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Does islamic banking have significant effect on economic growth ? evidence from Malaysia

Nik Hazimi Foziah¹ and Mansur Masih²

Abstract

Islamic banking started three decades ago in Malaysia and was expected to have a significant relationship and contribution towards the economic growth of the country. Despite the good efforts shown by the government of Malaysia, it is interesting to see whether such efforts really led to viable and effective economic growth or not. Thus the study is conducted to see whether the financial sector i.e. banking sector can bring about a positive impact on the economic growth in the country. On top of that, it is worth investigating whether Islamic banking achievement is better than its rival i.e. conventional banking system. In other words, the study attempts to compare the two systems which bring about three different classes of banking sectors to represent the financial sector. Using cointegration and Granger-causality methods, we evidenced financial sectors which consist of Islamic banking and conventional one stimulated the economic growth in Malaysia. Interestingly, Islamic bank financing is found to have a positive and significant relationship with economic growth both in the long and short run and leads the other categories. It implies that the development of Islamic banking is one of the policies, which should be considered by the government to improve in the future.

Keywords: Islamic banking, economic growth, cointegration , and Granger causality, Malaysia

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1.0 OBJECTIVE AND MOTIVATION OF RESEARCH

Islam is a way of life for people and provides a complete system covering all aspects of human life. It also includes the way people manage their business or transaction in a way to develop sound and well economic sector. The viable and effective economic growth perceived by Islam are what could reduce poverty, have equitable distribution of income, social justice and overall development of the economy, which hardly can be obtained through traditional Western economic system. Up until now, we can see many countries practice a successful Islamic banking and finance in order to deliver socioeconomic objectives. The phenomena of implementing Islamic finance, especially banking also can be found in Malaysia. In 1983, Central Bank of Malaysia (BNM), took initiatives by setting up comprehensive Islamic financial infrastructures such as Islamic banking (1983), Islamic insurance (1984), Islamic capital market (1993), Islamic inter-bank money market (1994), Kuala Lumpur Stock Exchange (KLSE) Shariah Index (1999) and in March 2001, launched the financial sector master plan which incorporated the 10-years master plan for Islamic banking and takaful that is aimed at creating an efficient, progressive and comprehensive Islamic financial system and at the same time, to promote Malaysia as a regional financial center for Islamic banking and finance (Furqani and Mulyani, 2009).

Despite the good efforts shown by the government of Malaysia, it is interesting to see whether such implementation really led to viable and effective economic growth or not. Thus the study is conducted to see whether the financial sector i.e. banking sector can bring about a positive impact on the economic growth in country. On top of that, it is also worth investigating as to whether Islamic banking achievement is better than its rival i.e. conventional banking system. In other words, the study attempts to compare the two systems.

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The study on financial development and economic growth has received great attention from economists. Notable among early studies are the works by Schumpeter, J.A. (1912), Robinson (1952), Goldsmith (1969), and June (1986) have pointed out the significant relationship between the financial sector and the economic growth of the countries.

The study conducted by Schumpeter, J.A. (1912) posits that the relationship between financial sectors and economic growth is driven by theory of supply-leading relationship. This means the creation of financial institutions and instruments in advance of demand for them in an effort to stimulate economic growth. This strategy seeks to make allocation of capital more efficient and to provide incentives for growth through the financial system" [Patrick, 1966: 175]. There is an empirical work done by King and Levine (1993), using data from 80 countries over the 1960-1989 periods. Their conclusion is consistent with Schumpeter's view of supply-leading theory that the

financial development promotes economic growth. This conclusion is also supported by the works of many researches such as Gregorio and Guidotti (1995) and Calderón and Liu (2002).

On the other hand, Robinson (1952) attempts to bring another theory regarding this issue. He asserts that there is demand-following relationship which means the development of the real sectors might improve the financial sectors. This implies a continuous widening of markets and a growing product differentiation which makes necessary more efficient risk diversifications as well as better control of transaction cost [Hermes and Lensink, 1996: 17].

In some extent, it is believed that there is actually bi-directional causal relationship which shows interdependency between financial development and economic growth. Demetriades and Hussein (1996), for instance, study 16 countries from all around the world. All of these countries, however, displayed some evidence of reverse causation so that the relationship between financial development and growth appears to be bi-directional.

From the many research works carried out in this field, it can conclude that at least three types of nexus between financial development and economic growth that have been found i.e. supply-leading, demand-following, and bi-directional causal relationships (Abduh and Chowdhury, 2012).

On top of that, the causal relationship in the study also been brought to the Islamic industries. Nevertheless the focus on this realm is still in early stage. Furqani and Mulyany (2009) and Majid and Kassim (2010), Abduh and Omar (2012) are among the few researchers contribute in this area. Abduh and Omar (2012) identifies that the relationship is bi-directional. Therefore, the government policies in supporting the development of Islamic finance in Indonesia are strongly needed in order to support the economic development. However, using not-so different time span of quarterly data, findings from Furqani and Mulyany (2009) and Majid and Kassim (2010) are different in terms of the direction of the relationship. Furqani and Mulyany (2009), on the one hand, posit that the relationship between Islamic financial development and economic growth is following the view of “demand-following” which means that growth in real sector economy stimulates Islamic banking institutions to change and develop. On the contrary, finding from Majid and Kassim (2010) is in favor of the supply-leading view.

Therefore, regardless of the system adopted by the country whether conventional or Islamic financial systems, theoretically there should be relationship between these financial sector with the growth of economic of the country. So this empirical study attempts to examine the causal relationship in Malaysia and also investigate to compare between both financial system that be adopted in Malaysia.

3.0 RESEARCH METHODOLOGY, RESULTS AND INTERPRETATION

The method use to investigate this empirical study is time series technique, specifically cointegration, error correction modelling and variance decomposition. It is parallel with previous studies which employed this technique, i.e. done by Furqani and Mulyany (2009) and Majid and Kassim (2010), Abduh and Omar (2012). For my reasons, the technique is superior than old version method, regression technique. The advantages of using time series technique are:

- i. No issue of non-stationary of variables
- ii. The endogenous and exogenous of selected variables is determined by this technique. No more presumable done as in regression.
- iii. Include the dynamic interactions of the variables.

After all the techniques applied would not raise any question or doubt by the researchers or economists to make such decision based on the result of the study.

Basically the variables selected in this study consist of financial sector variables and economic growth indicators. To represent this in the study, there are groups of banking assets of Malaysia which consist of Islamic Banking Asset (IB), Conventional Banking Asset (CB) and Investment Banking Asset (INVB). For the indicator of economic growth of the country, the study initially wanted to employ Gross Domestic Products (GDP), however the data is not available in monthly frequency, so Industrial Production Index (INDP) was used instead.

3.1. TESTING STATIONARITY OF VARIABLES

Before we jumping over to check whether the selected variables are moving together in the long run i.e. have cointegration among them, it is essentially to ensure that all of the variables comply with I(1) requirements which there are non-stationary in their level form but stationary in difference form. First we need to standardized the measurement unit of variables in order to compare among them later on. It is done by change the variables into log form, unless the selected variable is already in the percentage form so no need to change into log form. In this case, all of the variables IB, CB, INVB and INDP need to change into log form. Then, as it is believed by default most of the financial variables to be non-stationary, so it is important to make them stationary. The reason is to make them more predicted as the movement is to be in a linear form.

Technically, by using the Microfit 5.0 software, the Augmented Dickey-Fuller (ADF) test will be apply in this step. The table below summarizes the results.

Variable	Test Statistic	Critical Value	Implication
Variable in level form			
LIB	-1.6772	-3.4769	Variable is non-stationary
LCB	-1.4689; -1.7111	-3.4769	Variable is non-stationary
LINVB	-1.8125	-3.4769	Variable is non-stationary
LINDP	-1.6361	-3.4769	Variable is non-stationary
Variable in difference form			
DIB	-5.4076	-2.9055	Variable is stationary
DCB	-7.1728	-2.9055	Variable is stationary
DINVB	-7.9801	-2.9055	Variable is stationary
DINDP	-3.2582	-2.9055	Variable is stationary

Based on the AIC and SBC criteria, the conclusion that can be made from the results is that all the variables we are using for this analysis are I(1). Note that in determining which test statistic to be compared with the 95% critical value in the ADF testing, we have selected the ADF regression order based on the highest value of AIC and SBC. The results produced here is consistent between AIC and SBC. However in some cases, there might be conflict between AIC and SBC which give different orders, here the both orders will be taking consider. However this is not an issue as the implications are consistent.

3.2. DETERMINATION OF THE ORDER OF THE VAR MODEL

Before proceeding with test of cointegration, we also need to first determine the order of the vector auto regression (VAR), which is the number of lags to be used. As per the table below, results show that AIC recommends order of 1 whereas SBC favours zero lag.

	Choice criteria	
	AIC	SBC
Optimal order	1	0

To be noted here that AIC (Aike-Information Criterion) mainly focus on the best order of lags, which cover the problem of over-parameterization. Thus AIC tends to select higher order of lags compared to SBC. In this context, the study shall continue with order of lag one.

3.3. TESTING COINTEGRATION

Once we have established that the variables are I(1) and determined the optimal VAR order as 1, now is the time to test for cointegration. In this step we applied the standard Johansen cointegration test rather than Engle-Granger test because it can identify more than one cointegration.

As depicted in the table below, the maximal Eigen value and Trace statistics are consistent to show that there is one cointegrating vector at 95% significance level

Criteria	Number of cointegrating vector
Maximal Eigen value statistics	1
Trace statistics	1

We can simply say that there is one cointegrating vector, and thus become an evidence that the relationship among the variables is not spurious as based on the theory, there should has relationship and become equilibrium in the long run.

3.4. LONG RUN STRUCTURAL MODELLING (LRSM)

Next, we attempt to identify whether the expected theoretical value and information based on underlying theory (or by intuitive) is correct by testing it in LRSM through exact-identification. At first, we normalize our interested variable, i.e. INDP here, then calculating the t-ratios manually, we found all of the variables to be not significant. The table below shows the result.

Variable	Coefficient	Standard error	t-ratio	Implication
LIB	28.3274	26.0600	-1.08701	Variable is insignificant
LCB	-42.8539	21.9826	1.949446	Variable is insignificant
LINVB	44.5592	34.0739	1.307722	Variable is insignificant
LINDP				

These initial results were generally intuitively appealing, as it is against the theory. Here, to ensure whether it is truly is insignificant or not, we try to run over-identifying restrictions. And it is done to all of variables, as they are insignificant.

Variable	Chi Sq P-value	Implication
LIB	0.003	Variable is significant
LCB	0.258	Variable is insignificant
LINVB	0.000	Variable is significant
LINDP	-	-

However, after we done over-identifying restrictions for all variables one by one in order to test the null hypothesis that IB, CB, and INVB were all insignificant, interestingly the variables of IB and INVB showed that the null hypothesis is rejected which the p-value is less than 10%, and this means the set of restrictions were not correct. In case of variable CB which does not show

significant in this test, we incline that intuitively there is relationship between the variable CB and our interested variable, INDP.

Therefore, from the above analysis, we arrive at the following cointegrating equation (numbers in parentheses are standard deviations):

$\text{INDP} + 28.3274\text{IB} - 42.8539\text{CB} + 44.5592\text{INVB} \rightarrow I(0)$ $(26.0600) \quad (21.9826) \quad (34.0739)$

3.5. VECTOR ERROR CORRECTION MODEL (VECM)

Up until this step we just finished the cointegration part, and also from there we had established the cointegration equation which claimed there is exists relationship among the variables. In addition, it is believe by people who using conventional regression in their study that by simply assumed of INDP as dependent variable and followed by independent variables namely IB, CB, and INVB. However, in this time series techniques, we still need to identify which variable is considered as dependent or independent one, or here we used the terms of endogenous which means follower and exogenous, means leader.

So, in this step we will discover on causality which information on direction of Granger-causation is such important to the policy maker in determining which variables is the factors of others. In this case, the policy maker interested to know which sector is influenced the others i.e. does economic growth is determined by financial behavior or otherwise. From here, it is such a guidance to policy maker in making decision to develop economic growth in the country whenever they know the exogenous variable in order to lead the movement of endogenous variable.

In performing VECM, we examining the error correction term $et-1$ for each of the variable as to whether significant or not by looking at p-value of $et-1$. The results as in the table below

Variable	ECM1(-1) p-value	Implication
LIB	0.994	Variable is exogenous
LCB	0.004	Variable is endogenous
LINVB	0.629	Variable is exogenous
LNDP	0.547	Variable is exogenous

The results clearly depict that there are three exogenous variables and there is only one endogenous variable, which is variable CB. The implication of this result is that, the conventional banking sector growth is determined by the three factors which are industrial production that represents of economic growth and also two others financial sectors, i.e. Islamic banking and investment bank sectors.

The reason here is, statistically when the exogenous variable is shocked, it then will transmit the effects of those shock to the others, which is endogenous. As a result, the policy maker can monitor industrial production index, performance of Islamic banking and investment bank to control the behavior of conventional banks.

3.6. VARIANCE DECOMPOSITIONS (VDC)

Since we have identify which one variable is exogenous and endogenous, now there still not enough to say that policy maker to be satisfied in making decision. As there are too many exogenous variables in determining the impact towards conventional banking sector improvement, still need to know which one is play a greater roles in affecting the others, in other words, among the variables which is the most laggard one compared to others, or, the least one. Hence the relative endogeneity of among the selected variables can now be determined through the variance decomposition (VDC). In this step, it decomposes the variance of forecast error of each variable into proportions attributable to shocks from each variable in the system. The least endogenous variable is thus the variable whose variation is explained mostly by its own past variations.

We started out applying orthogonalized VDCs and obtained the following results

Forecast at Horizon = 24 (weeks)

	IB	CB	INVB	INDP
IB	99.99%	1.94E-05	5.42E-05	4.93E-06
CB	0.23%	99.62%	0.14%	1.29E-04
INVB	64.11%	5.63%	15.42%	14.84%
INDP	0.14%	16.04%	12.01%	71.82%

Forecast at Horizon = 36 (weeks)

	IB	CB	INVB	INDP
IB	99.99%	2.00E-05	5.59E-05	5.09E-06
CB	0.23%	99.61%	0.15%	1.33E-04
INVB	67.14%	5.52%	11.73%	15.61%
INDP	0.14%	16.20%	12.24%	71.42%

From the above table results, rows read as the percentage of the variance of forecast error of each variable into proportions attributable to shocks from other variables through the columns which also includes its own variable. While the columns read as the percentage in which that variable contributes to other variables in explaining observed changes. The diagonal line of the matrix which being highlighted represents the relative exogeneity. Based on the results above, the ranking of each variable by degree of exogeneity can be summarized in the table below:

No.	Variables relative to exogeneity	
	At horizon=24	At horizon = 36
1	IB	IB
2	CB	CB
3	INDP	INDP
4	INVB	INVB

According to the both 24 and 36 time horizon results, it is clearly indicate that Islamic banking is the most exogenous variables, while investment banking is the least exogenous one. However, the results is somewhat puzzling. This is because, from the previous VECM analysis, we determined that CB as endogenous variable should be in the lowest rank of exogeneity. Surprisingly here CB is in the second rank which above two exogenous variable i.e. INDP and INVB.

To be noted here that there still need to recognize two important limitations in Orthogonalized VDCs. Firstly it is to be assumed that when a particular variable is shocked, all other variables are “switched off”. Secondly and more importantly, Orthogonalized VDCs do not produce a unique solution. The generated numbers are dependent upon the ordering of variables in the VAR.

Typically, the first variable would report the highest percentage and thus would likely to be specified as the most exogenous variable.

Following this discovery, we decided to rely instead on Generalized VDCs, which are invariant to the ordering of variables. We obtained results as per Appendix 6E to 6H. In interpreting the numbers generated by the Generalized VDCs, we need to perform additional computations. This is because the numbers do not add up to 1.0 as in the case of Orthogonalized VDCs. 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%. The tables below show the result.

Forecast at Horizon = 24 (weeks)

	IB	CB	INVB	INDP
IB	98%	0%	1%	0%
CB	0%	84%	8%	8%
INVB	61%	7%	17%	15%
INDP	0%	12%	16%	72%

Forecast at Horizon = 36 (weeks)

	IB	CB	INVB	INDP
IB	98%	0%	1%	0%
CB	0%	84%	8%	8%
INVB	64%	8%	13%	15%
INDP	0%	12%	16%	71%

Based on the results above, the ranking of each variable by degree of exogeneity can be summarized in the table below:

No.	Variables relative to exogeneity
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	At horizon=24	At horizon = 36
1	IB	IB
2	CB	CB
3	INDP	INDP
4	INVB	INVB

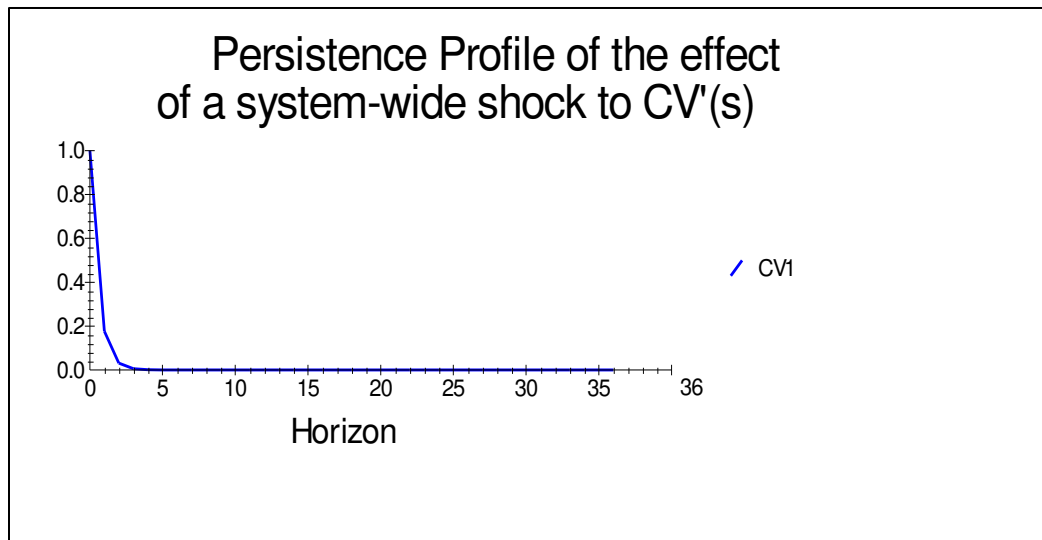
Surprisingly the results in Generalized VDC is the same order of rank with appear in Orthogonalized VDC. Then, according to the above results, we can say that the Generalized VDCs indicate that IB is the most exogenous compared to others, and INVB is the least exogenous in this case. The relative rank in exogeneity can be said as stable as there is remain the same output between 24 weeks and 36 weeks. However, the difference in exogeneity percentage is much significant, as for example in the horizon of 24 weeks, it is giving 81% separate between the most exogenous variable and the least exogenous variable. Therefore IB variable is clearly play the role to lead the behavior of INVB. Also here, IB lead the behavior of INDP which can be meant of economic growth is actually depends on financial sectors.

3.7. IMPULSE RESPONSE FUNCTIONS (IRF)

The impulse response functions (IRFs) is actually also tell which variable is the most exogenous and which variable is the least exogenous, which same goes to what being produced by the VDCs, except that they can be presented in graphical form.

3.8. PERSISTENCE PROFILE (PP)

The persistence profile (PP) illustrates the situation when the whole system cointegrating equation is shocked, where the shocked comes from the external sources to the cointegrating vectors, how would it takes (time horizon) to get back into equilibrium. The chart below shows the persistence profile for the cointegrating equation of this study.



The chart indicates that it would take approximately 3 weeks for the cointegrating relationship to return to equilibrium following a system-wide shock.

4.0 CONCLUSIONS

In conclusion, we revisit the research questions posed at the onset of this study. Based on the above quantitative analysis, we found the answers to be:

- i. It is confirmed that the financial sectors which consist of Islamic banking and conventional banking stimulate the economic growth in Malaysia. It contradicts the findings of Furqani and Mulyany (2009) who found that the relationship between Islamic financial development and economic growth is following the view of “demand-following” which means that growth in real sector economy drives the Islamic banking institutions to change and develop. Therefore, they found that a sound and well financial economic growth, will bring about positive impact towards the development of financial sectors in Malaysia.
- ii. On top of that, it is interesting to see that among the banking sectors, Islamic banking represents to be the most exogenous to be compared with other sectors. It implies that the development of Islamic banking is one of the policies, which should be considered by the government to improve in the future. Therefore, the Malaysian government can be said to be in the right track as their large efforts to be focused on this sector as it can drive the development of economic growth in Malaysia.

5.0 LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In completing this study, there still limitation to be addressed. The most critical part to realize is the chosen variables. Here the choice of variables to represent the financial sectors and economic sectors can be used other variables which can bring more interesting results. In this study, the selected variable to represent economic growth is limit to Industrial Production index, as it is the only variable can be found in monthly frequency. There would be opportunity to change other economic variables through sophisticated techniques that can be plug in into the study. While, for financial sectors, the study just include the banking sectors as to represent it. There would be other sector other than banking to be used in the study, as for example insurance industries, which also can be compared with Islamic insurance i.e. takaful. This conceivable limitations can be used in future study.

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