
The Relationship Between Stock and Macroeconomics Factors Malaysia and Indonesia

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Abstract

Purpose: Both Malaysia and Indonesia have similarities in term of economic background. In the context of equity market 2 countries have the presence of contagion effects, along with the different nature of their transmission channels. This paper consisted of literature review from the previous studies to determine the relationship between macroeconomic variables. The ideals, method of estimations and limitations of the previous studies are included. Among the macroeconomic variables are exchange rate, interest rate, money supply and economic output. I will concentrate on short run and long run relationship between dependent variable and the independent variable or macroeconomic variables over the period of 1980 to 2021. In addition, the interpretation of the integrate order of stationarity. All the result and analysis are all based on the time series data. Tests are carried out to determine the effect of each independent variable with the dependent variables.

Methodology: This research project is using the experimental approach which is testing the causal relationships among variables. This research project is conducting the secondary data research in order to collect and analyze the data by employing E-views 8.0. The data is extracted from World Bank Data and journals.

Result and Discussion: For the empirical result, we conducted the Granger Causality test to figure the causality relationship and long-run or short-run effect for each of the variable.

Conclusion and Recommendation: The empirical results of this study may provide a lot of information for the investor and future researchers. It is a must to know the effect of macroeconomic variable on stock index. Stock market always full of uncertainty, but this finding could help their decision making better. Future researchers are suggested to wider their scope of study and include more variables and provide more information.

Keywords: Macroeconomic Variables, Independent Variable, Dependent Variables

1.0 Introduction

A conspicuous example was the October 1987 Black Monday stock market crash that affected virtually all the world markets and most of the companies in those markets but

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was not linked to clearly identifiable economic factors. There is various type of story behind this historical event. According to Jesse Colombo in 2012, on that time companies believe that they can expand and growth via constantly acquiring each other's. Hence, companies started to raise capital by issuing junk bond to public which is high default risk bond. At the same time, euphoria happened, and investors believe that stock price will always goes up. It clearly, shows that macroeconomic variables are not the main factors on this historical crash. Stock price can be measured accurately and instantaneously through stock price indexes (Peiró, 2016). Asian Financial Crisis in 1997 hit almost all Southeast Asia countries especially Thailand, Malaysia, Indonesia and Singapore. Asian region, during 1997 pre-crisis period especially these 4 countries mention above was consider having a weak macroeconomic foundation in term of foreign exchange reserves (Dewandaru, Masih&Masih, 2015). Hence, during Asian Financial Crisis stock price of the affected countries was drop dramatically. Besides that, we found that both Malaysia and Indonesia have similarities in term of economic background. In the context of equity market 2 countries have the presence of contagion effects, along with the different nature of their transmission channels (Dewandaru, Masih&Masih, 2015). Malaysia and Indonesia are borders by land and Indonesia top 5 import origin are Malaysia which record of 12.7 billion. Besides that, both countries also similar for the level of external debt, which Malaysia rank at 30 and Indonesia rank 28 as 2015.

There are long run relationship between 1 GDP and external debt (Daud, Ahmad & Azman-Saini, 2013). Malaysia and Indonesia also have similar geological area for strategies economic. Taiwan and Singapore insulated from the Asian Financial Crisis because of Malaysia and Indonesia geographical area. Based on few previous research, there are still lacks of studies or research do on Islamic countries especially for the developing Islamic countries. Furthermore, economic reform took place in most of the Asian Countries after the Asian Financial Crisis 1997. Macroeconomic Variable that suspects to influence the stock index is inflation, economic output, money supply, unemployment and interest rate. The time period uses are 41 years from 1980 to 2021. Two major financial crises hit Asia countries especially Malaysia and Indonesia. This is 1997-1998 Asian Financial Crisis and 2007-2008 Global Financial Crisis. It would be an interesting period to investigate. At the same time both Malaysia and Indonesia were the members in the ASEAN Trading Link.

2.0 Literature review

2.1.1 Exchange Rate

Previously, most of the researchers done their research on relationship of stock index and exchange rates were focused on the developed countries, like United State and United Kingdom, and least on the developing countries. A study had concluded that the results of their study report cross country distinct in terms of policies, expectation, cycle phases, the degree of liberalization, and capital controls (Nieh& Lee, 2001). These might be the possible different results explanation when analyzing the relationships

between exchange rate and stock return in the economies (Caporale, Hunter and Menla Ali, 2014). According to Ajayi et al (1988), the author found that there is no causality in JKSE based on the stock index over exchange rate. Besides that, Ajayi and Mougoue, in 1996 mentioned that the dynamic relationship between stock index and exchange rates had done research by using error correction model and causality test in United Kindom, Canada, United State, France, Germany, Netherlands, Japan and Italy were deduced that exchange rate had positive relationship with stock price in both long-run and short-run effects (Ajayi& Mougouè, 1996). However, in the other side, Tsai in 2012 had concluded that there is a negative relationship between stock index and exchange rate. The negative effect claimed to be more obvious when extremely high or low in exchange rate. In additional, there is a negative interaction between domestic stock and foreign exchange market, explained by portfolio balance approach, in Thailand, Korea and Indonesia by using vector error correction model (VECM) approach (Kubo, 2012). In fact, the balance of trade and its position may consequently influencing its 8 domestic stock index that affected by exchange rate fluctuation. The methodological process in this paper had proven that the relationship from stock index to exchange rates is long run effect in Europe but short run effect in United State. The finance crisis happened influences the investors to reduce the competitiveness and increases the financial risk and investment. Stock index and changes in exchange rates will be affected by those events directly. In short of exchange rate with stock index, the results of the research claimed to be different due to countries policies, cycle phases, capital controls or degree of liberalization and expectations terms are different. Hence, both positive and negative of the relationship will be existed. According to Kubo (2012), found that there is the negative sign of the relationship by using the VECM to explore the effects of the domestic stock index to economic shocks, especially IT-related shocks. However, the problem was found in that, not all countries are consistently affected by the same shocks at the same time to influence the stock index. This result implies that the fluctuations in international portfolio investment are caused by the exchange rates of these countries. However, not all the countries' exchange rate is relatively vulnerable. Based on Kubo (2012) and Ajayi and Mougoue (1996), different result was found by using Vector Error Correction Model (VECM), this arises the interested of the research to further determine the relationship between exchange rate and stock index. According to Tsai (2012), due to the portfolio balance effect doesn't exist regularly, market condition become the important factor in determining the relationship between stock index and foreign exchange.

2.1.2 Interest Rate

Interest rate plays a major role while determining the stock index. There are some studies examined that negative effect of interest rate on stock index. Based on Amarasinghe (2015), he discovered the causal relationship between interest rate and stock index by using All Share Price Index (ASPI) monthly data in Colombo Stock Exchange. Furthermore, he found that the stock prices should reflect expectations about future corporate performance. Thus, to invent country's macroeconomic policies, the policy makers must concern about the importance of the casual relations and dynamic interactions among macroeconomic and stock market. Further, investors believe that

the interest rate policy and macroeconomic events will influence the volatility of the stock prices. In other words, the macroeconomic variables could affect investors' investment decisions and the stock market. The dynamic relationship is found between interest rate and stock index, and it is proven by using the empirical evidence from Colombo Stock Exchange. According to Alam and Uddin in 2009, fifteen developing and developed countries have been examined by them on the empirical relationship between stock index and interest rate. For the future prospect of overall economy, the researchers stated that share market could enhance economy to ensure long-term commitments in real capital. Basically, interest rate is referred to the cost of capital which implies the cost paid for the lending of money for certain time period. Interest rate is the cost of borrowing money for borrower while for the lender, interest rate is the fee charged for the money to be lent. Normally, investors always seek for the market that is efficient enough to invest. However, this showed that only few of investor will be able to gain some extra profit in an inefficient market because of the confidence of general people towards the market are relative low. In these cases, demand of share and stock index will be dropped or vice versa, if depositors get higher interest rate from banks due to depositors will shift their capital away from equities market to bank. For another reason, investment of the economy will be affected or dropped when the lending interest rate increases, and this is one of the reason that lead the share index decrease and vice versa. Theoretically, negative relationship between stock index and interest rate were found. As the result, there are relationship between interest rate and stock index.

Based on Huang, Mollick and Nguyen (2015), they believed that the current stock index reflect expected cash flows and earnings discounted by the appropriate interest rates. A high discounted cash flow may cause by a very low interest rate, thus resulting the increases in current stock index. Therefore, negative relationship between interest rate and stock index has been proved. In short of interest rate with stock index, according to Amarasinghe (2015), claimed that the interest rate policy and macroeconomic events will influence the volatility of the stock index. However, interest rate is not a solely factor that will influence the stock index. The role of characteristics in monetary policy making might be ignored by the literature on emerging stock market returns determinants due to they cannot be broadly related to central bank characteristics linkage with share returns. This had raised the interested of us to pursue further research on it.

2.1.3 Economic Output (GDP)

Economic output is one of the major factors that may influence the stock index of a country. However, there are a lot of arguments on this relationship, and this reason had led to no convincing answer on it. It is due to some studies proved that it brings a positive relationship between stock index and economic growth. Whereas studies claimed that this relationship has been broken down. Kaplan (2008) argued that the future economy will directly be affected by stock index through consumption and investment. Besides that, according to Seetanah, Sawkut, Sannasee&Seetanah (n.d.), they found that the stock market development has positive association with economic

growth. The stock market development and banking sector development is also important as helping economic growth. Hence, it implies that the economy growth has positive relationship with stock market. From Ritter (2005) empirical results, it shows that, Per Capital income growth has negative relationship with real equity returns or stock index. Besides that, according to Hsueh (2014), there is almost no lead-lag relationship between M&A activities and economic growth except for Japan when they are controlling the stock prices. The market development is endogenous as it is a normal part of the procedure of economic growth. Therefore, while stock market depth may bring economic growth, and the stock market depth may cause the latter itself (Pradhan, Arvin & Ghoshray, 2015). Based on Pradhan Arvin and Ghoshray (2015), stated that the relationship between economic growth and stock market depth do not have clear answer and there is no unity about the nature of this relationship among economists. Hence, an author had emphasized three possible relationships between stock market and economic growth in the article which are: supply leading hypothesis, feedback hypothesis and demand following hypothesis. However, author had found that, economic growth, stock market depth, oil prices, and three other macroeconomic variables have general long-run equilibrium relationship. Hence, it indirectly has a significant relationship between stock index and economic growth. Based on the research by Xiong, Bao and Hu in 2014, they found that stock price index becoming increasingly important in financial market for both private and public sector. At the same time, statistically result show outperforms result in term of accuracy. However, they suggest that in addition to stock price, model might include other tough interval-valued time series forecasting task (Xiong, Bao & Hu, 2014). Therefore, we found that there are two-way relationships between economic output and stock index. In short, both can affect each other's and there will be no clear-cut relationship.

2.1.4 Money Supply

Sellin (2001) argues if the change in money supply able to lead to change in any expectation on future monetary policy, then the stock index will be affected by money supply. The researcher argues that the positive money supply shock will bring people to expect there is contractionary monetary policy in the future (Maskay, n.d.). However, Ben Bernanke and Kenneth Kuttner (2005) argue that the stock market will be affected by the money supply through the effect on both perceived risk and monetary value. The disturbance of monetary such as an unexpected change in money supply will lead disequilibrium in asset portfolios (Ariff, 2012). However, we can note that the dividend responds slower as compared to changes in earnings. Hence, earnings can better define the relationship. Therefore, the money supply has positive relationship with stock prices through this channel (Ariff, 2012). Monetary policy is the strategy of the money supply in order to control the macroeconomic result such as inflation, GDP growth, exchange rate and unemployment. (Chaitip, Chokethaworn, Chaiboonsri & Khounkhalax, 2015). However, monetarists strongly believe that the changes in money supply have not affected the economic directly. But it affects the economic via affecting the inflation rate and interest rate. Money supply increase will cause an increase in inflation and lowering the interest rate. In this condition, it would help to supply money into the economy provided liquidity trap does not happen. Money supplies as an exogenous

determiner within the economy and acts an important element in boosting economic growth as well as helping an economic to recover from crisis. Therefore, change in the quantitative money led to change on aggregate demand. Besides, according to Chaitip in 2015 the repercussions of AEC economic scenario are still considering a very research-able subject. 13

In the context of AEC or ASEAN countries there are still lack of study regarding the examination on the relationship between economic growth and money supply. According to the research done by Chaitip, Chokethaworn, Chaiboonsri and Khounkhalax (2015), money supply has a long run relationship with economic growth. Besides that, Money supply (M1) was positively correlated with GDP growth. Furthermore, the results from this research show that Pooled MeanaGroup estimator was the most appropriate method to examine the relationship between money supply and economic growth of selected AEC countries. Nevertheless, most of the studies show that the money supply was not the direct factor toward economic growth. Refer to the research done by Nguyen in 2015, the result show that broad money supplies (M2) have significant positive impact toward the inflation for the period 1985 to 2012. Besides that, it is statistically proven that the change in the money supply would bring to the change in the interest rate and hence it positively affects the inflation. Hence, high inflation acts an important role in the economic growth and boost up economic activities. Since there is a strong conclusion drawn from the research done by previous research typically in the Asian and ASEAN region, we might suggest that the Money supply will indirectly affect the economic growth.

3.0 Research Methodology

In this chapter discussed about descriptive analysis, diagnostic checking, and inferential analysis to analyses the relationship between independent variables (inflation, money supply, exchange rate, interest rate and economic growth) and dependent variable (stock index). The data used in the study is secondary data with time from 1980 to 2021 in 2 countries.

3.1 Data collection, sampling and procedures

3.1 Research Design

Research design referring to the strategies that has been chosen to integrate the different components of the study in a logical and rational way, thus, ensuring to address the research problems effectively. It constitutes the outline for the analysis of data (Cohen, Manion & Morrison, 2007). Research design is a critical and systematic strategy which is uses for data utilization to ensure that the hypothesis testing can goes smoothly. It must be unmistakably understood the purpose of the research design before examining the types of research designs. The purpose of the research design is to devote a plan of study to certify the assessment of cause and the effect relationships between the dependent variable and the independent variables are accurate. There are two types of research design which are quantitative research and qualitative research. For this research paper, the hypothesis testing was being done by using the quantitative research

as it represents the numerical data. The numerical data that can be categorized or being measured in units of measurement was being gathered by using quantitative research. Quantitative research has been defined as the numerical data that can be measured using the mathematical based method (Sukamolson, n.d.). It can help to generalize the results from the large number of the samples. It also applied the empirical evaluation. It is a form to see whether which specific programs that will be able to fulfil the standard and they are generally expressed in the numerical terms. Quantitative methods are frequently described as deductive in nature as it can inference the population characteristics.

3.2 Data Collection

Methods Data collection is one of the procedures that can be used to develop the research. Data plays an important role to contribute for the development of the research. For this research, the data will be collected from the E-Databases which are provided by the WorldBank.com and econstats.com, and stock market historical data for Yahoo-Finance. 3.2.1 Secondary Data Secondary data is the information that collected by someone else for other purpose (Boslaugh, 2007). The cost of secondary data is cheaper and lower which saves expenses and time. Due to the data are collected and stored in electronic format, researchers can spend his/her times for analyzing and examining the data. The main sources that our research study used are journals, articles, online information, and books which are related to our research study.

3.3 Sampling Technique

Probability sampling method is used on this paper which uses a portion or sample of the population as the research data. Besides, the sampling technique that is used to run the regression analysis is Electronic Views, also called E-views.

3.3.1 Sampling Size

Sampling size means the number of observations in a population to be studied. Basically, the sample size has to be large to meet the high likelihood for detecting a real differences between independent variable and dependent variable. It is a key to determine the appropriate sample size as that are too large could waste resources, but the samples that are too small may cause the inaccurate result. The sample size in this research paper is collected from 1980 to 2021 for 2 countries to estimate on how the share price affected by the macroeconomic variables.

3.4 Research Instrument

This research project is using the experimental approach which is testing the causal relationships among variables. This research project is conducting the secondary data research to collect and analyze the data by employing E-views 8.0. The data is extracted from World Bank Data and journals.

3.5 Data Processing

Data processing simply means that the conversion of raw data into a meaningful information via several steps. The information could be used to explain certain phenomena or certain result. The conversion process can be using the computer software, calculation software or computer system. There are 6 important process of data processing cycle, which are collection, preparation, input, processing, output and interpretation and storage.

4. Data analysis and Results

4.1 Unit Root Test Result

The unit root tests are used to test whether the time series variable is non-stationary by using an autoregressive model. ADF test are one of the well-known tests that widely used especially it is valid in the large sample size. Besides that, PP test are also one of the common tests used by researchers. Both ADF test and PP test has been applied. One of the ways to minimize the probability to get spurious regression result are analysed the stationarity in difference series. Both ADF and PP test have the same null hypothesis which is non-stationary, or unit roots occurred. Test will be proceeded to first level differentiation if the result we get cannot reject null hypothesis in the level form test. Furthermore, second differentiation will proceed if the first level differentiates still failed to reject null hypothesis. Below are the summarized table for ADF test and PP test statistic. There are certain variables for of KLSE and JKSE are stationary at level, while a part of variable and the rest one is stationary at first level differentiate.

Table 1: Unit Root Test in Level

KLSE	Level			
	With Trend		Without trend	
	ADF	PP	ADF	PP
LGSP	-3.10459	-3.10459	-2.874431	-2.874431
LGINT	-2.653323	-2.421627	-2.403844	-2.223973
LGMS	-1.589501	-1.798012	-0.271813	-0.60457
LGGDP	-1.991693	-2.131377	-1.553119	-1.57467
LGEXC	-0.667796	-0.828273	-1.504534	-1.504534
JKSE	Level			
	With Trend		Without trend	
	ADF	PP	ADF	PP
LGSP	-2.519135	-2.007292	-1.707429	-1.291789
LGINT	-2.085853	-2.789841	-1.515077	-2.198965
LGMS	-2.128448	-2.128448	-2.641618*	-2.641618
LGGDP	-0.752885	-0.752885	-0.963226	-1.111787
LGEXC	-2.519135	-2.211099	-1.275352	-1.163837

Note *, **, *** denote as reject the null hypothesis at the 10%, 5% and 1% of significant level respectively.

Based on the table 1, unit root test in level result shows that the PP test with trend has no variable with stationary variable. The same result for ADF test for with trend and without trend. During the PP test with trend and without trend are all at nonstationary state. However, the money supply in Indonesia without trend is in stationary level during ADF test. There are no variables are at stationary level during PP test and ADF test neither for with trend nor without trend for KLSE. Likewise, majority of the variables are still non-stationary in level form. Hence, it is necessarily for us to continue further in unit root test in first difference.

Table 2: Unit Root Test in First Difference

KLSE	First Difference			
	With Trend		Without trend	
	ADF	PP	ADF	PP
LGSP	-10.16969***	-10.28198***	-10.19953***	-10.30349***
LGINT	-8.29242***	-8.222819***	-8.279855***	-8.227925***
LGMS	-9.082467***	-9.1855***	-9.127359***	-9.225295***
LGGDP	-11.64295***	-11.63195***	-5.153939***	-5.146057***
LGEXC	-4.440074***	-4.371963***	-11.6744***	-11.66227***

JKSE	First Difference			
	With Trend		Without trend	
	ADF	PP	ADF	PP
LGSP	-7.890263***	-8.290147***	-7.93823***	-8.194301***
LGINT	-6.067884***	-6.701077***	-6.094362***	-6.739131***
LGMS	-6.682765***	-6.681259***	-6.295504***	-6.284941***
LGGDP	-9.167766***	-9.179316***	-8.937755***	-8.937746***
LGEXC	-8.503268***	-8.249637***	-8.509914***	-8.255172***

Note *** denote as reject the null hypothesis at 1% of significant level.

Based on the output generate from Eview. All the variables for both countries have become stationary after first level differencing at 5% significant level. The confirmation of the stationary of each variable is not sufficient to explain whether variables are cointegrating. Therefore, the long run test is important tools to find out the long-run relationships among variables. Since all variables can become stationary in the first level differencing.

We concluded that all series, LGSTOCK, LGINT, LGM2, LGINT, LGEX are not stationary at the 1% level of significant and obtained integrated of order 1, I (1) in both ADF and PP test at the first difference level.

4.1.1 Lag Order Selection Criteria

Table 3: Lag order Selection Criteria

JKSE

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-3.037880	NA	9.08e-07	0.277168	0.454793	0.346357
1	298.7709	541.1744	6.52e-11	-9.267963	-8.202216*	-8.852833
2	336.8069	61.64453	4.24e-11	-9.717480	-7.763611	-8.956409
3	380.5887	63.40809	2.33e-11	-10.36513	-7.523137	-9.258114
4	420.1949	50.53213*	1.56e-11*	-10.86879*	-7.138679	-9.415837*

KLSE

Lag	LogL	LR	FPE	AIC	SC	HQ
0	130.6379	NA	2.92e-09	-5.462517	-5.263752	-5.388058
1	366.0178	409.3563	3.13e-13	-14.60947	-13.41688*	-14.16272
2	400.3438	52.23531	2.17e-13	-15.01495	-12.82853	-14.19590
3	445.9838	59.53043	9.83e-14	-15.91234	-12.73209	-14.72100
4	503.9971	63.05787*	2.89e-14*	-17.34770*	-13.17363	-15.78407*

From the results shown that the optimal lag for both stock market's model is 4 lags. Although the Schwartz Criterion often used as the information criterion to indicate the optimal lags to be included in the model, but for our model, the other suggested that the model should include 4 lags instead of 1 lag, thus, we decided to include 4 lags on our model.

4.1.2 Johansen Cointegration Test

Table 4: Johansen Cointegration Test

JKSE

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.587325	122.3688	69.81889	0.0000
At most 1 *	0.486421	71.91835	47.85613	0.0001
At most 2 *	0.284487	33.93630	29.79707	0.0158
At most 3	0.210503	14.85522	15.49471	0.0622
At most 4	0.023967	1.382731	3.841466	0.2396

KLSE

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.882758	175.6882	69.81889	0.0000
At most 1 *	0.597522	77.08640	47.85613	0.0000
At most 2 *	0.357695	35.22116	29.79707	0.0107
At most 3	0.259788	14.85733	15.49471	0.0622
At most 4	0.021923	1.019670	3.841466	0.3126

The results indicate there is 3 cointegrating equation at the 0.05 significance level for both stock market. This suggests the existence of a long-run relationship between the series data. We have the evidence that the model consist of cointegration and VECM is more suitable for our modelling.

4.2 Results and Discussion

In conclusion, there is a long run relationship between money supply, interest rate, exchange rate and GDP and stock index in KLSE and JKSE. The exchange rate and money supply are showing positive related to the stock index and interest rate and GDP are showing negative related with the stock index in JKSE. However, for the KLSE, only money supply is positive related to stock index, and the other 3 variables, interest rate, exchange rate and GDP are showing negative related to stock index. Apart from that, all the results from the Granger causality test shown none of them consists of bidirectional causal relationship, but 4 of them consisted of unidirectional causal relationship, stock index to money supply for KLSE; money supply to stock index for JKSE; and lastly exchange rate to stock index for both countries. Besides that, the money supply has large impact on the KLSE. But money supply has no impact on the JKSE. Therefore, any change in the money supply will have large impact on KLSE.

5. Conclusion and recommendations

5.1 Stock Index and Money Supply

There is long-run relationship between money supply and stock price in KLSE. Besides that, both variables are found to have unidirectional causal relationship. Hence, In KLSE the stock index could granger cause the money supply to change. However, for JKSE, any changes in money supply could be able use to predict the stock index movement. The money stock is itself an asset in the portfolio of wealth-holders (Chung, Ariff&Mohamad, 2009). Money supply and stock index are interrelated variable. This is because the money supply will affect the stock return hence the stock index will adjust to match the stock return based on demand and supply from the market.

5.2 Stock Index and Exchange Rate

Based on the result show that, exchange rate and stock index have long run relationship for both stock indexes. The exchange rate to stock index for both countries consisted of unidirectional causal relationship. Exchange rate may affect the stock index negatively. According to Juan, Miguel and Andrea in 2016 emerging economy currencies appreciated as stock market price increase, and vice versa. Similarly, since changes in the value of local assets can re-balance international investor portfolios, currency market and capital flows generate dependence between stock (Hau and Rey, 2006 and Palvova and Rigobon, 2007).

5.3 Stock Index and Interest

Rate Interest rate is a very important variable in the economic no matter in which country. It could indirectly affect the economic growth and affect directly to the financial market. Any changes in interest rate could change an investor's decision making on which portfolio should be invested. When the bank offers a high interest rate for the credit card holder and loaner, it is decreasing the amount of the money consumer could spend. Furthermore, it affects heavily to the company that borrow large amount of money. Basically, it is increasing the expenses for the companies, lower down their net income, and lastly, the stock price for the particular firm could result a lower price. The changes in interest rate could affect firms' expectations about future cash flows by adjusting the cost of financing, this mainly practices in the highly indebted companies (Moya-Martínez, Ferrer-Lapeña& Escribano-Sotos, 2015). Based on our finding, both KLSE and JKSE show the long run relationship between stock index and interest rate. According to Kasman, Vardar & Tunç (2011), concluded that stock returns of financial institutions were negatively affected by interest rate changes.

5.4 Stock Index and GDP

Most foreign investors are using the GDP as a measurement of a country's economics statues. Higher GDP could provide a positive view for the potential investor, and it could provide more confidence to invest on that country. Investor would feel safer and secure if they are investing in a welled develop economic environment. According to Ali-Yrkko (2002), if there is growing demand, showing that there will have a excessive GDP scale or excessive GDP growth, and that this will lead to the reallocation of economic resources to make it more accurately, with this leading to an increase in M&A. Besides, a number of researchers have noted correlations among M&A activities, economic growth and stock prices (Hsueh, Tsao, Tu, Chiu & Liu, 2014). Which means that, the GDP could lead to growth in company and raise the stock index. Based on our finding, the GDP only response to stock index in short run and long run. It indicated that, GDP will not have a large effect on the stock index and just could respond to stock index for 5.82437% in Malaysia, and 2.32734% in Indonesia.

5.5 Limitations and Recommendations

There are some problems encountered when we are doing this study. Firstly, it's better to use a higher frequency data, we are using quarterly data in this study, and it is hard to generate a more accurate and reliable results. A monthly data would more suitable and accurate for this study, however due to difficulty to obtain the monthly historical data from internet, we insisted to use quarterly. So, we are recommended the future researchers to search for the availability of the data at the first priority and only estimate the model at the second. Second, the independent variables we used in this study are only 4 and it basically is not enough to explain more about the relationship between stock index and macroeconomic variables. For the future researchers should include more variables to make the model more informative. Finally, we lack econometric knowledge cause us harder to complete this study. We take a long time just to figure out the function and features of the review, and the tests we should going to test. We are recommended the future researchers to read more the about the econometric and practice more on the e-view software, which would make your life easier.

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