Journal of Business Studies Quarterly   jbsq.org

Macroeconomic Variables and Malaysian Islamic Stock Market: A Time Series Analysis

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Abstract
This research will focus on the relationship between the development of Islamic stock market and macroeconomic variables in Malaysia. Generally, the purpose of this research is to observe this relationship in Malaysian context. In order to achieve the objective, an estimation of Vector Auto Regression (VAR) method was applied on the created research model. The variables involved in this research are Kuala Lumpur Syariah Index (KLSI), Industrial Production Index (IPI), Consumer Production Index (CPI), Aggregate Money Supply (M3), Islamic Inter Bank Rate (IIR) and Exchange Rate of Malaysian Ringgit-United States Dollar. This research used monthly data from April 1999 to October 2007 taken from authorized sources. The findings showed that Islamic stock prices are co-integrated with the selected macroeconomic variables in which the stock price is related positively and significantly with IPI and CPI variables but related negatively and significantly with M3 and MYR variables. Meanwhile, its relation with IIR variables is found negative but insignificant. From the aspect of Granger causal relationship it is found that variables of CPI, M3 and MYR are the Granger cause for KLSI and the KLSI is the Granger cause for IPI, CPI and MYR.

Keywords: *Cointegration, Vector Error Correction Mode (VECM), Islamic Stock Market, Macroeconomic Variables.*
JEL Classification: C32; E52; G20; P43

Introduction

Over the past few decades, the interaction of share returns and the macroeconomic variables has been a subject of interest among academics and practitioners. Previous studies have documented existence of significant relationship between stock markets with selected macroeconomic variables in certain countries. Since economic conditions provide an impact on the fluctuation of the stock market, this instability condition builds uncertainty towards many parties. The interactions between stock market and macro economic variables have become primary focus in the research between academics and practitioners (Kwon and Shin, 1999).

Stock market is a suitable place for investors to avoid the threat of inflation and at the same time is an indicator towards the development of the nation in term of economics (Khil and Lee, 2000). In other words, The Kuala Lumpur Shariah Index (KLSI), which is a weighted-average index with its components made up of Main Board companies designated as Shariah approved securities by the Shariah Advisory Council of the Securities Commission, is indeed related to the movement of economic growth in Malaysia. This can be proved by looking back to the history of KLSI in the year 2000 where the movement of Syariah Index increased about 13.79%. This increase was in line with the movement in actual GDP in Malaysia in the year 2000 with 8.3%. In 2001, the actual GDP in Malaysia only showed an increase of about 0.5% and in that year the KLSI implied a negative growth of only 23.8%. While in 2004 Kuala Lumpur Composite Index (KLCI) indicated a positive growth with 18.2% is in line with the positive growth of the actual GDP in that year (6.8%).Similarly, in 2007 when KLSI recorded a high growth of about 39.76%, this was in line with the actual GDP in 2007 with 6.3%. This result proved that in general the growth of Malaysian Economy is related to the growth of indexes in KLSI. As a result, the fund manager and investor will need to consider all economy factors that will influence their Islamic stock return before choosing or making certain investment.

Many studies had been published about the relationships between stock returns and macro variables in well-developed countries such as the US, Japan and European countries. However, regional stock markets such as Malaysia have not been fully explored because of their small sizes and geographic locations. In this paper, we examined the relationships between the Kuala Lumpur Syariah Index (KLSI) and a set of five macroeconomic variables from April 1999 to October 2007 using Johansen Cointegration Test.

The remainder of the paper is organized as follows. Section 2 will review previous literature on the relationships between macroeconomic variables and stock returns. Section 3 will provide an overview of the Islamic Stock Market in Malaysia and Section 4 will describe the data used in the research. The econometric methods/methodology and results will be discussed in Sections 5 and 6, respectively. The paper will be concluded in Section 7.

2. Review of the Relationship between Macroeconomic Variables and Stock Returns

The dynamic relationship between macroeconomic variables and share returns have been widely discussed and debated. The basis of these studies has been the use of models which state that share prices can be written as expected discounted cash flow. Thus, the determinants of share prices are the required rate of return and expected cash flows (Elton and Gruber, 1991). Economic variables which impact future cash flows and required returns can therefore be expected to influence share prices. By using this research, the researchers indicate that there is a foundation for the belief that there is a stable relationship between stock price and related macroeconomics variables.

The relationship between stock prices and real GDP shows a positive relationship (Maysami and Koh, 2000). According to Fama (1986), Mukherjee and Naka (1995) and Ibrahim and Aziz (2003), the increase in the real GDP will affect the price of the stock through the impact towards corporate profit. This happens because when there is an increase in the real GDP, the expected future cash flow in company will increase and the price of the stock increases.

The relationship between inflation and stock price can exist either positively or negatively. According to Fama and Schwert (1977), Chen et al (1986) and DeFina (1991), these two variables have a negative relationship. They indicate that inflation will increase the cost of

production and at the same time it will also decrease the expected future cash fallow and profit of the company. While Geske and Roll (1983) and Mukherjee & Naka (1995) point out that this negative relationship can be detected by   looking at the increase of the inflation rate which will result in a   strict economy policy. When this thing happens, the   free risk nominal rate will increase and at the same time the rate of discount will also increase. This will in turn cause an increase in the stock price.

However, other researchers indicate that these two variables have a positive relationship. Khil and Lee (2000), Ibrahim and Aziz (2003), Shabri et al (2001) and Ibrahim (2003) specified this relationship through the concept of protection value. Equities serve as a hedge against inflation as they represent claims on real assets.

The relationship between money supply aggregate and stock price can exist either positively or negatively. Dhakal et al (1993) and Mukherjee & Naka (1995) indicated that this positive relationship can be noticed through economy encouragement feature. This is a basis for money supply to increase towards the increase of the corporate profit and this will further increase the future cash flow and result in an increase in stock price.

The negative relationship can be observed by looking at direct relationship (positive) between money supply and inflation. In this direct relationship, the increase in the money supply will increase the discount rate and further decrease the price of stock market (Fama, 1981)

The relationship between interest rate and stock price are in the negative form. The increase in interest rate will increase the free risk nominal rate and at the same time will increase the discount rate (Abdullah and Hayworth, 1993). As a result, the price of the stock will decrease (Mukherjee and Naka, 1995). On the other hand, Abdullah and Hayworth (1993) proved that interest rate can influence the level of corporate profit through expectation where the investor will get higher dividend in the   future. Most of the companies support their equipment and inventory through loans. Reduction in the interest rate will cut down the cost of borrowing and at the same time it provides an incentive to the company to expand their operation. Consequentially, the future expected value of the company will increase.

Maysami et al (2004) explained that most of the stock is bought through the money the investor borrowed from financial institutions. The increase in interest rate will increase the cost of buying   stocks. The investor will try to find the stock that can give a higher rate of return to balance the cost of borrowing, which they borrow from financial institution. When this happens, the demand towards the stock will decrease and at the same time decrease the price of the stock.

Stock prices can have either positive or negative relationship with the foreign exchange rate. Any changes in value of exchange rate will give a big impact towards the price of the stock. Mukherjee and Naka (1995), Maysami and Koh (2000) and Ibrahim and Aziz (2003) proposed that the relationship between these two variables are in positive form. Looking at the situation where there is a decrease in value of the currency can prove this. This causes the product that is being exported from this country to become cheaper in the international market. As a result, if the products experience elasticity, the vol of the export from that country will increase. The flow of cash will increase in line with the profit and local stock price.

Ibrahim and Wan (2001) shared a different perspective. They believed that the relationships between these two variables are negative. They believed that if the country depends on the export, the decrease in currency value will increase the growth of export. Nevertheless, the decrease in currency value will increase the cost of production impact as well as   increase the domestic price. As a result, the profit margin in the company will decrease.

3. Islamic Stock Market in Malaysia

The Islamic stock market can be considered one of the important branches of the Islamic capital market whereby its components and activities are based on Islamic law, which is based on venerable sources and approved by the Fiqh Ulama (Securities Commissions, 2008). The Islamic stock market has been established based on 5 main principles of operation: preventing any practice of usury, sharing risks, preventing widespread speculation, compliance of the akad with the stated contract and the activity implemented must be legal in the Syariah aspect (Bacha, 2002).

In April 17, 1999, the Kuala Lumpur Syariah Index (KLSI) was launched by the Kuala Lumpur Stock Exchange, now Bursa Malaysia. This was the first step in facilitating participation in equity investments that are compatible with the Islamic principles of Shariapp. The KLSI provides a benchmark for investors seeking to make investments based on Shariah principles and this helps them to make better informed decisions.

The first move in facilitating the development and innovation of Islamic financial products in Malaysia was to establish the Shariah Advisory Council (SAC) at the Security Commission (SC) soon after SC's own establishment in 1993. This provided the most important first step   for the development of KLSI and other Islamic capital market products and services that followed. Since then, Malaysia has established itself as a key player in the global Islamic sphere, where the Islamic capital market is specifically recognized as a hallmark of international financial success. The Security Commission reported in 2008 that there were over 85 percent of total listed Islamic equity companies in Malaysia. In the latest development, Bursa Malaysia, in co-operation with FTSE, introduced a new series of tradable equity indices called FTSE-Bursa Malaysia Emas Shariah Index and FTSE-Bursa Malaysia Hijrah Shariah Index. This development helped to create more opportunities for investors seeking Shariah investments to benchmark their portfolios, and the asset managers to create new products serving the investment community.

The selection of Shariah-compliant companies takes place through a screening process based on qualitative and quantitative parameters. Therefore, in the qualitative criteria, The SAC has applied a standard criterion in focusing on the activities of the companies listed on Bursa Malaysia. The companies whose activities are not contrary to the Shariah principles will be classified as Shariah-compliant securities. On the other hand, companies will be classified as Shariah non-compliant securities if they are involved in the following core activities:
(a) Financial services based on *riba* (interest); (b) Gambling and gaming; (c) Manufacture or sale of non-halal products or related products; (d) Conventional insurance; (e) Entertainment activities that are non-permissible according to Shariah; (f) Manufacture or sale of tobacco-based products or related products; (g) Stockbroking or share trading in Shariah non-compliant securities; and (h) Other activities deemed non-permissible according to Shariapp.

To determine the tolerable level of mixed contributions from permissible and non-permissible activities towards turnover and profit before tax of a company, the quantitative parameters are mainly used by the SAC. If the contributions from non-permissible activities exceed the benchmark, the securities of the company will be classified as Shariah non-compliant. The benchmarks are:

(a)The five-percent benchmark to the activities that are clearly prohibited such as *riba* (interest-based companies like conventional banks), gambling, liquor and pork; (b) the 10-percent benchmark to the activities that involve the element of *"umum balwa"* which is a prohibited element affecting most people and difficult to avoid such as such a contribution is the

interest income from fixed deposits in conventional banks; (c) the 20-percent benchmark to assess the level of contribution from mixed rental payment from Shariah non-compliant activities such as the rental payment from the premise that involved in gambling, sale of liquor etc and (d) The 25-percent benchmark to the activities that are generally permissible according to Shariah and have an element of *maslahah* to the public, but there are other elements that may affect the Shariah status of these activities such as hotel and resort operations, share trading, stock-broking and others, as these activities may also involve other activities that are deemed non-permissible according to the Shariah.

4.   Data Description

A total of five macroeconomic variables and KLSI had been used in the analysis. The definitions of each variable and time-series transformation are described in Table 1 and Table 2.

Table.1: Definitions of Variables

No	Variable	Description	Duration	Source
1	Kuala Lumpur Syariah Index (KLSI)	KLSI used as the proxy for Islamic stock market in Malaysia	Monthly data from April 1999 to October 2007.	Bloomberg
2	Industrial Production Index(IPI)	IPI used as the proxy for Gross Domestic Product	Monthly data from April 1999 to October 2007. (Basic year =2000)	International Financial Statistics (IFS)
3	Ringgit Malaysia/ United States Dolar Currency Exchange (MYR)	MYR used as the benchmark for foriegn exchange in Malaysia.	Monthly data from April 1999 to October 2007.	Monthly Statistical Bulletin ,Bank Negara Malaysia
4	Consumer Price Index (CPI)	CPI used as the proxy for the inflation rate in kadar Malaysia	Monthly data from April 1999 to October 2007. (Basic year =2000)	International Financial Statistics (IFS)
5	Financial Agregate Supply(M3)	M3 used as the proxy for the money supply in Malaysia.	Monthly data from April 1999 to October 2007.	Monthly Statistical Bulletin ,Bank Negara Malaysia
6	Islamic Inter Bank Rate (IIR)	IIR used as the proxy for the interest rate in the Islamic financial system in Malaysia.	Monthly data from April 1999 to October 2007.	Statistical Data from Islamic Banking Money Market Website

Table 2: Time-Series Transformations

No	Time Series Data Transformation Variable	Description
1	$\Delta LNKLSI = Log\left[\dfrac{KLSI_{(t)}}{KLSI_{(t-1)}}\right]$	Kuala Lumpur Syariah Index (KLSI)
2	$\Delta LNIPI = Log\left[\dfrac{IPI_{(t)}}{IPI_{(t-1)}}\right]$	Industrial Production Index(IPI)
3	$\Delta LNMYR = Log\left[\dfrac{MYR_{(t)}}{MYR_{(t-1)}}\right]$	Ringgit Malaysia/ United States Dolar Currency Exchange (MYR)
4	$\Delta LNCPI = Log\left[\dfrac{CPI_{(t)}}{CPI_{(t-1)}}\right]$	Consumer Price Index (CPI)
5	$\Delta LNM3 = Log\left[\dfrac{M3_{(t)}}{M3_{(t-1)}}\right]$	Financial Agregate Supply(M3)
6	$\Delta IIR = \left[\dfrac{IIR_{(t)}}{IIR_{(t-1)}}\right]$	Islamic Interbank Rate (IIR)

5. Methodology

We adopted a vector autoregressive (VAR) model to examine the relationship between Islamic stock market and macroeconomic variables in Malaysia. Model developed and applied in this study is as follow:

$$KLSI_t : \alpha_0 + \alpha_1 IPI_t + \alpha_2 CPI_t + \alpha_3 M3_t + \alpha_4 IIR_t + \alpha_5 MYR_t + \mu_t \qquad (1)$$

It aims to examine the relationship between Islamic stock market variables, namely Kuala Lumpur Shariah Index (KLSI) with five macroeconomic variables, namely the Industrial Production Index (IPI), Consumer Price Index (CPI), the Financial Aggregate Supply (M3), Islamic Interbank Rate (IIR) and Foreign Exchange Rates of Ringgit Malaysia - United States Dollar (USD) based on discounted cash flow model (Kearney and Daly (1998).

To properly specify the VAR model, we followed the standard procedure of time series analyses. First, we applied the commonly used augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests to determine the variables' stationarity properties or integration order. Briefly stated, a variable is said to be integrated of order d, written 1(d), if it requires differencing d times to achieve stationarity. Thus, the variable is non-stationary if it is integrated of order 1 or higher. Classification of the variables into stationary and non-stationary variables is crucial since standard statistical procedures can handle only stationary series. Moreover, there also exists a possible long-run co-movement, termed cointegration, among non-stationary variables having the same integration order. Accordingly, in the second step, we implemented a VAR-based

approach of cointegration test suggested by Johansen (1988) and Johansen and Juselius (1990). Appropriately, the test provides us information on whether the variables, particularly measures of Islamic Stock Market and macroeconomic variables are tied together in the long run. Then the study proceeded with a Granger causality test in the form of vector error correction model (VECM). Granger causality test is performed to identify the existence and nature of the causality relationship between the variables. This is appropriate to identify relationships between variables because multiple causes simultaneously, especially if the variables involved in the created model more than two variables.

6. Empirical Results

Table 3 presents the results for the unit-root tests using Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) tests for the order of integration of each variable. For the level of the series, the null hypothesis of the series having unit roots cannot be rejected at even 10% level except IIR. However, it is soundly rejected for each differenced series. This implies that the variables are integrated of order I(1).

Table 3: Unit Root Test-Summary Statistics

Variables	Level		First Difference	
	ADF	PP	ADF	PP
LNKLSI	-0.9506	-0.182	-9.123*	-9.103*
LNIPI	-2.6250	-5.353	-6.201*	-21.23*
LNCPI	-1.3300	-1.340	-11.61*	-11.56*
LNM3	-1.7994	-1.772	-11.06*	-11.06*
IIR	-2.4959	-4.840*	-4.685*	-16.58*
LNMYR	-0.7589	2.738	-5.737*	-7.543*

* Denote significance at 1% respectively

Having established that the variables are stationary and have the same order of integration, we proceeded to test whether they are cointegrated. To achieve this, Johansen Multivariate Cointegration test is employed. The results of the Johansen's Trace and Max Eigenvalue tests are shown in Table 4. At the 5% significance level the Trace test suggested that the variables are cointegrated with r = 1 while the Max Eigenvalue test documented zero cointegrating equation for all analyses. It is common for the estimated test statistics to show different results (Harris, 1995). Therefore, Cheung and Lai (1993) suggested the rank will be dependent on the Trace test results because Trace test showed more robustness to both skewness and excess kurtosis in the residual, which implied that there are at least 2 cointegration vectors (r = 1) found in this model.

Table 4: Johansen-Juselius Cointegration Test

Model	Null Hypothesis	Statistical Trace	Critical Value (5%)	Maximum Eigen Statistical Trace	Critical Value (5%)	Variable	Long-term Coefficient Elasticity	Results
Lag Length =3#	$r \leq 0$	110.562*	94.15	39.046	39.37	LNKLSI	1.00000	Statistical Trace showed a 2-way cointegration
	$r \leq 1$	71.516*	68.52	29.128	33.46	LNIPI	-16.5004*	
	$r \leq 2$	42.387	47.21	18.721	27.07	LNCPI	-69.8254*	
	$r \leq 3$	23.666	29.68	14.209	20.97	LNM3	27.7208*	
	$r \leq 4$	9.457	15.41	7.570	14.07	IIR	1.0043	
	$r \leq 5$	1.886	3.76	1.886	3.76	LNMYR	23.6956*	
						C	-2.2865	

* :Denote significance at 5% respectively

: Critical Value obtained from Osterwald-Lenum (1992)

#: lag length based on AIC

Based on Johansen and Juselius Cointegration test, the first normalized co-integrated vector towards KLSI variable using lag period proposed by AIC indicate long run relationship between macroeconomic and expected return of Syariah index (KLSI). The result of the cointegration relationship can be summarized in table 4 above. These values represent long-term elasticity measures, due to logarithmic transformation of KLSI, IPI, CPI, M3 and MYR. Thus the cointegration relationship can be re-expressed as table 5:

Table 5: Cointegration Relationship

Dependent variable (KLSI)	Independent Variables					
	LNIPI	LNCPI	LNM3	TBR	LNMYR	C
Coefficient	16.5004*	69.8254*	-27.7208*	-1.0043	-23.695*	2.2865
t Value	5.29756	3.29397	-4.66475	-0.89061	-2.31208	

* Denote significance at 1% respectively.

The long-term equation shows that the KLSI values are positively correlated with the IPI variable. This is in line with the share analysis theory based on the discounted cash flow model which states that the IPI shares a positive correlation with a particular firm's expected future cash flow. This means that the higher the IPI, the higher the expected share price. It should also be pointed out that the positive relationship between the two variables is significant. These findings are in line with the results found by Fama (1990) ,Chen et al (1986) for a study in the United States, Mukherjee and Naka (1995) for a study in Japan, Kwon and Shin (1999) for a study in South Korea, Maysami and Koh (2000) and Maysami et.al (2004) for a study in Singapore, Wongbangpo and Sharma (2002) and Ibrahim (2003) for data collected in Malaysia.

The long-term equation also shows that the CPI variable has a positive correlation with the Islamic share price and this is a significant relationship. However, these findings are not consistent with the findings gathered by Fama (1981), Mukherjee and Naka (1995), Maysami and Koh (2000) and Wongbangpo and Sharma (2002). The scholars proved that if the inflation rate increases, this would also increase the firm's production costs, which in turn would decrease the future cash flow and would later decrease the share value, production and profit of that particular firm.

On the other hand, Ibrahim (2001, 2003) and Khil and Lee (2000) found that the relationship between market share returns and CPI is a positive one. This is in line with the findings in this researcher's study. The scholars stressed that share prices should relate positively with the inflation rate via value protection (hedging operation). The study conducted by the scholars was consistent with the study findings by Shabri et.al (2001) who found that there is a positive relationship between share prices and positive inflation in Malaysia and Indonesia. As such, equity as value protection from the threat of inflation and has a claim on a real asset proves that the higher the inflation rate, the higher the demand for a particular share.

A striking finding in the study points towards a negative relationship which is significant between the KLSI and the M3 money supply while Mukherjee and Naka (1995), Maysami and Koh (2000) and Maysami et.al (2004) found that the relationship between both variables is a positive one. These researchers documented a positive relationship based on the money supply expansionary effect and this phenomenon would increase the actual economic activities and affect the share price through the profit gained by the corporate firms and in turn will increase the future cash flow and share prices. (Dhakal et al, 1993).

Conversely the findings which reported a negative relationship are in line with the findings stated by previous researchers like Fama (1981) and Bulmash and Trivoli (1991) for date collected in the United States, Ibrahim and Wan (2001) and Ibrahim and Aziz (2003) for data collected in Malaysia. This negative type relationship is based on the direct relationship as regards to excessive money supply in the market which would cause inflation problems as well as affecting the increase of discount rate and later on, causing a fall in share prices. (Gan et al, 2006).

The study also shows that the relationship between KLSI and IIR is negative but not significant. The type of relationship between the two variables is as expected whereby the findings are in line with the findings of Abdullah and Hayworth (1993) and Chen et.al (1986) regarding the stock market in the United States, Maysami and Koh (2000) for the stock market in Singapore, Wongbangpo and Sharma (2002) for the stock market in the Phillipines', Singapore and Thailand and Yusof (2003) for the stock market in Malaysia. The basis for this type of relationship refers to the rise in interest rates which would cause the share prices to decline via the decrease in future corporate profit due to the increasing borrowing and production costs. (Abdullah & Hayworth, 1993). In essence, the relationship between the IIR investment rate and Islamic share prices is negative as the higher the IIR rate, the lower the Islamic share price. This is in line with the relationship between conventional interest rates with the conventional share prices in Malaysia. However, the long-term relationship between the two variables is not significant.

As regards to the foreign exchange rate (MYR) with the Islamic share price (KLSI), the findings showed that the the two variables share a long-term relationship which is negative and significant. These findings indeed support the findings of studies conducted by Ajayi and Mougoue (1996) for the stock market in Canada, France, Germany, Italy, Holland, United States and United Kingdom, Kwon and Shin (1999) for the stock market in South Korea, Maysami and Koh (2000) for the stock market in Singapura, Wongbangpo and Sharma (2002) for the stock market in Thailand and Singapore, Ibrahim and Wan (2001) and Ibrahim and Aziz (2003) for the Malaysian stock market.

The basis for the long-term negative relationship between the two variables can be attributed to the negative value of the MYR coefficient. Ibrahim and Wan (2001) stated that this negative relationship could be caused by a few factors, for example, the status of the nation which depends on export value (international trade). The declining value of the currency would

encourage more exports. However, the declining currency value would the production costs due to the incease in domestic prices as regards to capital goods and imported mediators. This would in turn decease the profit margin for that particular firm and the firm's share prices would decrease.

This negative relationship can also be seen from the investors' point of view as regarsd to the currency value of a particular country (Ibrahim and Aziz, 2003). If there is a decrease in currency value, the common presumption is that the country is in the throes of economic recession. This would probably lead investors to withdraw their capital out of the country and affect the firm's profits due to the loss of capital from foreign investors. This in turn would decrease the returns and share prices.

Table 6: Vector Error Correction Model (VECM)

Dependent Variables	Independent Variables F-Statistic (Wald Test)						T-Staistic
	ΔLNKLSI	ΔLNIPI	ΔLNCPI	ΔLNM3	ΔIIR	ΔLNMYR	Ect-1
ΔLNKLSI		0.57226 (0.6349)	6.9165* (0.0003)	7.7840* (0.0001)	1.5769 (0.2015)	8.5906* (0.0001)	-0.5900* (0.0000)
ΔLNIPI	7.3838* (0.0002)		0.4972 (0.6852)	5.1567* (0.0026)	0.7578 (0.5211)	3.1175** (0.0307)	-0.1526* (0.0097)
ΔLNCPI	2.6358*** (0.0555)	0.9262 (0.4321)		3.8879** (0.0120)	0.3066 (0.8205)	2.3981** (0.0742)	0.0147* (0.0034)
ΔLNM3	1.4958 (0.2221)	1.6414 (0.1885)	1.6974 (0.1743)		4.1037* (0.0093)	1.0706 (0.3664)	-0.0138 (0.4198)
ΔIIR	0.8482 (0.4716)	1.8321 (0.1481)	5.1602* (0.0026)	4.9063* (0.0035)		2.3999*** (0.0740)	0.0622 (0.4025)
ΔLNMYR	8.2463* (0.0001)	4.9201* (0.0035)	2.7624** (0.0475)	1.0041 (0.3955)	4.2591* (0.0077)		0.0367* (0.0001)

*, ** and ***: Denote significance at 1%, 5% and 10% respectively

( ) probability

Long term Granger Causal Relationship can be seen based on the value of ECT-1 for every variable in table 6. Based on the result of VECM test, it is found that the value of ECT-1 for KLSI variable is significant. This proves that the variables of IPI, CPI, M3, IIR and MYR are the long term Granger cause for KLSI. In other words, KLSI variable in the equation bears the burden of dispersed error correction of short term balance to achieve long term balance as much as 56 percent in three months and demonstrates endogenuinity of towards the formed model. The same result is showed by Puah and Jayaraman (2003) in which they discovered that the combination of macroeconomic variables is the long term Granger cause for Fiji Share Price Index due to the significance of error correction term for the model. Ibrahim (1999) also found similar result for Kuala Lumpur Composite Index in Malaysia. Moreover, Wangbangpo and Sharma (2002) who studied the relationship between share index with macroeconomic variables in Indonesia, Malaysia, Philiphine, Singapore and Thailand also documented similar and consistent result with the finding in this study.
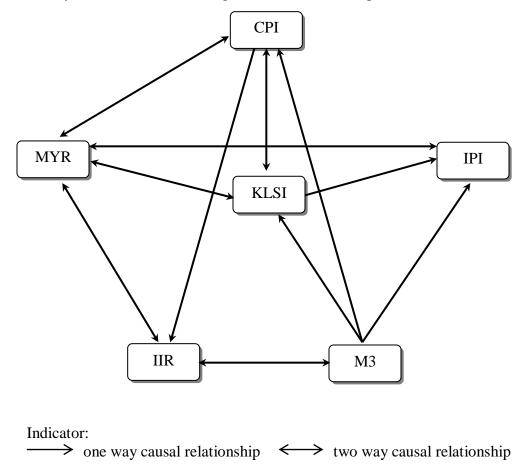
Short term Granger Causal relationship can be observed through wald test (F statistics) on a group of the related coefficients. Based on Table 6, it is proven that only variables of CPI, M3 and MYR are the short term Granger cause for KLSI. This means the Islamic share market

return in short term is only influenced by inflation variable, financial aggregate supply and also foreign exchange rate whereas other variables do not exhibit significant relationship. This finding is parallel to the research finding done by Lee (1997) in Hong Kong, Singapore, South Korea and Taiwan that discovered financial aggregate supply is the short term Granger cause for the share market return. Meanwhile, KLSI variable is the short term Granger cause for variables of IPI, CPI and MYR. The pattern of this short term Granger causal relationship can be summarised as in figure 1.

Figure 1: Analysis on Short Term Granger Causal Realtionship VECM version (cause direction)

Indicator:
⟶ one way causal relationship ⟷ two way causal relationship

7. Conclusion

The main objective of this study is to investigate the relationship between Islamic stock market and macroeconomic variables in Malaysia. From the analysis above, it can be concluded that the Islamic share prices (KLSI) shares a positive relationship with the economic growth rate (IPI) and inflation (CPI) but has a negative relationship with money supply (M3), Islamic investment rate (IIR) and foreign exchange rate (MYR). All these show a significant relationship except for IIR. These findings show that the long-term equal relationship between the Islamic share prices and macroeconomic variables is in line with the findings from Ibrahim (2003), who utilised the conventional stock market data from the Kuala Lumpur Composite Index (KLCI)

with a set of almost similar economic variables. Furthermore, the long term relationship between Islamic investment rate (IIR) which was a substitute for conventional interest rate and Islamic share prices (KLSI) did not show a significant relationship. This proves that IIR is not a valid variable for the purpose of predicting changes in Islamic share prices based on the cointegration tests conducted.

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