

## CHAPTER V

### FINDINGS AND DISCUSSION

#### A. Introduction

As discussed earlier in Chapter 3, the research methodology used in this study employs these following econometric procedures in order to analyze the relationship between Jakarta Islamic Index and macroeconomic variables as follows:

- a) Descriptive Statistics
- b) Unit Root Test
- c) Long Run Equilibrium Estimation
- d) Co-integration Test
- e) Error Correction Model

#### B. Data Examination: Error Correction Model (ECM)

The methodology used in this study consists of 5 steps, they are:

- a) Descriptive Statistics

Descriptive statistics becomes a set of whole descriptive coefficient which summarize the variables in a study. It represents the entire population or sample in the study and explains data central tendency and dispersion measurement (Panatagama, 2013, p.50). Descriptive analysis is the part of

statistics which is used to describe the data without making any conclusion, rather it only explains that data.

The descriptive analysis is conducted by Eviews 3.1. The result is seen as follow:

Table 5.3  
Descriptive Test

<b>Description</b>	<b>JII</b>	<b>DJIM</b>	<b>GOLD</b>	<b>INF</b>
<b>Mean</b>	475.9338	2073.839	1286.901	6.454638
<b>Median</b>	508.7820	2144.360	1342.020	6.160000
<b>Maximum</b>	682.6910	2549.950	1771.880	12.14000
<b>Minimum</b>	193.6830	1271.020	760.6800	3.430000
<b>Skewness</b>	-0.667579	-0.827553	-0.024115	0.948705
<b>Observations</b>	69	69	69	69

Source: Data Analysis Result

Based on the table, it can be interpreted that:

- i. Jakarta Islamic Index (JII) minimum value is 193,6830 with the maximum value is 682,6910. Mean and median are 475,9338 and 508,7820 respectively. In term of Skewness, Jakarta Islamic Index (JII) is negatively skewed which is -0,667579.
- ii. Dow Jones Islamic Market (DJIM) minimum value is 1271,020 with the maximum value is 2549,950. Mean and median are 2073,839 and 2144,360 respectively. In term of Skewness, Dow Jones

Islamic Market (DJIM) is negatively skewed which is -0,827553.

iii. World Gold Price (GOLD) minimum value is 760,6800 with the maximum value is 1771,880. Mean and median are 1286,901 and 1342,020 respectively. In term of Skewness, World Gold Price (GOLD) is negatively skewed which is -0,024115.

iv. Inflation rate (INF) minimum value is 3,430000 with the maximum value is 12,14000. Mean and median are 6,454638 and 6,160000 respectively. In term of Skewness, Inflation rate (INF) is positively skewed which is 0,948705.

v. The relationship to be observed between stock returns and macroeconomic variables is derived from this following equation.

$$JII_{it} = \beta_0 + \beta_{1t}DJIM_{it} + \beta_{2t}GOLD_{it} + \beta_{3t}INF_{it} + e_t$$

Where:

JII = Jakarta Islamic Index

$\beta_0$  = Intercept

$\beta_1, \beta_2, \beta_3$  = Coefficient

DJIM = Dow Jones Islamic Market

GOLD = World gold price

INF = Inflation rate

$e_t$  = Error term.

#### b) Unit Root Test

Unit root test is the test which is used to determine whether the data is stationary or not. The test will observe the whole variables in this study. Groups of data are stationary if the average value and variant of time series data do not experience a changing systematically all the time or the average and variant are constant (Nachrowi & Hardius, 2006, p.340).

The Unit Root test result is:

Table 5.4

Result of ADF Test Statistics at First Difference Lag 1

Variables	ADF Test Statistics	Critical Value (1%, 5%, and 10%)
JII	-5.182440	-4.1013
		-3.4779
		-3.1663
DJIM	-5.160058	-4.1013
		-3.4779
		-3.1663
GOLD	-5.206528	-3.5312
		-2.9055
		-2.5899
INF	-4.487082	-4.1013
		-3.4779
		-3.1663

Source: Data Analysis Result

From the table above, it is known that the ADF test statistics of Jakarta Islamic Index, Dow Jones Islamic Market, World Gold Price, and Inflation are -5.182440, -5.160058, -5.206528 and -4.487082 (respectively). Since these values are under the whole critical value, it means that these data are stationary at first difference lag 1.

Because the stationary test is conducted in the first difference/ integrated-degrees test, therefore, the relationship to be examined among JII and other independent variables must be conducted in ECM estimation and forecasted on their first difference. It is formulated with the following equation:

$$DJII_{it} = \beta_0 + \beta_1 \Delta DJIM_{it} + \beta_2 \Delta GOLD_{it} + \beta_3 \Delta INF_{it} + e_t$$

Where

D = Difference

$\beta_0$  = Intercept

$\beta_1, \beta_2, \beta_3$  = Coefficient

JII = Jakarta Islamic Index

DJIM = Dow Jones Islamic Market

GOLD = World gold price

INF = Inflation rate

$e_t$  = Error term.

### c) Long Run Equilibrium Estimation

Long Run equation in Error Correction Model is the regression linear with variables which are not stationary at level. With this test, the existence of long run impact of independent variables toward dependent variable will be figured out.

The result of the test is as follows:

Table 5.5

## Long Run Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-122.1364	44.14213	-2.766890	0.0074
DJIM	0.269549	0.018603	14.48921	0.0000
GOLD	0.093974	0.025894	3.629244	0.0006
INF	-12.68336	2.970312	-4.270041	0.0001
R-square	0.917336			
F-stat	240.4388 (0.000000)			
DW-stat	0.621282			

Source: Data Analysis Result

Based on the table, it is concluded that:

- 1) Dow Jones Islamic Market (DJIM) influences Jakarta Islamic Index (JII) level at  $\alpha=1\%$ . One unit rises in DJIM will increase JII level by 0.269549 units.
- 2) World Gold Price (GOLD) influences Jakarta Islamic Index (JII) level at  $\alpha=1\%$ . One Dollar rises in GOLD will increase JII level by 0.093974 units.
- 3) Inflation (INF) influences Jakarta Islamic Index (JII) level at  $\alpha=1\%$ . One unit rises in INF will decrease JII level by -12.68336 units.
- 4) R-square = 0.917336 means that 92% variation in dependent variables explained by variation in independent variables, and 8% are explained by other factors outside the model.

- 5) F-stat prob = 0.0000 means that the independent variables (Down Jones Islamic Market, World Gold Price, and Inflation) jointly influence the dependent variable (Jakarta Islamic Index).
- 6) R-Squared is 0.917336 and it is more than the Durbin Watson stat (0.621282), so it is the symptom on spurious model, but if the residual is stationary at level, it will be no longer spurious, but accepted. Therefore, co-integration test should be conducted.

d) Co-integration Test

Co-integration of an equation can be seen by its residual. If the residual is stationary, it means that there is co-integration. However, if it is not stationary, it means that the long run model above is a spurious or non-sense model.

The hypothesis is:

Ho: The residual is not stationary at level, and the regression is spurious.

H1: The residual is stationary at level, and the regression is accepted

The test uses Augmented Dickey Fuller (ADF) test at level.

The result can be seen as follows:



Table 5.6  
Co-integration Test

Lag length: 4		t-statistics
ADF Test Statistic		-3.691376
Critical Value Test	1% Critical Value*	-4.1059
	5% Critical Value	-3.4801
	10% Critical Value	-3.1675

Source: Data Analysis Result

The table above proves that the ADF test statistics is significant at  $\alpha=5\%$  or it is under 5% critical value. It means that the residual is stationary and that dependent variable (JII) has a co-integration with the independent variables (DJIM, GOLD, and INF). In other words, the model above is not spurious regression but co-integrated regression. So, the null hypothesis is rejected and the long run model is accepted. The coefficients of variables (DJIM, GOLD, INF) are therefore long run coefficient and significant.

e) Error Correction Model

As the variables such as JII, DJIM, GOLD, INF are cointegrated, the Error Correction Model can be conducted. This test is used to know the behavior of short run and long run of Jakarta Islamic Index.

The model is:

$$D(\text{JII}) = \beta_1 + \beta_2 D(\text{DJIM}) + \beta_3 D(\text{GOLD}) + \beta_4 D(\text{INF}) + \beta_5 U_t(-1)$$

Where:

- e) JII, DJIM, GOLD, and INF are first different variables,
- f)  $\beta_1$  is intercept,
- g)  $\beta_2, \beta_3, \beta_4$  are short run coefficient,
- h)  $U_t(-1)$  is the one period lag residual of model.

If the coefficient of residual is significant and contains negative sign, it validates that there exists a long run equilibrium relationship among the variables (JII, DJIM, GOLD, and INF). The result of ECM test is as follows:

Table 5.7  
Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.479677	3.193372	0.150210	0.8811
D(DJIM)	0.226240	0.030342	7.456428	0.0000
D(GOLD)	0.018358	0.059626	0.307883	0.7592
D(INF)	-7.505802	4.606732	-1.629312	0.1082
RES(-1)	-0.321106	0.091388	-3.513652	0.0008
R-square	0.502787			
F-stat	15.92658 (0.000000)			
DW-stat	2.215824			

Source: Data Analysis Result

Based on the table above, it is known that

- a) The coefficient (RES) is significant and contains negative sign. So, it is concluded that a long run equilibrium among the variables exists.
- b) The model above is also not a spurious model because R-squared (0.502787) is less than DW stat (2.215824).
- c) Prob (F-stat) is 0,0000 (under 5%), it means that the variables influence the dependent one jointly
- d) Dow Jones Islamic Market (DJIM) influences Jakarta Islamic Index (JII) level at  $\alpha=5\%$  in case of short run estimation. One unit rises in DJIM will increase JII level at 0.226240 units.

- e) World Gold Price (GOLD) does not influence Jakarta Islamic Index (JII) level at  $\alpha=5\%$  in case of short run estimation.
- f) Inflation (INF) does not influence Jakarta Islamic Index (JII) level at  $\alpha=5\%$  in case of short run estimation.

### C. Interpretation

After completing whole ECM steps, two equations are achieved which become the core of the study. With this equation, the influence of independent variables toward dependent variable which are analyzed can be interpreted.

Based on long run estimation, the results is:

$$\text{JII}_t = -122.1364 + 0.269549 \text{DJIM}_t^* + 0.093974 \text{GOLD}_t^* - 12.68336 \text{INF}_t^*$$

Exp: (\*) is significant variable at 5%

(t) is period / time

This equation tells that DJIM, GOLD, and INF have significant impact to JII in the long run.

While the output of short run equation is:

$$\Delta JII_t = 0.479677 + 0.226240 \Delta DJIM_t^* + 0.018358 \Delta GOLD_t - 7.505802 \Delta INF_t - 0.321106 RES_{t-1}$$

Exp: (\*) is significant variable at 5%  
(t) is period / time

This equation tells that only DJIM has impact to the JII in short term. One unit rises in DJIM will increase JII level at 0.226240 units. Based on speed adjustment value, there is 33% disequilibrium in short term of DJIM, GOLD, and INF toward JII which are corrected in every period.

#### **D. Economic Analysis**

After conducting whole the data process, the results show some explanation as elaborated below:

##### **1. General Economic Analysis**

The long run and short run analysis is not spurious. This result is proven by co-integration test and Error Correction Model. The data are also valid according to classical assumption test. It means that the data are accepted with all the result.

The study contains long run and short run analysis. According to Utomo (2011), in stock market, long run

investment needs more than three months, while the short run is one day to three months. Therefore, this study analyzes the historical time series data in order to see the influence of the independent variables toward dependent variables in the future.

## 2. Economic Analysis of Dow Jones Islamic Market

Dow Jones Islamic Market is the kind of Dow Jones Industrial Average (Wall Street Capital Market biggest index) located in United States of America. Dow Jones Islamic Market has impact to Jakarta Islamic Index both in long run and short run (proven by long run estimation and Error Correction Mechanism). It means that whole investors in Jakarta Islamic Index should consider this variable.

Dow Jones Islamic Market cannot be separated from the condition of United States of America as the superpower country with all of its ability, including the economic side. America is one of the superior countries in case of economics. It can be seen by its currency, US Dollar is the world currency which is used in international transaction. It means that the depreciation and appreciation of US Dollar will influence the international transaction. Therefore, the movement of economic activity and changing of monetary policy created by US Government will be responded by international market.

Trade balance of America is also important for international transaction. A bad trade balance will create a changing of some policies. This condition will probably motivate the changing of the amount of goods and services imported and exported.

Government policies through the Fed (monetary policy) will influence the world condition, especially Indonesia. Jakarta Islamic Index is a big index in Indonesia Stock Exchange More than 60% of the funds invested come from foreign includes America (Osviana, 2013). This phenomenon can be seen in the case of tapering policy by the Fed, in which the decreasing of tapering stimulation creates the Dow Jones Islamic Market decline immediately following by other indices in the world including Jakarta Islamic Index.

All conditions and development of United States of America, which are reflected in Dow Jones Islamic Market, will be seen by whole countries in the world including Indonesia. So, it is true that Dow Jones Islamic Market will influence Jakarta Islamic Index both in the long run and short run.

### 3. Economic Analysis of World Gold Price

Gold is the only one thing which can be used as the money (transaction tool), as jewelry, and as investment tool, because gold has nominal value and intrinsic value inserted in every piece of gold. Therefore, gold is the only “money” that people trust every time. It does not matter whether the economic condition is good, normal, or even crisis, people still use gold in order to keep up the purchasing power of the wealth they have.

Moreover, gold is anti-inflation effect. It means that when government publishes the increasing of inflation data which show the higher commodities price which lower down the purchasing power, on the other hand, gold will follow the inflation rate. So, it does not matter if the inflation is high. Gold will adjust it.

Gold is very strong againsts Dollar. When US Dollar is appreciated, gold price will also adjust it because the price of world gold price has a direct relationship with US Dollar. Then when the US Dollar is depreciated or not trusted anymore at that time, investor will sell US Dollar and change their portfolio to gold investment. Therefore, the price of gold will adjust the changes also. It is cleared that gold will have a big position in the world economic indicator including the index of



stock market. So, the movement of world gold price will reflect many things. When the gold price increases, it means that the market is in positive sentiment (because inflation is always increased). It shows that the market is good because people collect gold continually in long term period. This shows that purchasing power and welfare of people is better, therefore Jakarta Islamic Index will also appreciate. However, when gold price decreases, it means that error occurs in the market, thus, Jakarta Islamic Index will respond it with positive relationship.

Because the philosophy of gold is to hedge fund (keep fund value), it will need a long time for the investors to enjoy the benefit of having gold. So, gold investment will influence the index of stock market (Jakarta Islamic Index) in the long run only, not the short run.

In the short run, the movement of gold price is a usual behavior. Gold will not be influenced only by government policy or market behavior. Moreover, there is agreement of all nations in the world to limit the trade of gold in order to keep the stabilization of world gold price (Tanuwidjaja, 2011, p.43). So, market will not respond it and Jakarta Islamic is not influenced.

#### 4. Economic Analysis of Inflation

Inflation has a negative relationship toward Jakarta Islamic Index. Inflation is a bad news because it defines a rising of overall prices and indicates the decreasing of people purchasing power. Inflation will make people unable to buy and consume the goods and services as many as before, because the inflation causes the people to lose their money as if it is stolen by an invisible thief.

High inflation reflects the high price of goods and services, including the commodities which are used by companies in their production. When inflation is high, companies will suffer some troubles generally, such as:

- a) Higher cost of production,
- b) Higher salary demanded by the labor,
- c) Lower demand by people, and
- d) Credit which should be paid by companies will be more difficult because of lower net income and higher interest rate

In the short run, the effect of inflation will not have a significant influence to the people. So, the fund which is invested in Jakarta Islamic Index will develop and circulate regularly, and the vice versa. Short run inflation will not influence the company significantly because company will

always consider this situation in their project. Therefore, the changing of inflation in the short run will not influence the stock market including Jakarta Islamic Index. Short run inflation will always anticipated by each company by good pricing method which considers the risk in every production. So, the people lifestyle will not change, because the changing price in the market will not totally influence the people saving and expenditure. Therefore, it is clear that short run inflation has no effect to Jakarta Islamic Index.

However, if the inflation is suffered in long run, bad forecasts of economic activities will occur. People will suffer from lower income, poverty will rise, and company's income will decline. High inflation in the long run will create people losing their jobs (unemployment raises), many companies will experience a lower performance of production, higher interest rate will creates some unit defaults, and stock market will experience negative effect from this condition. It is clear that when inflation rises overtime in long run, people will decrease their investment in stock market, people will withdraw their fund in order to fulfill their basic needs. At least, their investment will be moved to the bank deposit which provides higher interest rate. This situation is better than to keep the fund in Jakarta Islamic Index with the lower performance (high

risk) of majority companies listed in IDX. So, inflation will be responded by Jakarta Islamic Index in the long run with significant level.