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The Impact of Macroeconomic on Islamic Stock Prices: Evidence from Indonesia

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Abstract

This paper aims to examine the influence of macroeconomic variables namely inflation rate, industrial production index, and the interest rate on Indonesia Islamic stock that be measured by Indonesia Islamic Stock Index (ISSI). This index consists of 350 Islamic stocks at Indonesia Stock Exchange. Investors generally believe that macroeconomic activities give a large impact on the volatility of the stock prices (Gan et al., 2006). This study uses quantitative approach with multiple linear regression by utilizing monthly data over the period of May 2011 to November 2017. The results of this empirical research show that Indonesia Sharia Stock Index is affected significantly by the inflation rate, industrial production index, and interest rate. Therefore, this is necessary to evaluate the relationship between macroeconomic variables and Islamic stock prices since the results would bring an impact to stimulate the existence of Islamic capital market in Indonesia.

Keywords: Macroeconomic Variables, Islamic Stock Prices, Indonesia Sharia Stock Index

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1. Introduction

Nowadays, there are so many investment alternatives, which can be chosen by the public in putting their funds in order to be more productive, generate profits and profide benefits to others. According to Darmadji and Fakhruddin (2006:1), "the capital market is a means of funding for the company as well as other institutions (e.g. Government) and a means for investing activities". This is evidenced by the industry and the companies that have chosen the capital markets as a means to get business financing. Economic growth is measured through production growth because to achieve a growth in the economy requires the existence of production activities. The economic capacity of a country in producing goods (production) will affect the level of economic growth.

Indonesia as the country with the largest Moslem population in the world has a natural tendency for applying the principles of Islam, particularly in terms of the economy. Looking at the importance of applying principles of Islamic activity in the economy,

capital markets should incorporate principles of Islam into every activity. Among capital markets, have aware of the potential for gathering the funds of the Moslems. In Islamic capital market, investors especially the Moslem investors have the opportunity to put their funds in accordance with Sharia principles provided the transaction on a halal sector.

On July 3rd, 2000, Indonesia Stock Exchange in cooperation with PT. Danareksa Investment Management launched the Jakarta Islamic Index (JII) as a reference to guide the investors in their funds invested in Sharia-compliant. As time passes, Indonesia Stock Exchange launched Indonesia Sharia Stock Index (ISSI) on May 12nd, 2011. With the presence of ISSI, expected to boost stock trading transactions of Sharia and eliminate the doubts that exist in the minds of investors about investments in Sharia-compliant stocks. ISSI is the overall Sharia stocks listed on the Indonesia Stock Exchange and recorded on the list of Sharia-compliant Effects where the constituents of ISSI consists of several companies offering to the public in accordance with Sharia principles.

The development of Islamic capital markets continues to show positive trends (Ho, Abd-Rahman, Yusuf, & Zamzamin, 2014 in Bahloul, Slah, et.al, 2017). This can be demonstrated through the development of Indonesia Sharia Stock Index that continues to experience increased through the movement of the price index in the market. The development of Indonesia Sharia Stock Index can be shown on the Fig. 1. below:

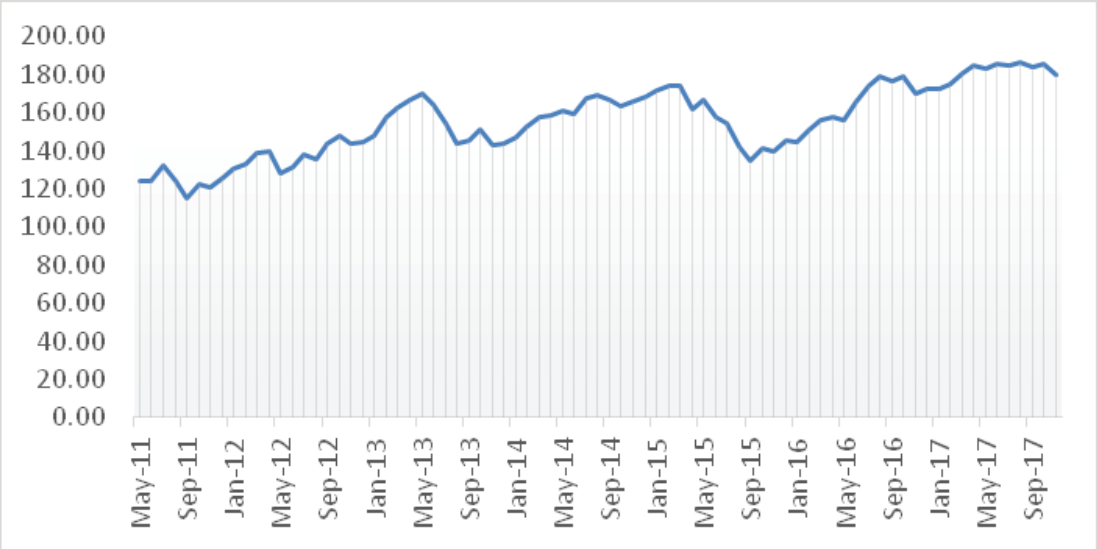

Figure 1: Trend of Indonesia Sharia Stock Index (ISSI) (Source: Indonesia Stock Exchange).

Based on Fig. 1 above, it can be explained that ISSI continues to experience a progression from year to year. Starting from the launch of ISSI in May 2011, ISSI has increased from 123.81 change to 180.16 in November 2017. This proves that the existence of Islamic stock index in Indonesia, in this case, Indonesia Sharia Stock Index, become

an Islamic stock parameter which quite important in the development of Islamic capital market in Indonesia.

Any developments on Islamic capital market did not escape the influence of macroeconomic factors and their volatilities. Investors generally believe that macroeconomic activities give a large impact on the volatility of the stock prices (Gan et al., 2006). Macroeconomic determinants can be a yardstick to the investors to forecast the performance of the stock market (Talla, 2013). One of the results of previous research explains that Gan et al. (2006) investigated the relationship between New Zealand stock market index and selected macroeconomic determinants using monthly data from January 1990 to January 2003. This study revealed that there is a negative relationship between CPI and stock index. An investor will consider the movement of the price index in terms of decision making in investing. Therefore, this is necessary to evaluate the relationship between macroeconomic variables and Islamic stock prices since the results would bring an impact to stimulate the existence of Islamic capital market in Indonesia.

2. Methodology

This study uses a quantitative approach, Sugiyono (2003: 14) explains ”quantitative approach is the approach that has a major focus in testing the hypothesis, measured data are measurable in nature will generate generalizable conclusions. Data analysis technique used in this research is linear regression analysis.

The relationship between macroeconomic variables and stock market index has been widely investigated. However, most studies done are focused on the conventional developed market, for instance, studies done by Fama (1981) for US market, and Poon and Taylor (1992) on the UK market (Sakti and Harun, 2013). The existence of this research is able to support and develop research on Islamic stock market in Indonesia, especially.

There have been many attempts in the past to figure out and explore the relationship between macroeconomic variables and stock prices. Kuwornu (2012) investigated the effect of macroeconomic variables on the Ghanaian stock market returns using monthly data over a period of January 1992 to December 2008. Using the Johansen Multivariate Co-integration procedure, the result revealed that there is co-integration between the four macroeconomic variables studied namely consumer price index (as a proxy for inflation), crude oil price, exchange rate, 91-day Treasury bill rate (as a proxy for interest rate) and stock returns in Ghana indicating long-run equilibrium relationship. Sakti and Harun (2013) examined the relationship between Jakarta Stock Exchange Islamic

Index (JII) and selected macroeconomic variables namely exchange rate, industrial production, inflation rate, and money supply. The results revealed that there is co-integration between Islamic stock prices and macroeconomic variables.

Hussin et al. (2012) analyzed the connection between Islamic stock market and macroeconomic variables in Malaysia. This research used monthly data from April 1999 to October 2007 taken from authorized sources. The findings showed that Islamic stock prices are co-integrated with the selected macroeconomic variables in which the stock price is related positively and significantly with industrial production index (IPI) and consumer price index (CPI) variables but related negatively and significantly with M3 and MYR variables.

Jamaludin et al. (2017) studied the effect of macroeconomic variables namely inflation, money supply (MS), and exchange rate (ER) on both conventional and Islamic stock market returns in the three selected ASEAN countries (Singapore, Malaysia, Indonesia) using monthly data over the period of January 2005 to December 2015. The results show that both stock market returns are significantly affected by the ER and inflation rate. MS is found to be insignificant.

Habib and Islam (2017) established the impact of various macroeconomic variables on the performance of the Islamic stock market for India. This study used the Ordinary Least Square (OLS) Regression to study the impact of macroeconomic variables including inflation, industrial production, exchange rate, interest rates and money supply on the Islamic stock returns. The result shows that exchange rate and interest rates have a significant impact on the Islamic stock market, while all the other macroeconomic variables are found to be insignificant.

The relationship between the Indonesian Sharia Stock Index and inflation rate variables is when a country experiences a high inflation rate and is uncertain; the risk of investing in financial assets will increase. In addition, it can cause the domestic currency's weakness to depreciate against global currencies.

The linkages between industrial production index and Islamic stock prices is a positive association. As industrial production index expected an increase, stock prices of Indonesia Sharia Stock Index will be rising. The rise in the industrial production index illustrates that industry growth is improving, a positive signal for investors to invest their excess funds in the Islamic stock market.

The relationship between Indonesia Sharia Stock Index and Interest Rate is if there is an increase in BI-rate, then it is a signal where the economic situation deteriorates. Changes in bank interest rates will have an impact on other financial investment instruments, such as stocks and bonds. With the rise of BI-rate investors will see that the

capital market is not the right place to invest and will move funds into the banking sector.

Based on the literature reviewed, this study develops the following hypotheses:

H1: There is a negatively and significantly relationship between inflation rate and Indonesia Sharia Stock Index;

H2: There is a positively and significantly relationship between industrial production index and Indonesia Sharia Stock Index;

H3: There is a negatively and significantly relationship between interest rate and Indonesia Sharia Stock Index.

In this research, macroeconomic variables (inflation rate, industrial production index, and interest rates) are used as the exogenous variables, while Indonesia Sharia Stock Index is used as the endogenous variable. The selection of variables in this study are based on previous research addressed the relationship between macroeconomic factors and Islamic stock index. This study uses monthly data for all the variables over the period of May 2011 to November 2017 (79 monthly observation) taken from authorized sources. IBM SPSS 20 software is used to analyze the statistical data in this research.

2.1. Endogenous variable: Indonesia Sharia stock index

ISSI is one of Islamic stock index in Indonesia that covers the entire stock of Sharia, which is recorded in the list of Sharia-compliant effects. The data used is Indonesia Sharia Stock Index data obtained from Indonesia Stock Exchange taken from the website www.idx.co.id. The data presented in the form of monthly from May 2011 until December 2017.

2.2. Exogenous variables: Inflation rate

Inflation is a symptom of rising prices of goods that are common and continuous (Raharjo and Manurung, 2004:155 in Naf'an, 2014:109). Inflation rate data in the study is obtained from Bank Indonesia through the website www.bi.go.id based on the consumer price index (CPI). The type of the data in the form of monthly during the period of May 2011 to November 2017.

2.3. Exogenous variables: Industrial production index

Industrial Production Index used as the proxy for Gross Domestic Product because there is no monthly data of GDP. IPI is an indicator that measures the economic output of real production value with a specific base year so that the calculations do not include changes in the price. The data used is monthly data obtained from *Badan Pusat Statistik* (BPS) through the website www.bps.go.id.Data presented in the form of monthly from May 2011 until December 2017.

2.4. Exogenous variables: Interest rate

In this study, Bank Indonesia (BI) rate is a proxy for the interest rate. The BI Rate is a policy interest rate that reflects the monetary policy stance set by Bank Indonesia and is publicly announced. The BI Rate is announced by the Bank Indonesia Board of Governors at each monthly Board of Governors Meeting. As time goes by, Bank Indonesia calculated interest rate in the new reference, namely BI 7-Day Repo Rate in order to strengthen the framework of monetary operations in Indonesia. The data of BI rate and BI 7-Day Repo Rate used in this study is obtained from Bank Indonesia through the website www.bi.go.id. The type of data in the form of monthly where the data of BI rate used from May 2011 until July 2016 and BI 7-Day Repo Rate used in the period of August 2016 to November 2017.

2.5. Linear regression analysis

Linear regression analysis is used in this paper in order to estimate the linkage between selected macroeconomic variables and Indonesia Sharia Stock Index. In this section, this research uses the linear regression analysis as follows:

$$(1) \quad ISSI = \beta 0 + \beta 1 INF + \beta 2 IPI + \beta 3 IR + \varepsilon 1$$

Where (ISSI) is the monthly Indonesia Sharia Stock Index, (β0) is an intercept, (β1;2;3) are the slope in this equation, (INF) is the monthly inflation rate, (IPI) is monthly industrial production index, (IR) is the monthly interest rate, and (ε1) is the random error in equation.

3. Result and Discussion

This research uses linear regression analysis to examine the impact of macroeconomic variables on Indonesia Sharia Stock Index. Before testing the hypothesis, some tests

are done to make sure that the regression model is good. The results show that the model is good. The data is normally distributed; since the probability value of Jarque-Bera is 0.7868 and is higher than the significance rate. The model suffers from no multicollinearity issue. This can be known using a correlation matrix as the correlation value of one variable to other shows no more than 0.90, as it shows in Table 1.

Table 1: Correlation Matrix (Source: Output IBM SPSS 20 (data processed)).

Matrix	ISSI	IPI	Inflation	BI_RATE
ISSI	1.000000			
IPI	0.087937	1.000000		
Inflation	-0.169478	-0.028565	1.000000	
BI_RATE	-0.195838	-0.113458	0.238923	1.000000

Table 2 describes the results of the calculation of the coefficient of determination on the regression model in this research. The magnitude of the coefficient of determination of the regression model is 0.676 or 67.6% meaning that exogenous variables namely inflation rate, industrial production index, and interest rate are able to explain the endogenous variable Sharia Indonesia Stock Index amounted to 67.6% and the rest of the calculation 32.4% is explained by the other variables that out of this research.

Table 2: Coefficient Determination (Source: Output IBM SPSS 20 (data processed)).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.822	0.676	0.663	10.85371

This research uses linear regression analysis to examine the linkages between macroeconomic variables and Indonesia Sharia Stock Index. After computing the data using IBM SPSS 20, the regression model in this research can be written as follows:

$$(2) \quad ISSI = 22,328 + 2,28INF + 1,268IPI - 5,06IR$$

The regression model above can be concluded that if the all-exogenous variables namely inflation rate, industrial production index, and interest rate are zero or constant, then the value of endogenous variables Indonesia Sharia Stock Index is 22,328. The regression coefficient of inflation rate has a positive coefficient direction which means that every one unit increase occurred from inflation rate will cause a rise in Indonesia Sharia Stock Index amounted to 2,28, with the assumption of the other variables is constant. The regression coefficient of the industrial production index has a positive coefficient direction which means that every one unit increase occurred from the industrial production index will cause a rise in Indonesia Sharia Stock Index amounted to

1,268, with the assumption of the other variables is constant. The regression coefficient of interest rate has a negative coefficient direction, which means that every one unit increase occurred from the interest rate will cause a decrease in Indonesia Sharia Stock Index amounted to 5,06, with the assumption of the other variables is constant.

In order to examine the effect of macroeconomic variables namely inflation rate, industrial production index, and interest rate, this research does significant testing in regression model between exogenous variables namely inflation rate, industrial production index, and interest rate and endogenous variable Indonesia Sharia Stock Index. From Table 3 below, it can be concluded that there are no exogenous variables found to be insignificant.

TABLE 3: Model Summary (Source: Output IBM SPSS 20 (data processed)).

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	22.328	17.284		1.292	0.200
Inflation	2.280	0.987	0.204	2.310	0.024
IPI	1.268	0.114	0.762	11.147	0.000
BIR	-5.060	1.530	-0.295	-3.308	0.001

This study revealed that there are positively and significantly corelations between inflation rate and Sharia Indonesia Stock Index. This is demonstrated by the significant value that is below the level of significance of 5%, 0.024, which means that when the inflation rate is increasing then the Sharia Indonesia Stock Index also increased. The results of this study in accordance with the research conducted by Khil and Lee (2000) and Hussin et al. (2012) found that the connection between market share returns and consumer price index as the proxy for inflation rate is a positive one. This is in line with the findings of these researchers' studies. The scholars stressed that share prices should relate positively with the inflation rate due to value protection (hedging operation). The study conducted by the scholars was consistent with the study findings Shabri et al. (2001) who found that there is a positive relationship between share prices and inflation in Malaysia and Indonesia. As such, equity would be used as value protection from the threat of inflation and has a claim on a real asset, it proves that the higher the inflation rates, the higher the demand for a particular share.

The connection between industrial production index and Sharia Indonesia Stock Index shows the positively and significantly. This is demonstrated by the significant value that is below the level of significance of 5%, 0.000, which means that when

the industrial production index rises, it will be followed by increased Indonesia Sharia Stock Index. This finding is in line with the results found by Fama (1990), Wongbangpo and Sharma (2002), Ibrahim (2003), Hussin et al. (2012), and Sakti and Harun (2013). In the context of industrial production, the long run relationship between Islamic equity prices and industrial production is positive. Sakti and Harun (2013) conclude that this result should be expected as the changes in stock prices reflect expectations of future economic conditions. Likewise, in Islamic stock prices counterpart, changes in Islamic stock prices also reflect the future economic condition of Islamic economic activities.

On the other hand, the relationship between interest rate and Indonesia Sharia Stock Index is a negative association. This negative correlation can be due to an increase in interest rate uncertainty may lead to the decline in Islamic stock prices. This is demonstrated by the significant value that is below the level of significance of 5%, 0.001, which means that when the interest rate increases, it will be followed by a decrease in Indonesia Sharia Stock Index. This is consistent with the previous study of negatively and significantly linkages between interest rate and Islamic stock prices. Albaity (2011) found that interest rate influences the Islamic stock market indices. This result supported by the argument of Albaity (2011) that investor in general whether Moslems or not look at the same macroeconomic variables, in this case, the interest rate when deciding to invest or not. That means in a long-term, the decision of all investor can affect the Islamic stock prices. Wongbangpo and Sharma (2002) argued that investors tend to shift from investing in stocks to other assets (bond for example) when the interest rate increase to gain more expected return.

4. Conclussion

This paper examines the impact of selected macroeconomic variables, namely inflation rate, industrial production index, and the interest rate on Indonesia Sharia Stock Index over the period of May 2011 to November 2017 using linear regression analysis. Specifically, Indonesian Islamic stock market is driven more by domestic factors. It responds more to monetary shock as compared to real shock (Sakti and Harun, 2013). Results show that inflation rate has a significant impact on Islamic stock prices. From the analysis, this paper notes that there is a positive relationship between inflation rate and Islamic stock prices. In the other word, when inflation rate increases, it will be followed by an increase of Islamic stock prices. Therefore, the Indonesian monetary authorities should consider in stabilizing the inflation rate in order to increase the welfare of the people in investing in the Sariah capital market. For other macroeconomic variables, the linkages

between industrial production index and Islamic stock prices is a positive association. As industrial production index expected an increase, stock prices of Indonesia Sharia Stock Index will be rising. The rise in the industrial production index illustrates that industry growth is improving, a positive signal for investors to invest their excess funds in the Islamic stock market. Lastly, there is a negative association between interest rate and Islamic stock prices. The negative connection between interest rate and Islamic stock prices can be explained by the fact that all investor, whether Moslems or not, would analyse the interest rate in terms of decision making in Islamic stock market. Therefore, this is necessary to evaluate the relationship between macroeconomic variables and Islamic stock prices since the results would be able to bring an impact to stimulate the existence of Islamic capital market in Indonesia. It is recommended that the government authorities should stabilize and control every macroeconomic aspect like inflation rate, industrial production index, interest rate, and the others.

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