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Content

Welcome Message

Local Host

Adriana E. Edwards Wurzinger
Associate Professor, Saitama University, Japan

Valued colleagues and guests,

Welcome to Osaka, Japan!

We are delighted to have you among us for the Annual Conference on Management and Social Sciences, 2017, organized by the Higher Education Forum. That many of you have decided to travel long distances to attend serves to remind us all just how important our work as scholars, researchers, and human resources specialists really is. We are honoured to share this event with you.

Osaka is a bustling, modern city that offers many attractive sights, as well as easy access to the old charm and historical attractions of beautiful Kyoto, and to dynamic Kobe. From stunning Osaka Castle to the never-ending nightlife of Namba and culinary delights of Umeda, Osaka will surely make your visit to Japan an unforgettable experience. Go out there and explore! Osaka and its outgoing, beautiful people are waiting for you.

We sincerely hope that you will enjoy your stay, and that this chance to network, learn, and grow as professionals will be truly unique and productive. We have no doubt that this opportunity will bring together local and international talented professionals, eager to discuss new developments, challenges, and projects that will open new possibilities in our fields of work and research. Together, we have the power to make of this a positive and constructive event, upon which we can continue to build better and more productive environments.

Looking forward to working and learning together in Osaka, Japan!

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Economics

Wednesday, August 16, 2017 10:30-12:00 Room 1006

Session Chair: *Prof. Nano Prawoto*

ACMASS-0036

The House Price Dynamics and Heterogeneity: Evidence from China's Major Cities

Lili Wu | *China University of Petroleum (Beijing)*
Zhengwei Ma | *China University of Petroleum (Beijing)*
Xu Tang | *China University of Petroleum (Beijing)*
Jiangliang Wang | *China University of Petroleum (Beijing)*

ACMASS-0054

A Comparative Analysis of the Public-Private Partnerships of the Korean Wave and Cool Japan

Yoo Soo Hong | *Institute for Creative and Innovative Development*
Hui-Wen Chen | *Wenzao Ursuline University of Language*

ACMASS-0088

The Factors Influencing Economic Growth in Indonesia Period 1981-2014 Error Correction Model Approach

Imamudin Yuliadi | *University Muhammadiyah of Yogyakarta*

ACMASS-0089

The Analysis of Macroeconomic Variables, Regional Stock Index, and Gold Price Impact on Jakarta Islamic Index: An Approach of Vector Error Correction Model (Vecm)

Agus Tri Basuki | *University Muhammadiyah Yogyakarta*
Salma Nur Karima | *University Muhammadiyah Yogyakarta*

ACMASS-0093

Composition of Public Expenditure to Economic Growth in Supporting Good Governance

Nano Prawoto | *University Muhammadiyah Yogyakarta*

ACMASS-0089
The Analysis of Macroeconomic Variables, Regional Stock Index, and Gold Price Impact on Jakarta Islamic Index: An Approach of Vector Error Correction Model (Vecm)

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Abstract

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

The analysis tool that is used in this research is Vector Error Correction Model (VECM) to establish the short-run and long-run relationship. The result indicates 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 person tends to increase each year. The increasing activities can be seen from the increasing rate of production. In order to ease the society's activities to rise 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 the strict regulation to 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 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 which is the long-term supply and demand. There are securities supply and securities demand. The companies that will issue the beneficial securities categorized in securities supply. While the investors who will buy the securities categorized in securities demand. The development of capital market is supported by the increasing of fund in the market. It should also followed by the regulation to protect the involving parties.

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

Since the 1980's 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 on 1997 on the good cooperate governance (GCG). In 2013, the supervisor of the capital market in Indonesia has 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 value of market capitalization in Indonesia started from the year of 2010 until 2016 is also increasing. According to the report from Saham OK (2016) the total value in 2010 is Rp.3.258 Trillion. While in 2011, the total is Rp.3.538 Trillion. The number increases to Rp4.128 Trillion in 2012. In the year of 2013 the total value slightly increasing to 4.219 Trillion. Afterward in 2014, the total reaches to Rp.5.228 Trillion. In fact, in the following year, the total values decreasing to Rp4.782 Trillion. By the end of 2016 the market capitalization increases to the total of Rp5.753 Trillion.

The idea of Islamic Conventional Market in Indonesia is started in the year of 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 the year of 2012 until 2016, the rate keeps increasing. Although in the end of 2015, the value slumps a little.

From the research by Shiller (1988) it showed one of the things causing the volatility is the regulation made by the government. The regulation hich 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 can also happen 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 records in 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 strength of the currency. The exchange rate is a crucial tool for the industry activities. A number of companies doing import and export rely on the stability of ER. Typically, US Dollar is a benchmark for the trade in international level. Rupiah appreciation is a positive signal for investor in capital market. Meaning rupiah appreciation will make stock market stronger and vice versa. Rupiah depreciation will 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 one company has higher profit, overall stock market will also have increasing value.

Capital market in Indonesia is developing as well. According to the report from Indonesia: Financial System Stability Assesment (2010) it declares that Indonesia 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 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 becomes an indicator to estimate the stock market. While majority it gives significant relationship on the stock market, different countries will have the 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 can be caused from the financial crisis at that time (Baumeister and Killian 2014).

As one of the AEC members, Indonesia should maintain the relationship with the neighbor countries. In terms of economy 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 which is 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 a 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 the linkages of one country financial stability to the other countries.

Another factor which is counted to the stock market influence is gold price. Gold price is likely having a correlation in the stock market. Gold becomes an important element. As one of the scarcest metal, the gold price surely is 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 for gold is also become the source of wealth for the owner of gold (Bilal, et al. 2013).

Nowadays holding gold is regarded an 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 also reasons 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 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 the various results in order to enrich the previous studies material. Here are a

number of the studies on the factors affecting the stock market.

Based on the finding from Hsing (2011) shows that Czech stock market is negatively effected 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 shows 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 the research conducted by Irianto (2002) that uses IHSG as the dependent variable. The negative relationship between gold price and JII is shown by the 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 website to enrich the information.

D. Econometric Model

Model 1 $JII_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5 G_{t-1} + e_t$

Model 2 $ER_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3\ O_{t-1} + A_4\ FTSE_{t-1} + A_5\ G_{t-1} + e_t$

Model 3 $O_t = A_0 + A_1\ JII_{t-1} + A_2 ER_{t-1} + A_3\ O_{t-1} + A_4\ FTSE_{t-1} + A_5\ G_{t-1} + e_t$

Model 4 $FTSE_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5\ G_{t-1} + e_t$

Model 5 $G_t = A_0 + A_1 JII_{t-1} + A_2 ER_{t-1} + A_3 O_{t-1} + A_4 FTSE_{t-1} + A_5\ G_{t-1} + e_t$

Where JII is Jakarta Islamic Index, ER is exchange rate, O is oil price, FTSE is FTSE Malysia, G is gold price, and e_1 is error term (t 1,2,3,4,5,6), l is lag length with t = 1,2…x and x is maximum lag.

E. Analysis Method

The method of analysis that is 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 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 Critera.

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 autocorrelation in VAR system (Firdaus 2011).

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

3. Stability VAR Model Test.

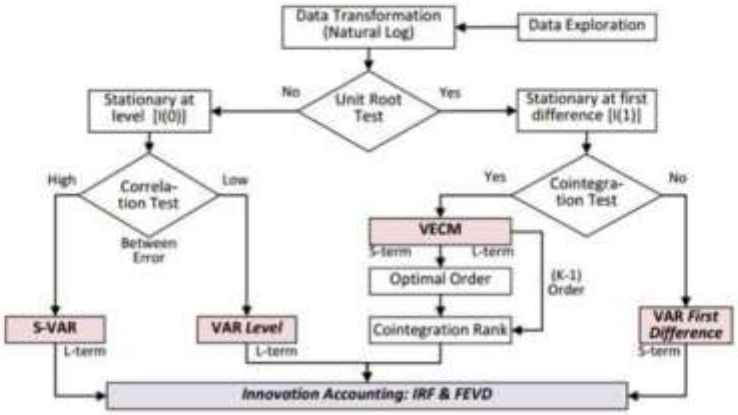
VAR stability test is conducted to estimate the roots of characteristic polynomial. If all the roots of characteristic polynomial within circle, then it passes VAR model, so that the IRF and FEVD valid (Firdaus 2011).

4. Co-Integration Test.

This is the relationship between x_t and y_t that are both 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. Impulse Response Function (IRF).

IRF can explain the response of one variable to a shock from other variables. So, the influence of shock of one variable because of other variables can be explained clearly. The IRF result shows the length of time needed from one variable to response the others.

7. 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 which is used to test the stationarity is ADF Test (Augmented Dicky Fuller) by using α=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					
Variables	Level	Prob	Note	1st Difference	Prob	Note
	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 autocorrelation 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 eigene statistic is higher than the critical value, it indicates that there is a co-integration in the model.

TABLE 5
Co-Integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
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

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
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
At most 3	0.246724	15.39219	15.49471	0.0518
At most 4 *	0.105373	4.342581	3.841466	0.0372

Source: Data Processed

Table 5 displays that trace statistic value and maximum eigenevalue 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 stability 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 tend 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
	[21.7305]
G(-1)	-6.78E-05
	-3.70E-06
	[-18.1313]
FTSE(-1)	-0.968418
	-0.03477
	[-27.8538]
ER(-1)	0.066434
	-0.00308
	[21.5448]
C	1000.517

Error Correction:	D(JII)	D(O)	D(G)	D(FTSE)	D(ER)
CointEq1	-0.512443	-142.784	4377.579	0.56724	3.257696
	-0.13629	-549.965	-3484.21	-0.26109	-2.07257
	[-3.75989]	[-0.25962]	[1.25640]	[2.17255]	[1.57181]
D(JII(-1))	0.425862	-1360.718	-5438.445	0.225016	-3.536736
	-0.17574	-709.131	-4492.58	-0.33666	-2.6724
	[2.42330]	[-1.91885]	[-1.21054]	[0.66838]	[-1.32343]
D(JII(-2))	0.221371	232.1751	-6838.023	0.827726	-2.475437
	-0.17132	-691.307	-4379.66	-0.3282	-2.60523
	[1.29215]	[0.33585]	[-1.56131]	[2.52205]	[-0.95018]
D(JII(-3))	-0.549396	207.8514	3339.737	-0.315444	2.709048
	-0.17877	-721.389	-4570.24	-0.34248	-2.7186
	[-3.07313]	[0.28813]	[0.73076]	[-0.92106]	[0.99649]
D(O(-1))	7.26E-05	0.118017	-1.384835	3.45E-05	-4.15E-05
	-5.50E-05	-0.22267	-1.4107	-0.00011	-0.00084
	[1.31500]	[0.53000]	[-0.98166]	[0.32677]	[-0.04941]
D(O(-2))	-9.22E-05	-0.017684	-1.780018	-5.67E-05	-0.000788
	-5.40E-05	-0.21679	-1.37341	-0.0001	-0.00082
	[-1.71592]	[-0.08157]	[-1.29606]	[-0.55053]	[-0.96460]

Error Correction:	D(JII)	D(O)	D(G)	D(FTSE)	D(ER)
D(O(-3))	0.000133	-0.111089	0.060026	-4.49E-05	0.000734
	-4.80E-05	-0.19532	-1.23744	-9.30E-05	-0.00074
	[2.74224]	[-0.56874]	[0.04851]	[-0.48372]	[0.99676]
D(G(-1))	-1.75E-06	0.061991	0.455575	5.96E-05	0.000119
	-1.10E-05	-0.04344	-0.27523	-2.10E-05	-0.00016
	[-0.16242]	[1.42690]	[1.65523]	[2.88755]	[0.72384]
D(G(-2))	-2.42E-05	0.053484	0.28252	1.33E-05	2.97E-05
	-1.30E-05	-0.05068	-0.32106	-2.40E-05	-0.00019
	[-1.93008]	[1.05538]	[0.87997]	[0.55298]	[0.15549]
D(G(-3))	-2.74E-05	-0.02399	0.271418	1.16E-05	0.000265
	-9.00E-06	-0.03651	-0.2313	-1.70E-05	-0.00014
	[-3.02587]	[-0.65710]	[1.17346]	[0.67014]	[1.92819]
D(FTSE(-1))	0.051689	285.4714	-4316.982	0.387012	-0.430143
	-0.11805	-476.344	-3017.8	-0.22614	-1.79513
	[0.43787]	[0.59930]	[-1.43051]	[1.71136]	[-0.23962]
D(FTSE(-2))	-0.102988	1025.991	6706.966	0.188143	2.958194
	-0.11712	-472.592	-2994.03	-0.22436	-1.78099
	[-0.87936]	[2.17099]	[2.24011]	[0.83857]	[1.66098]
D(FTSE(-3))	-0.093591	448.1875	6568.744	0.000706	-1.187615
	-0.11199	-451.891	-2862.88	-0.21453	-1.70298
	[-0.83572]	[0.99180]	[2.29445]	[0.00329]	[-0.69737]
D(ER(-1))	0.023403	-65.85116	-208.5527	-0.011874	0.070643
	-0.0157	-63.3598	-401.406	-0.03008	-0.23878
	[1.49048]	[-1.03932]	[-0.51956]	[-0.39475]	[0.29585]
D(ER(-2))	-0.008579	-21.1647	-120.9877	-0.024503	-0.147797
	-0.01573	-63.4586	-402.032	-0.03013	-0.23915
	[-0.54554]	[-0.33352]	[-0.30094]	[-0.81331]	[-0.61802]
D(ER(-3))	0.015768	-28.1425	-458.6889	-0.004101	-0.109304
	-0.01603	-64.6756	-409.742	-0.0307	-0.24373
	[0.98379]	[-0.43513]	[-1.11946]	[-0.13355]	[-0.44846]
C	-1.929404	-13327.87	28278.75	5.291293	128.6298
	-4.62987	-18682.4	-118360	-8.86944	-70.4059
	[-0.41673]	[-0.71339]	[0.23892]	[0.59658]	[1.82697]
R-squared	0.715813	0.475305	0.585025	0.533761	0.486916
Adj. R^2	0.499289	0.075537	0.268853	0.178531	0.095995

Source: Data Processed

TABLE 7
Factors Influencing JII in Short Term

Variable	Coefficient	t-Statistic
Coinnt 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 α=5%.

In the short-term relationship, oil price in lag 3 is positively influencing on α=5% for about 0.00013. Meaning when there is an increase in oil price on 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 an increasing of gold price on 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 an increase of gold price on 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]

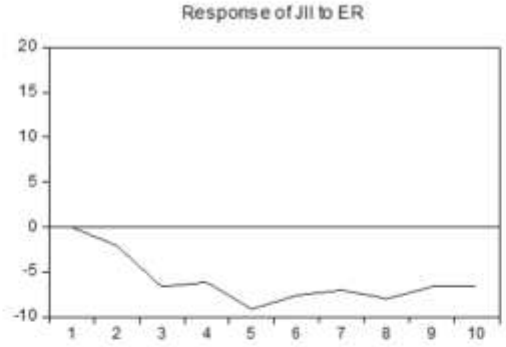
Source: Data processed

Meanwhile in the long term estimation, all variables are influencing JII at α=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 impact JII for 0.066. When exchange rate increases the stock price increases for about 0.066.

6. Impulse Response Function (IRF).

This test may describe the response from a certain variable due to the shock from other variables. Thus, the length of afterward shock effect until the effect is gone or return to the balance point can be seen from here. This test shows how long the time is needed from one variable to response the shock from other variables.

a. JII Response on Exchange Rate.

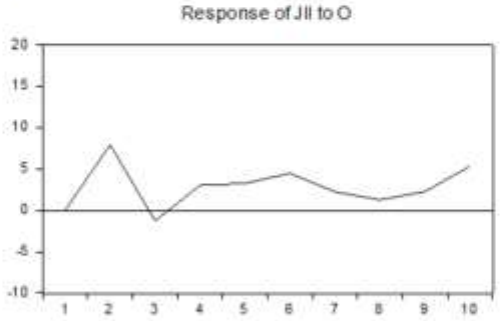


Source: Data processed

FIGURE 2
Response of JII on Exchange Rate

JII starts to response the shock at the first period. JII tends to respond exchange rate negatively. From the third period until the fifth period, the shock is relatively unstable. However in sixth period until the tenth period which response is quite stable. The graph explains that the increasing in exchange rate will decrease the price of stock market.

b. JII response on Oil Price.

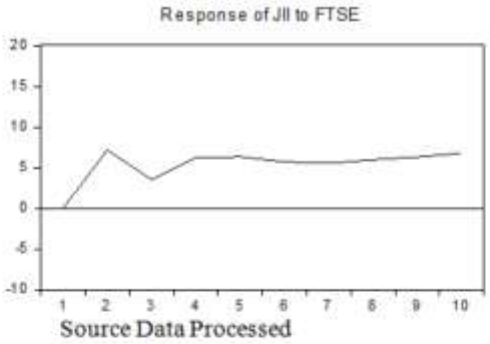


Source: Data Processed

FIGURE 3
Response of JII on Oil Price

JII is positively response on oil price. However on the third period, it negatively responses on the shock from oil price. Since the fourth period until the tenth period, the response back to normal. Although in the eight period, the shock quite slumps.

c. JII Response on FTSE Malaysia.

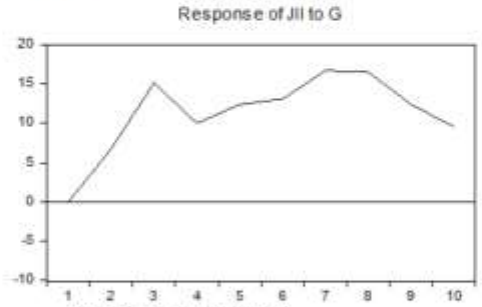


Source Data Processed

FIGURE 4
Response of JII on FTSE Malaysia

According to table 4.8, JII starts to response on FTSE since the first period. In contrary, from the third period until the tenth period, the response tends to decrease dramatically. An increasing price from FTSE will be responded by an increasing price from JII.

d. JII Response on Gold Price.



Source: Data Processed

FIGURE 5
Response of JII on Gold Price

Table 4.8 shows that JII starts to response on gold price positively since the first period. It keeps increasing until the third period. Meanwhile on the fourth period the response slumps a bit. The response keeps increasing since the fifth period until 8th period. Since then, the shock is decreasing until 10th period.

e. 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 is the differences between variances after and before the shock. It shows the percentage of forecast error of variation 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 4.8 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 effect 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. Empirical Results

1. VECM in Short Term.

In the short term, the estimation indicates that oil price in 3rd lag is significantly influencing JII with the positive relationship by 0.000133. Meaning an increase in oil price will increase JII by 0.000133 unit. The positive relationship on the short period triggers the positive confidence of investors of mining sectors that significantly affect JII. The positive relationship might happen because Indonesian capital market is dominated by the mining sector with 39.7 percent. 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 impact to the stock market in Indonesia. It is in line with the research from Rusbariand, et al. (2012) and Antonio, Hafidhoh and Fauzi (2013).

Another significant variable in short term estimation is gold price in 2nd and 3rd lag. It has negative relationship with the value of -2.42 and -2.74 respectively. The negative relationship is supported by the study from Putra and Darmansyah (2015). It might occur because gold is one of

the safe haven and alternative investment with free risk, so when economic instability occurs in the short run, investors tend to pick out gold as an investment.

FTSE Malaysia is 1st, 2nd or 3rd lag has insignificant effect JII. The result is found in the study conducted by Husin, et al. (2013). This might happen because the changes in unit of FTSE Malaysia in short term do not give huge effect to the investors on putting their assets in JII. Their confidence level can still be maintained pretty well. It might also be caused of the regional market which has the same investors' characteristics.

As for the exchange rate variable, in the short term insignificant on JII. The finding contradicts with the research from Hsing (2011) and Barakat, Elgazzar and Hanafy (2016). The previous studies show that exchange rate is significantly influencing the stock market. However the fluctuation of exchange rate in the short run is not fluctuating dramatically. So, exchange rate will insignificantly influencing the stock price. This finding, however, is in line with the study conducted by Gay (2008). On the research, the reason why exchange rate is insignificantly effecting stock market is because there are stronger domestic macroeconomic influences such as; inflation, production, trade balance and rate structure.

2. VECM in Long Term.

In the long-term all variables are significantly influencing JII. Starting from oil price, gold price, FTSE Malaysia, and exchange rate all are influencing JII with the coefficient 0.000262, -6.78, -0.968418, 0.066434 respectively.

Oil price is positively influencing JII by 0.000262. Meaning an increase in oil price will increase JII by 0.000262 unit. The positive response might happen because Indonesian capital market is dominated by the mining sector with 39.7 percent. 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 impact to the stock market in Indonesia. It is in line with the research from Rusbariand, et al. (2012) and Antonio, Hafidhoh and Fauzi (2013).

Gold price is negatively influencing JII by -6.78. This negative relationship is backed up by the study conducted by Putra and Darmansyah (2015). However it is in contrary with the finding from Irianto (2002). The reason why gold is negatively influencing JII is because gold can be chosen as an alternative investment when the economic instability occurs. So that in the long run, investors prefer to gold as the investment instrument.

The next significant variable is FTSE Malaysia which negatively influencing JII by -0.968418. An increase in FTSE Malaysia will reduce JII by -0.968418. In the short run, this variable is insignificantly affecting JII. This result is supported by the research from Darsono, Muqorobin

and Yudhi (2016). This finding is not in line with the research from Jayanti, Darmanto and Sudjana (2014). 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 when FTSE condition is better than JII, investors prefer to put their assets in FTSE to get higher return.

The last significant variable is exchange rate. This variable is positively influencing JII by 0.066434. An increasing value in exchange rate is positively increasing JII by 0.066434. This finding rejects the finding from Hsing (2011) and confirms the finding from Barakat, Elgazzar and Hanafy (2016). Rupiah depreciation will 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 one company has higher profit, overall stock market will also have increasing value.

3. IRF Analysis.

IRF shows the response of changing from one variable to another. In this study, the IRF graph varies from one variable to another. Below is the explanation of each variable.

For oil variable, the positive relationship on the short period triggers the positive confidence of investors of mining sectors that significantly affect JII, where mining sectors dominate the trade in the stock market. It is in line with the research from Rusbariand, et al. (2012).
As for gold price, the positive relationship is in line with the research from Irianto (2002). The situation might happen because the gold purchasing by society is not for investment motive but for the consumptive motive that also can be used as jewelry. So that, the stock investment and the gold purchasing is substitution.

The positive result from JII shocks to FTSE is in accordance with the theory of economic integration in financial market. The relationship between global stock market is positively influencing each other. The result is in line with the study from Jayanti, Darminto and Sudjana (2014).

In the graph, JII responds negatively to the stock market. This might happen because the exchange rate is importantly influencing the cost of production in a company. It also effecting the amount of transaction in stock market. Exchange rate which fluctuates a lot can reduce investor confidence on stock market. That leads to the negative effect on capital market. For the foreign investor, they tend to take out the capital market and capital flow occurs in this situation that leads to the decreasing point of JII. It is line with the study from Hsing (2011).

4. FEVD Analysis.

The summary result for FEVD as the dependent variable for JII shows that variable gold price is the most shocking variable to JII, followed by exchange rate, FTSE Malaysia and oil price. Gold price gives shock for 9.39 % followed by exchange rate by 2.7%, followed by FTSE Malaysia by 2.05% and oil price by 0.9%.

In case of JII, gold price comes as the most shocking variable to JII. It might happen because gold regard as the important alternative investment when an economic instability happens. So that investors should be more cautious and aware on the increasing price of JII. For exchange rate variable, the government should do the right decision on maintaining the strength of Rupiah on other currencies. As for FTSE Malaysia impacts meaning that our policy maker and people involving in stock market have to be aware on the changing in the regional market. Lastly for oil price which contributes the least for the changing in JII. It should also be a point when a fluctuation on oil price happens and lately when the price keeps decreasing and the increasing price happens in stock market.

H. Conclusion and Policy Implications

This study is started by the structural order of VAR to VECM. It started from Unit Roots Test and finished 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, leads to the increasing profit that in the end 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 and long run. The positive response might happen because Indonesian capital market is dominated by the mining sector with 39.7 percent. 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 impact to the stock market in Indonesia.

3. FTSE Malaysia has insignificant impact on JII in short run. However in long run it negatively effecting 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 to 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 has also an impact on JII. In order to keep with the changing of oil price, 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.

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