Macroeconomic Variables, Global Stock, and Financial Sector Stock Indices in Indonesia

Aam Slamet Rusydiana[1], Dito Prakoso[2], Ihsanul Ikhwan[3]

[1]SMART Indonesia
[2]IPB University, Indonesia
[3]IIUM University, Malaysia

This study aims to analyze the impact of macroeconomic variables and global stock indices on the financial sector stock index in Indonesia. The data used is secondary data in the form of monthly time series from January 2010 to December 2019, which comes from Bank Indonesia, the Central Bureau of Statistics (BPS), and Yahoo Finance. The variables of this study include the Jakarta Islamic Index (Indonesia), IDX Sectoral Index (Indonesia), Money Supply Inflation, Rupiah against USD Exchange Rate, Crude Palm Oil Price, Industrial Production Index, KL Financial Sectoral Index (Malaysia), SET Financial Sectoral Index (Thailand) and S&P 500 Stock Index (USA). The analysis method used is Autoregressive Distributed Lag (ARDL). The results concluded that the short-term estimation resulted in the exchange rate variable, the Industrial Production Index (IPI), and the Thailand SET financial sector stock index having a significant effect on the JII index, while the money supply variable, the Malaysia KL financial sector stock index, the Thailand SET financial sector stock index, and the US S&P 500 stock index had a significant effect on the IDX financial sector index. Then, the long-term estimation found that the Thailand SET financial sector stock index variable has a significant effect on the JII. Then, in the IDX financial sector index model, there are two significant variables, namely money supply and Industrial Production Index.

Keywords: Macroeconomics; Stock Index; Financial Sector; Indonesia

OPEN ACCESS

*Correspondence:
Aam Slamet Rusydiana
aamsmart@gmail.com

Received: 21 October 2022
Accepted: 16 November 2022
Published: 31 December 2022

Citation:
(2022) Macroeconomic Variables, Global Stock, and Financial Sector Stock Indices in Indonesia. Management and Sustainability. 1.1.

.

INTRODUCTION

The capital market plays an important role in today's global economy, especially for Indonesia as a country whose financial markets are developing, both as a place to raise funds, an alternative place of investment through the sale of shares and issuance of bonds, as well as an indicator of the stability of macroeconomic conditions (Beik & Fatmawati, 2014). Although the capital market does not directly impact all economic objectives, it has a strong influence. The availability and cost of funds in the capital market have a major influence on the ability and willingness of businesses to invest. For the economy as a whole, the amount of investment in capital goods represents a significant portion of all spending on goods and services, so any changes in the availability and cost of funds in the capital markets will affect the economy as a whole (Federal Reserve Bank of Dallas, 2023). Nuryasman & Permatasari (2016) explain that the capital market itself is a place for buying and selling long-term financial instruments, such as debt, equity (shares), and derivative instruments. In addition, the capital market is also a representation to assess the condition of companies in a country because almost all industries in a country are represented by the capital market. Therefore, the capital market is one of the tools to drive a country's economy, namely by providing a means for investing activities.

According to Zaretta & Yovita (2019) due to its significant role in a country's economy, the capital market can also be used as a measure of the country's economic health. If a country's capital market grows rapidly, foreign investors will be attracted to buy shares on the stock exchange. This will result in capital inflows in an open economy. This will hopefully result in an increase in the exchange rate. Conversely, if there is a large exchange rate volatility that causes Rupiah depreciation, it will negatively affect the performance of industries in Indonesia, especially for businesses that import or borrow from abroad, which in turn can have an impact on the company's share price. Beik & Fatmawati (2014) argue that Indonesia's investment ecosystem is starting to show good development. This is indicated by the better performance of the Composite Stock Price Index (CSPI), LQ45, Jakarta Islamic Index (JII), and Indonesian Sharia Stock Index (ISSI), which shows the actual condition of the Indonesian Islamic capital market. It is expected that this capital market growth will be able to improve the performance of the national economy while strengthening economic fundamentals in the face of crisis.

It is known that the COVID-19 pandemic has had a significant impact on the investment ecosystem and capital markets, which in turn has impacted the economy. The pandemic triggered a collapse in stock prices, increasing market volatility and uncertainty (Bradley & Stumpner, 2021). The past year has seen a major shift in sector performance, reflecting changing expectations about the duration of the pandemic and its impact on consumers and businesses. Some sectors, such as advanced electronics, high-tech, and medical technology, experienced growth and outperformance, while others, such as banks, telecommunications, and the energy industry, faced challenges and weak market performance. Bradley & Stumpner (2021) added that the pandemic acted as an accelerator to existing trends, such as digitalization and remote working, which impacted the investment ecosystem and capital markets. It has also prompted structural changes in the business world, which has a potential long-term impact on the economy. The impact of the pandemic has caused tremendous economic and market turmoil, highlighting the need for risk management and performance of critical services by financial market infrastructures (DTCC, 2021). Baret et al (2020) also stated that the continued uncertainty surrounding COVID-19 has prompted banks and capital markets to actively consider the financial, risk and regulatory compliance implications in the short and medium term, requiring scenario planning and agile decision-making.

Nuryasman & Permatasari (2016) explain that central bank interest rates, global economic conditions, energy price levels, political stability of a country, and many other factors can affect the stock price index in the capital market. In addition to these factors, investors' own attitudes will also affect the movement of the stock index. Due to its huge influence on the current account and other macro factors, the exchange rate is one of the most important prices in an open economy. Investors will prefer to invest in the stock market when the exchange rate falls, which means stock prices will rise. This shows that the relationship between the rupiah exchange rate and stock prices is in the opposite direction. If the exchange rate of the rupiah against the US dollar is higher, stock prices will be higher, but if the exchange rate of the rupiah against the US dollar is lower, stock prices will be lower.

In addition, inflation, or the general rate of increase in the prices of goods and services, can also have an impact on stock price indices. When inflation

is high, consumer purchasing power decreases, which can lead to a decrease in company profits and a subsequent decrease in share prices. In addition, high inflation can lead to higher interest rates, making loans more expensive for companies, potentially impacting their profitability and share price (Poluan, 2013; Depari, 2022). Money supply, which refers to the total amount of money in an economy, can also affect the stock price index. An increase in money supply can lead to an increase in consumer spending and business investment, which can boost corporate profits and, subsequently, stock prices. However, if an increase in money supply is not accompanied by an increase in production, it can lead to inflation, which can adversely affect the stock price index (Nurmansyah & Thamrin, 2022; Karimova et al., 2022). Conversely, a decrease in money supply may lead to a decrease in consumer spending and business investment, potentially impacting corporate profits and stock prices.

Based on these facts, it can be concluded that stock indices in the capital market in the context of the global economy and especially for Indonesia, play an important role as an indicator of macroeconomic stability as well as an important tool for raising funds and as an alternative investment venue. The capital market provides an overview of the condition of companies in the country as well as being a tool to drive the economy through investment activities. However, external conditions such as exchange rate fluctuations, the impact of crises, and macroeconomic factors such as inflation, energy price levels or industrial production indices, and money supply, have a significant influence on capital market performance, especially stock prices. There is a link between changes in these economic variables and stock price fluctuations that can have a positive or negative impact on the economy as a whole, emphasizing the need for risk management and capital market adaptability to global economic dynamics to maintain long-term economic stability and growth.

Some relevant studies include Beik & Fatmawati (2014) who examined the influence of international Islamic stock markets and macroeconomic variables on the Jakarta Islamic Index (JII). The results showed that the JII was positively and significantly influenced by DJIEU, DJIMY, and IPI, but negatively and significantly influenced by DJIJP, IMUS, M2, and SBIS. The JII reaches its stability state quickly when facing money supply shocks. Therefore, this study recommends strengthening coordination between monetary authorities and financial services authorities, strengthening the real sector of the economy, minimizing the influence of interest rates on Islamic financial markets, and developing an early warning system to anticipate financial crises.

Nuryasman & Permatasari (2016) tested macroeconomic variables and the global stock price index that affect LQ45 stock prices. This study concluded that the t-test results showed that gold prices had no effect on LQ45 stock prices. While the Rupiah Exchange Rate, Interest Rate (SBI), and Dow Jones Industrial Average Stock Price Index have an influence on LQ45 stock prices. The results of the F test (joint testing) show that there is a significant joint effect between the Rupiah Exchange Rate, Interest Rate (SBI), gold price, and the Dow Jones Industrial Average Stock Price Index on LQ45 stock prices. The ECM Model results show that between the Rupiah Exchange Rate, Interest Rate (SBI), gold price, and the Dow Jones Industrial Average Stock Price Index on LQ45 stock prices, there is the ability to achieve equilibrium in the long run.

Zaretta & Yovita (2019) analyzed the dynamics of long-term and short-term relationships for the variables of the Rupiah exchange rate against the US Dollar, BI Rate and JCI. This study concluded that the Rupiah exchange rate against the US Dollar, BI Rate, and JCI are proven to have cointegration in the long run or move together in the long run. Not only that, the three variables also show the dynamics of short-term relationships with a fairly high speed of adjustment towards equilibrium every month. Nurmansyah & Thamrin (2022) analyzed the short-term and long-term relationship between five macroeconomic variables such as exchange rate, inflation, Gross Domestic Product (GDP), SBI rate, and money supply to test their influence on the LQ45 stock price index. The results showed that in the short term (1 month ago), the exchange rate, inflation, Gross Domestic Product (GDP), SBI rate, and money supply had no effect on the LQ45 stock price index. In the long term, positive inflation exchange rate, SBI interest rate, and money supply have a negative effect on the LQ45 stock price index. Therefore, Gross Domestic Product (GDP) has no effect on the LQ45 stock price index. The results of the Impulse Response Function and Variance Decomposition, the SBI interest rate is the variable that makes the most significant contribution to the LQ45 stock price index.

Karimova et al (2022) analyzed the long-term relationship between money supply and the consumer price index of the Republic of Azerbaijan. This study

concluded that using various methods showed that the dynamics of monetary aggregates M1 and M2 determine the growth of the consumer price index in Azerbaijan both in the long and short term. Poluan (2013) analyzed the effect of inflation, Gross Domestic Product (GDP), money supply, Rupiah exchange rate, and interest rates of the Indonesian central bank (macroeconomic factors) on stock returns listed on the Composite Stock Price Index (JCI). The results concluded that macroeconomic factors, namely inflation, Gross Domestic Product (GDP), money supply, exchange rates, and interest rates. Interest rates have a significant influence on stock returns listed on the Composite Stock Price Index (JCI). Depari (2022) analyzed the relationship of macroeconomic variables with JCI, STI, and KLSE which are stock price indices of Indonesia, Singapore, and Malaysia. The results of his study found that inflation has a negative effect, while the interest rate differential has a positive effect on the stock price index. Investors can benefit from this situation by buying blue chips when inflation and interest rates increase.

Other studies include Keswani & Wadhwa (2019) explaining the impact of macroeconomic variables on the stock market; Hosseini et al (2011) explaining the role of macroeconomic variables on stock market indices in China and India; Pradhan et al (2014) examining the causal relationship between economic growth, banking sector development, stock market development, and other macroeconomic variables in ASEAN countries; Kyereboah-Coleman & Agyire-Tettey (2008) examine the impact of macroeconomic indicators on stock market performance; Barakat et al (2016) discuss the impact of macroeconomic variables on the stock market; and Masyami et al (2004) analyze the relationship between macroeconomic variables and stock market indices.

METHODOLOGY AND DATA

Data Type and Source

The data used in this study is secondary data in the form of monthly time series from January 2010 to December 2019. The data is obtained from several sources such as Bank Indonesia, the Central Bureau of Statistics (BPS), and Yahoo Finance. Next, the estimation process will be carried out by specifying the model that can be formulated in this study. There are two models used to analyze the influence of macroeconomic variables and international stock indices on the IDX stock index, namely the Jakarta Islamic Index (JII) index model and the IDX financial sector index. The modeling in this study is as follows:

JII Model 1 (Error Correction Model)

$$\Delta INF_t = \alpha + \sum_{i=1}^{p} \beta_1 \Delta BIRATE_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta LN\_EXC_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta LN\_M2_{t-i} + \sum_{i=1}^{p} \beta_4 \Delta LN\_PUAB_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta LN\_PUAS_{t-i} + \sum_{i=1}^{p} \beta_6 \Delta SBIS_{t-i} + \delta ECT_{t-i} + \varepsilon_t \quad (2)$$

Model 2 IDX (*Error Correction Model*)

$$\Delta GDP_t = \alpha + \sum_{i=1}^{p} \beta_1 \Delta BIRATE_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta LN\_EXC_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta LN\_M2_{t-i} + \sum_{i=1}^{p} \beta_4 \Delta LN\_PUAB_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta LN\_PUAS_{t-i} + \sum_{i=1}^{p} \beta_6 \Delta SBIS_{t-i} + \delta ECT_{t-i} + \varepsilon_t \quad (4)$$

The following is a list of variables used in this study:

Table 1. List of Variables

No.	Variables	Description	Unit
1	LN_JII	*Jakarta Islamic Index* (Indonesia)	Natural Logarithm (LN)
2	LN_IDX	IDX Finance Sectoral Index (Indonesia)	Natural Logarithm (LN)
3	LN_M2	Money in circulation	Natural Logarithm (LN)
4	INF	Inflation	Percent (%)
5	LN_EX	Rupiah to USD exchange rate	Natural Logarithm (LN)
6	LN_COP	Crude Palm Oil Price	Natural Logarithm (LN)
7	LN_IPI	Industrial Production Index	Natural Logarithm (LN)
8	LN_KL	KL Financial Sectoral Index (Malaysia)	Natural Logarithm (LN)
9	LN_SET	SET Financial Sectoral Index (Thailand)	Natural Logarithm (LN)
10	LN_SP500	S&P 500 Stock Index (USA)	Natural Logarithm (LN)

Methods

This research uses an estimation method with Autoregressive Distributed Lag (ARDL) analysis. The ARDL method is an econometric method that can estimate linear regression models in analyzing long-term relationships involving cointegration tests among time series variables. The ARDL method was first introduced by Pesaran and Shin (1999) with a cointegration test approach with the Bound Test Cointegration test. The cointegration test in this method is conducted by comparing the F-statistic value with the F-table value prepared by Pesaran and Shin (1999).

Some literature on cointegration tests that can be used such as Johansen, Engel-Granger, Phillips and Hansen, Phillips and Loretan require the need for the estimated variables to be integrated in the same level at order I(1) or first difference. To overcome this, Pesaran and Shin (1999) developed the ARDL method using Bound Testing Cointegration. If cointegration is found in the model, the next step is to estimate the ARDL model and then continue with the Error Correction Model (ECM) estimation.

ARDL model estimation and identification can use Ordinary Least Square (OLS) if the ARDL order has been determined (Pesaran, Shin, & Smith, 2001). Furthermore, OLS can be used if several OLS assumptions that bind the related econometric estimation are met. An estimator that meets the Best Linear Unbiased Estimator (BLUE) is a requirement for an OLS estimation model to be used as a basis for analysis. While some problems in violation of OLS assumptions include: multicollinearity problems, heteroscedasticity problems, autocorrelation, and functional misspecification.

RESULTS AND DISCUSSION

Stationarity Test Results

The first step is to test the stationarity of all variables. The data stationarity test is conducted to see whether there is a unit root among the variables based on the Augmented Dickey-Fuller (ADF) test at the level and first difference. If the ADF statistic value is smaller than the MacKinnon Critical Values value, the data is stationary at a predetermined real level. Stationarity test can also be seen from the ADF probability value less than the real level. The stationary test results can be seen in the following table.

Table 2. Stationarity Test

Variables	ADF Value	
	Level	1st Difference
LN_JII	1.034048	**-11.32755**
LN_IDX	2.643662	**-7.747956**
LN_M2	3.754030	**-11.36489**
INF	**-1.647832**	**-10.59563**
LN_EX	-0.252294	**-8.703402**
LN_COP	-0.308015	**-7.773195**
LN_IPI	6.405041	**-12.78234**
LN_KL	0.912685	**-7.767381**
LN_SET	0.910351	**-8.071727**
LN_SP500	3.402442	**-8.815802**
MacKinnon critical values:	1% level	-2.585405
	5% level	-1.943662
	10% level	-1.614866

Notes: Bold indicates that the data is stationary at 1%, 5%, and 10% real level.

Based on the test results, there is one variable that is stationary at the level level, namely inflation (INF). Then the unit root test is continued at the first difference level. After all variables are tested for unit roots at the first difference with the ADF test, the test results show that all variables are stationary at the first difference level. From the test results it can be concluded that at the first difference the data does not contain unit roots.

Cointegration Test

To determine the presence of cointegration in the model, namely by using the Bounds Testing Cointegration test method. Determination of the confidence level of cointegration is assessed based on critical value bounds. If the F-statistic value is below the lowest critical value (lower bound), it can be concluded that there is no cointegration in the model. If the F-statistic value is above the highest critical value (upper bound), it can be concluded that there is cointegration in the model. However, if the F-statistic is between the lower bound and upper bound, the result is inconclusive.

Table 3. ARDL *Bounds Test* Results

Model	F-Statistic	Decision
Model 1 (JII)	3.233067***	Co-integrated
Model 2 (IDX)	3.653244***	Co-integrated
Significance	**Lower Bound**	**Upper Bound**
10%	1.85	2.85
5%	2.11	3.15
1%	2.62	3.77

***), **), and *) are cointegrated at the 1 percent, 5 percent, and 10 percent real levels, respectively.

The cointegration test results show that the F-statistics of both models are above the upper bound critical value at the five percent real level (3.15), meaning that both models are cointegrated into the long run. This means that the estimation of the two models is then carried out using the Error Correction Model (ECM) method.

Optimum Lag Test

The optimum lag selection is done by selecting the smallest Schwarz Bayesian Criteria (SC) base value at the lag interval used. The results of testing the optimum lag show that the amount of lag chosen in this study is different in each model.

Table 4. ARDL Optimum Lag Test Results

Model	Optimum Lag
Model 1 (JII)	1, 0, 0, 1, 0, 1, 1, 0, 0
Model 2 (IDX)	2, 0, 0, 0, 0, 0, 1, 0, 0

Schwarz Bayesian Criterion (SC) test results

Stability and Autocorrelation Test Results

The stability test uses recursive estimation through the plot of cumulative sum (CUSUM) which indicates the stability of the variable coefficients used in the model. The results of the CUSUM plot of the recursive estimation in both models indicate the stability of the variables in the period used in this study. Meanwhile, the autocorrelation test uses the LM test. The LM test results in both models show the p-value of obs*R-squared is more than the real level of 5 percent or 0.05, meaning there is no autocorrelation problem in all ARDL models estimated.

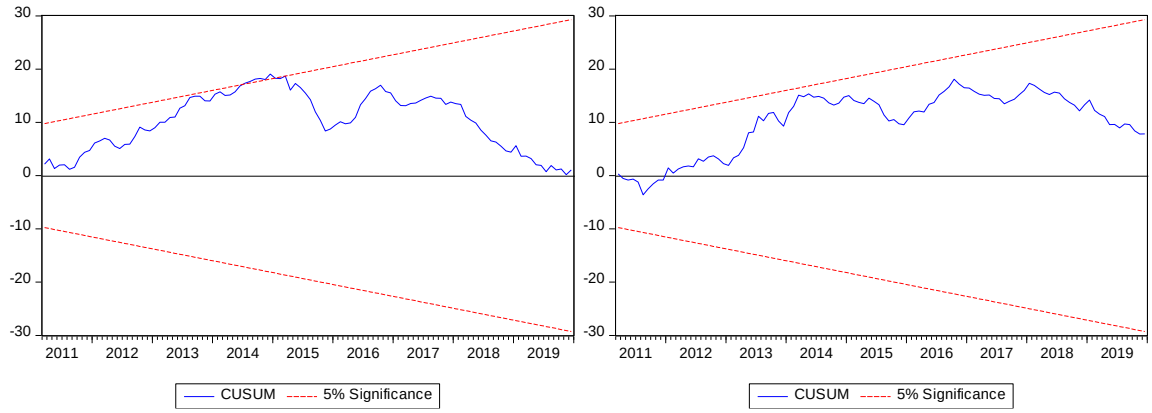
Breusch-Godfrey Serial Correlation LM Test (JII Model):

F-statistic	1.833325	Prob. F(2,104)	0.1650
Obs*R-squared	4.052614	Prob. Chi-Square(2)	0.1318

Breusch-Godfrey Serial Correlation LM Test (IDX Model):

F-statistic	0.049457	Prob. F(2,104)	0.9518
Obs*R-squared	0.112122	Prob. Chi-Square(2)	0.9455

Autocorrelation Results



JII Model IDX Model

Figure 1. CUSUM results

Model Estimation Results

The following are the estimation results on both models (JII and IDX). In accordance with the Bounds Test results, both models experience cointegration to the long term, so the estimation will be carried out with the Error Correction Model (ECM). This estimation can determine the long-term influence of independent variables on the dependent variable. This can happen because in all research models cointegration occurs.

Table 5. Short-Term Estimation Results

Variables	Coefficient	
	Model 1 (JII)	Model 2 (JCI)
D(LN_IDX(-1))		0.208817***
D(LN_M2)	0.048074	0.267954***
D(INF)	0.002553	0.002665
D(LN_EX)	-0.863630***	-0.219218
D(LN_COP)	-0.005583	0.048531
D(LN_IPI)	-0.835995***	0.078600
D(LN_KL)	0.223856	0.415988***
D(LN_SET)	0.218747**	0.305605***
D(LN_SP500)	0.053659	-0.311775***
CointEq(-1)	-0.380472***	-0.348318***

***), **), and *) are significant at 1%, 5%, and 10% real levels, respectively.

Based on the short-term estimation results, it is known that in the JII model there are three significant variables, namely the Industrial Production Index variable (LN_IPI) which has a significant effect at a real level of one percent with a coefficient of -0.835, the exchange rate variable (LN_EX) which has a significant effect at a real level of one percent with a coefficient of -0.863, the Thai financial stock index variable (LN_SET) which has a significant effect at a real level of five percent with a coefficient of 0.218. Then, in the JII model there is cointegration or long-term relationship so that there is an error correction term (CointEq) value that shows how fast the equilibrium is reached to the long-term equilibrium. The CointEq value of the JII model is -0.38 and significant with a real level of one percent, which indicates that the disequilibrium of the previous period is corrected by 0.38 percent in the next period.

Next, the short-term estimation results on the IDX financial index model have five significant

variables, namely the variable itself (LN_IDX) at lag 1 which is significant at the real level of one percent with a coefficient of 0.208, the money supply variable (LN_M2) which is significant at the real level of one percent with a coefficient of 0.267, the Malaysian financial stock index variable (LN_KL) which is significant at the real level of one percent with a coefficient of 0.415. Furthermore, the Thai financial stock index variable (LN_SET) which has a significant effect at the real level of one percent with a coefficient of 0.305. In addition, the United States S&P 500 stock index variable (LN_SP500) at lag 1 has a significant effect at the real level of one percent with a coefficient of -0.311. Then, in the IDX financial index model there is also a cointegration or long-term relationship so that there is an error correction term (CointEq) value. The CointEq value of the IDX financial index model is -0.348 and is significant at the real level of one percent, which indicates that the previous period's disequilibrium is corrected by 0.348 percent in the next period.

Table 6. Long-term Estimation Results

Variables	Coefficient	
	Model 1 (JII)	Model 2 (JCI)
LN_M2	0.317410	0.908580***
INF	0.010016	0.003201
LN_EX	-0.237160	0.057998
LN_COP	-0.020143	-0.003568
LN_IPI	-0.295560	0.973059***
LN_KL	-0.306417	0.181971
LN_SET	0.550380***	0.527419
LN_SP500	0.124911	-0.355686
C	4.931979	-9.038269

***), **), and *) are significant at 1%, 5%, and 10% real levels, respectively.

The long-term estimation results of the JII and IDX financial index models in the table above produce one and two significant variables in both models. In the JII model, only the Thailand financial index variable (LN_SET) is significant at the real level of one percent with a coefficient of 0.55. Meanwhile, in the IDX financial index model, the money supply variable (LN_M2) is significant at the real level of one percent with a coefficient of 0.908, along with the Industrial Production Index variable (LN_IPI) which is significant at the real level of one percent with a coefficient of 0.973.

Findings

Based on the results of the analysis, it was found that both models were cointegrated into the long run, so long-term estimation using ECM was carried out. The short-term estimation results resulted in the exchange rate variable, the Industrial Production Index (IPI), and the Thailand SET financial sector stock index having a significant effect on the JII index. The results of this study have relevance to research from Mashudi et al (2019) that the exchange rate, Industrial Production Index (IPI), and stock index can have a significant effect on the Jakarta Islamic Index (JII). Therefore, it is important for investors to examine the company's fundamental factors before buying shares on the stock exchange, whether sharia or not. In addition, to increase investment in Islamic stocks quickly, companies listed on the JII need to increase higher cash flow and reduce debt ratios so that investors feel happy to invest in the JII (Mashudi et al., 2019). Exchange rates can affect the JII index because changes in exchange rates can affect the performance of companies listed on the stock exchange. If the rupiah exchange rate against foreign currencies weakens, then companies that depend on imports will experience an increase in production costs and have an impact on the company's performance. Conversely, if the rupiah exchange rate strengthens, then companies that depend on exports will experience an increase in revenue and have an impact on the company's performance.

In addition, IPI is an indicator that measures the production level of a country's industrial sector. IPI can affect the JII index because the performance of companies listed on the stock exchange is strongly influenced by the performance of the industrial sector.

If the IPI increases, then companies listed on the stock exchange engaged in the industrial sector will experience an increase in performance and have an impact on the JII index. The same thing can also happen to the Thailand SET financial sector stock index which is an indicator to measure the performance of company stocks in the financial sector in Thailand. This index can affect the JII index because companies in the financial sector are closely related to companies in other sectors. If the Thailand SET financial sector stock index increases, then companies in other sectors listed on the stock exchange will also experience an increase in performance and have an impact on the JII index.

Meanwhile, the money supply variable, Malaysia KL financial sector stock index, Thailand SET financial sector stock index, and the United States S&P 500 stock index have a significant effect on the IDX financial sector index. The results of this study have relevance to research from Candradewi & Yasa (2018) which found that simultaneously, the SBI, Rupiah exchange rate, STI, SET, and KLSE variables have a significant effect on the JCI. Viandiny (2017) found that there is a link between the Indonesian and Malaysian financial sector stock price indices. Ekadjaja (2016) found that there is a positive influence between regional stock exchange indices (STI and KLCI) on the JCI. According to Candradewi & Yasa (2018) the condition of the vulnerable IDX is possible because the SET in Thailand provides information for investors to make decisions. The characteristics of the Indonesian capital market, which is dominated by very large funders while the market volume is still small, make the Indonesian capital market vulnerable to control from market participants. Therefore, if the signal sent is bad news, market participants will simultaneously sell their shares which will cause the JCI to fall drastically following the decline in the SET index. This is supported by the statement that capital markets in a regional area tend to have similar movements and a high contagion effect where the economic conditions of one country can affect economic conditions in other countries. This contagion effect theory will have a greater influence if the two countries that integrate with each other have a cooperative relationship and the same region (Climent & Meneu, 2003).

Furthermore, the long-term estimation results in only one variable from the JII model having a significant effect, which is the Thailand SET financial sector stock index variable. There are several reasons for this. Mashudi et al (2019) explained that the financial sector is an important component of the SET and JII indices. Therefore, changes in the financial sector can have a significant impact on both indices. For example, a study found that the Thai SET financial sector stock index has a significant influence on Islamic share prices in the JII. Bhowmik et al (2022) added that global economic conditions and investor sentiment can also affect the SET and JII indices. For example, a study on the reaction of emerging stock markets to shocks during various crisis periods found that financial crises have a negative impact on market volatility. Therefore, changes in investor sentiment can cause changes in both indices. In addition, Wong (2022) explains that exchange rates can also have an impact on the SET and JII indices, because the real exchange rate is very important for companies in an open economy. Therefore, changes in exchange rates can affect the performance of both indices.

Then, in the IDX financial sector index model, there are two significant variables, namely money supply and Industrial Production Index. Suhartini & Widoatmodjo (2021) explained that when the amount of money circulating in society increases, it can cause an increase in stock prices. Therefore, monitoring the condition of the money supply is very important for companies and investors in making the right decisions. In addition, changes in IPI can reflect the overall level of production and capacity utilization of an economy (2021). Therefore, fluctuations in the IPI can have an impact on the performance of the IDX's financial sector index, reflecting fundamental changes in the real economy. Overall, the significant influence of money supply and IPI on the IDX financial sector index can be attributed to their role in influencing investor sentiment, market liquidity, and reflecting overall economic conditions. Monitoring these variables can help companies and investors make informed decisions and better understand the dynamics of the Indonesian stock market.

CONCLUSION

The purpose of this study is to determine the contribution of macroeconomic indicators and international stock indices to domestic stock indices. The study uses two models of domestic stock indices, namely the Jakarta Islamic Index (JII) and the IDX financial sector index. From the results of the analysis that has been done, it can be seen that both models occur cointegration to the long term, so long-term estimation using ECM is done. The short-term estimation results resulted in the exchange rate variable,

Industrial Production Index (IPI), and Thailand SET financial sector stock index having a significant effect on the JII index, while the money supply variable, Malaysia KL financial sector stock index, Thailand SET financial sector stock index, and the United States S&P 500 stock index have a significant effect on the IDX financial sector index. Furthermore, the long-term estimation results in only one variable from the JII model that has a significant effect, namely the Thailand SET financial sector stock index variable. Then, in the IDX financial sector index model, there are two significant variables, namely money supply and Industrial Production Index. In the future, the use of GMM or dynamic panels can be considered (Prakoso, 2022; 2021).

REFERENCES

Barakat, M. R., Elgazzar, S. H., & Hanafy, K. M. (2016). Impact of macroeconomic variables on stock markets: Evidence from emerging markets. International journal of economics and finance, 8(1), 195-207.

Baret, S., Celner, A., O'Reilly, M., & Shilling, M. (2020). COVID-19 potential implications for the banking and capital markets sector. Maintaining business and operational resilience. Deloitte Insights, 2(2), 96-108.

Beik, I. S., & Fatmawati, S. W. (2014). The Effect of the International Sharia Stock Price Index and Macroeconomic Variables on the Jakarta Islamic Index. Al-Iqtishad: Journal of Islamic Economics, 6(2), 155-178.

Bhowmik, R., Debnath, G. C., Debnath, N. C., & Wang, S. (2022). Emerging stock market reactions to shocks during various crisis periods. Plos one, 17(9), e0272450.

Bradley, C., & Stumpner, P. (2021). The impact of COVID-19 on capital markets, one year in. McKinsey & Company. URL: https://www. mckinsey. com/business-functions/strategy-and-corporatefinance/our-insights/the-impact-of-covid-19-on-capital-markets-one-year-in (дата обращения 29.10. 2021).

Candradewi, N. M. S., & Yasa, G. W. (2018). The Effect of SBI, Rupiah Exchange Rate, STI, SET, and KLSE on the Composite Stock Price Index. E-Journal of Accounting, 23, 2359.

Climent FJ, Meneu V.2003. Has the 1997 Asian Crisis Increased Information Flows between International Markets? International Review of Economics and Finance, 12, 111-143.

Depari, G. S. (2022). MACROECONOMICS FACTOR: THE IMPACT ON STOCK PRICE INDEX. Klabat Accounting Review, 3(2), 23-32.

DTCC. (2021). COVID-19: IMPACT AND IMPLICATIONS FOR FINANCIAL MARKET INFRASTRUCTURES. DTCC.com. https://www.dtcc.com/-/media/Files/Downloads/WhitePapers/COVID-19-Impact-and-Implications.pdf

Ekadjaja, M. (2015). The Effect of Regional Exchange Indices on the Composite Stock Price Index (JCI). Journal of Economics, 20(2), 193-211.

Federal Reserve Bank of Dallas. (2023). Capital, the Economy and Monetary Policy. Federal Reserve Bank of Dallas: Everyday Economics Series. https://www.dallasfed.org/educate/everyday/capital

Hosseini, M., Ahmad, Z., & Lai, Y. W. (2011). The role of macroeconomic variables on stock market index in China and India. International journal of Economics and Finance, 3(6), 233-243.

Karimova, U., Rustamova, L.A., & Afandiyeva, H.A. (2022). Analysis of the Long-Term Links Between the Money Supply and the Consumer Price Index of the Republic of Azerbaijan. Statistics and Economics.

Keswani, S., & Wadhwa, B. (2019). Effect of macroeconomic variables on stock market: a conceptual study. International Journal of Management, IT and Engineering, 7(10), 85-106.

Kyereboah-Coleman, A., & Agyire-Tettey, K. F. (2008). Impact of macroeconomic indicators on stock market performance: The case of the Ghana Stock Exchange. The Journal of Risk Finance, 9(4), 365-378.

Mashudi, D., Ibrahim, M. A., & Ilahi, F. (2020, March). The Effect of Macroeconomic Variables on Sharia Stock Prices in the Jakarta Islamic Index. In 2nd Social and Humanities Research Symposium (SoRes 2019) (pp. 324-327). Atlantis Press.

Maysami, R. C., Howe, L. C., & Hamzah, M. A. (2004). Relationship between macroeconomic variables and stock market indices: Cointegration evidence from stock exchange of Singapore's All-S sector indices. Journal of management, 24(1), 47-77.

Muslimin, I. (2021). The Influence Of Macroeconomic Variables To Stock Market Returns Of Three Sectors (Agriculture, Property, And Mining) In Indonesia. Scientific Journal of FEB Students, 9 (2).

Nurmansyah, A. R., & Thamrin, H. (2022). Analysis of The Influence of Exchange, Inflation, Gross Domestic Product, Interest Rate, and The Amount of Money Circulation On The LQ45 Index In The Indonesia Stock Exchange Between 2016-2020. Journal of Syntax Admiration, 3(1), 1-27.

Nuryasman, M. N., & Permatasari, V. (2016). The Impact of Macroeconomic Variables and Global Stock Indices on the LQ45 Price Index on the Indonesia Stock Exchange. Journal of Economics, 21(3), 309-324.

Pesaran, M. H., & Shin, Y. (1999). An Autoregressive Distributed Lag Modeling Approach to Co-integration Analysis. Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3), 289-326.

Poluan, V. T. (2013). The Influence of Macroeconomic Factors on Stock Return Listed in Composite Stock Price Index (JCI) From 2008-2012. EMBA Journal: Journal of Economic Research, Management, Business and Accounting, 1(4).

Pradhan, R. P., Arvin, M. B., Hall, J. H., & Bahmani, S. (2014). Causal nexus between economic growth, banking sector development, stock market development, and other macroeconomic variables: The case of ASEAN countries. Review of Financial Economics, 23(4), 155-173.

Prakoso, D. (2022). Determinant Factors of Financial Inclusion. *Review on Islamic Accounting*, *2*(1).

Prakoso, D. (2021). Determinant Of Islamic Insurance Performance in Indonesia. *Islamic Social Finance*, *1*(1).

Suhartini, C. D., & Widoatmodjo, S. (2022, May). The Influence of Interest Rates, Exchange Rates, and Money Supply on Jakarta Composite Index (JCI). In Tenth International Conference on Entrepreneurship and Business Management 2021 (ICEBM 2021) (pp. 26-29). Atlantis Press.

Viandiny, N. U. (2017). Analysis of Linkages between Financial Sector Stock Price Indices: Study on Indonesia and Malaysia. Scientific Journal of FEB Students, 5(2).

Wong, H. T. (2022). The impact of real exchange rates on real stock prices. Journal of Economics, Finance and Administrative Science, 27(54), 262-276.

Zaretta, B., & Yovita, L. (2019). Stock prices, currency exchange rates and benchmark interest rates in the Autoregressive Distributed Lag (ARDL) model. Journal of Economic and Business Research, 4(1), 9-22.