Factors influencing shariah (islamic) compliant stock index: Malaysian evidence

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18 April 2018

Factors influencing shariah (islamic) compliant stock index: Malaysian evidence

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Abstract

There has been a surge in the issuance of shariah (Islamic) compliant stocks particularly since the financial crisis of 2007.2008. This is mainly because the Islamic stocks were found much safer compared to the conventional stocks during the period of the financial crisis. The purpose of this paper is to investigate the factors which influence the shariah (Islamic) compliant stock index. Malaysia is taken as a case study. The standard time series techniques such as (the cointegration, error-correction model and variance decompositions and impulse response functions) have been employed for the analysis. The findings tend to indicate that the Islamic stock (called EMAS shariah index) was driven mainly by the conventional factors such as, the money supply, exchange rate and conventional stocks. The findings have strong policy implications for the investors and decision makers.

Keywords: Shariah (Islamic) compliant stocks, determinants of shariah stocks, Malaysia

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Objective of the Study

The purpose of this research is to determine the extent of influence of the stock market indices and measure of wealth on the Shariah-compliant index in Malaysia. It also seeks to find the rank of the degree of influence the other indices and measures of wealth holds for the Shariah-compliant investment.

The representative for the stock market indices are the Malaysian Main Index ie Kuala Lumpur Composite Index (KLCI) and the United Kingdom's main index ie Financial Times Stock Exchange Index (FTSE100). The measures of wealth are the Malaysian Money Supply – M2 (MSUPP), the Malaysian Ringgit to US Dollar Exchange Rate (USEXC) and the Malaysian Consumer Price Index (CPI).

Symbols	Variables	Stock Market Index	Measure of Wealth
EMSH	Emas Shariah Index	X	
KLCI	Kuala Lumpur Composite Index	X	
FTSE100	Financial Times Stock Exchange Index	X	
MSUPP	Malaysian Money Supply – M2		X

USEXC	Malaysian Ringgit to United States Dollars Exchange Rate		X
CPI	Malaysian Consumer Price Index		X

The findings of this research would be of interest to an investor who would like to understand the movement of the Malaysian Shariah-Compliant stock market.

In order to find the empirical evidence of the nature of relations between the Shariah-compliant Stock Market and the other indices and also the relations between the Shariah-compliant Stock Market and other measures of wealth, this study uses time-series techniques which include cointegration, error correction modelling, variance decompositions and impulse response functions.

The data used are monthly stock market indices starting from November 2006 (2006M11) as the Shariah Index was only made available since October 2006. The measures of wealth used follow the same period as the indices which are from November 2006 (2006M11). There are 53 observations obtained from the DataStream.

1 Literature Review

Studies on the performance of the Syariah Index versus the Conventional Index in Malaysia are limited. Albaity and Ahmad (2008) studied the risk and return performance of the Kuala Lumpur Syariah Index (KLSI) and the Kuala Lumpur Composite Index (KLCI). Their results provided no evidence of significant statistical differences in risk-adjusted returns between Islamic and conventional stock market indices during 1999–2005. They also employed the causality and Johansen cointegration tests to examine the indices short- and long-run relationships. The researchers found that besides a significant short-run presence of bidirectional causality, the long-term equilibrium indicated that both indices moved in tandem. The results suggested that the movement in KLCI gave a good indication as to where KLSI will move in the short-run and long-run. Therefore, prediction of one based on the other is constructive. (Albaity & Ahmad, 2008)

The impact of the introduction of the Bursa Malaysia Syariah Index on the financial performance and liquidity of the securities compared to Bursa Malaysia Composite Index was studied by Sadeghi (2008). The study estimated the mean cumulative abnormal returns in the days surrounding the event. He found that overall the introduction of the Syariah Index had a positive impact on the performance of the securities.

2 Methodology and Results

2.1 Step 1: Testing the Non-Stationarity/Stationarity of Each Variable

The variables used are EMSH, KLCI, FTSE100, MSUPP, USEXC and CPI. The constant and time trend as the deterministic variables are also included in the program. The variables are converted twice. Firstly is to convert the variables from their level form to the log forms. Then, the logs of the variables are converted to their first difference.

Level Form	Log Form	Differenced Form
EMSH	LEMSH	DEMSH
KLCI	LKLCI	DKLCI
FTSE100	LFTSE100	DFTSE100
MSUPP	LMSUPP	DMSUPP
USEXC	LUSEXC	DUSEXC
CPI	LCPI	DCPI

The Augmented Dickey-Fuller test (ADF) is used to determine the stationarity of the variables. ADF is a test for a unit root in a time-series sample and the test has been adjusted for autocorrelation.

Variables	t-values	Stationarity
	*3.5005	t-critical
LEMSH	1.7618	Non-stationary
LKLCI	1.5251	Non-stationary
LFTSE100	1.2975	Non-stationary
LMSUPP	2.4925	Non-stationary
LUSEXC	1.3192	Non-stationary
LCPI	2.4746	Non-stationary

Variables	t-values	Stationarity
	*2.9215	t-critical
DEMSH	3.1401	Stationary
DKLCI	3.5798	Stationary
DFTSE100	5.5723	Stationary
DMSUPP	4.9582	Stationary
DUSEXC	5.3264	Stationary
DCPI	3.9747	Stationary

The level form variables show that they are all non-stationary. A non-stationary series has an infinite variance (it grows over time), shocks are permanent (on the series) and its autocorrelations tend to be unity. Here, the supply-side policies are likely to be effective.

The differenced form variables show that all the series are stationary. A stationary series has a mean (to which it tends to return), a finite variance, shocks are transitory, autocorrelation coefficients die out as the number of lags grows. Here, the demand-side short run macroeconomic stabilisation policies are likely to be effective.

2.2 Step 2: Determination of the Order (or Lags) of the VAR Model

The multivariate and unrestricted VAR function is used for this step. Arbitrarily a relatively high order for the VAR is used. In this case, VAR 6 is used. The variables in the log differenced form is used and the deterministic variables are included as well. The estimation period is from 2007M6 to 2011M3.

The optimum lag corresponding to the highest value of AIC is 6 and the optimum lag corresponding to the highest value of SBC is 0. It is apparent that SBC selects a lower order compared to AIC.

	AIC	SBC
Optimum Lag	6	0

As the optimum lag for both AIC and SBC are different, we check for serial correlation for each of the variables. There are no serial correlations for all but one variable. Serial correlation exists for one variable which is MSUPP. Our only option is to choose the lag of six (6) as lag of zero (0) does not work.

Variables	Chi-Sq p-value	At 10% significance
DEMSH	0.835	No serial correlation
DKLCI	0.718	No serial correlation
DFTSE100	0.631	No serial correlation
DMSUPP	0.054	Serial correlation exists
DUSEXC	0.523	No serial correlation
DCPI	0.805	No serial correlation

2.3 Step 3: Testing Cointegration

Initially, the option multivariate test for cointegrating VAR with unrestricted intercept and restricted trend was used. However, Step 4 did not work with this option.

The lag order cannot be increased even higher because of limitation in the number of observations. Hence, the option used to test the hypothesis is the multivariate test for cointegrating VAR with no intercepts or trends.

The non-stationary variables ie the log form are used to get the results. From the Eigen Values and the Trace statistics, the *r = 0* is rejected and this shows that there is at least one cointegration among the variables.

The cointegration implies that the relationship among the variables is not spurious where there is a theoretical relationship among variables and that they are in equilibrium in the long run. Cointegration also implies that each variable contains information for the prediction of other variables.

Null	Alternative	Statistic	95% Critical Value	90% Critical Value
r = 0	r = 1	140.5315	43.6100	40.7600

2.4 Step 4: Long Run Structural Modeling (LRSM)

The multivariate test using cointegrating VAR exactly identify the cointegrating vectors are used for LRSM. The number of cointegrating vector used is 1 and the LR test of imposing general restrictions on the cointegrating vectors is used. Two identifying restrictions were tested separately which are LEMSH, A1=1 and LKLCI, A2=1. The two cointegrating equations are also generated below each table.

Variables	Coefficient	Standard Error	T-Ratio	Results
LEMSH	1	-		-
LKLCI	-1.4623	0.48925	-2.99	Significant variable
LFTSE100	0.35898	0.037577	9.55	Significant variable

LMSUPP	1.1726	0.074529	15.73	Significant variable
LUSEXC	-0.84342	0.046267	-18.23	Significant variable
LCPI	-3.6595	0.2151	-17.01	Significant variable

EMSH =	1.46KLCI +	0.36FTSE100 +	1.17MSUPP -	0.84USEXC –	3.66CPI
	(0.49)	(0.04)	(0.07)	(0.05)	(0.22)

Variables	Coefficient	Standard Error	T-Ratio	Results
LEMSH	-0.68385	0.02288	-29.89	Significant variable
LKLCI	1	-		-
LFTSE100	-0.25	0.018	-13.89	Significant variable
LMSUPP	-0.8	0.033	-24.24	Significant variable
LUSEXC	0.58	0.018	32.22	Significant variable
LCPI	2.5	0.098	25.51	Significant variable

KLCI =	0.68EMSH -	0.25FTSE100 –	0.8MSUPP +	0.58USEXC +	2.50CPI
	(0.02)	(0.02)	(0.03)	(0.02)	(0.10)

2.5 Step 5: Vector Error Correction Model (VECM)

The error correction equations are being displayed using the IR Analysis and Forecasting menu. The t-test of the error-correction term (ECT) is used in order to determine the exogeneity or endogeneity of the corresponding dependent variables. The ECT stands for the long term relations among the variables and at least one of the ECT terms should be significant for the validity of the cointegrating relationship among the variables in the long term. All but one variable have been identified to be exogenous. The only endogenous variable is USEXC. The exogenous variables do not depend on the deviations of other variables and they are the leading variables. The exogenous variable initially receives the exogenous shocks resulting in deviations from equilibrium and transmits the shocks to ther variables. As for the endogenous variable (significant), it depends on the deviations of other variables and implies that the dependent variable bears the brunt of short-run adjustment to bring about the long term equilibrium among cointegrating variables.

Variables	Coefficient	T-Ratio	Results
LEMSH	-0.77426	0.635	Exogenous
LKLCI	-0.12812	0.926	Exogenous
LFTSE100	1.886	0.264	Exogenous
LMSUPP	-0.55766	0.245	Exogenous
LUSEXC	-1.2522	0.071	Endogenous
LCPI	0.12427	0.336	Exogenous

2.6 Step 6: Variance Decompositions (VDCs)

The orthogonalized VDCs is being used with a 12-month (1 year) forecast horizon and the results add up to 100%. However, orthogonalized VDCs assume that when a particular variable is shocked, all other variables in the system are switched off. Moreover, the orthogonalized VDCs are known to be not unique and depending on the particular ordering of the variables.

The generalized VDCs option is generated and the variable to be shocked is chosen with a 12-month (1 year) forecast horizon. The generalized VDCs are invariant to the ordering of the variables.

Both the VDCs will only give similar results if the variance-covariance matrix of residuals is diagonal (or near diagonal) where the error covariances are near zero.

Variables	LEMSH	LKLCI	LFTSE100	LMSUPP	LUSEXC	LCPI	Sum
LEMSH	0.22252	0.32048	0.046677	0.32905	0.075224	0.014255	1.008206
LKLCI	0.14387	0.27537	0.043761	0.25865	0.065399	0.010518	0.797568
LFTSE100	0.10642	0.2629	0.10178	0.26334	0.060568	0.01769	0.812698
LMSUPP	0.041293	0.051157	0.025233	0.59557	0.14217	0.52899	1.384413
LUSEXC	0.37197	0.47829	0.017077	0.02761	0.62643	0.0078555	1.5292325
LCPI	0.2539	0.18924	0.027429	0.3937	0.36373	0.26172	1.489719

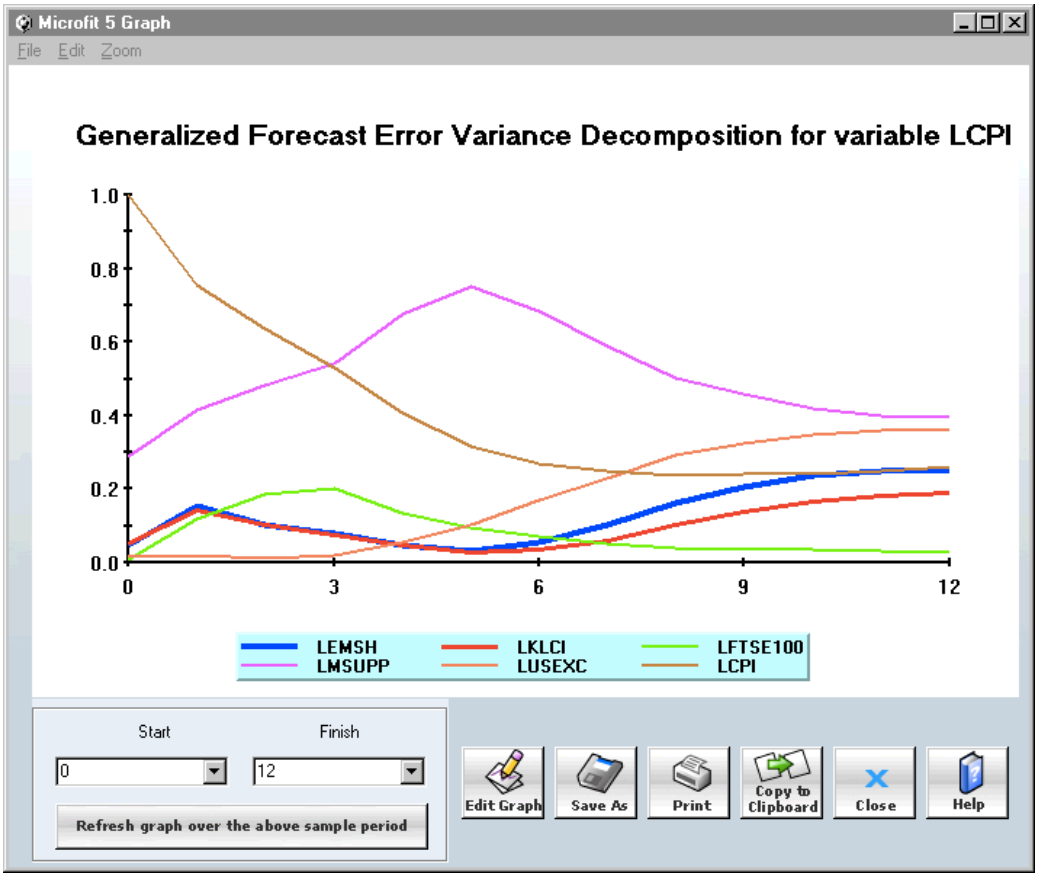
Variables	LEMSH	LKLCI	LFTSE100	LMSUPP	LUSEXC	LCPI	Sum
LEMSH	22%	32%	5%	33%	7%	1%	100%
LKLCI	18%	35%	5%	32%	8%	1%	100%
LFTSE100	13%	32%	13%	32%	7%	2%	100%
LMSUPP	3%	4%	2%	43%	10%	38%	100%
LUSEXC	24%	31%	1%	2%	41%	1%	100%
LCPI	17%	13%	2%	26%	24%	18%	100%

Rank of Exogeneity at Horizon = 12	Variables
1	LMSUPP
2	LUSEXC
3	LKLCI
4	LEMSH
5	LCPI
6	LFTSE100

2.7 Step 7: Impulse Response Functions (IRFs)

Impulse Response Functions (IRFs) are just the graphical representation of VDCs. The graphical expositions of the shocks of a variable on all other variables in both the orthogonalized and generalized impulse responses can be seen. IRFs essentially map out the dynamic response path of a variable owing to a one-period standard deviation shock to another variable. The IRFs are normalized such that zero represents the steady-state value of the response variable.

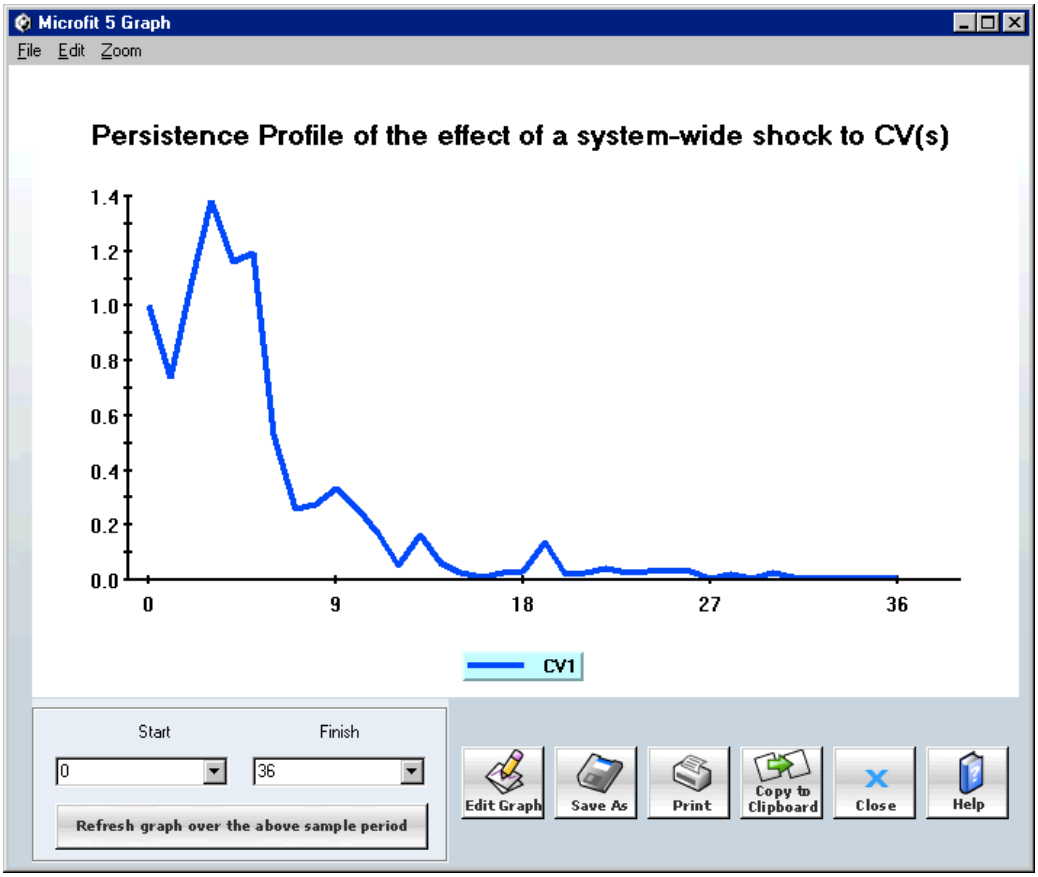
Example when the variable LCPI is shocked:



2.8 Step 8: Persistence Profiles (PF)

In the IR analysis and forecasting menu, the option where the graphical effects of a system-wide shock to the cointegrating vectors (CVs) is chosen. The persistence profiles maps out the dynamic response path of the long-run relations and it traces the effects of a system-wide shock on the long-run relations.

Here, the time horizon required after a system-wide shock for the whole system to get back to equilibrium is about 31 months.



3 Conclusions

From the analysis, it is apparent that the Stock market indices are related to each other. A movement in one stock market index will affect the other. It also proved that the changes in the measure of wealth would affect the stock market indices.The findings tend to indicate that the Islamic stock (called EMAS shariah index) was driven mainly by the conventional factors such as, the money supply, exchange rate and conventional stocks. Hence, the Shariah-compliant investment is very much influenced by both the conventional indices and the measure of wealth whether locally in Malaysia or internationally.

4 References

1. Abdullah, F., Hassan, T., and Mohamed, S. (2007). Investigation of Performance of Malaysian Islamic Unit Trust Funds. Managerial Finance, 33(2), 142-153.
2. Ahmad, Z. and Ibrahim, H. (2002). A Study of the Performance of the KLSE Syariah Index. Malaysian Management Journal, 6(1), 25 – 34
3. Albaity, M., and Ahmad, R. (2008). The Performance of Syariah and Composite Indices: Evidence from Kuala Lumpur Stock Market. Management Journal of Accounting and Finance , 4 (1), 23-43.
4. HAYAT, R. and KRAEUSSL, R., (2011), Risk and return characteristics of Islamic equity funds, Emerging Markets Review, 12, 189-203.

5. Islam, M. (2003). The Kuala Lumpur stock market and economic factors: a general to specific error correction modelling test. Journal of the Academy of Business and Economics 1(1), 37-47
6. KHATKHATAY, M.H and NISAR, S.(2007), Shari'ah compliant equity investments : An assessment of current screening norms, Islamic Economic Studies, 15(1), 47-76.
7. Masih, M., Al-Elg, A., and Madani, H. (2009), Causality between Financial Development and Economic Growth: An Application of Vector Error Correction and Variance Decomposition Methods to Saudi Arabia. Applied Economics, 15(2), 1691-1699.
8. Masih, R. and Masih, A. M.M. (2001), Long and Short Term Dynamic Causal Transmission Amongst International Stock Markets, Journal of International Money and Finance, 20, 563-587.
9. MERDAD, H., HASSAN, M.K. and ALHENAWI, Y. (2010), Islamic Versus Conventional Mutual Funds Performance Saudi Arabia: A case Study, Journal of King Abdulaziz : Islamic Economics, 23(2),157-193
10. Standard & Poor's. (June 2007). S&P Shariah Indices. New York, McGraw-Hill