Journal of Engineering and Applied Sciences 12 (6): 1393-1400, 2017
ISSN: 1816-949X

The Relationship Between Gross Domestic Product, Inflation Rate and Crude Oil Price and KLCI Index

Low Li Chin and Noor Shahaliza Othman
Faculty of Management, Multimedia University, Cyberjaya, Selangor, Malaysia

Abstract: There are many major issues may affect the stock market index in Malaysia. In this research, the main objective of our study is to examine and determine the relationship between Malaysia stock market index, inflation rate, Gross Domestic Product (GDP) and WTI crude oil price. This study adopted the unit root test, Johansen and Juselius co-integration, granger causality, Vector Error Correction Model (VECM) diagnostic test and variance decomposition to investigate the quarterly data from 2003-2013. Empirical results indicated that stock index of Malaysia is positively related with GDP and WTI crude oil price while inverse linkage with inflation rate in the long run. Furthermore, granger causality result shows that there are two bidirectional relationship links between inflation rate and stock market index as well as crude oil price and stock market index. Moreover, inflation rate has the propensity to have greater influence towards the Malaysia stock market performance compare to others variables.

Key words: Gross domestic product, inflation rate, oil price, stock market, VECM

INTRODUCTION

The stock market which is a place that companies can sell stock shares to the general public and always been a good instrument for investors to grow their wealth and properties. Stock market index is a measurement of the value section in the stock market and it is used as a tool by investors and financial managers to describe the market and to compare the return on respective investments. Stock price of any country reflects its capacity to increase production of goods and services. Stock market index is usefulness in many aspects and it will give a broad outline of the market movement, upward or downward. Investors can use as a criterion to evaluate their portfolio. Index shows how the economic policies affect the stock market. FTSE Bursa Malaysia KLCI Index-Kuala Lumpur Composite Index is one of the indexes in Asia and Pacific. This index comprises of the 30 largest companies with full market capitalization on the main board of Bursa Malaysia. It is from difference sectors such as industrial index, Finance index, property index and plantation index. Previously, there are a lot of investor's trades in the stock market they tried to make huge profit and grow their wealth and properties. Presently, due to economics fluctuates, it made low volume and low volatility in market capacity.

The objective of this study to understand the impact of inflation rate, Gross Domestic Product (GDP) crude oil price towards the performance in Malaysia's stock market index (Kuala Lumpur Composite Index, KLCI).

Understanding the behavior of inflation rate, Gross Domestic Product (GDP) and crude oil price will able to help investors and financial managers on how to re-act in stock market. There has been a several research regarding the relationship between the stock market index, crude oil price, GDP and interest rate in difference countries has been carried out. Based on those researches, the results seem to be mixed and questionable. Lee *et al*. (2012), Dhaoui and Khraief (2014) found a lot of evidences demonstrate that the stock market index is significantly affected by oil price movement but their result shows oil price do not significantly influence the composite index in each country. There are other researchers found that the empirical results showed there is no Granger causality and long run relationship between China stock market index and the economy growth.

The research problem formulated is based on the differences research outcome showed the disparity of methodologies, time periods, countries performance and many of the criteria will affect the result. Therefore, studies on the subject are necessary since the results of the studies may give traders a guideline to manage their portfolio and benefit to the Malaysian policy makers. The objective of this research is to examine the short run and long run relationship between inflation rate, Gross Domestic Product (GDP) WTI crude oil price and Bursa Malaysia KLCI Index (Kuala Lumpur Composite Index).

Literature review: There are many major issues that cause the stock market become uncertainty and fluctuate,

Corresponding Author: Low Li Chin, Faculty of Management, Multimedia University, Cyberjaya Selangor, Malaysia

on July 2007 global economy has suffered its worst crisis, namely the subprime mortgage crisis. Subprime crisis has influence developed and emerging countries, it lead to a poor economic condition, GDP drop as well as a high fiscal cost other than that crisis has also encouraged a liquidity crisis bank and drop in the stock market (Rachdi *et al*., 2013).

Relationship between stock market index and Gross Domestic Product (GDP): According to Duca (2007), the study focuses on the relationship between the stock market and the economy in 5 countries there are US, UK, France, Germany and Japan from 1970-2004. Duca (2007) used panel time series and Granger causality test to test the relationship between dependent variable and the independent variable which is stock market index and Gross Domestic Product (GDP). He concluded that stock market index and GDP have positive relationship. A large collapse in the economic activity will caused a similar decline in stock market index. Based on the American monthly, quarterly and yearly data over the period 1953 1987, Eugene. Fama (1980) investigated on stock returns, expected returns and real activity his objective is to test the relationship between stock market index and economy growth in American. The result showed there is significant positive relationship between stock market index and output growth rate (Fama, 1980).

Guglielmo maria aporale and Nicola Spagnolo the authors of "Stock Market and Economic Growth: evidence from three CEECs" they studied using monthly data from 1996-2011. The researcher test the model by using VAR-GARCH and Granger causality test, the result shows there is a positive relationship between stock market index and the economic growth in three of the Eastern European countries. Hamid Mohtadi and Sumit Agarwal examined the long-term impact of economic growth on stock market index in 21 developing countries over 21 years (1977-1997). Their data used includes Foreign Direct Investment (FDI) Investment (INV) Secondary School Enrollment (SE) to represent the economic growth and Market Capitalization Ratio (MCR) Total Value of Shares Traded Ratio (STR) Turnover Ratio (TR) to symbolize the stock market index of the countries. Through a dynamic panel unit root test, VAR-garch test, Vector Error Correction Estimates, Breusch-Godfrey Serial Correlation LM Test, economic growth have positive relationship with the stock market performance for 21 emerging markets.

Jay R. Ritter from University of Florida did a study titled "Is Economic Growth Good for Investors" where he aimed to examine the relationship between stock market and the economic growth of 21 countries from 1970-2011. The methods used were unit root test and cointegration test. After he run the test he concluded that the cross-country correlation of economic growth and stock market performance has been negatively related, which means that when the GDP increase, the stock market index of the country will be decreased (Ritter, 2012).

Ming Men and Rui Li explored on the relationship between stock index and economy in China. They include monthly data of SHSECI, SZSECI and GDP from 1995-2005, 132 in total sample size. The methods they used to investigate the relationship were unit root test, co integration test, granger causality test. After they run the entire test, the result showed there is no long run equilibrium relationship between the stock market index and the economy growth in China. At the same time, outcome displayed there is no Granger Causal in the relationship between stock index in China and GDP.

Furthermore, they had discussed reasons that affect the outcome. The main problem they concern is private sector played an important role of the economy growth in China. Most of the listed companie's State Owned Enterprises (SOEs) to take off suffering for their company. In this case, the share market performance of the listed companies is difficultly affecting their economic competence.

Relationship between stock market index and inflation rate: Lifang Li, Paresh Kumar Narayanc, Xinwei Zheng did a study on the topic an analysis of inflation and stock returns for the UK. This study to explain the relationship between inflation and the stock market performance. Data included 1986-2007 by daily and monthly from UK inflation rate and 10 industry indices; the performance of indices is measured by their stock market returns. The methods used are Vector Autoreg Ressive (VAR) Model and breusch-pagan test to examine the relationship between the variable. The result indicates that there is no significant effect between stock market performance and inflation rate in the short run. In the medium term, the result show expected inflation positively affected stock market performance and negative relationship for the unexpected inflation (Li *et al*., 2010).

Andreas Humpe and Peter Macmillan examined the macroeconomic variables that explain long run stock market movements in US and Japan. They were included 5 macro-economic variables in the research; one of the variables is inflation rate. Furthermore they used monthly data from January 1965 until June 2005 to run Phillips Peron test, Panel unit root test, vector error correction

estimates and co-integration test. The result of the co integration vector showed US and Japan stock market performance was negatively influence by inflation rate. When the inflation rate increases, US and Japan stock market index will decrease. Mohammed Omran, John Pointon had done a research on the long run and short run relationship between inflation rate and the performance of the stock market in Egypt. The methods that they used to test are co-integration test, vector error correction estimates. Their finding showed that Egypt stock market performance is negatively influence by inflation rate in long term and short term activity (Omrana and Poiton, 2001). In the other hand, Jeffrey Oxman also supported this theory; he performed a study on American stock market during period 1966-2009 and showed that stock performance has significant negative relationship with the inflation rate (Oxman, 2012).

Other than this, Ki-ho Kim did a study focused on "dollar exchange rate and stock price"; intention of this topic is to determine the long run equilibrium relationship among stock market index, industrial production, exchange rate, interest rate and inflation rate during period 1974-1998 for US. After the model is test by Johansen's co-integration analysis, unit root test, vector error correction estimates, the result indicates that stock market performance in US has a long-run equilibrium relationship with industrial production, exchange rate, interest rate and inflation rate. A change of industrial production is positively affecting the stock market performance, negatively influence by interest rate, exchange rate and inflation rate.

Ding Du did a research on monetary policy, stock returns and inflation. This research is to explore the correlation between stock market performance and inflation rate be governed by the monetary policy. The author used several method to run the model during period 1926-2001 in US there are vector auto-regression analysis, unit root test and variance decomposition. The empirical result showed there are positive relationship between stock market performance and inflation rate in the 1930, researcher found that this result is cause by the strong pro-cyclical monetary policy while during the period of 1952-2001 the result show stock market performance was negatively influence by the inflation rate (Du, 2006).

Paul alagidede, Theodore Panagiotidis also did an exploration on stock market performance and inflation rate during period 1970-2008 in G7 countries there are Canada, Italy, France, Germany, Japan, US and the UK. The methods used were Ordinary Least Square (OLS) regressions, VAR-Garch and Engle LM test. From the study they conclude that most of the countries that they had explored have a positive relationship between stock market performance and inflation rate (Alagidede and Panagiotidis, 2012).

Relationship between stock market index and crude oil price: According to Chandni Makan and Avneet Kaur Ahuja and Saakshi Chauhan, their study focuses on the effect of 7 macro-economic variables on India stock market performance. In this specific study, the authors used monthly data from April, 2005 to March, 2012. The independent variables that they had used are index of industrial production, consumer price index, call money rate, dollar price, foreign institutional investment, crude oil prices and gold price. After employing the descriptive statistics, inferential statistics, correlation matrix, unit root test, Granger causality test, econometric regression analysis, the author conclude that there are only few variables have significant relationship with India stock market performance, crude oil price have not significant relationship with India stock market performance. They concluded that India stock market is determined by domestic macroeconomic factors rather than global issues in the long-run (Abdalla, 2013).

Referring to oystein gjerde, frode sattem which conducted a study on the investigate relations among stock market performance and 8 macro-economic variables from major markets are effective in small, open economy in norway. The independent variables used in this study are real interest rates, inflation rate, consumption, industrial production, international industrial production, exchange rates and crude oil prices. After used employs Vector Auto Regressive (VAR) approach, unit root test, impulse and response analysis, researchers found out that Norwegian stock market negatively influence by interest rate and inflation rate in the other hand oil price change positively affect stock market index (Gjerde and Saettem, 1999).

In a study conducted by Abderrazak Dhaoui and Naceur Khraief they used monthly data from January 1991 to September 2013 for eight developed countries there are US, Swiss, France, Canada, UK, Australia, Japan and Singapore. An exponential generalized autoregressive conditional heteroscedasticity model and Vector Autoregressive (VAR) approach is used to test the relation among crude oil price and stock market performance for eight developed countries. The study found that 7 countries result showed stock market index will decline when the crude oil price fall. However when oil price drop, Singapore stock market index increase.

Refer to the study carried out by Abderrazak Dhaoui and Naceur Khraief which aim to investigate the connection between crude oil price in US dollars per barrel

and Nigerian share index. The data used in this study are monthly data from January 2000 to December 2011 in total 144 observation. After run unit root test and Vector Auto Regressive (VAR) approach, authors establish there is a positive relation between crude oil price and Nigerian Share Index in the long-run. They discuss that when the crude oil increase, revenue of the country will also increase, at the same time citizen will get more income and they will invest more in the share market, therefore, stock market index growth up in the same moment (Gil and Yaya, 2014).

Cetin Ciner had examined the connection between change in crude oil price (WTI) and the stock market performance in US by using monthly data from 1986 2010. The investigator used frequency domain regression methods to examine the model and the result shows that the relationship between crude oil price and the share market performance is depends on the insistency of the shocks. When the oil price shock is <12 months, the result shows a negative relationship between crude oil price change and stock market index. In the other hand, negative relationship is generated when the crude oil price shock with 12-36 months. When the crude oil price shock is >36 months insistency shows stock market index will negatively influence by crude oil price. Researcher concludes that insignificant relation is distinguished in this study between crude oil price (WTI) and share market when only used time domain methods to run the test (Ciner, 2013).

While studying the relationship between Saudi Arabia stock market performance and crude oil price, Suliman Zakaria Suliman Abdalla used daily data 2007 2011. In this research he employs vector autoregressive (VAR-GARCH) Model, heteroscedasticity test and using maximum likelihood method to run the multivariate normal distribution error term. The result showed that when crude oil price instability, stock market index will increase (Abdall, 2013). Gerben driesprong, ben jacobsen, benjamin maat were study on topic "stock market and oil price", the intention of this study is to determine the short run relationship between stock market performance and crude oil price in 19 countries. The investigators conclude that there is a significant negative relationship between oil price and stock market index when increase in oil prices, share market performance will drop.

MATERIALS AND METHODS

Conceptual framework: The conceptual frame work in Fig. 1 explains the relationship of Malaysia KLCI Index with inflation rate, Gross Domestic Product (GDP) and WTI crude oil price. The dependent variable will be

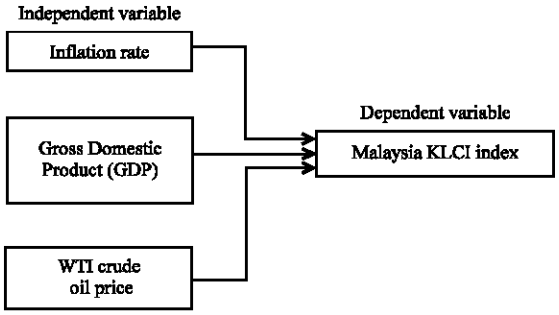

Fig. 1: Conceptual framework

Malaysia KLCI index in the other hand inflation rate; Gross Domestic Product (GDP) and WTI crude oil price represent the independent variables. Therefore:

- H_1: there is a long run relationship between gross domestic product per capital and stock market index in Malaysia
- H_2: there is a short-run causality between gross domestic product per capital and stock market index in Malaysia
- H_3: there is a long run relationship between inflation rate and stock market index in Malaysia
- H_4: there is a short-run causality between inflation rate and stock market index in Malaysia
- H_5: there is a long run relationship between WTI crude oil price and stock market index in Malaysia
- H_6: there is a short-run causality between WTI crude oil price and stock market index in Malaysia

Model specification: To test the relationship between the Malaysia stock market index, inflation rate, gross domestic products and WTI crude oil price, a model is estimate as:

$$LKLCI_t = \beta_0 + \beta_1 LINF_t + \beta_2 LGDP_t + \beta LWTI_t + \varepsilon_t$$

Where:

LKLCI = Logarithm of Malaysia stock market index for period t
LINF = Logarithm of inflation rate for period t
$LGDP_t$ = Logarithm of gross domestic products per capital for period t
$LWTI_t$ = Logarithm of West Texas Intermediate crude oil price for period t
β_0 = Constant
β_1-β_3 = Coefficient
ε_t = Error term for period t

Data sources/data collection: The quarterly data used in this study are inflation rate, Gross Domestic Product

(GDP) and WTI crude oil price and stock market index in Malaysia over the period of 2003-2013. All of the data were collected from International Monetary Fund database (IFM) world bank database, bursa Malaysia, US Energy Information Administration as well as Bank Negara Malaysia. All data were transformed into natural logarithm before analyzed to standardize the variable. The techniques that will be used to determine the relationship between the variables are Vector of Co-integration method (VECM) and Vector Autoregressive (VAR) approach.

RESULTS AND DISCUSSION

In this study, Augmented Dickey-Fuller unit root test is used to test the stationary of variables. The null hypothesis of ADF shows that the variable are not stationary at level which also means that unit root exist in the variables at level whereas the alternative hypothesis state that the variable in study is stationary (no unit root) after 1st differences. It is common to have variable in a time series model to exhibit a pattern whereby variables are not stationary at level but stationary after first differencing.

Based on Table 1, it shows those variables are stationary after first difference. When variables are stationary after first difference, Ordinary Least Square (OLS) regression is not applicable to determine the relationship between the independent variable and dependent variable. Therefore to test the relationship between variables that are stationary after first difference, Johansen Juselius (JJ) co-integration test is used to get the result.

Tables 2, shows the result of the JJ co-integration test, whereby trace test (λ-trace) and the maximum eigenvalue test (λ-max). The results support that there is only one co-integration in the model. This is because if the model shows no co-integration relationship will not be significantly different from zero. Since, the maximum eigenvalues and trace test is more than the critical value of 95%, it shows that the model is significantly different from zero and therefore, there is one co-integration relationship.

Table 3 demonstrates the results of long run elasticity of normalized cointegration vector. Based on the t-statistics results. In other word LWTI, LGDP and LINF are co-integration with LKLCI at 1% significant level. The above long run equation illustrates LWTI and LGDP have positive co-integration relationship with LKLCI while LIR have a negative co-integration relationship with LKLCI. For every 1% increase in LWTI, LKLCI will increase by 0.77436% all other predictors are held constant. Furthermore when LGDP increase 1%, LKLCI will increase by 1.831276% others variables are held constant. On the other hand, LKLCI will decreases by 3.594147% for every 1% increase of LINF all other variables are remain unchanged. The system involves of a lagged ECT in each of them as capturing the long run adjustment upon their equilibrium trail. The function of the ECT is crucial to overcome the misspecification constraints. Based on the result the negative value of ECT is statistically significance. The ECT value of -0.42 mention that about 42% of the short run deviations in the LKLCI would be adjusted in quarterly basis in order to reach the long run equilibrium state.

Granger causality test based on Vector Error Correction Model (VECM) is accepted subsequently existence of co-integration among the variables. The system consists of a lagged ECT in each of them as to capture the long run adjustment upon their equilibrium trail. The function of the ECT is to overcome the misspecification constraints. Table 4 displays the outcome of granger causality base on VECM. The result shows there is bidirectional short run causality between LKLCI and LWTI. Furthermore, there is another bidirectional short run causality link between LKLCI and LINF. Moreover there is a unidirectional short run causal link from LINF to LWTI. Other than that none of the variables link with LGDP in the short run.

Table 5 diagnostic test is an important step in empirical analysis. This is because diagnostic test is used to test the correct specification of the model. In this study, six different type of diagnostic test has been conducted and each test has their own purposes. These six diagnostic tests consist of jarque-bera normality test, breusch godfrey serial correlation LM test, Heteroscedasticity test, ramsey RESET specification test, CUSUM test and CUSUM square test. Normality test shows that the probability of jarque-bera is less than significant levels (1%) therefore, reject H_0. The data of the model is not normally distributed. Moreover, result of breusch-godfrey serial correlation lm test shows there is no autocorrelation in the model. The probability of F statistic is higher than significant level (10%). Furthermore, the variance in the model are constant because the result of Heteroscedasticity test shows that probability of F-statistic is greater than significant level (10%) therefore do not reject H_0. The model is homoskedasticity. Ramsey reset test shows that the model is correctly specified because the probability of F-statistic is larger than significant level (10%) therefore

Table 1: Unit root tests results

	Augmented dickey-fuller unit root test			
	Levels		First differences	
Variables	Intercept	Trend and intercept	Intercept	Trend and intercept
LKLCI	-2.188207 (0)	-3.061636 (1)	-9.588970 (0)***	-9.470963 (0)***
LINF	-1.035499 (1)	-2.811953 (3)	-10.568400 (0)***	-10.43957 (0)***
LGDP	0.155447 (0)	-1.603690 (0)	-6.173391 (0)***	-6.199950 (0)***
LWTI	-1.817987 (0)	-2.405500 (0)	-5.881235 (1)***	-5.943477 (1)***

Figures in () are the lag lengths. Asterisks (*), (**) and (***) denote significant at 10, 5 and 1% levels, respectively

Table 2: Johansen and Juselius cointegration test

H_0	H_1	λ-trace	95% CV
Trace test: LKLCI, LINF, LGDP, LWTI (k = 4, r = 1)			
r≤0	r≥1	56.47276***	47.856130
r≤1	r≥2	21.60904	29.797070
r≤2	r≥3	7.787566	15.494710
r≤3	r≥4	0.382656	3.841466
Maximum eigenvalue test: LKLCI, LINF, LGDP, LWTI (k = 4, r = 1)			
r = 0	r = 1	34.86372***	27.584340
r≤1	r = 2	13.82147	21.131620
r≤2	r = 3	7.404911	14.264600
r≤3	r = 4	0.382656	3.841466

Asterisk (**) denotes significant at 5% level, k is the number of lag and r is the number of cointegration vector

Table 3: Implied long run elasticities of normalized cointegration vector (long run) (more important than short run)

Parameter estimated	Constant	LKLCI	LINF	LGDP	LWTI	ECT
Elasticities	-26.77304	-1.0000	-3.594147	1.831276	0.774359	-0.417731
t-statistics			-3.525260***	5.74043***	4.450260***	-2.602510***

Asterisks (*) and (***) denote significant at 1 and 10% levels, respectively. KLCI = -26.77304-3.594147 LINF = (-3.52526)+1.831276 LGDP = (5.74043)+0.774359 LWTI = (4.45026)

Table 4: Granger causality tests results

	χ^2-statistic (p-value)				ECTs	
Dependent variables	ΔLKLCI	ΔLINF	ΔLGDP	ΔLWTI	Coefficients	t-statistics
ΔLKLCI	-	22.503780 (0.0001)***	2.416078 (0.4906)	11.38354 (0.0098)**	-0.417731	-2.60251***
ΔLINF	11.93382 (0.0076)**	-	2.939680 (0.4010)	1.471573 (0.6888)	-0.134225	-2.87164***
ΔLGDP	0.797303 (0.8501)	2.085920 (0.5548)	-	4.133976 (0.2474)	-0.013707	-0.29484
ΔLWTI	7.706258 (0.0525)*	11.009670 (0.0117)**	0.683617 (0.8771)	-	0.174130	1.04881

Asterisk (***), (**) and (*) denote significant at 1, 5 and 10% levels, respectively. Δ is the first different operator

Table 5: Diagnostic test

JB	AR	ARCH	RESET	CUSUM	$CUSUM^2$
159.509 (0.00000)***	0.127735 (0.88070)	0.123649 (0.72710)	3.405616 (0.07690)	Stable	Stable

JB is Jarque-Bera statistic for residual normality test; AR is test of serial correlation using Breusch-Godfrey Serial Correlation LM test; ARCH and RESET refer to White Hetroscedasticity test and Ramsey RESET specification test, respectively; Asterisk (***), (**) and (*) denote significant at 1, 5 and 10% levels, respectively; Δ is the first different operator

do not reject H_0. The model is correctly specified. Based on the CUSUM and CUSUM square graph it shows that the line is within the range so the KLCI equation is stable. Variance decomposition measures the percentage of forecast error of variation that is explained by another variable within the short-run dynamic and interaction. The result show in Table 6 with variance decomposition at 1, 4, 8, 12, 16 and 20 quarter horizon. The finding suggests the presence of interaction among the variable. According to Table 6, we can notice that the percentage of contribution of LINF and LGDP keep increasing from 4-20th quarter. On the other hand, the role of LWTI ratio in explaining variability of its own value is decreasing from 8-20th quarter. In comparison with other variables in the 20th quarter, LINFI explains most of the variation in KLCI, according for 73.24%, followed by LKLCI, 14.37%, LWTI, 11.59%. However, LGDP hardly has a short-run impact in the variation of KLCI as it only account for 0.80% of the variation in the end of 20th quarter. Impulse response function can give an indication of the causal properties of the system. From the Fig. 2, we can see that the results are in line with the long-run equation, where KLCI respond positively to shock in GDP and respond negatively to INF as well as WTI.

Table 6: Variance decomposition (Cholesky decomposition)

Percentage of variations/ Horizon (quarters)	Due to innovation			
	ΔLKLCI	ΔLINF	ΔLGDP	ΔLWTI
Quarters relative variance (ΔLKLCI)				
1	100.0000	0.000000	0.000000	0.000000
4	38.63278	52.64874	0.415693	8.302786
8	44.43552	60.75383	0.436270	13.835460
12	13.83546	66.33843	0.848200	12.081360
16	16.52367	70.42720	0.751963	12.297160
20	14.36901	73.24251	0.803412	11.585070

The column in bold represent their own shock

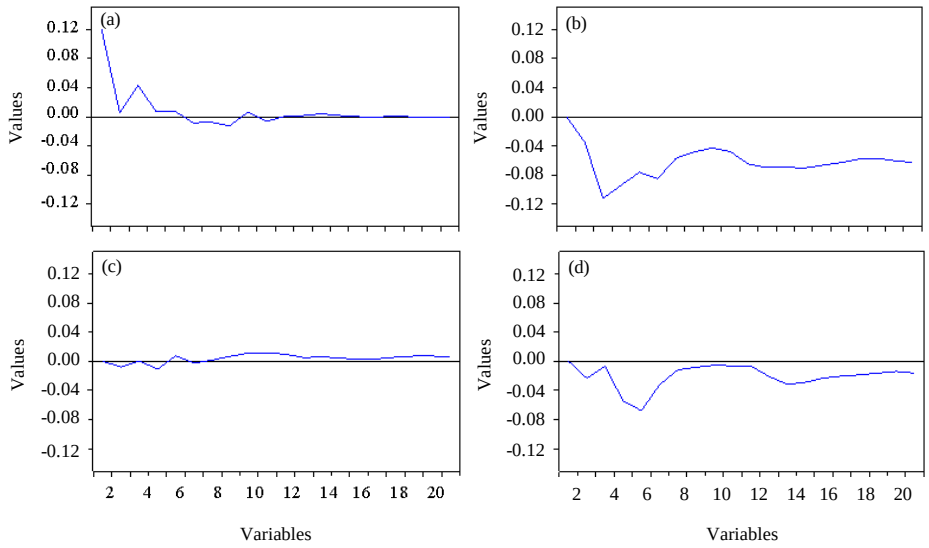

Fig. 2: Impulse response function: a) Response of LKLCI to LKLCI; b) Response of LKLCI to LINF; c) Response of LKLCI to LGDP and d) Response of LKLCI to LWTI

CONCLUSION

This study is conducted mainly to examine the relationship between the, inflation rate, Gross Domestic Product (GDP) WTI crude oil price and stock market index in the case of Malaysia. In this study to test for stationary and the order of integration of all the series an Augmented Dickey Fuller (ADF) unit root test is used.

The ADF unit root test shows that all the variables integrated in the same order which is significant at first difference. Furthermore to test for the number of linear relationship in the model, Johansen and Juselius co-integration test is conducted. The Johansen test for co-integration result shows that there is a long run relationship in the model. Lag 3 is used in the model, since the VECM error term is random at this point. Based on the lag 3, JJ test for co-integration shows that there is one co-integration relationship at the 5% critical value. The VECM result shows there is a short run and long run relationship between the variables. Based on the results and discussion on findings in the previous chapter, it is concluded that the economic growth and crude oil price are positive and significantly influence Malaysia stock market while inverse linkage with inflation rate in the long run. Moreover in the short run there are two bidirectional relationship links between inflation rate and stock market index as well as crude oil price and stock market index.

Based on the output in this research, the result are same as expected result which means that this research paper has reached the objective. In additional, this research also estimate the variance decomposition test, the result shows that inflation rate is an important factor in explaining the stock market movement in Malaysia and the increase of inflation rate tends to affect the stock market index decrease. Therefore, government and policy marker have to control the inflation rate in a low level to avoid the inflation rate depress the stock returns.

In additional, future researcher can apply more independent variables to study the Malaysia economic growth. Beside, future researchers could consider select more than one country in their study, this is because the finding can contribute more information for policy makers, financial managers and investors in the worldwide.

REFERENCES

Abdalla, S.Z.S., 2013. Modelling the impact of oil price fluctuations on the stock returns in an emerging market: The case of Saudi Arabia. Interdiscip. J. Res. Bus., 2: 10-20.

Alagidede, P. and T. Panagiotidis, 2012. Stock returns and inflation: Evidence from quantile regressions. Econ. Lett., 117: 283-286.

Ciner, C., 2013. Oil and stock returns: Frequency domain evidence. J. Int. Financial Markets Inst. Money, 23: 1-11.

Dhaoui, A. and N. Khraief, 2014. Empirical linkage between oil price and stock market returns and volatility: Evidence from international developed markets. Econ., 12: 2-29.

Du, D., 2006. Monetary policy, stock returns and inflation. J. Econ. Bus., 58: 36-54.

Duca, G., 2007. The relationship between the stock market and the economy: Experience from international financial markets. Bank Valletta Rev., 36: 1-12.

Fama, E.F., 1980. Stock returns, expected returns and real activity. J. Finance, 45: 1089-1107.

Gil, A.L.A. and O.S. Yaya, 2014. The relationship between oil prices and the Nigerian stock market: An analysis based on fractional integration and cointegration. Energy Econ., 46: 328-333.

Gjerde, O. and F. Saettem, 1999. Causal relations among stock returns and macroeconomic variables in a small, open economy. J. Int. Financial Markets Institutions Money, 9: 61-74.

Lee, B.J., C.W. Yang and B.N. Huang, 2012. Oil price movements and stock markets revisited: A case of sector stock price indexes in the G-7 countries. Energy Econ., 34: 1284-1300.

Li, L., P.K. Narayan, and X. Zheng, 2010. An analysis of inflation and stock returns for the UK. J. Int. Finan. Mark. Institut. Money, 20: 519-532.

Omran, M. and J. Pointon, 2001. Does the inflation rate affect the performance of the stock market? The case of Egypt. Emerging Markets Rev., 2: 263-279.

Oxman, J., 2012. Price inflation and stock returns. Econ. Lett., 116: 385-388.

Rachdi, H., R.B.S. Mokni and S. Khemiri, 2013. The impact of the international financial crisis on the stock market return: The case of Tunisian stock exchange. J. Empirical Econ., 1: 67-74.

Ritter, J.R., 2012. Is economic growth good for investors?. J. Appl. Corporate Finance, 24: 8-18.