IJER © Serials Publications
13(2), 2016: 473-489
ISSN: 0972-9380

THE EFFECT OF MACROECONOMY AND GLOBAL INDEX ON LQ45 INDEX AND ITS IMPACT ON INVESTMENT DECISION: THE CASE STUDY AT INDONESIAN STOCK EXCHANGE

Abid*

Abstract: *The study is aimed to investigate the effect of money supply, the SBI interest rate, exchange rate, and global index on LQ45 and its impact on investment decisions. The sample used is LQ45 index period January 2001 to September 2015, or as many as 177 observations of monthly samples. Vector Autoregresive (VAR) and Error Correction Model (ECM) are used for analyzing the data. The results shows that moneysupply negatively affects LQ45; the interest rate of Indonesia Stock Exchange does not affect LQ45; the exchange rate USD, HKD and SGD toward Rupiah have no influence on LQ45; The exchange rate of Yen to Rupiahshows negative significance affect LQ45; the index of Hang Senghas positive influence on LQ45; The index of NIKKEI negatively affects LQ45; DJIA index does not affect the LQ45; money supply can both negatively and positively affects on investment decision; the SBI interest rate has no effect on investment decisions; the exchange rate of USD to Rupiah positively influences on investment decision; HKD and SGD's exchange rate negatively affect investment decision; the exchange rate of Yen to Rupiah does not affect the investment decision; the Hang Seng index and DJIA have no effect on investment decision; NIKKEI index negatively affects investment decision; and the LQ45 positively influences on investment decision.*

Keywords: *Macroeconomics, Global Index, LQ45 Index, Investment Decisions, VAR, ECM.*

INTRODUCTION

The capital market has a strategic role as a financial source, aside from the indicator whether an economy in a country is advanced or not for the business world. This means that the capital market is the absolute weapon for investors, both domestic and foreign investors.

To analyze the condition of the capital markets, the market index is used as the indicators. Stock price index, is the primary indicator that describes the movement of

* Faculty of Economics and Business, University of Muhammadiyah Palembang-Indonesia, *E-mail: abid.djazuli01@gmail.com*

stock price. Stock price index is also one of the leading indicators to determine the situation in economical field. The downfalls in stock prices are caused by several factors, such as the exchange rate and interest rate change. The change in capitalization provides an overview of the change of economic activity in Indonesia Stock Exchange.

External and internal conflits have led to the movement of the stock price index. In the event of changes in interest rate, investors are worried if a recession will come to the reality. The opposite situation will happen if economic conditions turn out to be contrary. As the result, investors should examine the situation and its implication on capital markets. This condition will encourage the changes in investors' intentions to sell or buy shares at the right time. The decline of the rupiah to USD has been used as the reason for investors to sell shares, so there is a tendency to decrease the transactions to Indonesia Stock Exchange. Then, investors will avoid transactions in the capital markets and make an investation to other sectors. This will drop the transactions in Indonesia Stock Exchange.

At the global level, the various negative sentiments push down the index of global stock price. The market is disappointed with the condition of the US economy that is not encouraging and the market players are also afraid of the conflict on Iraq, the political situation of Ukraine and other global situations. The condition is indicated as the cause of the downfall of stock index in global stock exchanges with various degradation.

Data and information of indicators affecting the movement of LQ 45 indicate that there is the tendency in the changes of global stock index and its external factors. For the further information, the table and figure are as follows:

Table 1
The Index of LQ45 Movement Period 2013/2014

DATE	*LQ45*	*HANGSENG*	*NIKKEI*	*DJIA*	*US$*	*HK$*	*SG$*
1/31/2013	761.26	23,729.53	11,138.66	13,860.58	9,696.00	1,256.09	7,873.29
2/28/2013	824.74	23,020.27	11,559.36	14,054.49	9,664.00	1,246.61	7,827.98
3/29/2013	836.87	22,299.63	12,397.91	14,578.54	9,720.00	1,254.23	7,854.47
4/30/2013	857.12	22,737.01	13,860.86	14,839.80	9,723.00	1,254.35	7,887.68
5/31/2013	839.47	22,392.16	13,774.54	15,115.57	9,795.00	1,282.34	7,882.51
6/28/2013	804.00	20,803.29	13,677.32	14,909.60	9,925.00	1,289.79	7,922.96
7/31/2013	771.90	21,883.66	13,668.32	15,499.54	10,278.00	1,322.57	8,066.49
8/30/2013	701.07	21,731.37	13,388.86	14,810.31	11,293.00	1,442.16	8,783.65
9/30/2013	712.90	22,859.86	14,455.80	15,129.67	11,583.00	1,471.20	9,148.82
10/31/2013	754.81	23,206.37	14,327.94	15,545.75	11,280.00	1,454.08	9,104.34
11/29/2013	704.89	23,881.29	15,661.87	16,086.41	11,755.00	1,543.34	9,535.91
12/31/2013	711.14	23,306.39	16,291.31	16,576.66	12,171.00	1,569.70	9,621.54
1/31/2014	741.76	22,035.42	14,914.53	15,698.85	12,213.00	1,572.73	9,573.84
2/28/2014	776.69	22,836.96	14,841.07	16,321.71	11,615.00	1,496.08	9,166.22
3/31/2014	799.51	22,151.06	14,827.83	16,457.66	11,400.00	1,464.59	9,011.70

Source: Ibas, Stockwatch 2016

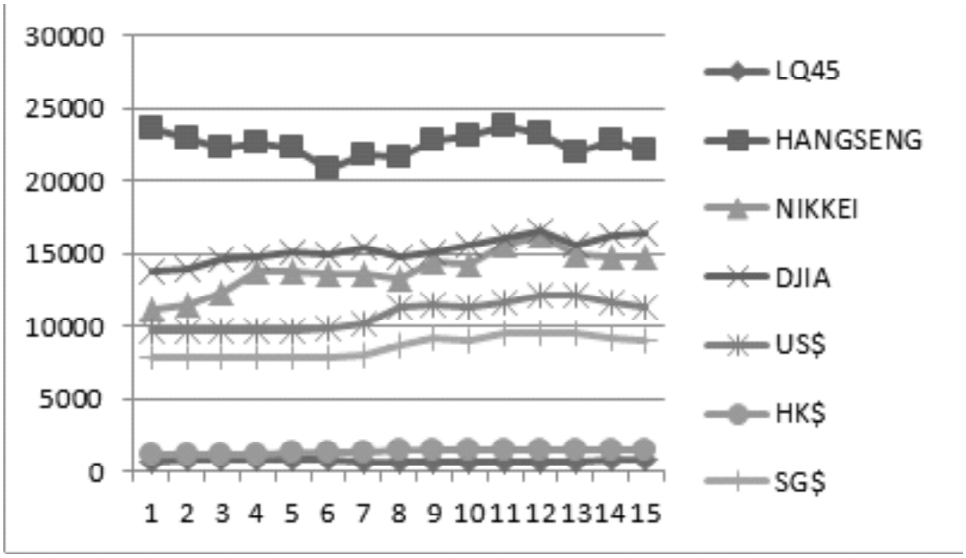

Figure 1: Graphic of LQ 45 Movement and The Factors

Based on the Table 1, it indicates that the movement of LQ45 index tends to increase along with movements in the stock index of Nikkei and DJIA, but Hang Seng index is fluctuating. The the exchange rate of US $, HK $, and SG $ tends to increase.

In essence, investors will deal with variety of risks, including the risks of investing in the stock exchange, such as: (1) The recession that will lead to the economic downturn; (2) fluctuations in interest rates; (3) the rise and fall of the rupiah against foreign currencies; and(4) the amount of rupiah that is circulated.

Those risks can occur in unstable conditions, so it influences the investment in the capital markets, including Indonesia Stock Exchange. The amount of the rupiah currency will have the negative impact due to innovations in the money supply that correlates with the increase of unanticipated inflation and the uncertain inflation in the future. This issue leads to a risky investation in the stock market.

LITERATURE REVIEW

Investment decision covers allocating funds, coming from the company or outside the company on various forms of investment (Haruman, 2008). One type of investments that can be done is an investment in the capital market. In the theory, the efficient market theory and the rational expectations theory regarding to the assessment of asset prices (rational expectations intertemporal asset pricing theory), asset prices should depend on the current situation in economy (Cox, Ingersoll and Ross, 1985) as the economic condition of a country consists of micro and macroeconomics. Capital market theory explaining macroeconomic theory is Arbirtrage Pricing Theory (APT).

Arbitrage Pricing Theory (APT) was first proposed by Ross in 1976. APT is the theory of evaluating assets that the rate of return on assets is a linear with macroeconomic factors or market index theoretically. The research conducted by Burmeister and Wall (1986) investigated the factors of macroeconomic and asset price assessment based on the theory of APT, the results shows that the macroeconomic factors differently affect the value of assets.

A source of investment in a country does not only come from domestic but also from abroad. The flow of foreign investment develops due to the globalization and liberalization of the capital market. According to Suhaedi (2007), the inflow of foreign investment funds to the capital market has been motivated by the push factors and pulls factors. Push factors refer to the form of liquidity surplus in the global financial markets and the enhancement of foreign investors' interest on the financial assets of developing countries. Meanwhile, the pull factors refer to macro-economic policy and the level of capital market return in a destination country. Macroeconomic policies consist of the money supply, interest rates, and exchange rates.

The money that is circulated comprises the money that is used for currency, demand deposits and quasi money (M2). Quasi money consists of time deposits, savings, and accounts or foreign currency savings privately owned by domestically (Sukirno, 2004). The research done Chaudhry et al (2014) has found that the money supply has positive influence on foreign portfolio investment. However, the research Onuorahand Akujuobi (2013) showed that the money supply has negative effect of foreign portfolio investment.

The interest rateis one of macroeconomic factors that affects the investment (Chetty, 2007; Bader and Malawi, 2010). The interest rate is the rate of repayment of loans or other investments, over and beyond basic repayment in the annual percentage rate (Dornbusch, *et al*., 2014). The interest rate has a significant effect on the drive in investation. In the production, processing capital goods or raw material for production requires capital (inputs) to produce an other output or final goods. Rising interest rates will raise the cost of capital resulting in lower investment. Bader Research and Malawi (2010) find the evidence that interest rates negatively affects on investment. Another study conducted by Chetty (2007) indicates that the interest rate positively influences on investment.

The research related to the interest rate of foreign investment shows that the interest rate is positively associated with foreign portfolio investment (Ekeocha et al., 2012; Onuorah & Akujuobi, 2013). On the other hand, the research of Pala and Orgun (2015) find that the deposit rate has a positive effect on foreign portfolio investment. The influence of interest rates on deposits to foreign portfolio investment turns negatively after 2003. The research of Mohanasundaram *et al.* (2015) finds that the interest rate causes negative impact on foreign institutional investment. On the contrary, the research done by Sudarsono (2003) concludes that the interest rate is less proven to affect investment, both the short and long term.

Macroeconomic factor that affects foreign investment, regarding to the money supply and interest rate, is the exchange rate. The exchange rate is the price of foreign currency expressed in domestic currency (Titman *et al.*, 2014). Research conducted by Kabadayi *et al.* (2012) proves that the exchange rate negatively affects the flow of the net portfolio. The research of Ekeocha *et al.* (2012) also finds that the exchange rate brings negative of foreign portfolio investments. The research investigated by Onuorah and Akujuobi (2013) conclude that the exchange rate is positively related to the Foreign Portfolio Investment. Another study conducted by Mohanasundaram *et al.* (2015) finds that the exchange rate causes the positive effect on foreign institutional investment. The research finding of Tavishi *et al.* (2011) show that foreign institutional investment is positively correlated to the appreciation of Rupee against Dollar and Yen and negatively correlated to the appreciation of rupee toward Poundsterling and Euro. The research proven by Omorokunwa and Ikponmwosa (2014) also find that volatility in exchange rates has the weak effect on foreign portfolio investment in the short term but a strong positive effect in the long term. However, research done by Kaur and Dillon (2010) conclude that the exchange rate leads to the negative effect on foreign institutional investment.

The flow of foreign investment funds to the capital market is also motivated by pull factors such as the level of capital market return to a destination country. In this study, the market return is produced by LQ45. The return the stock market has a positive impact on foreign investment (Arik &Multu, 2014; Anayochukwu, 2012; French, 2011;Kaurand Dhillon, 2010;Chai&Corrinne, 2008). Another study conducted byYusof & Majid (2008) implies that the securities market is a factor that can attract foreign investorsto invest their funds, both in Islamic and conventional capital markets.

In addition to macroeconomic policy and market return of destination country, stock return of home country also affects foreign investment. Bohn and Tesar (1996) use the model of portofolio choice to predict the effect rebalancing portfolio and return chasing. By using the effect of rebalancing, investors sell stock from countries that have a good portfolio performance because there have been overweighted in securities. The effect of portfolio rebalancing implies that the high stock return of US will be accompanied by the purchase of portfolio flow to foreign countries. This condition is supported by research of Griffin *et al.* (2002).The research finds evidence that the global index is the factor that influences the flow of foreign stock purchase. Research done by Rai and Bhanumurthy (2004) reveal that there is a negative corelation the return of the S & P 500 index (home country) with foreign institutional investment. On the other side, research proven by Kaur and Dhillon (2010) conclude that the return of the US stock market has no significant effect on the investment of foreign institutional investors to India.

Meanwhile, the factors that affect the movement of the stock price or the stock price index are internal factors (micro-environment) and external factors (macro environment). Internal factors classified as microeconomic factors are the internal factors of a company that goes public individually. Whereas, the macroeconomic

variables include:(1) domestic macroeconomy consisting of gross domestic product, employment, inflation, interest rate, budget deficits andsentiment; (2) demand and supply that consist of requests for quotations on the money supply; (3) the government's policy that consists of fiscal policy and monetary policy; and (4) the business cycle (Bodie, Kane, and Mark, 2009). In this research, macroeconomic factors affecting share prices (share price index) are the money supply, interest rate, exchange rate,and global index.

In the quantity theory of money, the Central Bank supervises money supply and has the ultimate control over the inflation rate. If the central bank keeps the money supply stable, the price level will also be steady. According to Mankiw (2006), if the Central Bank increases the money supply rapidly, the price level will rise quickly. In connection with the monetary portfolio theory, volatility in the money supply changes according to the balance ofthe money position, so it can influence the composition and the price of asset in the portfolio investor (Rozeff, 1974). Furthermore, innovation in the money supply can affect the rate of the stock return (Rogalski & Vinso, 1977).

The research conducted by Ahmad (2008) proves that the growth of money supply has a significant influence on the market return. Then, the researches of Rahman *et al.* (2009) find that the money supply negatively causes the return stock of the Malaysia stock exchange for the long term. The research of Mohammad *et al.* (2009) shows no effect on money supply toward the price and stock return.

The interest rate also affects the prices or stock return. High interest rates for the community can be summed up as a state-level of high inflation. With the high inflation, it will cause a reduction the real consumption of society, because the value of money held by the public is lessened, and the demand of goods produced by the company will be decreased. This situation will reduce the income and profit of the company so that it will give an impact on a company's stock price (Sunariyah, 2006). Frank *et al.* (2015) states the interest rate tends to be higher during the high inflation. The problem occurs since the borrower and the lender anticipates if the high inflation will happen in the near future. Therefore, the lender will raise interest rate offered to borrowers.

Mohamad *et al.* (2009) opines that, the rise of interest rate has led to enhancement of the opportunity cost in holding money that can lead to a diversified portfolio of stocks with a security interest so that the stock price collapses. Another reason for the decline in stock price is when advancement of the interest rate will lead to the increase of production cost. As the matter of the fact; it lowers corporate profits and dividends, so the stock price declines. The similar opinion is expressed by Hasan and Nasir (2008), that an increase in interest rates has led to the increase in the discount rate and has ultimately declined the present value of future cash flow that represents the intrinsic value of the stock. Therefore, the enhancement of interest rate will have a negative impact on the equity market return.

Rahayu Utami (2003) explains that interest rate negatively affects the stock price during the crisis in Indonesia. The research of Joseph (2002) shows that, the interest rate negatively and significantly affects on stock return of UK. Another study conducted by Park (1997) indicates the interest rate has positive effect on stock returns. The research of Verma and Jackson (2008) show the changes of interest rate in the short and the long-term influence the price and volatility of the three portfolios of banks. Other research finding proves that there is an asymmetry response to a portfolio Money Center and large banks. It means the stock of Money Center and large banks are more sensitive dealing with negative to positive changes of interest rates in the short and long term.

Another factor affecting stock price is the exchange rate. According to Kuncoro (2010), the appreciation or depreciation will occur if countries adopt a free floating exchange rate policy, so that the exchange rate is determined by market forces. Nowadays, most of the raw materials for companies in Indonesia still rely on import market. When the rupiah depreciates, the cost of raw materials will also rise up. The increase inproduction cost will reduce profits for companies. For investors, the projected decline of profit will beviewed negatively (Coleman & Tettey, 2008). This will encourage investors to sell the shares they have. If many investors who do that strategy, it will push down the stock price index.

Sunariyah (2006) explains that, the depreciation of the rupiah against the dollar for investors proves that Indonesia's economic outlook is bleak, since the depreciation of the rupiah may occur if the fundamental factor of the Indonesia's economy is not strong. This phenomen definitely inflicts the risk for investors if they want to invest in Indonesia Stock Exchange (Ang, 1997). Investors will certainly avoid the risk, so there is a tendency to sell and wait until the economic situation gets better. The selling transactions done by investor will decline the stock price index in Indonesia Stock Exchange.

The other theory that explains the relationship between the exchange rate with the market price of the stock is a good market theory or flow-oriented models (Dornbusch & Fischer, 1980). Flow-oriented model postulates that changes of the exchange rate will lead to changes of stock price. Good market theory predicts that the appreciation of the local currency will give disadvantages to the export-oriented company, so the company's stock will be less desirable by investors and affecting the stock market (Tian and Ma, 2010). Richard *et al.* (2009) also concludes that the exchange rate positively cointegrates with stock price in Australia, which is export-oriented. The research of Hardiningsih *et al.* (2002) empirically demonstrates that the exchange rate of rupiah / US dollar brings the negative effect on stock return. Another study conducted by Ajayi and Mougoue (1996) as well Adjasi *et al.* (2008) find that the volatility of foreign currency excange rate negatively affects the price and the return of stocks traded in the capital market.

Another opinion expressed by Mohammad *et al.* (2009) explains that the exchange rate has a positive relationship with stock price. The argument is supported by the

improvement of foreign investment if there is liberalization of stock market in the economy. The advancement of foreign investmentdue to declining exchange rate will raise the stock price. This is also supported by Tian and Ma 's research (2010), which examines the impact of financial liberalizationon the relationship between the exchange rate and stock market performance in China. The study finds that there is cointegration between the Share Index of Shanghai A with the exchange rate of Yuanagainst the US dollar and HongKong dollar since 2005, when the regime of Chinese exchange rate became flexibly managed by floating system. The exchange rate and the money supply affect the price of stock with positive correlation.The research investigated by Hussain and Kim (2004) find that the exchange rate also has positive effect on stock price. Kutty (2010) in his study in Mexico finds a strong and positive relationship between the exchange rate of MXN per 1 (one Peso Mexico) and the stock price in the short term, but both of these variables are not inter connected in the long term. Phylaktisetal (2001) study the dynamic relationship in the short term and long term between stock price and the exchange rate per one USD in the capital markets of United States during the period 1990-1998 and find that these two variables have a strong and positive relationship. However, this relationship cannot be applied when the law of capital markets in the United States imposes the restriction on foreign exchange so that the foreign exchange has no influence on stock price temporarily.

Beer and Hebei(2008) conclude that the foreign exchange rate in advanced countries has no significant effect on the volatility of stock price in the capital markets, but the condition is found conversely in the capital markets of developed countries. Sundaram (2009) finds that foreign excange rate and stock return are integrated, but there is no equilibrium relationship in the long term and there is no evidence whether there is an effect of foreign excange rate toward stock return. The research done by Aldiabetal (2010) also shows the dollar exchange rate has no impact on stock return.

Global index is one of macroeconomic factors that affects stock price. Global index is the kind of stock indexes that is established in the particular are considered as the monitoring tool for the development of the stock price development in the region. The influence of economic globalization that is more integrated has made alteration in other countries and has been contagious to the other country. Moreover, it also leads to the economic dependence and the dependence of capital market. Nahrowi and Usman (2006) state a strong capital market can affect the weak capital markets. Indonesia Stock Exchange as one of the capital market in developing country is allegedly affected by the world and Asian in dexes, such as HangSeng, Nikkei and DJIA. Frensidy (2008) discovers that the change inthe Hang Seng indexhas positive influence onJCI.

Then, the global index can also affect the index of other countries due to the contagion effect. Kazi et al. (2011) examines that there was the contagion effect of US capital markets with 16 OECD countries during the global crisis in 2007-2008. The result of the study indicates the relationship between the US stock market in the OECD

countries during the crisis in some countries significantly increases. It also proves that the contagion effect of the US capital markets and OECD countries exists. Another study conducted by Yang et al (2015) analyzes the shift of the dominance of American stock market. The study observes herding behavior of Asia-Pacific region towards the US market after the major event has affected the financial market. The incidents that investigated are the Asian financial crisis, the Internet bubble, the September 11th attacks, the SARS epidemic and the global financial crisis. The evidence shows that the American stock market still holds a leading position of the markets on East Asia.

Based on the theories that have been elaborated above, the research hypotheses are: (1) there is the influence of money supply, interest rate, exchange rate, and the global index of the LQ45; (2) there is the influence of money supply, interest rate, exchange rate, and global index on investment decision; and (3) there is an influence of LQ45 index on investment decision.

RESEARCH METHODOLOGY

This study is aimed to investigate the effect of macroeconomic and global index to LQ45 index and its impact on investment decision. The study uses monthly data from January 2001 to September 2015 or as many as 177 pieces of monthly samples. The data has 11 variables grouped into two kinds, namely macroeconomic data (external) and the group of global stock index that influences LQ45 index on investment decision. Macroeconomic group includes: the money supply (M2), interest rate, the exchange rate of Rupiah toward the US dollar (RPUS $), the exchange rate of Rupiah toward the Singapore Dollar (RPSGD), the exchange rate of Rupiah against the Hong Kong dollar (RPHGD), and the exchange rate of Rupiah against the Japanese Yen (RPY). The global index includes: Hong Kong's Hang Seng (HSI), Nikkei Tokyo (NKI), and New York DJIA Index. For LQ45 index and stock market, the data is taken from the information published by Indonesia Stock Exchange. Data related to the money supply (M1, M2), interest rate of Bank Indonesia Certificate (SBI) and the exchange rate are taken from the Bank of Indonesia, the global index data is retrieved from yahoo finance website.

The indicator of investment decision in this study is measured by net foreign buy. Net foreign buy is a purchase of share reduced the sale of share carried out by foreign investors in volume (Hamao & May, 2001). LQ45 index is measured by LQ 45at the end of the month. Money supply is measured by the money supply (M2) at the end of the month. The interest rate of Bank Indonesia Certificate is measured with the average interest rate of Bank Indonesia Certificate in a month. Thus, the interest rate of 1-month Bank Indonesia Certificate is only available up to June 2010, so the further data uses Bank Indonesia Rate. The indicator of exchange rate uses the middle rate of Rupiah at the end of the month, as the measurement. Meanwhile, the indicator of global index is measured by the index at the end of the month.

Method used in analyzing the data is VAR (Vector Autoregressive) and ECM (Error Correction Mechanism). The first step creating the VAR model and ECM is used to test the stationair. In this study, the model of unit root test is used for testing the stationair. The next test is determining the optimal lag based on stationary test (ADF test) that has been done. The optimum lag can be determined by using several criteria, namely: LR(Likelihood Ratio), AIC (Akaike Information Criterion), SC (Schwarz Information Criterion), FPE (Final Prediction Error) and HQ (Hannan-Quinn Information Criterion). Based on the calculation of each criterion provided in Eviews program, The optimum lag is marked with a *(star). The model of ECM is examined by cointegration test to the residual on the model.

RESULT

Before analyzing the data, the data is converted into logarithms to restore the numbers into the simple forms, except the data of net foreign buy of because it contains a negative value. Based on the results of the stationary test, the calculation uses the original data on the first different data in net foreign buy and the money supply. Therefore, the model used isVARD (VAR indifference). VARD is used to calculate the data of time series which is not stationary at level but stationary at different.

The result of lag equation I examines the effect of macroeconomic and global index on LQ45 and the model of lag 2 is chosen because it gives the most significant influence on LQ45. However, the test result of lag the equation II examining the effect of macroeconomy and global index on investment decision is the model of lag 4. Then, the result of lag equation III testing the effect LQ45 on investment decisionis the model of lag12 chosen.

The result of cointegration tests as a requirement for ECM model meets all the possibility, for equations I, II, and III. It indicates, the residual on VAR for equations I, II, and III has a long-term relationship. Based on the variables that significantly affect, the equation I and II choose is the VAR, where as equation III uses ECM for analyzing the data.

Hypothes is testing for equation 1 using VAR shows that money supply in the lag1(t-1) negative affects on LQ45 index .The interest rate of SBI on lag1 and 2 has negative effect on the LQ45. The exchange rate in this study is estimated by four variables, namely USD, HKD, SGD and JPY. USD at lag1 and 2 negatively influences LQ45. HKD and SGD have no significant effect on LQ45. JPY also negatively affects LQ45 on the lag 2. The global index in this study is proxied by three variables, namely the Hang Seng index, NIKKEI index and DJIA Index. The Hang Seng Index at lag 1 and 2 significantly brings the positive effect on LQ45. NIKKEI index significantly brings the negative effect to LQ45 on the lag 2. DJIA index does not significantly influence LQ45. The table of VAR for equation 1 is as follows:

Table 2
Model VAR Equation I

Variables	*D(LLQ45) (t-calculation)*
D(M2(-1))	[-2.15994]*
D(M2(-2))	[-0.75382]
D(LSBI(-1))	[-0.41916]
D(LSBI(-2))	[-0.20396]
D(LUSD(-1))	[0.46730]
D(LUSD(-2))	[1.31877]
D(LHKD(-1))	[-0.24275]
D(LHKD(-2))	[-1.04142]
D(LSGD(-1))	[-1.79695]
D(LSGD(-2))	[0.09582]
D(LJPY(-1))	[1.15702]
D(LJPY(-2))	[-2.22494]*
D(LHIS(-1))	[2.60415]*
D(LHIS(-2))	[2.41055]*
D(LNKI(-1))	[0.63242]
D(LNKI(-2))	[-3.63486]*
D(LDJIA(-1))	[0.12855]
D(LDJIA(-2))	[0.11773]
C	[2.43755]*
R-squared	0.279361

Note: *significant in the degree α 5%
DF= 174-21=153, t-tabel = 1,976

The hypothesis testing equation II using the VAR shows that money supply circulating in the third lag negative affect on investment decision. In the lag 4, money supply significantly brings positive effect on investment decision. The interest rate of SBI does not significantly influence the investment decision. USD at lag 4 positively effect on investment decisions. HKD significantly results the negative effect on investment decision. SGD significantly causes negative effect on the lag 1 for investment decision. JPY does not significantly influence the investment decision. The Hang Seng Indexdoes not significantly influence the investment decision. NIKKEI index significantly brings the negative effect on investment decisions on the lag 3. The table of VAR for equation 2 is as follows:

Table 3
VAR for Equation II

Variables	*D (Foreign) t-calculation*
D(M2(-1))	[-1.75483]
D(M2(-2))	[-0.65885]
D(M2(-3))	[-2.23584]*
D(M2(-4))	[2.55526]*

contd. table 3

Variables	*D (Foreign) t-calculation*
D(LSBI(-1))	[0.44300]
D(LSBI(-2))	[1.02772]
D(LSBI(-3))	[0.10968]
D(LSBI(-4))	[0.32426]
D(LUSD(-1))	[0.07625]
D(LUSD(-2))	[1.35297]
D(LUSD(-3))	[-0.21633]
D(LUSD(-4))	[2.05224]*
D(LHKD(-1))	[0.20009]
D(LHKD(-2))	[-1.16287]
D(LHKD(-3))	[0.24247]
D(LHKD(-4))	[-2.20179]*
D(LSGD(-1))	[-2.23849]*
D(LSGD(-2))	[-1.91736]
D(LSGD(-3))	[0.04832]
D(LSGD(-4))	[0.35499]
D(LJPY(-1))	[1.41161]
D(LJPY(-2))	[-0.33919]
D(LJPY(-3))	[-1.38270]
D(LJPY(-4))	[1.00756]
D(LHIS(-1))	[1.38737]
D(LHIS(-2))	[1.35773]
D(LHIS(-3))	[0.78337]
D(LHIS(-4))	[0.50137]
D(LNKI(-1))	[-1.43091]
D(LNKI(-2))	[0.18174]
D(LNKI(-3))	[-2.00100]*
D(LNKI(-4))	[-0.79335]
D(LDJIA(-1))	[0.49365]
D(LDJIA(-2))	[1.76417]
D(LDJIA(-3))	[0.85581]
D(LDJIA(-4))	[0.34462]
C	[1.05909]
R-squared	0.542007

Note : *significant in the degree α 5%,

DF=172-41=131, t-tabel=1,978

Hypothesis Testing equation III using ECM as shown in Table 3 explains that the index LQ45 lag 2 and 12 positively affects on investment decisions. The table of ECM equation III is as follows:

Table 4
ECM for Equation III

Variable	*Coefficient*	*t-Statistic*	*Prob.*
D(LLQ45(-1))	-4845.733	-1.139707	0.2562
D(LLQ45(-2))	10121.75	2.398713	0.0177
D(LLQ45(-3))	-5263.490	-1.246744	0.2144
D(LLQ45(-4))	6928.010	1.627399	0.1058
D(LLQ45(-5))	-7209.341	-1.684215	0.0942
D(LLQ45(-6))	940.3136	0.220056	0.8261
D(LLQ45(-7))	5911.236	1.381600	0.1692
D(LLQ45(-8))	-6079.991	-1.423238	0.1568
D(LLQ45(-9))	6667.374	1.563180	0.1201
D(LLQ45(-10))	-693.8833	-0.165002	0.8692
D(LLQ45(-11))	-11298.90	-2.707985	0.0076
D(LLQ45(-12))	13546.72	3.342716	0.0010
RESID06(-1)	-0.494262	-6.902087	0.0000
C	-144.1708	-0.414704	0.6790

R-squared 0.512970
Note: α=5%, DF=163-14= 149, t-tabel=1,976

CONCLUSIONS

After conducting the research, it can be concluded that: (a) money supply negatively affects LQ45; (B) The interest rate of SBI has no effect on LQ45; (C) the exchange rate of USD, HKD and SGD toward Rupiah does not affect the LQ45; the exchange rate of Yen toward rupiah significantly brings the negative influence on the LQ45; (D) the Hang Seng index has positive influence on LQ45; NIKKEI index negatively affects LQ45; and the DJIA has no effect on LQ45; (E) money supply can be a negative effect and positive impact on investment decision; (F) the interest rate of SBI has no effect on investment decision; (G) the exchange rate of USD toward rupiah positively influences on investment decision, HKD and SGD's exchange rates negatively affect on investment decision, and the exchange rate of the Yen to Rupiah does not affect the investment decision; (H) the Hang Seng index and DJIA have no effect on investment decision, and the NIKKEI index negatively affects investment decision; and (i) LQ45 positively influences on investment decision.

References

Adjasi, Charles, Simon K. Harvey, and Daniel Agyapong. (2008), "Effect of Exchange Rate Volatility on The Gana Stick Exchange." *African Journal of Accounting, Economics, Finance, and Banking Research*, Vol. 3, No. 3.

Ahmed, S. (2008), "Aggregate economic variables and stock markets in India."*International Research Journal of Finance and Economics, 14*, 14-64.

Ajay, R.A, and M. Mougue'. (1996), "On the Dynamic ealtion Between Stock Prices and Exchange Rates,"*Journal of Financial Research*.

Aldiab, Taiser F., Marwan M. Zoubi, and Phillip W. Thornton. "The Effect of Change in the Dollar Foreign Exchange Rate on Stock Returns of Multinasional Corporations." *Journal of Aplied Business Research*.Volume 10, No. 4.

Anayochukwu, Ozurumba Benedict. (2012), "The Impact of Stock Market Returns on Foreign Portfolio Investment in Nigeria." *IOSR Journal of Business and Management (IOSRJBM),* Vol. 2, Issue 4 (July-Aug. 2012), pp. 10-19.

Ang, Robert. (1997), *Buku Pintar Pasar Modal Indonesia*. Jakarta: Mediasoft Indonesia.

Arık, Evren and Elif Multu. (2014), "Global Risk Aversion, the Benchmark Index and the Foreign Investors: The case of Borsa İstanbul." *Research Department of Borsa İstanbul*, Working Paper Series, No.8, February 2014.

Bader, Majed and Ahmad Ibrahim Malawi. (2010), "The Impact of Interest Rate on Investment in Jordan: A Cointegration Analysis." *JKAU: Econ. & Adm.,* Vol. 24 No. 1, pp. 199-209.

Beer, F. dan F. Hebein. (2008), "An Assesment of The Stock Market and Exchange Rate Dynamics In Industrialized and Emerging Market." *International Business & Economic Research Journal*, Vol. 7, No. 8, pp. 59.

Bodie, Z., A. Kane, dan A. Marcus. (2009), *Investments*. New York: McGraw Hill-Irwin.

Bohn, H. and L. Tesar. (1996), "U.S. equity investment in foreign markets: Portfolio rebalancing or return chasing?" *American Economic Review 86*, pp. 77-81.

Burmeister, E., dan K. D. Wall. (1986), "The arbitrage pricing theory and the macroeconomic factor measures,"*Financial Review*, 21, 1-20.

Chai-Anant, Chayawadee and Corrinne Ho. (2008), "Understanding Asian equity flows, market returns and exchange rates." *Monetary and Economic Department. BIS Working Papers* No. 245.

Chaudhry, Imran sharif, Fatima Farooq and Arzoo Mushtaq. (2014), "Factors Affecting Portfolio Investment in Pakistan: Evidence from Time Series Analysis." *Pakistan Economic and Social Review,* Vol. 52, No. 2, pp. 141-158.

Chetty, Raj, (2007), "Interest Rates, Irreversibility, and Backward-Bending Investment."*Review of Economic Studies* 74, 67–91.

Coleman, A.K and K.A Tettey. (2008), *Pasar Uang dan Pasar Valuta Asing*. Jakarta: Salemba Empat

Cox, J., J. Ingersoll, and S.A. Ross. (1985), "An intertemporal general equilibrium model of asset prices." *Econometrica,* 53, 363-84.

Dornbusch, R. and Fischer, S. (1980), "Exchange Rates and the Current Account", *American Economic Review*, Vol. 70, No. 5, pp. 960-971.

Dornbusch, Rudiger, Stanley Fischer, and Richard Startz. (2014), *Macroeconomics,* 12th Edition. New York: McGraw-Hill Education.

Ekeocha, Pattersin Chukwuemeka, Ekeocha Chidinma Stella, Malaolu Victor, and Oduh Moses Onyema. (2012), "Modelling the Long Run Determinants of Foreign Portfolio Investment in Nigeria." *Journal if Economics and Sustainable Development*, Vol. 3, No. 8.

Frank, Robert H., Ben S. Bernanke, Hong-Kwong Li. (2015), *Principles of Economics*. New York: McGraw-Hill Education (Asia).

French, Joseph J. (2011), "The Dynamic Interaction Between Foreign Equity Flows and Returns: Evidence from The Johannesburg Stock Exchange." *The International Journal of Business and Finance Research*. Volume 5, Number 4.

Frensidy, Budi. (2008), "Analisis Jual-Beli Asing, Kurs dan Indeks Hang Seng Terhadap Indeks Harga Saham Gabungan di Bursa Efek Indonesia dengan Model GARCH."*Media Riset Bisnis & Manajemen*, Vol. 8, No. 1, pp. 25-42.

Griffin, John M., Federico Nardari, and René M. Stulz. (2002), "Daily Cross-Border Equity flows: pushed or pulled?" *NBER working paper series*.

Hamao, Yasushi, and Jianping Mei. (2001), "Living With The "Enemy": an Analysis of Foreign Investment in the Japanese Equity Market. *Journal of International Money and Finance*, pp. 715–735.

Hardiningsih, *et al.* (2002), "Pengaruh Faktor Fundamental dan Resiko Ekonomi Terhadap Return Saham Pada Perusahaan di BEJ, Studi Kasus Basic Industry & Chemical." *Jurnal strategi bisnis.*

Haruman, Tendi. (2008), "Pengaruh Struktur Kepemilikan Terhadap Keputusan Keuangan dan Nilai Perusahaan". *Simposium Nasional Akuntansi XI*, Pontianak.

Hasan, Arshad and Zafar Mueen Nasir. (2008), "Macroeconomic Factors and Equity Prices:An Empirical Investigation by Using ARDL Approach" *The Pakistan Development Review*, 47: 4 Part II (Winter 2008), pp. 501–513.

Hussain, Huzaimi and Venus Khim-Sen Liew. (2004), "Causal Relationships Between Exchange Rates and Stock Prices in Malaysia and Thailand during The 1997 Currency Crisis Turnmoil." *JEL Classification*: F31, G10, 10 May.

Joseph, N. L. (2002), "Modelling the impact of interest rate and exchange rate change on UK stock return."*Derivatives Use, Trading, and Regulation: Accounting and Tax*, *7*(4), 306-323.

Kabadayi, Burhan, O. Selcuk Emsen, Murat Nisanci. (2012), "International Portfolio Movements: Panel Data Analysis." *Journal of Applied Finance & Banking*, vol. 2, no. 5.

Kaur, Manjinder dan Sharanjit S. Dhillon. (2010), "Determinants of Foreign Institutional Investors' Investment in India." *Eurasian Journal of Business and Economics*, 3 (6), pp. 57-70.

Kazi, Irfan Akbar, Khaled Guesmi, and Olfa Kaabia. (2011), "Contagion Effect of Financial Crisis on OECD Stock Markets." *Discussion Paper,* No. 2011-15, June 06, 2011.

Kuncoro, Mudradjat. (2010), *Manajemen Keuangan Internasional.* Yogyakarta: BPFE.

Kutty, Gopalan. (2010), "The Relationship Between Exchange Rates and Stock Prices: The Case of Mexico." *North American Journal of Finance and Banking Research*, Vol. 4, No. 4.

Mankiw, N. Gregory. (2006), *Teori Makroekonomi.* Jakarta: Erlangga.

Mohammad, Sulaiman D., Adnan Hussain, M. Anwar Jalil, and Adnan Ali. (2009), "Impact of Macroeconomics Variables on Stock Prices: Emperical Evidance in Case of KSE (Karachi Stock Exchange)." *European Journal of Scientific Research*, Vol. 38, No. 1, pp. 96-103.

Mohanasundaram, T, P. Karthikeyan, dan V. Krishnamoorthy. (2015), "Macroeconomic Dynamics of Foreign Institutional Investments in India." *IJMRR. International Journal of Management Research & Review.* Volume 5, Issue 1.

Nachrowi, Nachrowi D. and Hardius Usman (2007), Prediksi IHSG dengan Model GARCH dan Model ARIMA. *Jurnal Ekonomi dan Pembangunan Indonesia*, 7(2), pp. 72-91.

Onuorah, Chi-Chi Anastasia andLinus Eze Akujuobi. (2013), "Impact of Macroeconomic Indicators on the Performance of Foreign Portfolio Investment in Nigeria."*European Journal of Business and Management*, Vol. 5, No. 2.

Omorokunwa, O.G and N. Ikponmwosa. (2014), "Exchange Rate Volatility and Foreign Private Investment in Nigeria." *Asian Journal of Business Management* 6(4): 146-154.

Pala, Aynur and Bilgin Orhan Orgun. (2015), "The Effect of Macro Economic Variables on Foreign Portfolio Investments: an Implication for Turkey." *Finance,* Vol. 4 (1), pp. 108-126.

Park, Sangkyun. (1997), "Rationality of negative Stock Price Responses to Strong Economics Activity." *Journal Financial Analyst*, Sept/Oct 1997.

Phylaktis, Kate, and Fabiola Ravazzalo. (2001), "Stock Price annd Exchange Rate Dynamics." *JEL Clasification Numbers*: F21, F31, and F36.

Rahman, A. A., Noor, Z. M. S., dan Fauziah H. T. (2009), "MacroeconomicDeterminants of Malaysian Stock Market."*African Journal of Business Management*, *3*(3), 95-106.

Rai, K. and N. R. Bhanumurthy. (2004), "Determinants of Foreign Institutional Investment in India: The Role of Risk Return and Inflation." *The Developing Economies*.

Richards, Noel Dilrukshan, John Simpson, and John Evans. (2009), "The Interaction Between Exchange Rates and Stock Prices: An Australian Context." *Journal of Economics and Finance*, Vol.1 No.1

Rogalski, R. J., dan Vinso, J. D. (1977), "Stock Returns, Money Supply and the Direction of Causality."*The Journal ofFinance*, *32*(4), 1017-1030. *http://dx.doi.org/10.2307/2326509*

Rozeff, M. S. (1974), "Money and Stock Prices." *Journal of Financial Economics*, 245–302.

Sudarsono, Heri (2003), "Analisis Faktor-Faktor yang mempengaruhi Investasi."*Jurnal Ekonomi Kompas*, No. 7, Januari-April, pp. 21-30.

Suhaedi. (2007), "Potensi Pembalikan Modal Asing: Penyebab dan Dampaknya terhadap perekonomian." *Diskusi Internal Badan Kebijakan Fiskal, Departemen Keuangan RI*, 10 Agustus.

Sukirno, Sadono. (2004), *Makroekonomi Teori Pengantar*. Jakarta: PT. Raja Grafindo Persada.

Sunariyah. (2006), *Pengetahuan Pasar Modal*, edisi 5. Yogyakarta:UPP STIM YKPN.

Sundaram, Kumar. (2009), "Investigating Causal Relationship Between Stock Return with Respect to Exchange Rate and FII: Evidence From India." *MPRA Paper*, No. 15793.

Tavishi, Tanveer Shahab, Santosh Kumar, and Raju. G. (2011), "Transmission Effects of Exchange Rate on Foreign Institutional Investments in India." *International Conference on E-business, Management and Economics IPEDR* Vol. 3.

Tian, G. G. & Ma, S. (2010), "The Relationship Between Stock Returns and the Foreign Exchange Rate: The ARDL Approach. *Journal of the Asia Pacific Economy*, 15 (4), 490-508.

Titman, Sheridan, A.J. Keown, and J.D. Martin. (2014), *Financial Management Principles and Applications*, 12th Edition. Edinburgh: Pearson.

Verma, P. and Jackson, D. O. (2008), "Interest Rate and Bank Stock Returns Asymmetry: Evidence from U.S. Banks." *Journal of Economics and Finance*, 32(2), pp. 105-118.

Yang, Shih-Jui, Ai-Chi Hsu, Show-Yen Lai, and Chien-Chiang Lee. (2015), "Empirical Investigation of Herding Behavior in East Asian Stock Markets Toward The U.S. Market."*The International Journal of Business and Finance Research*, Vol. 9, No.1, pp. 19-32.

Yusof, Rosylin Mohd. and M. Shabri Abd. Majid, (2008), "Towards an Islamic international financial hub: the role of Islamic capital market in Malaysia."*International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 1 No. 4.