments they have (Sri, 2012).

Capital market development is influenced by a number of factors; the long- run supply and the demand. There are security supplies and security demands. The companies that will issue the beneficial securities are categorized in security supplies. While the investors who will buy the securities are categorized in security demand. The capital market development is supported by the fund increasing in the market. It should also have followed by the regulation to protect the involving parties.

According to Beik and Fatmawati (2004) capital market has an important role in the global economy development. As a country in which experiencing the financial market booming, capital market takes over the Indonesian economy to play an important role. The capital market can be used as the intermediary fund, as an alternative market to invest, or as indicator of macroeconomic stability.

Since 1980s the capital market in Indonesia highlighted a significant growth. It marks the positive growth in accordance with the ratification of Law No. 8 of 1995 on Capital Market, and also the regulation after the crisis in 1997 on the Good Cooperate Governance (GCG). In 2013, the supervisor of the capital market in Indonesia had been transferred from Bapepam-LK and the Central Bank to the Indonesian Financial Service Authority (OJK). IDX is a result of Jakarta Stock Exchange and Surabaya Stock Exchange merger (Jeffrey, 2013).

The market capitalization value in Indonesia started to increase from 2010 until 2016. According to the report from Saham OK (2016) the total value in 2010 was Rp. 3.258 Trillion. While in 2011, the total was Rp. 3.538 Trillion. The number increased to Rp. 4.128 Trillion in 2012. In 2013, the total value slightly increased to Rp. 4.219 Trillion. Afterward in 2014, the total reached Rp. 5.228 Trillion. In fact, in the following year, the total value decreased to Rp. 4.782 Trillion. By the end of 2016, the market capitalization increased to the total of Rp. 5.753 Trillion.

The idea of Islamic Conventional Market in Indonesia started in 1997 when PT Danareksa Investment Management issued the Islamic Mutual Fund. Then, on July, 3, 2000, the company along with Indonesia Stock Exchange on (formerly known as Jakarta Stock Index) launched the Jakarta Islamic Index (JII) (Oxford Business Group, 2015).

Indonesia ranks as the highest Muslim population with 202.867.000 million or 88.2 % from the total population (Centre, 2009). The high population gives perfect chance for JII market capitalization to grow up. From 2012 to 2016, the rate kept increasing. Yet, in the end of 2015, the value slumped a little.

Shiller (1988) in his research showed one of the things causing the volatility is the regulation made by the government. The regulation which initially aims to reduce the policy might actually increase the volatility; while the regulation aims to improve the economic performance might decrease the volatility. The volatility in 2008 might be happened because of the global crisis. The crisis led to the slump market, yet the recovery took such a short time to get back to normal.

In other country cases, such as Malaysia and Bahrain, the Islamic Capital Market prolific to all level of capital market and the derivatives product. In each country, the market development is quite high. Capital market also recorded in a rapid speed in terms of the development. For the international market, Dow Jones as one of the renowned market provider along with the prominent apprentice and scholar outline the Dow Jones Islamic World Markets (DJIWM) functions to refine the Sharia based investment (Bacha and Mirakhor, 2013).

As one of the active members in ASEAN Economic Community (AEC) and in the capital market, exchange rate shows the currency strength. The exchange rate is a crucial tool for the industry activities. A number of companies rely on ER stability in doing import and export. Typically, US Dollar is a benchmark for the trade in international level. Rupiah appreciation is a positive signal for investor in capital market. It means that rupiah appreciation will make stock market stronger and vice versa. It will also increase the export value of a certain company. An increasing in export value will increase the company's revenue, leads

to the increasing profit that in the end will increase JII. When a company has higher profit, overall stock market will also have increasing value.

Capital market in Indonesia is developing well. According to a report from Indonesia: Financial System Stability Assessment (2010), it declares that Indonesian capital market is still limited to several types of investments. The government has to actively maintain the strategy on getting the economic stability, for example by using the macroeconomic stability.

Besides exchange rate, another important macroeconomic variable influencing stock market is oil price. Oil price impacts most of the economic activities. The impact of oil price influences the supply and demand side in the market. Oil price has continuously become an indicator to estimate the stock market. While in majority, it gives significant relationship in the stock market, different countries will have different result on this.

Brent oil has become the standard in the international price of oil. After the normal price for a couple of years, the price drastically fell from \$112 to \$47 on the period of June 2014 until January 2015. It might be caused by the financial crisis at that time (Baumeister and Killian, 2014).

As one of the AEC members, Indonesia should maintain the relationship with the neighboring countries. In terms of economic activity, the effect of regional stock market to Jakarta Islamic Index (JII) performance is also important. One of the advanced stock markets in ASEAN besides Indonesia is Malaysia. Malaysia also has stock market named FTSE Malaysia. Established in January, 12 2006 Bursa Malaysia Berhad and FTSE International cooperation signed an agreement to establish Islamic indices in Malaysia. The index was officially launched in 26 June 2006 (Russel, 2009).

The report from Arslanalp, et al. (2006) concludes that a shock from one country to the financial condition to other countries can be said as a financial spillover. There are number of reasons on the countries shock influences to the others, namely; the magnitude, the linkage, and the vulnerability. So, it can be concluded that there are links of one country financial stability to the other countries.

Another factor counted to the stock market influence is gold price. Gold price is likely having a relationship in the stock market. Gold becomes an important element. As one of the scarcest metal, the gold price is surely high. No wonder why the use of gold mostly used for jewelry. Besides, gold also becomes a valuable investment. Gold is also used in the financial industry as a holding. Another use of gold is as wealthy source for the gold owner (Bilal, et al. 2013).

Nowadays, gold holding is regarded important to do, especially in the stock market development. The result from the gold price on the stock market relationship shows the interesting finding. According to the result from the research of (Bhunia and Das 2012) shows the movement between the gold prices and the stock market returns. The movement even occurred during the crisis period. In case of India, people not only think gold as a precious yellow metal, but also as the kind of important investment. The sentiment is also a reason why people hold gold as an investment in India. It is an interesting research that suggests the investors to consider the fluctuation on oil prices and gold prices surely affect the stock market return both in short-run and long-run.

As the macroeconomic variable, such as exchange rate and oil price, and external variable such as, FTSE Malaysia and gold price are all likely having various impacts on Jakarta Islamic Index (JII), thus the factors are interesting to be analyzed.

B. Previous Study

The researches or studies on factors which affecting stock market have been conducted plenty of times. The studies are conducted in the domestic market or in the international markets. The findings show

various results in order to enrich the previous studies material. Here are number of studies on the factors affecting the stock market.

Based on the finding from Hsing (2011) shows that Czech stock market is negatively affected by the CZK/USD variable. The study is using the GARCH method in the research, and the scatter graph on the test shows the depreciation value of the Czech currency causes the stock market to decline. In the contrary, according to Barakat, Elgazzar, and Hanafy (2016) shows the positive relationship between exchange rate and stock market performance. However, the evidence of non-relationship exchange rate on stock market is studied by Gay (2008).

As for the oil price relationship to the stock market, there are a number of researches show various results. The finding from Gatuhi (2013) gives the information on the negative relationship between oil price and stock market in Kenya. The negative relationship between oil price and the stock market also shown by the result from Sauter and Awerbuch (2002). Study from Antonio, Hafidhoh, Fauzi (2013) declares the existence of significant and positive relationship on the oil price movement to stock market. The research uses JII as the dependent variable in the research. Another positive relationship between oil price and JII shows by the study from Rusbariand, et al. (2012).

The non-relationship between FTSE Malaysia and JII can be concluded from the study conducted by Husin, et al. (2013). However, the negative relationship between FTSE Bursa Malaysia and JII is explained by the research from Darsono, Muqorobin and Yudhi (2016). As for the positive relationship, the study between FSE Malaysia and IHSG can be seen from Jayanti, Darminto, Sudjana (2014). The positive relationship between gold price and stock market can be seen from a research conducted by Irianto (2002) that uses IHSG as the dependent variable. The negative relationship between gold price and JII is shown by a research conducted by Putra and Damansyah (2015). The last is the non- relationship between gold price and stock market done by the research from Surbakti, Achsani and Maulana (2016). The dependent variable uses JCI (Jakarta Composite Index).

C. Data Collecting Method and Sources

This research aims to examine the effect of macroeconomic variables, FTSE Malaysia and gold price on Jakarta Islamic Index (JII) performance. This study employs secondary data on monthly basis starting from October 2013 until March 2016 taken from various sources. The following table represents the data variables and its sources.

TABLE 1

Data and Sources

No	Variables	Sources
1	Jakarta Islamic Index	Fusion Media.Ltd
2	Exchange Rate	University of British Columbia
3	Brent Oil Price	U.S Energy Information Administration
4	FTSE	Fusion Media.Ltd
5	Gold Price	World Gold Council

This study also applies other relevant sources such as; journal, articles, books and websites to enrich the information.

D. Econometric Model

$$\begin{aligned} \text{Model 1} \quad & JII_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5 G_{t-1} + e_t \\ \text{Model 2} \quad & ER_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5 G_{t-1} + e_t \\ \text{Model 3} \quad & O_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5 G_{t-1} + e_t \\ \text{Model 4} \quad & FTSE_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5 G_{t-1} + e_t \\ \text{Model 5} \quad & G_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5 G_{t-1} + e_t \end{aligned}$$

JII is Jakarta Islamic Index, ER is exchange rate, O is oil price, FTSE is FTSE Malaysia, G is gold price, and e_t is error term ($t = 1, 2, 3, 4, 5, 6$), l is lag length with $t = 1, 2, \dots, x$ and x is maximum lag.

E. Analysis Method

The analysis methods applied in this study are; Co-Integration test and Vector Error Correction Model (VECM) in order to see the relationship of four independent variables on the dependent variable both in short-run and in long-run.

In order to get the precise result, there are steps to be done as the standard procedure. The following steps on VECM procedures are: Unit Root Test (Augmented Dickey Fuller Test), Lag Length Criteria, Stability VAR Model Test, Co-integration Test, Vector Error Correction Model (VECM), Impulse Response Function and Variance Decomposition Test. The thorough explanation will be explained as follow:

1. Unit Root Test.

Unit root test can be described as an estimation to test stationarity in time series data. A certain equation can be described having stationarity if a movement in time causes no change in the distribution. Unit root test contributes to the non-stationary variable (Andale, 2016).

2. Lag Length Criteria.

Lag is an important thing in VAR system. It functions to show how long the reaction from one variable to the other, the optimum lag also functions to erase the auto relationship in VAR system (Firdaus, 2011).

Lag length test can be identified by using *Akaike Information Criterion* (AIC), *Schwarz Information Criterion* (SIC), *Hanan-Quinn Criterion* (HQ), etc.

3. Stability VAR Model Test.

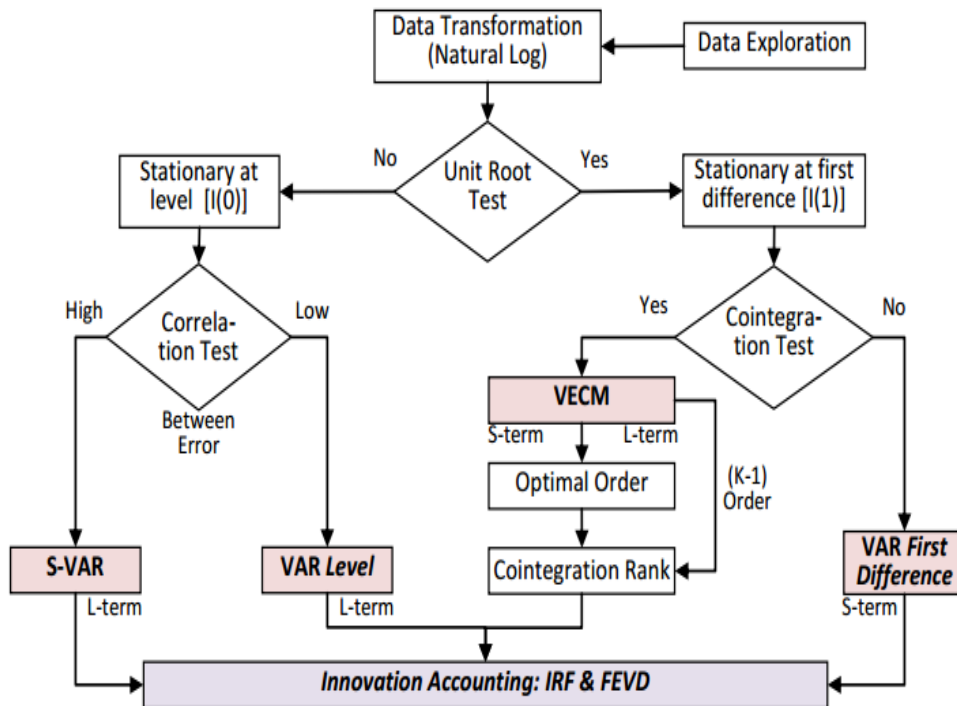
VAR stability test is conducted to estimate the roots of characteristic polynomial. If all the roots of characteristic polynomial within circle, then it passes VAR model, so that the IRF and FEVD valid (Firdaus 2011).

4. Co-Integration Test.

This is the relationship between x_t and y_t , both are co-integrated and contains unit root test (Sorensen, 2005). Based on Horvath and Watson (1995) the most recognizable way to test the co-integration is by using Johansen method. The estimation on Johansen test functions to estimate the co-integration when two variables or more employ in the data (Dwyer, 2015).

5. Vector Error Correction Model (VECM).

VECM specification restricts the long-run endogen variables relationship in order to stay convergent in the co-integration relationship, yet still regard the short-run relationship existence (Basuki and Prawoto, 2016). The process to decide VECM method can be seen from the figure below :



Source: Gujarati

FIGURE 1

The VAR/VECM Analysis Process

6. Variance Decomposition.

Forecast variance decomposition is the prominent tool in interpreting the linear and non-linear multivariate time series models along with the impulse response (Lanne and Nyberg 2014). Variance decomposition aims to estimate each variables contribution because certain changes on the system. This analysis also pictures the independent variables relationship on the VAR system due to the shock (Juanda and Junaidi, 2012)

F. VECM Estimation Process

1. Unit Root Test.

The method used to test the stationarity is ADF Test (Augmented Dicky Fuller) by using $\alpha=5\%$. If the value of ADF Test lower than MacKinnon critical value, it can be concluded that the data is stationary or having no unit root. The test will be conducted from level until first difference (Basuki, 2017).

TABLE 2
Unit Root Test-Augmented Dickey-Fuller

Test	ADF					
	Level	Prob	Note	1st Difference	Prob	Note
Variables	Trend & Intercept			Trend & Intercept		
JII	-1.864437	0.3452	Non Stationary	-5.920507	0.0000	Stationary
ER	-1.25763	0.6399	Non Stationary	-4.915848	0.0003	Stationary
O	-0.468177	0.8869	Non Stationary	-4.226654	0.0019	Stationary
G	-2.523773	0.1178	Non Stationary	-5.572937	0.0000	Stationary
FTSE	-1.681915	0.4327	Non Stationary	-7.049091	0.0000	Stationary

Source: Data processed

The result from Table 2 concludes that all variables, namely; Jakarta Islamic Index (JII), exchange rate, oil price, gold price, and FTSE Malaysia are all not stationary at level. Thus, the unit root test continues to *First Difference* Level. According to the result, all variables are stationary at first difference, due the *p-value* (probability) less than 5%.

Because all variables are stationary in first difference; therefore, the relationship among all variables will be conducted in VECM estimation.

2. Lag Length Criteria.

After conducting the unit root test, then it will continue to the lag length test. The lag optimum test is highly needed to reduce any auto relationship in VAR model. The lag optimum test in VAR model can be recommended by *Final Prediction Error* (FPE), *Akaike Information Criterion* (AIC), *Schwarz Criterion* (SIC) and *Hannan-Quin* (HQ). Lag optimum occurs when a certain lag has the most stars sign (Basuki and Prawoto, 2016).

TABLE 3
Lag Length Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1841.988	NA	9.39E+34	94.71731	94.93059	94.79384
1	-1672.834	286.2593	5.86E+31	87.32484	88.60450*	87.78397
2	-1638.25	49.65955	3.83E+31	86.83334	89.17939	87.67508
3	-1605.788	38.28877*	3.12e+31*	86.45066*	89.86309	87.67501*

Source: Data processed

The optimum lag is 3 due to the sign stars which lie in LR (sequential modified LR test statistic (each test at 5% level), Final prediction error (FPE), Swachrz information criterion (SIC), and Hannan-Quin information. Due the most recommendation, lag 3 is the optimum lag.

3. Stability VAR Model Test.

To test the stability in VAR estimation, it will be the test for roots of characteristics polynomial. A VAR system is stable if all of the roots have modulus less than 1.

On the table below, the VAR model is already stable on its optimum lag, which is 1. So, the VAR estimation that will be estimated for the IRF and FEVD analysis is valid.

TABLE 4

Test of VAR Stability

Root	Modulus
0.938848 - 0.060210i	0.940777
0.938848 + 0.060210i	0.940777
0.586029 - 0.397577i	0.708165
0.586029 + 0.397577i	0.708165
0.661301 - 0.172586i	0.683451
0.661301 + 0.172586i	0.683451
0.147559 - 0.499832i	0.521158
0.147559 + 0.499832i	0.521158
-0.112336 - 0.153049i	0.189851
-0.112336 + 0.153049i	0.189851

Source: Data Processed

4. Co-Integration Test.

The determination of co-integration can be seen from the value of trace statistic and max eigen statistic. When the value of trace statistic and max eigen statistic is higher than the critical value, it indicates that there is a co-integration in the model.

TABLE 5

Co-Integration Test

Hypothesized	Eigenvalue	Trace	0.05	Prob.**
No. of CE(s)		Statistic	Critical Value	
None *	0.582392	107.4465	69.81889	0
At most 1 *	0.537323	73.39118	47.85613	0
At most 2 *	0.511506	43.33289	29.79707	0.0008
At most 3	0.246724	15.39219	15.49471	0.0518
At most 4 *	0.105373	4.342581	3.841466	0.0372

Hypothesized	Eigenvalue	Max-Eigen	0.05	Prob.**
No. of CE(s)		Statistic	Critical Value	
None *	0.582392	34.0553	33.87687	0.0476
At most 1 *	0.537323	30.05829	27.58434	0.0236
At most 2 *	0.511506	27.9407	21.13162	0.0047
At most 3	0.246724	11.04961	14.2646	0.1517
At most 4 *	0.105373	4.342581	3.841466	0.0372

Source: Data Processed

Table 5 displays that trace statistic value and maximum eigenvalue at $r=0$ is higher than critical value with significance level at 1% and 5%. It shows H_0 that states there is no co-integration rejected and H_1 that states there is a co-integration accepted. In conclusion, the result indicates that among the movement from all variables have stable relationship and the long-term equal movement. In other words, on each short-term period, all variables tend to adjust to reach the long term equilibrium.

5. Vector Error Correction Model Estimation.

VECM shows the short-term and long-term relationship. On short-term relationship, one variable tends to adapt with other variables to form the long-term equilibrium. This estimation uses lag 3 based on lag length criteria.

TABLE 6
VECM Estimation Result

Cointegrating Eq:	CointEq1
JII(-1)	1
O(-1)	0.000262
	-1.20E-05***
G(-1)	-6.78E-05
	-3.70E-06***
FTSE(-1)	-0.968418
	-0.03477***
ER(-1)	0.066434
	-0.00308***
C	1000.517

Error Correction:	D(JII)	Error Correction:	D(JII)
CointEq1	-0.512443	D(G(-3))	-2.74E-05
	-0.13629***		-9.00E-06***
D(JII(-1))	0.425862	D(FTSE(-1))	0.051689
	-0.17574**		-0.11805
D(JII(-2))	0.221371	D(FTSE(-2))	-0.102988
	-0.17132		-0.11712
D(JII(-3))	-0.549396	D(FTSE(-3))	-0.093591
	-0.17877***		-0.11199
D(O(-1))	7.26E-05	D(ER(-1))	0.023403
	-5.50E-05		-0.0157
D(O(-2))	-9.22E-05	D(ER(-2))	-0.008579
	-5.40E-05		-0.01573
D(O(-3))	0.000133	D(ER(-3))	0.015768
	-4.80E-05**		-0.01603
D(G(-1))	-1.75E-06	C	-1.929404
	-1.10E-05		-4.62987
D(G(-2))	-2.42E-05	R-squared	0.715813
	-1.30E-05*	Adj. R ²	0.499289

Source: Data Processed

Information: *** = significant in 1% ** = significant in 5% * = significant in 10%

TABLE 7

Factors Influencing JII in Short Term

Variable	Coefficient	t-Statistic
Coint Eq1	-0.512443	[-3.75989]
D(JII(-1))	0.425862	[2.42330]
D(JII(-3))	-0.549396	[-3.07313]
D(O(-3))	0.000133	[2.74224]
D(G(-2))	-2.42E-05	[-1.93008]
D(G(-3))	-2.74E-05	[-3.02587]

Source: Data processed

According to table 7, in the short-term relationship, there are three variables significant in $\alpha=5\%$.

In the short-term relationship, oil price in lag 3 is positively influencing on $\alpha=5\%$ for about 0.00013. Meaning when there is an oil price increasing in the previous three months, it will increase the stock market price for 0.00013 unit. The next significant variable is gold in lag 2 which negatively influencing for about -2.42. It explains that gold price increasing in the previous two months will decrease the stock price for -2.42 unit. The last variable which significant is gold price in lag 3 which explaining gold price increasing in the previous three months will decrease the price for -2.74.

TABLE 8

Factors Influencing JII in Long Term

Variable	Coefficient	t-Statistic
O(-1)	0.000262	[21.7305]
G(-1)	-6.78E-05	[-18.1313]
FTSE(-1)	-0.968418	[-27.8538]
ER(-1)	0.066434	[21.5448]

Source: Data processed

Meanwhile in the long term estimation, all variables are influencing JII at $\alpha=5\%$. Oil price has a positive impact on stock market. An increase in price will increase price for 0.000262. Gold price has negative impact on stock price. An increase in gold price will reduce the stock market price for -6.78. FTSE Malaysia also has negative impact on stock market. An increase of FTSE Malaysia price will reduce the stock market for -0.96. As for exchange rate, it positively impacts JII for 0.066. When exchange rate increases, the stock price increases for about 0.066.

6. Variance Decomposition.

This test aims to know how the variance from variable is determined because of the other variables' variances. Variance decomposition is used to arrange the forecast variance from a certain variable. How much the differences between variances after and before the shock. It shows the percentage of variation forecast error that is explained by another variable in the short-run dynamics and interactions.

TABLE 9

The Result of Variance Decomposition

Variance Decomposition of JII:						
Period	S.E.	JII	O	G	FTSE	ER
1	18.0262	100.000	0.00000	0.00000	0.00000	0.00000
2	34.247	86.0118	5.34792	3.87757	4.39021	0.37254
3	54.5372	84.8263	2.16288	9.21593	2.15663	1.63824
4	66.85	85.7515	1.64258	8.36985	2.2984	1.93766
5	79.5901	85.4039	1.3275	8.32094	2.25752	2.69019
6	90.1214	85.1433	1.27936	8.60417	2.16126	2.8119
7	100.359	84.4062	1.08088	9.70581	2.04773	2.75936
8	110.718	84.1438	0.90108	10.192	1.97339	2.78972
9	118.83	84.5144	0.81908	9.93371	1.99487	2.73799
10	126.107	84.9379	0.9063	9.39198	2.05931	2.70456

Source: Data Processed

Table 9 displays the result of variance decomposition of Jakarta Islamic Index. In the first period JII is 100% effected by its own variable. However, in the tenth period the impact of JII to its own variable decreases to 84.93%. The other variable tends to impact the movement of JII. Furthermore, JII is 0% impacted by oil price in the first period. The impact is increasing until tenth period. In the tenth period, oil price impacts JII by 0.90%. Another explanation is for gold price which 0% effected JII in the first period, while in the tenth period it affects JII by 9.39%. For FTSE Malaysia, it 0% affects JII in the first period and in the tenth period it impacts on JII by 2.05%. Lastly, exchange rate is 0% affected JII while in the tenth period it impacts JII by 2.70%.

G. Conclusion and Policy Implications

This study is started by the structural order of VAR to VECM. It starts from Unit Roots Test and finishes in Variance Decomposition. Based on the analysis and the test results above on the effects of exchange rate (ER); oil price (O); FTSE Malaysia (FTSE) and gold price (G) on Jakarta Islamic Index (JII), it can be concluded that:

1. Exchange rate has insignificant impact on JII in the short run. While in the long run, it has positive and significant impact for JII. Rupiah depreciation will increase the export value of a certain company. An increasing in export value will increase the company's revenue and it leads to the increasing profit that in the end it will increase JII. When one company has higher profit, overall stock market will also have increasing value.
2. Oil price has positive impact on JII both in short-run and long-run. The positive response might happen because Indonesian capital market is dominated by the mining sector with 39.7 percents. Because the stock market is dominated by the foreign investors with mostly invested in mining sector, thus an increasing in oil price will increase the stock price in mining sector and it impacts the stock market in Indonesia.
3. FTSE Malaysia has insignificant impact on JII in short run. However, in long run it negatively effects JII. Negative relationship may happen because Indonesia stock market is still following the regional market condition. If the crash happens in the abroad, it will trigger a crash in Indonesia capital market as well. Another important point from this relationship is because a number of

national investors are lower than foreign investors. So that it causes the capital outflow to the foreign countries.

4. Gold price has negative impact on JII both in short and long run. The reason why gold negatively impacts on JII because gold can be chosen as an alternative investment when the economic instability occurs. So that in the long run, investors prefer gold as the investment instrument.

Regarding to the study conclusions, the researcher submits recommendations for the advancement JII as follows:

1. Exchange rate is significantly impact on JII. Then, it is expected for the government as the decision maker to control the decent expectation or confidence of society regarding the fluctuation of exchange rate.
2. The changing of oil price also has an impact on JII. In order to keep the oil price changing, then the investors should be more aware of the latest price.
3. The effect of FTSE Malaysia as one of the regional stock market also important for JII. All related parties should be cautious on responding to the other countries economic policy changing.
4. The movement of gold price should be the consideration for the investors whenever they want to invest in the market.

REFERENCES

- Antonio, Muhammad Syafii, Hafidhoh, and Hilman Fauzi. "The Islamic Capital Market Volatility: A Comparative Study Between in Indonesia and Malaysia." *Buletin of Monetary, Economics, and Banking* , 2013.
- Arouri, Mohamed El Hedi, and Duc Khuong Nguyen. "Oil Prices, Stock Markets and Portfolio Investment: Evidence from Sector Analysis in Europe over the Last Decade." *Hal France Journal Publication*, 2010.
- Arslanalp, Serkan, Wei Liao, Shi Piao, and Dulani Seneviratne. "IMF Working Paper: China's Growing Influence on Asian Financia Market." 2006.
- Bacha, Obiyathulla Ismath, and Abbas Mirakhor. *Islamic Capital Market: A Comparative Approach*. Wiley, 2013.
- Baele, Lieven, Annalisa Ferrando, Elizaveta Krylova, and Cyril Monnet. "Measuring Financial Integration in the Euro Area." *Working Paper Publication European Central Bank*, 2014.
- Barakat , Mahmoud Ramadan, Sara H Elgazzar, and Khaled M Hanafy. "Impact of Macroeconomic Variables on Stock Market: Evidence from Emerging Markets." *International Journal of Economics and Finance* , 2016.
- Basuki, Agus Tri, and Nano Prawoto. *Analisis Regresi dalam Penelitian Ekonomi & Bisnis*. Jakarta: Rajagrafindo Persada, 2016.

- Baumeister, Christiane, and Lutz Killian. "Forty Years of Oil Price Fluctuations: Why the Price of Oil May Still Surprise Us." *Journal of Economic Perspectives Vol 30 No 1 Winter*, 2014.
- Beik, Irfan Syauqi, and Sri Wulan Fatmawati . "Pengaruh Indeks Harga Saham Syariah Internasional dan Variabel Makro Ekonomi Terhadap Jakarta Islamic Index." *Al Iqtishad: Vol, VI No.2*, 2004: 156.
- Berk, Islemi, and Berna Aydogan. "Crude Oil Price Shocks and Stock Returns: Evidence from Turkish Stock Market under Global Liquidity Conditions." *EWI Working Paper Vol 15/12*, 2012.
- Bhunia , Amalendu, and Amit Das. "Association Between Gold Prices and Stock Market Returns: Empirical Evidence from NSE." *International Journal of Exclusive Management, Vol 1 Issue 2* (Journal of Exclusive Management Science), March 2012.
- Bilal, Ahmad Raza, Noraini, Inam Ul Haq, Azli Ali Mohd Noor Khan, and Muhammad Naveed. "How Gold Price Corresponds to Stock Index: A Comparative Analysis of Karachi Stock Exchange." *World Applied Science Journal*, 2013.
- Canada, Investment Industry Association of. *Bonds: An Introduction to Bond Basic*. Canada Investment Industry Association, 2008.
- Centre, Pew Research. *Mapping the Global Muslim Population: A Report on the Size and Distribution of the World's Muslim Population*. Pew Forum on Religion & Public Life, Washington: PEW Publication, 2009, 8.
- Chin, Henry, Hobbs Peter, Cameron Dowe , Richard Hedley, Kim Tae, and Marcus Wignell. "Understanding Shariah Investment." *RREEF Real Estate Research Publication*, 2008.
- Constantinos, Katraklidis, Lake Andreas Ektor, and Mardas Dimitrios. "Oil Price and Stock Market Linkages: In a Small and Oil Dependent Economy: The Case of Greece." *The Journal of Applied Business Research*, 2010.
- Darsono, Susilo Nur Aji, Masyhudi Muqorobin, and Wahdi Salasi April Yudhi. *Islamic Stock Market Volatility: Is it a Problem for Investors*. Lambert Academic Publication, 2016.
- Dwyer, Gerald P. "The Johansen Test for Cointegration." *Journal Horizon Vol XII*, 2015.
- Europe, Swissquote. *Brent Crude Oil-Factsheet*. Geneva: Swissquote Publication Series, 2013.
- Exchange, Stock Indonesia. *Buku Panduan Indeks Harga Saham Bursa Efek Indonesia*. Jakarta: BEI Publikasi, 2008.
- Finance, International Sharia Research Academic for Islamic. *Islamic Financial System: Principles & Operations*. Kuala Lumpur: Pearson, 2012.
- Firdaus, Muhammad. *Ekonometrika: Suatu Pendekatan Aplikatif*. Jakarta: Bumi Aksara, 2011.

- Gatuhi, Simon Kamau. "Influence of Oil Prices on Stock Market Performance in Kenya." *International Journal of Management and Business Studies Vol III Issue IV*, 2013.
- Gay, Robert D. "Effect of Macroeconomic Variables On Stock Market Returns For Four Emerging Economies: Brazil, Rusia, India, China." *International Business & Economics Research Journal*, 2008.
- Goldsmith, Raymond W. *National Bureau of Economic Research*. Edited by Goldsmith W, & Raymond. New York: NBER Publication, 1965.
- Handiani, Sylvia. "Pengaruh Harga Emas Dunia, Harga Minyak Dunia dan Nilai Tukar Dolar Amerika/Rupiah Terhadap Indeks Harga Saham Gabungan Pada Periode 2008-2013." *E-Journal Graduate Unpar Part A-Economics*, 2014.
- Hidayat, Mochammad Firman. "Assesing Indonesia's Current Exchange Rate Regime." *BAPPENAS Journal Tahun XX*, May 2014.
- Horvath, Michael T K, and Mark W Watson. "Testing for Cointegration When Some of The Cointegrating Vectors Are Prespecified." *Economics Theory*, 1995.
- Hsing, Yu. "Effects of Macroeconomic Variables on the Stock Market: The Case of the Czech Republic." *Journal of Theoretical and Applied Economics Volume XVIII No 7 (560)*, 2011.
- Huda, Nurul, and Mustafa Edwin Nasution. *Investasi Pada Pasar Modal Syariah*. Predana Media Group, 2007.
- Husin, Mohd Yahya Mohd, Yusni Anis Yusof, Fidlizan Muhammad , Azila Abdul Razak, Emilda Hashim, and Nur Fakhzan Marwan. "The Integration of Islamic Stock Markets: Does a Problem for Investors." *Labuan e-Journal of Muamalat and Society*, 2013.
- Indonesia: Financial System Stability Assessment*. International Monetary Fund (IMF), Washington: IMF Publication Services, 2010, 20.
- IOSCO, OICU. *Islamic Capital Market Fact Finding Report*. IOSCO Publication, 2004.
- Irianto, Guntur. "Pengaruh Bunga Deposito, Kurs Mata Uang, dan Harga Emas Terhadap Indeks Harga Saham Gabungan." *Jurnal The Winners*, 2002.
- Ismail, Arbayah. "Understanding the Shari'ah Pinciples of Investment & Wealth Generations." *FIMM*. Kuala Lumpur: FIMM Publication, 2012.
- Janitra, Egan. "Do World Gold Price, Dow Jones Islamic Market and Inflation Affect the Performance of Jakarta Islamic Index?" *Jurnal Ekonomi dan Studi Pembangunan*, 2014: 97-106.

- Jayanti, Yunita, Darminto, and Nengah Sudjana. "Pengaruh Tingkat Inflasi, Tingkat Suku Bunga SBI, Nilai Tukar Rupiah, Indeks Dow Jones, dan Indeks KLSE Terhadap IHSG." *Jurnal Administrasi Bisnis*, 2014.
- Jeffrey, Golden, ed. *The International Capital Markets Review*. Vol. 3. London: Law Business Research, Ltd, 2013.
- Juanda, Bambang, and Junaidi. *Ekonometrika Deret Waktu: Teori dan Aplikasi*. IPB Press, 2012.
- Kearney, Colm, and Brian M Lucey. "International equity market integration: Theory, evidence, and implications." *International Reviews of Financial Analysis*, 2004.
- Khan, Amir, Imran Naseem, and Muhammad Kamran Khan. "Relationship of International Oil Prices, Gold Prices and Stock Returns: Evidence from KSE." *International Journal of Accounting and Economics Studies*, 2016.
- Krugman, Paul R, and Maurice Obstfeld. *International Economics Theory & Policy*. Boston: Pearson Education, 2009.
- Lanne, Markku, and Henri Nyberg. "Generalized Forecast Error Variance Decomposition for Linear and Nonlinear Multivariate Models." *Journal of International Conference on Computational and Financial Econometrics*, 2014.
- Leroy, G. *Designing User Studies in Informatics, Health Informatics*. London: Springer, 2011.
- Levisauskaite, Kristina. *Investment Analysis and Portfolio Management*. Education and Culture DG Publication, 2010.
- Lin, Chu Cia, Chung Rou Fang, and Hui Pei Cheng. "Relationship between Oil Price Shocks and Stock Market: An Empirical Analysis from the Greater China." *China Economic Journal Vol 3*, 2009.
- Mankiw N, Gregory. *Principle of Macroeconomics*. Mason: Cengage Learning, 2010.
- Mankiw, N Gregory. *Macroeconomics*. Boston: Worth Publisher, 2007.
- Mansur, Moh. "Pengaruh Index Bursa Global Terhadap Indeks Harga Saham Gabungan (IHSG) Pada Bursa Efek Jakarta (BEJ) Periode Tahun 2000-2002." *Jurnal Ilmu-Ilmu Sosial dan Humaniora Vol 7 Edisi 3*, 2005.
- Mie, Mie, and Agustina. "Analisis Pengaruh Indeks Harga Saham Gabungan Asing Terhadap Indeks Harga Saham Gabungan Indonesia." *Journal Wira Ekonomi Mikrosil*, 2014.
- Mulyono. "Analisis Korelasi Return Indeks-Indeks Saham Terhadap Indeks Harga Saham Gabungan Pada Bursa Efek Indonesia." *Jurnal Ultima Management Vol 5 No2*, 2013.

- Omag, Aclan. "An Observation of the Relationship Between Gold Prices and Selected Financial Variables in Turkey." *Journal of Muhasebe ve Finasman Dergisi*, 2012.
- Perold, Andre F. "The Capital Asset Pricing Model ." *Journal of Economic Perspectives*, 2004: 3.
- Putra, Gilang Perdana, and Asep Darmansyah. "The Relations Between Macroeconomic Fluctuation, World Gold Price, and Islamic Stock Returns in Indonesia." *Journal of Business and Management*, 2015.
- Rafailidis, Panagiotis, and Constantinos Katrakilidis. "The relationship between oil price and stock prices: a nonlinear asymmetric cointegration approach." *Applied Financial Economy*, 2014.
- Rashid, Mamunur, M Kabir Hassan, and Ng Yuen Yein. "Macroeconomics, Investor Sentiment, and Islamic Stock Price Index in Malaysia." *Journal of Economic Cooperation and Development*, 2014.
- Romli, Nurhanani, Ahmad Azam Sulaiman Mohamad, and Mohd Faiz Mohamed Yusof. "Volatility Analysis of FTSE Bursa Malaysia: Study of the problems of Islamic stock market speculation in the period of 2007 to 2010." *African Journal of Business Management* , 2012.
- Rusbariand, Septian Prima, Masodah, Riskaryanto, and Septi Herawati. "Analisis Pengaruh Tingkat Inflasi, Harga Minyak Dunia, Harga Emas Dunia, dan Kurs Rupiah Terhadap Pergerakan Jakarta Islamic Index di Bursa Efek Indonesia." *Prosiding Seminar Nasional ISBN*, 2012.
- Russel, FTSE. *FTSE Burse Malaysia Index Series*. FAQ Report, FTSE Malaysia Publication Fact Sheet, 2009.
- Sadaf, Rabeca, and Sumera Andleeb. "Islamic Capital Asset Pricing Model (ICAPM)." *Journal of Islamic Banking and Finance*, March 2004.
- Sanusi, Zuraidah Mohd, Rohaida Ismail, Ataina Hidayati, and D Agus Harito. "Screening Process of Shariah-Compliant Companies: The Relevance of Financial Risk Management." *Int Journal of Economics and Management*, 2015.
- Sauter, Raphael, and Shimon Awerbuch. "Oil Price Volatility and Economic Activity: A Survey and Literature Reviews." *Exposure Journal*, 2002.
- Shah, Nuradli Ridzwan. "Islamic Investments and Contemporary Issues in Islamic Banking Products." *Jurnal Universiti Tenaga Nasional*, 2015.
- Shiller, Robert J. "Causes of Changing Financial Market Volatilities." *Semantics Scholars Journal*, 1988: 17.
- Sri, Mar'ati Fuji. "Analisis Efisiensi Pasar Modal Indonesia." *Jurnal Ilmu Manajemen dan Akutansi Terapan*, 2012: 1.

- Sudarsono, Heri. *Bank dan Lembaga Keuangan Syariah Deskripsi dan Ilustrasi*. Yogyakarta: Ekonosia, 2007.
- Surbakti, Emta Hariati, Noer Azam Achsani, and Tubagus Nur Ahmad Maulana. "The Impact of Macroeconomic Variables on JCI's Stock Return Volatility in Pre and Post Global Economic Crisis." *International Journal of Scientific Research Publications*, 2016.
- Tandelilin, Eduardus. *Portofolio dan Investasi, Teori dan Aplikasi*. Yogyakarta: Kanisius, 2010.
- Tian, Gary Gang, and Shiguang Ma. "The relationship between stock returns and the foreign exchange rate: the ARDL approach." *University of Wollongong Publication*, 2010.
- Untara, Toto Sugiharto, and Titi Ayem Lestari . "News Effects: Good vs Bad News on Exchange Rates." *Global Management Conference* , 2010.
- Vihar, Preet. *Introduction to Financial Market*. New Delhi: Financial Market Management Publication, 2007.
- Warjiyo, Perry. "Indonesia: stabilizing the exchange rate along its fundamental." *BIS Paper No 73*, October 2013.
- Yahyazadehfar, Mahmood, and Ahmad Babaie. "Macroeconomic Variables and Stock Price: New Evidence from Iran." *Middle-East Journal of Scientific and Research* 11 (4), 2012.