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Analysis on the Effect of Macroeconomic Variables towards Jakarta Islamic Index (JII)

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Abstract: *Jakarta Islamic Index (JII) is an interpretation of Indonesian Islamic finance. The Jakarta Islamic Index volatility is caused by macroeconomics, which triggers investors' speculation upon hearing good and bad news. The purpose of this study is to find out the probability of the Jakarta Islamic Index's (JII) regime influenced by macroeconomics. The research method used is quantitative descriptive to determine the effect of inflation, Sharia Bank Indonesia Certificate (SBIS), trade balance, Exchange Rate, and National Income (GDP) on the Jakarta Islamic Index (JII) from January 2008 to September 2019 using Markov Switching. The results of the study shows that there are 2 regimes, namely regime 1 which is bad and regime 2 which is good. The partial test is that inflation and SBIS have a significant negative effect on reducing investment in JII, and that Trade Balance, Exchange Rate, and GDP have a significant positive effect on increasing investment in JII.*

Keywords: *Jakarta Islamic Index (JII), Macroeconomics, Structural Break Regime*

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I. Introduction

a. Background

Investors make Islamic investments in the Jakarta Islamic Index (JII) to improve the financial insight on the Indonesia Stock Exchange (IDX). The stock price index is the benchmark for investment achievements in Indonesia (Sriwarhani, 2009). The Jakarta Islamic Index has 30 Islamic shares to make halal investments (Sunariyati, 2014). The problem of the Jakarta Islamic Index (JII) is that its investment activities are similar with the conventional capital markets, such as how the interest rates affect the speculation activities and the Capital Market Supervisory Board (Bapepam) LK has not firmly enforced sharia investment policy yet by banning maghrib (Sriwadhani, 2009). Investors speculate on bearish and bullish regimes in asymmetric information to gain profits (Ekananda, 2018).

The decline of investment in the Jakarta Islamic Index (JII) was caused by increased inflation and the Sharia Bank Indonesia Certificate (SBIS). Inflation is a decrease of money value which in turn increases prices in general, causing companies loss (Pranowo & Wulandari, 2009). Bank Indonesia uses an open market operation policy to control price stability by issuing a Sharia Bank Indonesia Certificate (SBIS) (Simolangkir, 2014), resulting in an increase in exports which causes positive trade balance and rupiah appreciation.

The increase in investment in the Jakarta Islamic Index (JII) due to the trade balance surplus causes rupiah appreciation and economic growth. The trade balance surplus is a condition where exports are higher than imports, causing rupiah appreciation (Sukirno, 2010). According to Ibnu Thaimiah, rupiah appreciation occurred due to trade balance surplus and the seignorage similar with the real sector (Karim, 2011), resulting in economic growth which increases consumption, savings, and investment (Murni, 2017).

Previous research from Pratiwi (2010) stated that the economic crisis in 2008 caused high volatility in the Jakarta Islamic Index (JII) due to the DJIA, exchange rates, crude oil prices, and SBIS. Therefore, the author uses the title ***"Analysis on the Effect of Macroeconomics Variables towards Jakarta Islamic Index".*** The purpose of this study is to find out the probability of the Jakarta Islamic Index's (JII) regime influenced by macroeconomics.

THEORETICAL FRAMEWORK

a. Jakarta Islamic Index (JII)

Islamic capital market is an institution that conducts intermediation between investors *(shahibul maal)* and issuers *(mudhrib)* to get the benefits of liquidity in the secondary market with the principles of justice and halalism. The Jakarta Islamic Index (JII) was launched on March 14, 2003, as a collaboration between Jakarta Stock Exchange and PT Dana Reksa Investment Management (PTDIM) (Sunariyah, 2014). The criteria for shares to enter Jakarta Islamic Index are a) having a processing business type and halal products, b) having interest <15% and debt ratio <82%, and c) conducting screening on 30 stocks that have the biggest capitalization (DSN MUI No. 40 2003).

b. Inflation

Inflation is an increase in prices caused by excessive consumption exceeding supply, high liquidity, and uneven distribution of goods (Al Arif, 2016). The causes of inflation according to the Islamic economy are a) corruption and poor government administration, in which corruption causes producers to increase transaction costs, thereby reducing output (Karim, 2011), b) high taxes results in reduced production and aggregate consumption (Arif, 2016), and c) the government prints excessive money, causing a decrease in money value (Naf'an, 2016).

Inflation reduces the investment in the Jakarta Islamic Index (JII). According to Conventional economics, inflation causes a decrease in output, causing the government to raise interest rates in order to control price stability (Blanchard & Johnson, 2018). According to Islamic economics, Central Bank maintains money distribution through minimum reserve and current account to increase investments in the real sector, increasing investment on sharia stocks (Naf'an, 2016).

c. Sharia Bank Indonesia Certificate (SBIS)

Sharia Bank Indonesia Certificate (SBIS) is a short-term security for monetary control and having sharia principles (Simolangkir, 2014). SBIS Jualah is where the central bank acts as the employer (jail), the sharia bank acts as the recipient of the job (majuallah) and the object is the participation of the sharia bank when issuing SBIS (DSN No. 64/DSN MUI/XII/2007).

Sharia Bank Indonesia Certificate (SBIS) decreases the investment in the Jakarta Islamic Index (JII). The yield rate of SBIS is the BI Rate based on the shortest tenor (1 month) in order for Islamic banks to be able to channel their excess funds to invest in SBIS (www.bi.go.id). SBIS investment is a low-risk investment and a normal return so that investors reduce investment in Islamic shares (Pratikno & Wulandari, 2010).

d. Trade Balance

Trade Balance is a balance that records the activities of selling goods abroad (exports) to generate foreign exchange on the credit side and activities to buy goods from abroad (imports) on the debit side (Sukirno,2010). According to Abu Ubaid, the increase in exports was due to the Islamic state setting Usyur (a tax imposed on merchandise valued at 200 dirhams and 20 dinars entering Islamic state) (Naf'an, 2016).

The trade balance surplus increases investment in the Jakarta Islamic Index (JII). According to the conventional economy, the trade balance deficit causes rupiah depreciation, thereby increasing foreign exchange reserves (Miskhin, 2018). According to Islamic economics, the government sets a tax (usyr) of 5% on imported goods to maintain domestic price stability (Naufan, 2016).

e. Exchange Rate

The exchange rate is a benchmark of the exchange rate of a foreign country against a domestic currency when carrying out exports and imports (Blanchard & Jhonson, 2018). Foreign factors that cause exchange rate volatility are: 1) Non-Engineered/Non-Manipulated Changes, which is the depreciation of rupiah when foreign central banks reduce foreign exchange supply. The domestic central bank performs sterile intervention by selling foreign exchange and unsterile intervention by printing currency (Al-Arif, 2016), and 2) Engineered/Manipulation Changes, which is the depreciation of rupiah due to hoarding (ikhtikar) through offer manipulation and *bai najasy* through demand manipulation, where intervention is needed to be stable (Karim, 2011).

The appreciation of rupiah increases investment in the Jakarta Islamic Index (JII). According to conventional economics, the expansive fiscal policy can increase the trade balance surplus, then Bank Indonesia uses contractive monetary policy to maintain low inflation rate and rupiah appreciation (Blanchard & Johnson, 2018). According to the sharia economics, the Central Bank performs an unsterile intervention and the Al Hisbah Council to address fraud in foreign currency manipulation, thereby increasing investment in sharia shares (Al Arif, 2016).

f. National Income (GDP)

Gross Domestic Revenue (GDP) is goods and services produced by citizens from within and outside the country in one year (Murni, 2017). Economic growth is caused by a) optimal and efficient management of natural resources, b) good moral and professionalism of workforces, c) increase in labor-intensive entrepreneurs rather than large industries, d) innovative technology for product innovation to produce new goods and cheap technical innovations in producing goods (Naf'an, 2016).

Economic growth reduces stock investment in the Jakarta Islamic Index (JII). Economic growth due to Islamic production factors increases the purchasing power of the people, thus increasing the speculation of buying Islamic stocks due to high rational expectations (Miskhin, 2018).

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II. Research Methodology

A. Research Design

This research is a descriptive quantitative study to examine the phenomenon of the Jakarta Islamic Index (JII) affected by macroeconomics. The dependent variable is the Jakarta Islamic Index (JII) (Y), while the independent variables are Inflation (X1), Sharia Bank Indonesia Certificate (SBIS) (X2), Trade Balance (X3), Exchange Rate (X4), and National Income (GDP) (X5). Saturation sampling is used to obtain time series data and accessible external secondary data that has been processed by an institution (Sinambela, 2016). Secondary data, namely inflation, Sharia Bank Indonesia Certificate (SBIS) and exchange rates in 2008-2019 was obtained from Bank Indonesia (BI), while national income and trade balance in 2008-2019 was obtained from the Central Statistics Agency and the Jakarta Islamic Index (JII) in 2008-2019 was obtained from the Financial Services Authority .

B. Data Analysis

1. Classical Assumptions and Stationary Test

There are 4 classic assumptions tests so that the data can be BLUE, namely: a) Normality test, where the data is normal if the value of p>0.05 and <10.597 on Jarque Berra (Ekananda, 2018), b) Multicollinearity Test, to test the relationship between independent and dependent variables having a high correlation, which can be detected through the value of R^2 (Ghozali & Ratmoro, 2016), c) Autocorrelation, which is a long-term change in time series data, commonly measured by Lagrage Multiplier Test (LM Test) for multiple degrees of autocorrelation (Mukhlis & Simanjuntak, 2017), and d) Heteroscedasticity test, to test that there is no similarity in residual variation in the independent variables using the White Test (Ghozali &Ratmoro, 2016).

Stationary tests were tested using Augmented Dickey-Fuller (ADF), which is when the unit root (yt is non-stationary) is present in variable yt in the null hypothesis (= 0 or p = 0) (Ekananda, 2018).

2. Markov Switching

According to Ekananda (2018), there is a difference in the Markov Switching Method in which each regime has a different regression, consists of a) Regime Probability, namely the existence of a likelihood as an additional parameter to treat constant probabilities and b) Filtering is the changes of regime probability that depends on the dependent variable when one step ahead.

III. Results

A. Descriptive Statistics Test

The Jakarta Index (JII) is an index of an interpretation of Islamic finance in Indonesia which has 30 shares according to Islamic sharia principles and has been screened (Sunariyati, 2014). Jakarta Islamic Index (JII) in 2008-2010 had the lowest value in 2008 which was 216.19, while the highest value was in 2017 with 759.07.

Macroeconomics variables in this study are inflation and exchange rate. Inflation is a general increase in prices caused by decrease in money (Pranowo & Wulandari, 2009). The lowest inflation value was in 2009 with 2.78%, while the highest inflation was in 2008 with 11.06%.

Sharia Bank Indonesia Certificate is a security with sharia principles of one month tenor issued by Bank Indonesia so that investors can get fees, margins and returns when making investments (Simolangkir, 2014). Based on the data below, it is known that the biggest Sharia Bank Indonesia Certificate (SBIS) was in 2008 with 11.8%, while the lowest was in 2012 with 4,802.

The trade balance is a place to record Indonesia's export and import activities (Sukirno, 2010). Based on the data below, it is known that the highest trade balance was in 2010, reaching 33,630 billion rupiahs and the trade balance experienced a deficit of -15,566 billion rupiahs in 2018.

The exchange rate is the value of Indonesian currency compared to other currencies to buy goods in international trade (Blanchard & Johnson, 2018). The lowest rupiah exchange rate (depreciation) was in 2018 with Rp.14481 and the highest value of rupiah (appreciation) was Rp.8991 in 2010.

National income is all goods and services produced by citizens in one period (Sukirno, 2010). The largest national income (GDP) was in 2018, reaching Rp.10425,316 billion and the lowest was in 2008 with Rp.4954 billion, with an average of 8010.80.

Inflation	SBIS	balance of trade	Kurs	GDP	JII
11.06	11.8	12.691	10995	4948.688	216.19
2.78	6.588	28.699	9415	5606.203	417.18
6.96	6.602	33.630	8991	6864.131	532.90
3.79	5.038	5.460	9068	7287.635	537.03
4.30	4.802	-1.819	9670	7727.083	594.79
8.38	7.216	18.430	12189	8156.497	585.11
8.36	6.866	0.023	12440	8564.86	683.11
3.35	7.125	-2.210	13795	8982.51	593.25

3.02	5.95	14.107	13436	9434.61	694.13
3.61	5.241	-3.251	13546	9913.7	759.07
3.13	6.902	-15.566	14481	10425.32	685.22
3.39	5.641	14.770	14174	8206.05	688.17

B. Data Analysis

1. Classic Assumption Test

The classic assumption test aims to make the data BLUE, thus making it possible to conduct the research. A) The normality test results show that the data are normal as the prob value is 0.227>0.05 and the jarque bera value is 2.959<10.597. b) There is no multicollinearity problem as the autocorrelation value between variables is 0.722<0.85 c) There is a positive autocorrelation problem using LM test as the prob value is 0.00<0.05 d) There is no heteroscedasticity problem through the White test as the prob value is 0.0009<0.05.

The stationary test results show the inflation value of -7.39, SBIS value of -5.487, trade balance of -17.270, exchange rate of 11.4, GDP of -3.482, and JII of -10.170 lower than -3.477 at 1% level and -2.578 at 10% level, thus the data is stationary.

2. Markov Switching

a. Markov Switching Regression Test

The result of the regression is Y = 546.1640 C1 + 675.5702 C2 -2.488644X1 -53.08451 X2 -1.135896 X3 + 0.027215 X4 + 0.002703 X5 + 3.760821 X6 + 2.390126 Z1 – 3.074099 Z2 meaning that 1) in regime 1, there was an increase of 6.65 and 755, 2) an increase in inflation causes a decrease in JII around -2.488644, 3) an increase in SBIS decreased the value of JII around -53.08451, 4) an increase in the trade balance decreases JII around -1.135896, 5) an increase in exchange rate increases JII around 0.027215, 6) an increase in the JII GDP causes the high value of JII around 0.002703, 7) Log (Sigma) of 3.760821, and 8) on the transition matrix there is an increase in P11-C, which causes the value of JII to rise around 2.390126 and an increase in P21-C, which causes a decrease in JII around -3.074099.

b. Partial Markov Switching Test

The partial test results are 1) regulations 1 and 2 are significantly positive with JII and macroeconomics as the value is 0.00<0.05, 2) inflation has no significant negative effect on JII as the value is -0.873553<0.674, 3) SBIS is significantly negative towards JII as prob 0.00<0.05, 4) the trade balance is significantly positive towards JII as 0.0012<0.05, 5) exchange rate is significantly positive towards JII as 9.907767>0.674, 6) GDP is significantly positive towards JII as 1.400866>0.67, 7) Sig log is significantly related to JII as 0.67<58.76201, 8) P11-C is significantly related to JII and macroeconomics as 0.67 <4.681599, and 9) P21-C is significantly related to macroeconomics and JII as prob is 0.00<0.05.

c. Regime Probability Test

The fixed opportunities of macroeconomics and JII in regime 1 have a value of 0.916071 and can move to regime 2 with a value of 0.083929. Moving opportunities of macroeconomic and JII in regime 2 are 0.044188 and remain in regime 2 with a value of 0.955812. In regime 2, it was considered good regime as it had the longest time change of around 22,63038 weeks compared to regime 1 which was considered bad regime with a time change of 11,91486 weeks.

IV. Discussion

a. Inflation Affects Investment in Jakarta Islamic Index (JII)

Inflation has no significant negative effect on the Jakarta Islamic Index (JII) in regime 2 in 2014-2019. Inflation is caused by demand withdrawal and cost reinforcement, causing company loss (Pranowo & Wulandari, 2009). The economic crisis in 2008 had an inflation rate of around 12%, causing a decrease in both production and real purchasing power of the people (Naf'an,2016).Macroprudential policies such as the Statutory Reserves based on Loan to Deposit Ratio (GWM LDR), Transparency of interest rates and basic credit sharing, and Countercyclical Capital Buffer (CCB) to overcome inflation shock on financial market risk. The inflation term policy in the form of Inflation Targeting Framework (ITF) can maintain price stability, thereby increasing investment in Islamic stocks (Simolangkir, 2014).

The existence of Islamic monetary instruments and policies can increase investment in the Jakarta Islamic Index (JII). According to Islamic economics, there are 3 instruments to control inflation, which are 1) Madzhab Iqtisoduna through the aggregate demand approach (consumption, investment, and trade), 2) Mainstream Madzhab with taxation on idle funds and profit-sharing systems in syirkah and, 3) Critical Madzhab through mixed policy between the monetary and real sector (Karim, 2011). Bank Indonesia sharia's contractive monetary policy in maintaining growth in circulation of money, minimum reserves, and deposits for social activities can reduce inflation (Huda et. al.: 2012).

This is supported by the research of Merancia (2010:), stating that inflation is caused by high money circulation that causes the government to raise interest rates, affecting the decline in production of goods so that stock returns are low. This is different from Astungkoro's research (2010), stating producers impose additional costs on consumers at time of inflation in order to attract demand so that profitability rises.

b. Sharia Bank Indonesia Certificate (SBIS) Affects Investment in the Jakarta Islamic Index (JII)

The increase in Sharia Bank Indonesia Certificates (SBIS) in the good and bad regimes is significantly negative related to low investment in the Jakarta Islamic Index (JII). Procedures for conducting dynamic open market operations and defenders to sell Sharia Bank Indonesia Certificates (SBIS) with SOR to investors and Sharia Commercial Banks could help in controlling price stability and reducing investment in Islamic stocks (Miskhin, 2018 and Pranowo & Wulandari, 2009).

The increase in investment in Sharia Bank Indonesia Certificates was due to high investor expectations and hand an impact on economic stability. The increase in investment in Sharia Bank Indonesia Certificates (SBIS) was due to the theory of expectation, premium liquidity and preferred habi theory which led to suboptimal stock conditions according to Tobin's Q theory (Miskhin, 2018). The impact of the sale of Sharia Bank Indonesia Certificates (SBIS) affects financial instruments and maintains economic stability with changes in reserve demand deposits, changes in yields and high prices, and changes in optimistic investor expectations. The impact is reduced investment in Islamic stocks in the Jakarta Islamic Index (JII) (Karim, 2011).

This is supported by Merancia (2010), stating that investment in the Jakarta Islamic Index (JII) is still affected by interest rates, so an increase in interest rates causes the investment in the Islamic stock market to decline. This is different from Pratikno (2009), which stated that a decrease in interest rates causes an increase in the price of Islamic shares as the company gets profit.

c. Trade Balance Affects Investment in the Jakarta Islamic Index (JII)

An increase in the trade balance causes an increase of investment in the Jakarta Islamic Index (JII). Economic growth is caused by technological advances that drive exports, so the trade balance becomes positive (Salvatore, 2014). Excise tax and the Al Hisbah Council on tariff and non-tariff protection to reduce imported products. The government provides subsidies to increase exports so that the trade balance is positive (Naf'an, 2016). The impact is an increase in issuers' income making investment increases in the Jakarta Islamic Index (JII).

Issuers improve production efficiency and the government prioritizes industry to increase the trade balance surplus. Issuers' strategy to increase output from macroeconomic fluctuations during the bad regime in 2008 was to hedge raw materials and rigid wages to workers, and use appropriate technology to increase production to produce output (Blenchard & Johnson, 2018). The government's strategy to increase the trade balance surplus is a diversification policy for the transformation of the agricultural sector into industry, formulating and implementing economic planning, and industrial policy (Murni, 2017).

This is supported by Purnamahadi (2014), stating that real exchange rate has a significant effect on the trade balance surplus due to high exports, thereby increasing investment in shares. This is different from Napoline (2009), which stated that the depreciation of rupiah is caused by a deficit in the trade balance.

d. Exchange Rates Affect Investment in the Jakarta Islamic Index (JII)

Rupiah appreciation causes an increase of investment in the Jakarta Islamic Index (JII). The appreciation of the rupiah leads to efficiency in production costs, thereby increasing exports and increasing investment in the Jakarta Islamic Index (JII) (Miskhin, 2018). The government must ban the use of interest rates in financial and trade transactions (syirkah), prohibit currency trading and print money according to the real sector's needs to increase production. The impact is the appreciation of the rupiah, thereby increasing investment in the Jakarta Islamic Index (JII) (Naf'an, 2016)

Macroprudential policy and unsterile intervention make monetary transmission in the form of rupiah appreciation causes an increase of investment in Islamic stocks. Bank Indonesia conducts unsterile intervention by conducting non-engineered and Al Hisbah to take action on the manipulation of foreign exchange demand and supply so that the appreciation of rupiah increases the investment in Jakarta Islamic Index (JII) (Karim, 2011). Macroprudential policy to maintain foreign exchange position and the existence of rupiah appreciation transmission increases public expectations, thus increasing exports and investment in Jakarta Islamic Index (JII) (Simolangkir, 2014).

This is supported by Nugraha's research (2008) which stated that the trade balance surplus increases foreign exchange reserves, resulting in an appreciation of the rupiah. The strengthening of the rupiah makes an increase in stock returns, thus increasing stock investment. This is different from Merancia's research (2010), where issuers have large import content so that production costs rise to pay for imported equipment or raw materials. This has an impact on weakening investment in the capital market.

e. National Income (GDP) Affects Investment in the Jakarta Islamic Index (JII)

Economic growth leads to increased investment in the Jakarta Islamic Index (JII). Economic growth must include spiritual and moral elements in natural resources according to the optimal Pareto, workforces with high productivity, and technological advances that produce efficiency in producing output (Naf'an, 2016). Economic

growth make an increase in sharia stock investments, as people invest in other more profitable portfolios (Husnan, 2012). An expansive monetary policy such as reduction in profit sharing on credit in the financial market (LM) can increase investment in the real sector. Defactionary fiscal policy in the form of tax cuts and increased government spending increases production and absorbs labor in the goods market (IS), causing investment deepening in the Jakarta Islamic Index (JII) (Sukirno, 2010).

Investors must get perfect information when investing in Islamic stocks. GDP is the main indicator for investors to make investments (Mulyani, 2012). Investors get perfect information about sharia stocks that are of good and bad quality to avoid adverse selection and the lemon problem. This information was obtained from Capital Market Supervisory Board (Bapepam) LK, the Financial Services Authority and banking. Investors hedge sharia shares containing benchmark on real assets and investors diversify their investments to protect themselves from large losses (Miskhin, 2018).

This is supported by Purnamahadi (2014), stating that freedom of international trade creates a positive trade balance, thereby increasing investment in the CSPI. This is different from Haykal (2018) stating that countries that do not use the Inflation Targeting Framework (ITF) are very vulnerable to inflation shock, resulting in low GDP and investment stocks.

V. Conclusion

In conclusion, in the Breakpoint test there were 4 breaks in 2008-2018. In the Markov Switching test, there are 2 regimes namely the bad regime in the 2008-2010 period and the good regime in the 2011-2019 period. A) The exchange rate and trade balance increase investment in sharia shares, while Sharia Bank Indonesia Certificate decreases investment in sharia shares. B) Inflation does not affect investment in Islamic stocks, while economic growth increases investment in the Jakarta Islamic Index (JII).

It is advisable for Capital Market Supervisory Board (Bapepam) LK to a) prohibit speculative activities of buying and selling information contrary to religion, and b) separate short-term stock fluctuation activities in the conventional capital market and establish stock relations with the real sector (Sriwardhani, 2009).

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