Is the GCC islamic index independent of the conventional interest rates ?

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18 March 2017

Is the GCC islamic index independent of the conventional interest rates ?

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Abstract:

The paper addresses the issue of independence of the GCC Islamic index from LIBOR which is the conventional interest rate. The issue of stability and independence of Islamic financial sector from its counterpart is debatable. The standard time series techniques are used to investigate this issue. We found that the GCC Islamic index is co-integrated with both Islamic and conventional sectors. Moreover, it has been co-integrated with LIBOR which means the conventional interest rate is still a large part of Islamic markets. The effectiveness of Islamic indices on GCC Islamic index tends to have weaker role excepting the US Islamic index which is a bit stronger. Generally, the conventional sector does play a big role and that is what was expected. The size of the conventional sector and the flexibility that it has, serve the position that it has. The study shows that even conventional sector in GCC has less to do with Islamic, whereas the US is driving both the sectors. The GCC economies are linked with the US economy in many ways. Many studies approved the high connection between the stock price and oil price which is paid in US Dollar. The economic condition of US and hence the conventional LIBOR is evidenced to have a big impact on the GCC Islamic index.

Keywords: GCC Islamic index, LIBOR, VECM, VDC

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1.1. INTRODUCTION

Contemporary Islamic Finance is developed very fast worldwide in the last decades. It can be seen from the rising number of various Islamic product innovations and applications across all types of financial institutions. Since the Islamic finance is still in the growth stage, it seems essential for Islamic products to be able to compete with conventional one in order to attract potential customers and investors. Therefore, its development mostly endorses a *step-by-step approach* that focuses on modifying and rejecting the conventional system. This practice might be a subject to many critics from *Shariah*-compliant point of view. The reason is that Islamic financial products mostly are structured similar to conventional products in order to be attractive and easy for implementation. Thus, it raises the issue of circumventing the interest or *riba* which is prohibited in Islam.

The same case also happens in Islamic capital market. Instead of the growth of Islamic stock market, Sukuk are the fastest-growing segment of the Islamic finance market in the past six years. This remarkable growth did not result independency of the Islamic market from conventional as the size is not symmetric.

Some scholars argue that most of investors treat Islamic stock market similar to conventional stocks. They structure, trade and price these Islamic instruments using the conventional ways. The Islamic stock market still stands in the shadow of conventional system, meaning that the Islamic financial stability should be questioned. The independency of Islamic finance also becomes a critical issue since it should not be combined with interest-bearing system. The justification of their argument is that the Islamic stocks are mostly designed to have almost the same outcome as the conventional. Some of the practice in Islamic finance also does not conform to *Shariah* rules where their practice is only another way to circumvent *riba*. Another debated issue is that the stock are priced referring to conventional interest rate, such as LIBOR, US Treasury Bills, etc if that not is the case so they are priced based on conventional stock which are in the end priced based on interest. Many critics come from scholars that the *Shariah*-compliant financial assets should not be priced based on the prohibited practice. All Islamic scholars and practitioners have put all of their effort to start building **the Islamic rate**. The example

will be the practice of reversed *murabaha* or *tawarruq* in inter-bank Islamic money market. However, it seems that this rate still refers to conventional one in order to be competitive.

By considering all issues above, although Islamic stock market and sukuk with conventional stocks and bonds have similar structure and similar way of pricing, it does not mean that the Islamic stock market is exactly standing in the shadow of conventional system. The financial stability and independency of Islamic capital market are still unclear issues in Islamic finance industry. While most of scholars focus their study mainly on the compliant-structures using Islamic jurisprudence approach, yet there is no study which attempt to observe the nature of the stock market behaviour based on empirical evidence. It relates to what main factors that influence the price. Therefore, this paper tries to address this problem from theoretical framework and empirical answer.

1.2. OBJECTIVE OF THE STUDY:

The objective of this study is to know the position of GCC Islamic index within the conventional system and to see whether the GCC Islamic index is affected mostly by US index or Asian index or by LIBOR or no one of those. In addition, this study also wants to test the relationship between these markets. Therefore, this study will be tackled by the following research questions:

1. What variables are co-integrated with GCC Islamic index price?
2. Which variables are affecting the movement of GCC Islamic index price?

1.3. THE PROBLEM TO ADDRESS THE MOTIVATION:

These specific research questions are important to be addressed due to a lot of controversy in relation to Islamic index and practice. It worth the study these indexes are purely Islamic which mean they are affected themselves more than any other counterparties to address the issue of shariah compliance or shariah based argument. In March 2007, the Sharia Supervisory Board of

Dar Al Istithmar granted a Fatwa on the MSCI Islamic Index Series Methodology, confirming that it is in compliance with generally accepted Sharia guidelines. The Sharia scholars who signed the Fatwa are some of the most widely respected and distinguished scholars from the world of Islamic Finance. The way of pricing Sukuk referring to the conventional rate is still debated in the last couple of years as well. As an overall, the *Shariah* compliant, independency and stability become the critical issues that remain unsolved. In November 2007, Sheikh Muhammad Taqi Usmani, Chairman of the Shariah Board of AAOIFI, sent shockwaves across the global Islamic capital market. He declared that 85% of Sukuk from GCC countries are not conforming *Shariah* rules. He pointed out that many Sukuk issuances violated AAOIFI's *Shariah* standard for Sukuk, however stocks has less problems in this extant. The reason behind the controversy is that a huge percentage of the stock index and sukuk are structured similar to conventional stocks and bonds and are embedded with a promise to buy back the capital in the contracted agreement. The underlying assets of stocks may not represent true ownership while investors have the right to return. It also can be accompanied by guaranteed return for stock holders. All of these practices will violate the principle of risk and profit-sharing in Islam. They will circumvent *riba* by accepting fixed return without absorbing those additional risks.

The controversy issue above is addressed by identifying non-*Shariah*- compliant elements in stocks. Many scholars mainly focus their studies on the structure of instruments itself. However, there is still no study which attempt to address this issue from the nature of Islamic stock market. It is important to understand how the position of stock market within the conventional system. The main concern might be what implication of that position for the financial stability and independency of Islamic stock market. It also relates to how investors really deal with Islamic stocks, i.e. how they perceive the risks involved in stocks, how they price them, what required return they expect, etc. Therefore, addressing those research questions is important to complete the previous jurisprudence studies, which in turn, will try to understand the real situation in Islamic stock market both at present and in the future. It is expected that this study may help policy makers as well as practitioners to determine the appropriate direction of the development of Islamic stock market in the future.

1.4. LITERATURE REVIEW:

There are some studies that address the inherent stability of Islamic finance. Mirakhor has made the theoretical model of an Islamic financial system as a profit and loss sharing equity-participation system. In this model, the stability is achieved in the sense that the notion of interest does not appear as there is neither loaned capital nor a predetermined return on the capital (Mirakhor, 1988). Other scholars have examined macroeconomic models which fit Islamic finance and study the theoretic stability (Askari, Iqbal, Krichane and Mirakhor, 2010). They also argue that the Islamic finance system does not posses systemic risk since the rate of return would essentially comprise dividends. On the other hand, there are some studies which try to address the nature of Islamic stock market as well as the weakness of conventional system. Erbas and Mirakhor have addressed the issue of the equity premium puzzle in conventional system which leads to ambiguity while questioning the inherent stability of the global system (Erbas and Mirakhor, 2010). Al-Zaoubi and Maghyereh try to address the stability of Islamic stock market by analyzing the Value at Risk for Dow Jones Islamic stock index (Al-Zaobi and Maghyereh, 2007). The study on the stability of Islamic banking has been done which states that there is no credit creation out of thin air (Khan, Mohsin and Abbas Mirakhor, 1987).

Concerning all previous studies above, there is no study which attempt to address this problem specific to the Islamic stock market. Therefore, this study intends to fill the gap by answering the research questions using empirical evidence. Due to the some announcements time to time regarding the prohibition for some Islamic capital practices, the capital market industry is basically at the crossroad whether to continue forward or go backward. This study may help policy makers as well as market issuances to drive the Islamic finance, represented in stock market, development to the right direction.

1.5. THE METHODOLOGY AND THE DATA DEFINITION :

This study will use Time Series Technique (the eight steps) to solve the problem. The MICROFIT software will be used for this method. By using Time Series technique, this study will try to find out what factors are co-integrated with Islamic stock market in GCC price. The co-integration test may select any variable which move together with GCC Islamic stock price in the long term equilibrium. The VECM will identify the causal relationship between co-integrated variables. While the VDCs and IRF try to find the most leading variable in order to know what lead the Islamic stock price is that is in line with theory we adjusted or not, the persistence profile may

inform us about the duration required for co-integrated variables to return back to their equilibrium when the external shock occurs. As an overall, the result may help the policy makers and practitioners when they want to decide the appropriate direction of Islamic stock development in the future as well as the best way to maintain the stability and independency of Islamic stock market. The result also may tell the Islamic jurists about the position of Islamic stock market within the conventional system. Finally, the result may inform Islamic investors about the potential diversification benefit they can obtain from Islamic stock market against future expectations.

1.6.   DATA USED:

This paper uses seven variables namely:

Table 1.1 presents the list of the variables names used in this study.

No	Name of the variable	Level Form	Log Form	First Differnced Form
1	GCC Islamic index ex Saudi Arabia	GCC_IS	LGCC_IS	DLGCC_IS
2	GCC conventional index ex Saudi Arabia	GCC_C	LGCC_C	DLGCC_C
3	US Islamic index	US_IS	LUS_IS	DLUS_IS
4	US conventional index	US_C	LUS_C	DLUS_C
5	Asian Islamic index ex Japan	ASIA_IS	LASIA_IS	DLASIA_IS
6	Asian conventional index ex Japan	ASIA_C	LASIA_C	DLASIA_C
7	LIBOR	LIBOR	LLIBOR	DLLIBOR

2. TIME SERIES STEPS:

2.1. STEP 1 TESTING THE STATIONARITY:

Before starting the process, the stationary of variable should be checked first. The variable is stationary if it always has a constant mean, a constant variance and a constant covariance throughout the time. The paper will perform the non-stationary test by using Augmented Dickey-Fuller or ADF. It basically tests the null hypothesis $\rho = 0$ given by the t-ratio of the coefficient of x_{t-1}. If the t-ratio of the coefficient is not statistically significant, we can accept the null that $\rho = 0$. Then, the variable is non-stationary and is a random walk which has a long term memory. The advantage of ADF test is that it takes care the autocorrelation which means that it will test with free of autocorrelation problem. The null hypothesis is that the variable is non-stationary. We have to see the second table result which includes a linear trend.

Table 2.1: represents the test of the stationarity of the variables in level form:

#	the variable	The statistical value	The critical value	The null: the variable is not stationary
1	LGCC_IS	-.77242	-3.4176	Accepted
2	LGCC_C	-.84392	-3.4176	Accepted
3	US_IS	-1.4686	-3.4176	Accepted
4	US_C	-1.5370	-3.4176	Accepted
5	ASIA_IS	-2.0207	-3.4176	Accepted
6	ASIA_C	-1.9304	-3.4176	Accepted
7	LIBOR	-2.1762	-3.4176	Accepted

As the result shows the entire variables in the original form are not stationary and the null hypothesis is accepted.

The next step is to perform ADF test for those variables in their first difference form. The first difference form dx is x(t) − x(t-1). Since the difference form is not trended, then we have to see the first table result which excludes a trend. The test statistic for differenced variable at the order 0 is first column. By neglecting the minus sign, if this value is higher than the critical value It means that we have to reject the null.

Table 2.2 testing the stationarity of the variables in their differenced form:

#	Difference variable	The statistical value	The critical value	The variable is not stationary
1	DLGCC_IS	-25.5938	-3.4176	Rejected
2	DLGCC_C	-25.3720	-3.4176	Rejected
3	DLUS_IS	-32.7834	-3.4176	Rejected
4	DLUS_C	-32.5220	-3.4176	Rejected
5	DLASIA_IS	-27.2144	-3.4176	Rejected
6	DLASIA_C	-26.9183	-3.4176	Rejected
7	DLLIBOR	-14.5054	-3.4176	Rejected

As in the table the calculated values are bigger than the critical values so we reject the null hypothesis that the variables are not stationary.

2.2. Step 2: The order (or lags) of the VAR model:

The test will include AIC and SBC that determine how many lags of each variable we should take for our model. We input the variables in log differenced form after running that we choose the optimum lag corresponding to the highest value of AIC and SBC. Normally the SBC will select a lower order (compared to the AIC).

Table 2.3 represents the determination of the number of lags:

Optimum lags	AIC	SBC
4	19145.0	18667.3
3	19134.5	18772.1
2	19124.4	18877.3
1	19066.7	18934.9
0	18749.5	18733.1

As our data is not long enough but the number of the observations is high so we chose the highest AIC suggests and the VAR then = 4. It is true that by choosing higher order of VAR with less observation, it is not good because it can reduce the degree of freedom and that is not in our case as we have 826 observations.

2.3. Step 3: Testing co-integration:

The co-integration test is very important in the sense that it will check whether all variables are theoretically related. If they are co-integrated, it means that there is a co-movement among these variables in the long term reaching the equilibrium, although they move differently in the short term. Co-integration also means that a linear combination of our variables in their original form will leads to a stationary error term. This test is very useful because it will prove the untested hypothesis or theory.

Engle and Granger (1987) show that a linear combination of two or more non-stationary series may be stationary. If such a stationary, or I(0), linear combination exists, the two non-stationary time series are said to be co-integrated. The stationary linear combination is called the co-integrating equation and may be interpreted as a long run equilibrium relationship between the two variables. In this study, Shariah stock prices Index, Average lending Rate and Exchange rate are likely to be co-integrated in the first difference. Miller (1991) and Miller and Russek (1990) note that if two variables are co-integrated, then there must exist Granger temporal causality between them in at least one direction. This indicates two important forces that might cause changes in the variables.

The null hypothesis of no co-integration is rejected if it is found that the residuals are non-stationary. The Johansen procedure of the co-integration test is based on the maximum likelihood estimation of the VAR model. Based on the estimation, two statistics, the trace and maximal Eigen-value, are calculated to test for the presence of "r" co-integrating vectors.

The trace statistics test the null hypothesis that there are at most "r" or more co-integrating vectors. Meanwhile, the maximal Eigenvalue statistic test for "r" co-integration vectors against the alternative of (r+1) co-integration vectors.

The Microfit will use the Johansen method to get the number of co-integration equation in our model. When we run the test in Microfit, we put the variables in their original form.

The result is showed below:

Null	Alternative	Statistic	95% Critical Value	90%Critical Value
R=0	R=1	49.0529	49.3200	46.5400
R=1	R=2	35.2988	43.6100	40.7600

According to this table with 95% we have to accept the null hypothesis that there is no co-integration among these variables. However since the statistic value is very close to the critical

value (49.0529 & 49.3200) we can go to the second column with only 90% to choose that the r=0 is rejected,(*(r) is representative of the co-integration numbers)*. The second row suggests that these one co-integration with 95%. To support that we go to the second table which has these results.

Null	Alternative	Statistic	95% Critical Value	90%Critical Value
R=0	R=1	154.6911	147.2700	141.8200
R=1	R=2	105.6383	115.8500	110.6000

So r=0 is rejected as the statistical value in the first row is bigger than the critical value. Wherein the second row r=1 is accepted as the statistical value is less than the critical value.

These results indicate that co-integration implies that the relationship among the variables is not spurious ie in the long-run, there is co-integration between all of the seven variables. Indeed that can be understood in our case, in addition to that there are other implications as stated below:

- It implies that each variable contains information for the prediction of other variables,
- It has implications for portfolio diversification by the investors. In a co-integrated market the possibility of gaining abnormal profits in the long term through diversifying investment portfolio is very limited
- It has implications for the extent of effectiveness of a Government's short run monetary, fiscal, and exchange rate stabilisation policies
- It has implications for the coordination of the policies of the multinational firms
- Finally, co-integration rules out the use of modelling any dynamic relationships through ordinary first-differenced VAR, ordinary structural VAR(see Rogers and Wang,1993), and Bayesian VAR as these models do not impose co-integration constraints.
- Also, it is worth pointing out that if the variables are not found to be co-integrated, they may be fractionally co-integrated.

However, we still do not know whether the coefficient of each variable in the equation is in line with our theoretical expectation. Therefore, we have to go to the next step to address this problem (step 4).

Co-integration also cannot tell us the direction of Granger-causality as to which variable is leading and which variable is lagging (ie which variable is exogenous and which is endogenous)(step 5).

2.4. Step 4: Long Run Structural Modeling (LRSM):

This step will estimate theoretically meaningful co-integrating relations. We impose on those long-run relations and then test the over-identifying restrictions according to theories and information of the economies under review. In other words, this step will test the coefficients of our variables in the co-integration equations against our theoretical expectation. This LRSM step also can test the coefficients of our variables whether they are statistically significant. Before we run our LRSM step, we have to continue the step 3 to get our co-integration equation with the coefficients.

The exactly identifying:

Vector 1	Value of Beta	Standard Dev.	T-ratio	Implication
LGCC_IS	1.0000	(*NONE*)	(*NONE*)	
LGCC_C	-.67383	(.23977)	2.81	*Variable is significant*
LUS_IS	-3.4527	(1.3554)	2.55	*Variable is significant*
LUS_C	3.9060	(1.3120)	2.97	*Variable is significant*
LASIA_IS	-.14788	(1.3411)	0.10	Variable is insignificant
LASIA_C	-.86539	(1.3816)	0.63	Variable is insignificant
LLIBOR	-.14491	(.066458)	2.18	*Variable is significant*
TREND	.4710E-3	(.1417E-3)	3.32	*Variable is significant*

The table is telling us that both ASIA_IS and ASIA_C are insignificant. There is no such as a theory determining the equation here but as the market expectation, these variables that are significant are expected to be significant, however; we expected Asian especially Islamic to be significant. Driven by that curiosity, we decided to verify the significance of the variables by subjecting the estimates to over-identifying restrictions.

After over-identifying restriction by giving LASIA_IS= 0.5 the LR statistic for this over identifying restriction is equal to (CHSQ (1) = .21484[.643]) which means the restriction is not statistically significant, the restriction to be significant the probability should be less than 10%. We ran the over-identifying restriction for ASIA_C being =0.5 the (CHSQ (1) = 1.0755[.300]) and that is still insignificant.

So we have got the final equation as follows:

LGCC_IS = -.67383LGCC_C - 3.4527LUS_IS + 3.9060LUS_C - .14788LASIA_IS -.86539LASIA_C -.14491 LLIBOR

We should be aware that the equations above do not give the information about which variable is exogenous and which variable is endogenous. There is no "equal sign" and the equations do not tell the causal relationship. Therefore, we have to go to another step which is VECM to address this problem.

2.5. Step 5 Vector Error Correction Model (VECM):

Error-correction term (ECT) is the stationary error term, in which this error term comes from a linear combination of our non-stationary variables that makes this error term to become stationary if they are co-integrated. It means that the ECT contains long term information since it is the differences or deviations of those variables in their original level form. VECM uses the concept of Granger causality that the variable at present will be affected by another variable at past. Therefore, if the coefficient of the lagged ECT in any equation is insignificant, it means that

the corresponding dependent variable of that equation is exogenous. This variable does not depend on the deviations of other variables. It also means that this variable is a leading variable and initially receives the exogenous shocks which results in deviations from equilibrium and transmits the shocks to other variables. On the other hand, if the coefficient of the lagged ECT is significant, it implies that the corresponding dependent variable of that equation is endogenous. It depends on the deviations of other variables. This dependent variable also bears the brunt of short-run adjustment to bring about the long term equilibrium among the co-integrating variables. At least one of the ECT terms should be significant for the validity of the co-integration relationship among the variables in the long term.

If the ecm t-ratio is greater than 2 means that it has huge impact on the variable tested and the variable is a follower. In other hand if the t-ratio is smaller than 2 that means the variable is exogenous or a leader which has impact on other variables.

This table shows which variable is a leader which one is a follower:

Variable	ECM(-1) t-ratio p-value	Implication
GCC_IS	-5.1333	Variable is endogenous
GCC_C	-4.5865	Variable is endogenous
US_IS	-.31900	Variable is exogenous
US_C	-.93025	Variable is exogenous
ASIA_IS	.95133	Variable is exogenous
ASIA_C	.90733	Variable is exogenous
LIBOR	-2.8293	Variable is endogenous

As the market expectations on that GCC index are affected by US as they are highly connected with dollar and petro-dollar. In fact, there has been a large volume of studies on linkages between oil prices and macroeconomic variables. Most of these studies have established significant effects of oil price changes on economics activity for several developed and emerging countries [Cunado and Perez de Garcia (2005), Balaz and Londarev (2006), Gronwald (2008), Cologni and Manera (2008) and Kilian (2008)]. Furthermore, some papers have shown that the link between oil and economics activity is not entirely linear and that negative oil price shocks (price increases) tend to have larger impact on growth than positive shocks do [Hamilton (2003),

Zhang (2008), Lardic and Mignon (2006, 2008) and Cologni and Manera (2009)]. Within the vector-error correction (VEC) model, the short-run bilateral causal relationships among Gulf Cooperation Council's (GCC) weekly equity index returns are limited and mostly unidirectional. Their relationships with three global factors (the oil price, the US S&P 500 index, and the US T-bill rate) suggest that the US T-bill rate has direct influence on some of these segmented GCC markets.

We note that since we found LIBOR is endogenous, some question marks have been arisen, indeed; as we used the log form of the variable which has small value that does not need the log we rerun the ecm for the original variable and the finding was similar to the one above with less value.

LIBOR	2.0529	Variable is endogenous

Moreover, the impact of LIBOR cannot be ignored in the market so that why we rejected this result here. This ignorance we did, is supported by the step coming next.

The VECM, however, cannot tell us the relative degree of endogeneity or exogeneity among the variables. The next step will tell us the degree of each variable in its endogeneity or exogeneity.

2.6.   Step 6: Variance Decompositions (VDCs):

The forecast error variance decomposition presents a decomposition of the variance of the forecast error of a particular variable in the VAR at different horizons. It will break down the variance of the forecast error of each variable into proportions attributable to shocks in each variable in the system including its own. The variable which is mostly explained by its own past shocks is considered to be the most leading variable of all. In this study, we will not use Orthogonalized Variance Decomposition Analysis. The orthogonalized VDCs are not unique and

depend on the particular ordering in the VAR. It also assumes that when a particular variable is shocked, all other variables in the system are switched off. So we use the Generalized Variance Decomposition.

The next table shows the VDCs for each variable. The matrix of VDCs with the forecast period 30 (1 month) can be written as follows:

	LGCC_IS	LGCC_C	LUS_IS	LUS_C	LASIA_IS	LASIA_C	LLIBOR
LGCC_IS	0.220383	0.216792	0.052549	0.034046	0.178537	0.17788	0.119813
LGCC_C	0.205652	0.261124	0.058439	0.040538	0.164951	0.164614	0.104682
LUS_IS	0.002735	0.004164	0.415893	0.391248	0.09251	0.089672	0.003779
LUS_C	0.002747	0.004291	0.388769	0.39383	0.102469	0.099647	0.008247
LASIA_IS	0.020355	0.021076	0.20383	0.203826	0.279451	0.266543	0.004918
LASIA_C	0.022531	0.023659	0.19778	0.201604	0.277482	0.273262	0.003681
LLIBOR	0.045289	0.052629	0.032464	0.039389	0.008278	0.006807	0.815144

Notice that, in Generalised model the all variable values added is more than 1.0 For a given variable, at a specified horizon, we total up the numbers of the given row and we then divide the number for that variable (representing magnitude of variance explained by its own past) by the computed total. In this way, the numbers in a row will now add up to 1.0 or 100%.

According to the result above assuming the most exogenous variable is LIBOR 81% followed by US_IS 41% and then US_C with 39%. Even though we found LIBOR is endogenous in the previous step is turn to have a strong degree of exogeneity and that is how it should be as the effectiveness of interest rate is on the market cannot be ignored.

According to these results, the ranking of indices by degree of exogeneity (extent to which variation is explained by its own past variations) is as follows:

| 1: LIBOR 81% | 2:US_IS 41% | 3:US_C 39% | 4: ASIA_IS 28% | 5: ASIA_C 27% | 6: GCC_C 26% | 7: GCC_IS 22% |
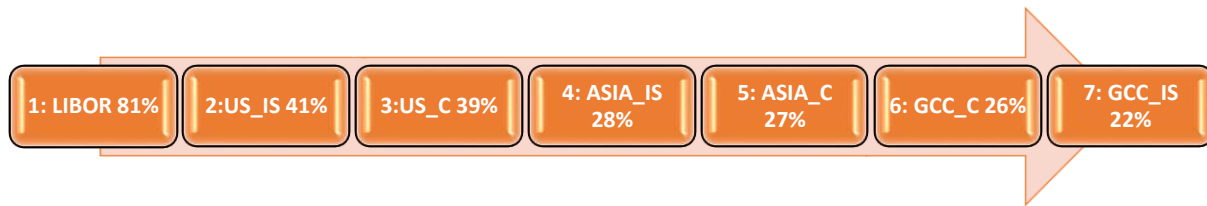
The step is to give us the same information but in a graphical way.

2.7.   Step 7: Impulse Response Functions (IRFs):

The information which is presented in the VDCs also can be equivalently represented by Impulse Response Functions (IRFs). IRFs will present the graphical expositions of the shocks of a variable on all other variables. In other words, IRFs map the dynamic response path of all variables owing to a shock to a particular variable. The IRFs trace out the effects of a variable-specific shock on the long-run relations. The IRFs are normalized in which the zero will represent the steady-state value of the response variable. We shock each variable and see the response of other variables in the graph.

The graph below shows when we shock the most leading variable LIBOR the variation of other variables is:

## Generalized Impulse Response(s) to one S.E. shock in the equation for LLIBOR
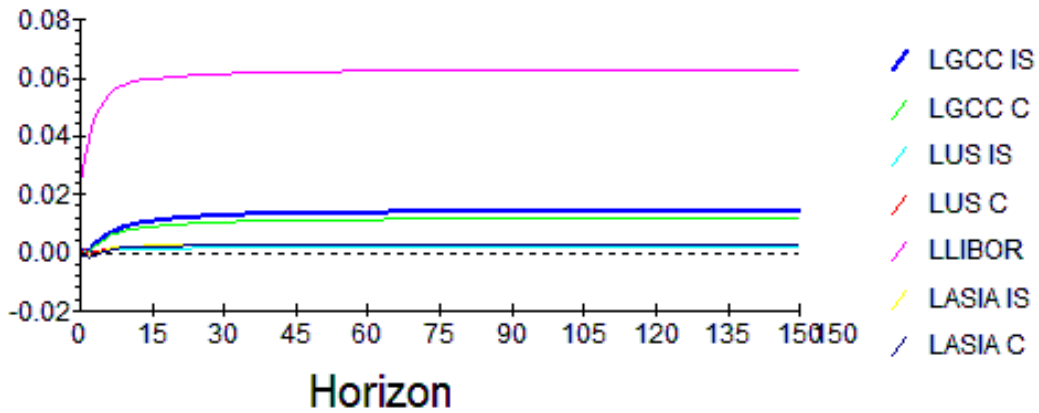
As we see all variables are moving and disturbed, GCC_IS is the one which responds more. Again when we shock another leading variable the variation is as follows:

Generalized Impulse Response(s) to one S.E. shock in the equation for LUS IS
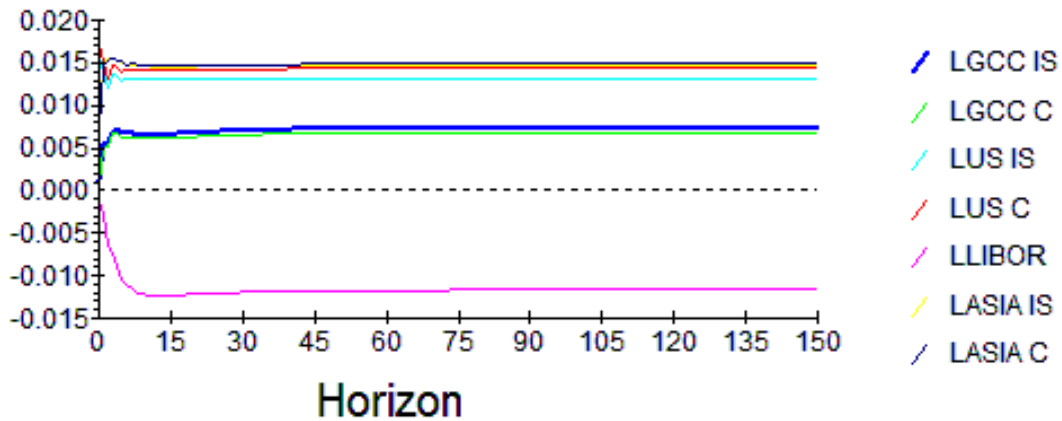
2.8.   Step 8: Persistence Profile:

The persistence profile will indicate the time horizon required for all variables to get back to equilibrium when a system-wide shock occurs. The main difference between the persistence profiles and IRFs is that the persistence profiles trace out the effects of a system-wide shock on the long-run relations. On the other hand, the IRFs trace out the effects of a variable-specific shock on the long run relations. In the persistence profiles, we shock our whole equation whereby this shock comes from external factor outside our equation or our system. Then, we see how many periods it takes for all variables to get back to the equilibrium. The next graph shows how long does it take for the variables to go back to the equilibrium:
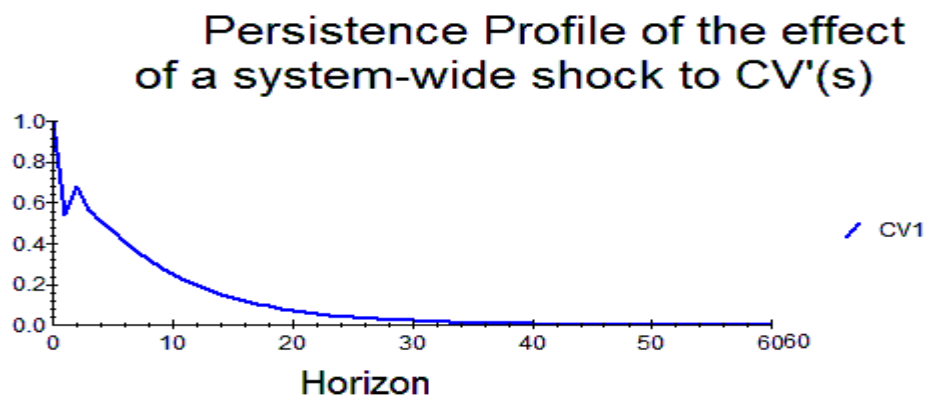
When we give the external shock to the equation, the result shows that all variables will deviate from the equilibrium, meaning that each of variables will move differently in the short run. They are temporarily not co-integrated. However, all variables in the equation will require approximately 45 periods (days; month and half) for them to co-integrate again and return to the long-run equilibrium.

3. CONCLUSION:

This paper comes to its conclusion to note that the independency of Islamic Stock market yet to be fully independent among the Islamic market. The nature of Islamic finance as whole is much different from the conventional, it is all based on real transaction with trading activities, however; if the main element that Islamic finance meant to avoid is Riba and yet we find LIBOR has a huge influence on the Islamic index prices.

Finally we recall our objectives of this study to see whether we answer them or not:

- We have found that GCC Islamic index is co-integrated with both Islamic and conventional sectors, moreover; it has been co-integrated with LIBOR which means interest rate is still to be a part of Islamic markets.

- The effectiveness of Islamic indices on GCC Islamic index tends to have weaker role except for US Islamic index which is a bit stronger. Generally, the conventional sector does play a big role and that is what was expected. The size of the conventional sector and the flexibility that it has, serve the position that it has.

- The study shows that even conventional sector in GCC has less to do with Islamic, whereas; US is driving the both sectors, the dependency of the GCC in US is very high. Many studies approved the high connection between the stock price and oil price which is paid by Dollar. The economic condition of US will always result changes in GCC.

4. LIMITATIONS OF THE STUDY:

The result and economic interpretation may help policy makers as well as practitioners to make decisions related to stock market industry. However, the study is subject to so many limitations as follows:

- The period of the study is short, only three years data.

- We did not adjusted the crisis impact as we believe the impact was quite similar on the variables chosen.
- The choice of indices is somewhat arbitrary. Many other available indices could have been considered and may have produced additional or even different results.
- The data excludes Saudi Arabia from the study, such as big economy may change the result somehow. The same go to Asian indices when we excluded Japan.
- The theoretical foundation and framework of this study also leave something to be desired. Underlying theory is crucial or otherwise studies such as this may be accused as purely exercises of number crunching or statistical data mining. Developing theory in such an area would be challenging as Islamic finance is at its nascent stages of development. Nonetheless, effort should be directed towards this end.
- Finally may Allah forgive me for my mistakes.

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