Granger-causality between islamic finance and growth: evidence from Malaysia

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Abstract:

The focus of this paper is to investigate the Granger-causality between Islamic finance and economic growth. The standard time series techniques are employed with the long-run theoretical relation (i.e., cointegration) tested through the ARDL method rather than the Johansen procedure which suffers from the pre-test biases and the rigidity of I(1) or non-stationarity of all variables. Malaysia is used as a case study. The findings tend to indicate that the economic growth leads Islamic finance through the investment channel. Our analysis shows an absence of Islamic finance-led growth nexus and instead showed a unidirectional Granger-causality from growth to the development of Islamic finance. The contribution of Islamic financial sector is weak. The GDP is not dependent on the Islamic finance. The GDP variable behaves exogenously. We also find that the extent of the Granger- causality among the variables depends on whether we are in the short-run or long-run. As a check of the robustness of the results, alternative methods allow drawing the same conclusions as the ARDL bounds testing approach, implying that the ARDL method seems to be appropriate for examining the causal link between the variables. The paper documents a significant role played by the economic growth for the development of Islamic Banks in Malaysia, supporting the growth-led Islamic finance hypothesis rather than the other way around.

Key words: Islamic bank finance, Growth, lead-lag, Causality, Malaysia.

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Introduction

In Malaysia, the demand for shari'ah-compliant financial products and services particularly for banking products and services accelerated in 1980 as the local Muslim community continued to demand for alternatives to the interest-based conventional banking services. In view of the demand, in 1982,a national steering committee was established to study the possibility of setting up a full-fledged Islamic bank in the country. In the following year, the first Islamic bank in Malaysia, namely, the Bank Islam Malaysia Berhad (BIMB) was set up and it commenced its operation on July 1,1983 supported by the Islamic Banking Act (IBA) 1983 being enacted in the same year. BIMB was given an initial seed capital of RM580 million and a grace period of 10 years, whereby the government sheltered the bank from any form of competition during its infancy stage.

Later on "Islamic banking window" was introduced, which allowed interested conventional banks to use their existing infrastructure to offer the Islamic banking products. Through this concept bank customer could opt for either the conventional and Islamic banking products. The window concept was well received by the conventional banks as they were able to leverage on their existing reputation and network infrastructure to capture new market segments and diversify their customer base. More importantly, the wide banking networking also contributed toward higher consumer acceptance of the Islamic banking products and services.

After the hit of the Asian financial crisis in 1997 and 1998, Malaysia saw another revolution in Islamic banking by introducing a full-fledged Islamic Bank Muamalat which emerged from Bumiputra Berhad, which was the largest domestic based Islamic bank. In the following years, particularly in the post 2005, Malaysia central bank, Bank Negara Malaysia (BNM), allowed foreign Islamic banks to operate in Malaysia to further exert positive competitive pressure on the local Islamic banks, the most rapid foreign bank's entry took place in 2005 and 2006, with several local and foreign conventional banks setting up full-fledged Islamic subsidiaries in Malaysia. Now a days, Islamic financial system is growing side by side with the conventional financial system in the Malaysian dual financial system.

Inherently, Islamic banking and finance has the characteristics that contribute positively to the economic growth. The profit loss sharing nature of Islamic financial transactions naturally promotes stronger linkage between financial sector and real sector. The compliance of shariah prohibition of Riba (interest), Gharar (excessive uncertainty), Maysir (gambling) serves as a built in check and balance mechanism and establish the socio economic justice and reduces the possibility of financial instability of the overall economy and financial system.

Economic development accelerates the productive capability of an economy by using available resources to reduce risks, and remove obstacles which might lower the cost and impede investment, whereby the effective and efficient banking system promotes economic growth and development through financial intermediation. Since the inception of Islamic finance in the global financial system it has been proven to be a viable and efficient mode of financing. Likewise its conventional counterpart is also contributing to economic development. The good performance and tremendous growth of Islamic finance have shown its feasibility, in a country such as Malaysia. Islamic finance has become an integral part of the financial system and hence it is crucial to verify its contribution to the economic development of a country.

This paper aims to contribute toward enriching the empirical research in the area of Islamic finance-growth nexus in Malaysian case. In an endeavour to assess the contribution of Islamic finance to economic growth in the Malaysian context, this study focuses on the flowing research questions:

- To what extent do Islamic bank financial institutions contribute to economic growth in Malaysia?
- What is the nature of the relationship between Islamic bank financial institutions and economic growth in Malaysia?
- Does Islamic bank financial institution have significant relationship with Malaysian economic growth in the short and the long run?

The paper is organized as follows. Section II reviews on the relevant theoretical and empirical literature, Methodology and result are discussed in section III. The empirical results and discussions are presented in section iv, the last section ends with policy implications of the paper and the concluding remarks.

Literature review:

Financial sector and economic growth

Economists hold different perspective on the theoretical link between financial development and economic growth. Schumpeter (1911), says that the services provided by financial intermediaries are essential pushing factors for innovation and growth. Well developed financial systems channel financial resources to the most productive use. On the other hand Robinson (1952) argues that finance does not exert a causal impact on growth. Rather he argues saying that financial development follows economic growth as a result of higher demand for financial services. When an economy grows, more financial institutions, financial products and services emerge in the markets in response to higher demand of financial services.

The literature in this area of study is generally more supportive of the argument put forwarded by Schumpeter (1911). This line of argument was later formalized by Gold smith (1969), Shaw (1973), and McKinnon (1973), focuses the connection between "a country's financial super structure and its real infrastructure". Statement by Goldsmith the financial superstructure of an economy accelerates economic growth and improves economic performance to the extent that it facilitates the channeling of fund to the best users, i.e., to the place of an economic system where the fund yields the highest return. The endogenous growth literature is in line with this argument that financial development has a positive impact on the steady state growth (see Bencivenga and Smith, 1991; Bencivenga et al 1995, and Greenwood and Jovanovice, 1990 among others).

Beck and Levine (2004) finds the conclusive evidence on the important positive role for financial development in the process of economic development using GMM techniques on the economy of 40 countries over a period of 1976-1998 where stock markets and banks are adopted as the indicators of financial sector development and Gross domestic product (GDP) being used as a measure of economic growth. Beck et al (2000) investigates the importance of financial sector development on the economic growth for 77 countries over a period of 1960-1995 and finds that financial sector has a significant positive impact on the total factor of productivity growth which subsequently gives a positive impact on the overall GDP growth. Their conclusion is consistent with Schumpeter's view that the financial development

promotes economic growth. This conclusion is also supported by the works of De Gregorio and Guidotti (1995) and Caldero ´n and Li u (2002). M. Masih et al (2009) finds supply leading relationship rather than demand following using Saudi Arabia as a case study.

The study by Mishkin (2006) finds that indirect finance, which involves the financial activities of financial intermediaries, is many times more important than direct finance, in which businesses raise funds directly from lenders in financial markets towards economic growth. .For the period of 1970-1996, for example, sources of external funds of non-financial businesses in Japan were 85 percent from bank loans and 15 percent from financial markets while in Germany were almost 80 percent from bank loans and the rest from financial markets

Time series studies confirm that finance predicts the growth (Neusser and Kugler 1998, Rousseau and wachtel 1998). One drawback of these papers is that financial intermediary development may be a leading indicator of economic growth but not an underlying cause of economic growth. Recent industry –level, firm level and event study investigations however suggest that the level of financial intermediary development has a large casual impact on real per capita GDP growth (Rajan and Zingales,1998, .Demirguk Kunt and Maksimovic, 1998, .Jayanatne and Strahan, 1996)

The study by Barjas, Adolfo,Ralph Chami, and Seyed Reza Yousefi,(2013) explores three dimensions of possible heterogeneity in the finance growth nexus: across regions, between oil and non-oil exporters, and across income levels. Their dataset encompasses the 1975–2005 periods and takes non-overlapping five-year averages of all variables to smooth out short-term fluctuations in growth rates and to reduce the potential bias arising from having a large number of time observations in dynamic panel estimation. The sample includes up to 146 countries included in some regressions, grouped by income level according to the IMF classification, and by oil and non-oil exporters depending on the share of oil in total GDP, which is also included in some regressions as the measure of oil dependence, they find that Middle East and North Africa (MENA) countries banking sector depth produces a lower growth impact than in the rest of the world, while in Europe and Central Asia the impact is greater, the growth impact of banking depth is weaker for oil exporters in general, and is progressively weaker as the degree of oil dependence increases. And finally they find indeed, the finance-growth nexus is weaker for Low Income Countries (LICs) as a group, and that it increases continuously with income level.

However, not all researchers are convinced about the importance of financial system in the growth process. Lucas (1988) argues that economists tend to over-emphasize the role of financial factors in the process of growth. Development of the financial markets may well turn out to be an impediment to economic growth when it induces volatility and discourages risk-averse investors from investing (Singh, 1997). Apart from this, it is also well mentioning that the introduction of certain financial tools that allows individuals to hedge against risks may lead to a reduction of the propensity of savings and hence lowers economic growth (Mauro, 1995)

The Islamic finance-economic growth nexus

There are very few studies providing the empirical relationship between the Islamic financial sector and the real economic sector. The relatively new Islamic finance and banking industry compared to the conventional banking industry has limited empirical assessment on the issue of whether Islamic banking industry leads to economic growth. Goaied and Sassi (2010) explore the effect of Islamic banking sector on economic growth of 16 countries in the Middle-East and North Africa (MENA) region in the period of

1962-2006 using the GMM. The study uses credit advanced to private sector by the Islamic banks to represent the financial intermediation. The study finds no significant relationship between banking development and economic growth, even in some instances the relationship was significantly negative especially for the case of oil exporting countries. Barjas et al (2010) also found almost similar result, they added that the beneficial effect of financial deepening on economic growth differs between oil exporting and non-oil exporting countries, its considerably smaller in oil exporting countries compared to the rest of the world.

However, in the case of Malaysia Furqani and Mulyany (2009) scrutinized the relationship between Islamic banking and economic growth where the cointegration test and vector error correction model were used on quarterly data from1997 to 2004. The study finds a significant long-run bi-directional relationship between Islamic and fixed investment, while GDP Granger causes growth of Islamic banks. The variables used in their study are total Islamic bank financing as an indicator of Islamic banking intermediation, while GDP per capita, fixed investment and trade are taken as indicators for real economic activities. The finding of this study is in line with the theoretical postulation that Islamic banks accelerate investment which leads to development of the real economy given the investment productive. The study by Abduh and Omar (2012) finds the empirical support of a bi-directional relationship between Islamic financial development and economic growth using bound testing approach of co-integration and error correction models, developed within ARDL framework on quarterly data from 2003 to 2010 in the case of Indonesia

However Fasih (2012) suggests that Islamic banking is capable of addressing the issue of wide income inequality in India by ensuring inclusive economic growth. The PLS nature of Islamic banks would help to solve the problem of the majority of Indian having inaccessibility to credit like farmers and the SMEs. In addition promoting Islamic banking would attract investment from the rich Gulf countries which in turn contributes to real economic activities in India.

Methodology and Result:

The data used here are quarterly data covering nine years starting from 2006Q1, a total of 33 observations were obtained. Due to the Quarterly data unavailability two data sources have been used , GDP, and Islamic Bank financing data from Bank Negara Malaysia (BNM) monthly statistical bulletin, and gross fix capital formation, and Consumer price level from data stream. We use four variables based on previous studies and our research objective, Although the focus of this article is on the lead-lag relationship between Islamic bank development and economic growth, these two variables interact through some other 'control' variables. The theoretical literature is not very clear about the transmission channel between 'finance' and 'growth' but it is generally postulated that 'finance' affects 'growth' through investments. We try to proxy the investment channel by gross fixed capital formation (GFCF)

IBF= Islamic banks financing to the private sector as a proxy for Islamic bank development.

GDP= Gross domestic product as a proxy for growth

GFC=Gross fixed capital formation

CPI=Consumer price index

The study applies ARDL approach proposed by Pesaran and Pesaran (1997), and Pesaran, Shin, and Smith (2001), which is commonly used to investigate the long-run links between variables. In comparison with other known cointegration methods, the ARDL approach allows different optimal lags for the variables, and is a very useful tool since it substantially improves the small-sample properties of the estimates regardless of the nature of the time series, stationary or not. This contrasts with the conventional methods that require unit root pre-testing before carrying out the cointegration tests. Another feature of substantial importance of the ARDL approach is that it can be applied even for small sample size, and allows getting simultaneously the short-term and long-term estimates. We first conduct ADF, PP, KPSS tests to examine the stationarity properties of the series. Secondly, we perform diagnostic tests to ensure the validity of the regressions used for the implementation of the bounds test approach of cointegration among the variables. Thirdly, given the supported cointegrating relationships, we compute the long- and short-run elasticity, assess the causality direction between variables, and check the return to the long-run equilibrium based on the estimated error correction model. Finally, given the obtained results of the ARDL approach, we also employ other suitable econometric methods, namely variance decomposition and impulse response to ensure that our findings are not contingent upon only one approach.

The ARDL model specification of the functional relationship between GDP, Islamic bank financing, gross fixed capital formation, and inflation can be estimated below:

$$DGDP_t = a_0 + \sum_{i=1}^{k} b_1 DGDP_{t-i} + \sum_{i=0}^{k} b_2\, DIBF_{t-i} + \sum_{i=0}^{k} b_3 DGFC_{t-i} + \sum_{i-0}^{k} b_4 DCPI_{t-i} + b_5 LGDP_{t-1} + b_6 LIBF_{t-1} + b_7 LGFC_{t-1} + b_8 LCPI_{t-1}$$

ARDL bounds testing permit us to take into consideration I(0) and I(1) variables together. The null hypothesis of the non existence of a long run relationship against the alternative hypothesis of there is cointegration. In equation, k is lag criteria.

For the existence of long run

$$LGDP_t = a_0 + \sum_{i=1}^{k} b_1 LGDP_{t-1} + \sum_{i=0}^{k} b_2 LIBF_{t-1} + \sum_{i=0}^{k} b_3 LGFC_{t-1} \sum_{i=0}^{k} b_4 LCPI_{t-1} + \mu_t$$

Error correction term is used in the ARDL short run model. The short run dynamic model can be presented as follows:

$$DGDP_t = a_0 + \sum_{i-1}^{k} b_1 DGDP_{t-i} + \sum_{i=0}^{k} b_2 DIBF_{t-i} + \sum_{i=0}^{k} b_3 DGFC_{t-i} + \sum_{i=0}^{k} b_4 DCPI_{t-i} + b_5 ECT_{t-1}$$

Where ECT is the lagged error correction term.

Unit root test

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, whereas 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. If the series is 'stationary', the demand-side short run macroeconomic stabilization policies and financial development are likely to be effective and promote economic growth but if the series is 'non stationary', the supply-side policies are more likely to be effective in promoting growth with the accumulation of financial and human capital in the long run.

Table 1: Result of ADF, PP and KPSS test:

Variables	ADF			PP			KPSS		
Level Form	T-stat	CV	Decision	T-stat	CV	Decision	T-stat	CV	Decision
LGDP	1.9992	3.5867	NST	2.9544	3.5341	NST	.15540	.23265	ST
LIBF	3.8643	3.5867	ST	1.2065	3.5341	NST	.14922	.23265	ST
LGFC	3.2549	3.5867	NST	2.5440	3.5341	NST	.13216	.23265	ST
LCPI	2.8792	3.5867	NST	1.6795	3.5341	NST	.14254	.23265	ST
	ADF			PP			KPSS		
Differenced Form	T- stat	CV	Decision	T-stat	CV	Decision	T-stat	CV	Decision
DGDP	3.5195	2.9798	ST	8.0614	2.9605	ST	.30250	.38044	ST
DIBF	4.5990	2.9798	ST	5.0912	2.9605	ST	.31091	.38044	ST
DGFC	2.5533	2.9798	NST	8.9383	2.9605	ST	.14090	.38044	ST
DCPI	3.6545	2.9798	ST	5.5871	2.9605	ST	.32627	.38044	ST

On the above mentioned results of unit root test we can see that it varies from one test to another test. If we analyze the results of unit root tests of all variables in the level and differenced form, we observe that Islamic bank financing shows different result from ADF and PP test. This result gives support to the use of ARDL bounds approach to determine the long-run relationships among the variables.

As the results of unit root test are not consistent we decided to use ARDL technique to test the long run relationship among the variables. Before proceeding with the test of cointegration, we try to determine the order of the vector auto regression (VAR), that is, the number of lags to be used.

Table 2: VAR lag order selection

	Selection Criteria	
	AIC	SBC
Optimal order of the VAR	4	1

There are conflicts between recommendation of AIC and SBC. This can interpreted as inherent nature of time series data of our study. Havng chosen the order of the VAR it is prudent to examine the residuals of individual equation for serial correlation (Pesaran et al, 2001). We tried 3 VAR order keeping in mind both Auto correlation and robustness.

Test of Cointegration:

An evidence of cointegration implies that the relationship among the variables is not spurious, i.e. there is a theoretical relationship among the variables and that they are in equilibrium in the long run.

Table 3: Engle-Granger (E-G) Test

	T-Statistics	Critical value
Order of the ADF test	2.1886	4.4962

As depicted in the above table the critical value is higher than that-statistics. So, we cannot reject the null that the residuals are non stationary. Statistically, the above results indicate that the variables we have chosen, in some combination, result in not a stationary error term. As it is non stationary that indicates that there is no cointegration. These initial results are not intuitively appealing, to our mind. On the other hand that if the variables are not found to be cointegrated, they may be fractionally cointegrated. So, we have decided to go for Johansen cointegration test in the following s

Table 4: ARDL Bounds test for existence of a Level Relationship

Criteria	Number of co-integrating vectors
Maximal Eigenvalue	1
Trace	1
SBC	1
AIC	4
HQC	4

The above co-integration results implies that each variables contain information for the prediction of other variables i.e. in our research setting, we can determine the predicting variable for growth as we are examining how Islamic banks affect growth in the short and long run. However, these results are bit of conflicting; it also conflicts with Engle – Granger. As these approaches have many limitations that are taken care by ARDL. For that we decided to go for ARDL approach for testing co integration among variables.

Table 5:F-Statistics For Testing The Existence Of Long Run Relationship (Variable Addition Test)

Variables	F-statistics	CV lower	CV upper
DGDP	.40374	2.425	3.574
DIBF	2.7536*	2.425	3.574
DGFC	.56238	2.425	3.574
DCPI	3.7273*	2.425	3.574

The critical values are taken from Pesaran et al. (2001), unrestricted intercept and no trend with four regressor.*denotes rejecting the null at10 percent level.

Table above shows the calculated F statistics for dependent variable Islamic bank financing is 2.7536, which is in between lower and higher bound at the 10% significance level. This result is inconclusive meaning regarding the short run relationship among the Islamic banks and the economic growth of Malaysia. this could be considered as a finding of the real fact that Islamic banks don't involve them in the long run financing activities.

Table 6:ARDL Bounds Test For Existence Of A Level Relationship

Dependent Variables	F-statistics	CV lower value	CV higher value
LGDP	2.2900	2.42	3.57
LIBF	**3.3033***	2.42	3.57
LGFC	1.8473	2.42	3.57
LCPI	1.0153	2.42	3.57

The critical values are taken from Pesaran et al. (2001), unrestricted intercept and no trend with four regressor.*denotes rejecting the null at10 percent level.

The calculated F statistic 3.30 which is in between lower and higher bound and more close to higher bound, on the other hand SBC criteria for Islamic banks shows exceeding the upper bound which indicates that the null hypothesis of no co-integrating long-run relationship can be rejected. The economic implication of this result is the variables economic growth, Islamic bank financing, gross fixed capital formation and consumer price level are moving together in a particular direction in the long run, similar result found by (Hafas Furqani and Ratna Mulyany, 2009) These results reveal that a long-run relationship exists between the focus and controlling variables in Malaysia.

This by itself is a significant finding in view of the fact that the long run relationship between the variables is demonstrated here avoiding the pre-test biases involved in the unit root tests and c-integration tests required in the standard co-integration procedure. The evidence of long run relationship rules out the possibility of any spurious relationship existing between the variables. In other words, there is a theoretical relationship existing between the variables.

Table 7: Error Correction Model Representation

Variables	Coefficient	Standard Error	P-value
ecm(-1) dLGDP	-.32900	.32115	[.318]
ecm(-1) dLIBF	-.13105 *	.049297	[.013]
ecm(-1) dLGFC	-.34811	.23819	[.160]
ecm(-1) dLCPI	-.17132	.12263	[.176]

As discussed earlier, cointegration tells us that there is a long run relationship between the variables. However, there could be a short-run deviation from the long-run equilibrium. Cointegration does not unfold the process of short-run adjustment to bring about the long-run equilibrium. For understanding that adjustment process we need to go to the error-correction model. The T-ratio or the p- value of the error-correction coefficient indicates whether the deviation from equilibrium (represented by the error-correction term, 'ecm') has a significant feedback effect or not on the dependent variable. In other word, whether the variable is endogenous or exogenous. The error correction coefficient being significant confirms our earlier findings of a significant long-run cointegrating relationship between the variables. Moreover The size of the coefficient of the error-correction term is also indicative of the intensity of the arbitrage activity to bring about the long-run equilibrium. The error correction coefficient estimated for variable Islamic banks' financing at -0.131 (0.0492) is highly significant, has the correct sign and implies a slow speed of adjustment to equilibrium after a shock. At this stage, we can argue that VECM has given a clear picture of short and long run relationship among variables. Islamic total islamic bank finance has been found endogenous which implies the independence of Islamic bank development on the economic growth of Malaysia. This result supports the reality as Islamic banks don't practice what they are supposed to do.

ROBUSTNESS OF THE RESULT:

To check the robustness of these conclusions, we extend the short-run analysis by relying on the VAR approach. This allows us to ensure that our findings are not contingent upon only one approach. Therefore, the government can make good economic policies and strategies based on the relationship between Islamic bank financing and economic growth in presence of two banking system in one financial system, namely conventional banking system and Islamic banking system.

Variance Decomposition (VDC):

The relative exogeneity or endogeneity of a variable can be determined by the proportion of the variance explained by its own past. The variable that is explained mostly by its own shocks (and not by others) is deemed to be the most exogenous of all. We started out applying generalized VDCs and obtained the following results.

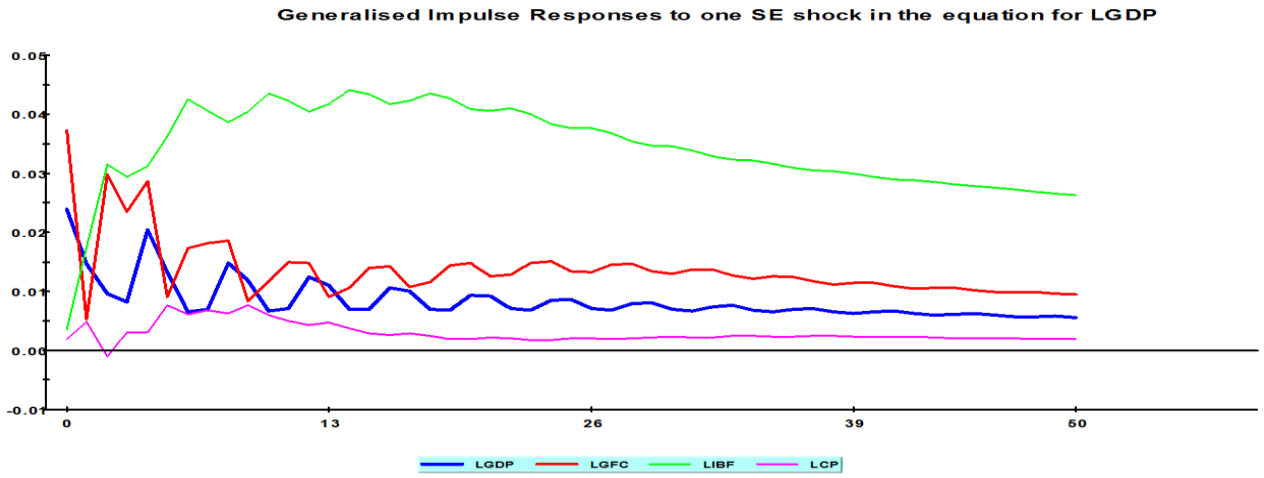
Table 8: Generalized Variance Decompositions (Normalised)

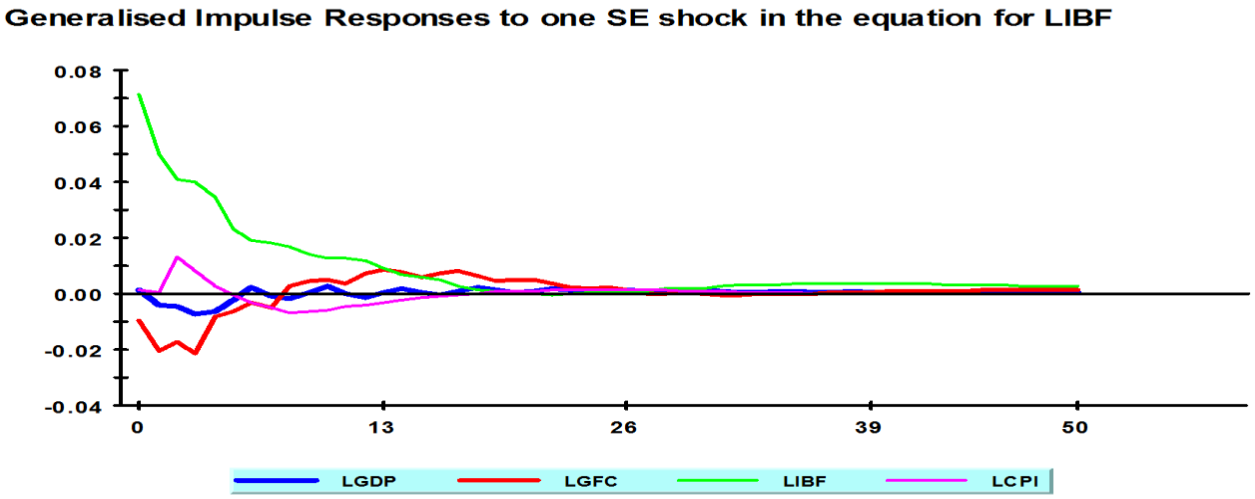
	Horizon	LGDP	LGFC	LIBF	LCPI	TOTAL	SELF-DEPENDENCE	RANK
LGDP	10	**42%**	49%	3%	6%	100%	42%	1
LGFC	10	38%	**18%**	41%	2%	100%	18%	2
LIBF	10	8%	19%	**10%**	63%	100%	10%	3
LCPI	10	23%	60%	7%	**10%**	100%	10%	4
	Horizon	**LGDP**	**LGFC**	**LIBF**	**LCPI**	**TOTAL**	**SELF-DEPENDENCE**	**RANK**
LGDP	20	**43%**	49%	3%	5%	100%	43%	1
LGFC	20	44%	**32%**	21%	3%	100%	32%	2
LIBF	20	9%	25%	**10%**	56%	100%	10%	3
LCPI	20	27%	56%	8%	**9%**	100%	9%	4
	Horizon	**LGDP**	**LGFC**	**LIBF**	**LCPI**	**TOTAL**	**SELF-DEPENDENCE**	**RANK**
LGDP	30	**44%**	49%	2%	4%	100%	44%	1
LGFC	30	45%	**39%**	14%	2%	100%	39%	2
LIBF	30	10%	25%	**10%**	55%	100%	10%	3
LCPI	30	30%	54%	7%	**8%**	100%	8%	4
	Horizon	**LGDP**	**LGFC**	**LIBF**	**LCPI**	**TOTAL**	**SELF-DEPENDENCE**	**RANK**
LGDP	40	**45%**	49%	2%	4%	100%	45%	1
LGFC	40	45%	**41%**	12%	2%	100%	41%	2
LIBF	40	11%	25%	**10%**	54%	100%	10%	3
LCPI	40	32%	54%	6%	**8%**	100%	8%	4
	Horizon	**LGDP**	**LGFC**	**LIBF**	**LCPI**	**TOTAL**	**SELF-DEPENDENCE**	**RANK**
LGDP	50	**45%**	49%	2%	3%	100%	45%	1
LGFC	50	46%	**42%**	11%	2%	100%	42%	2
LIBF	50	11%	26%	**10%**	53%	100%	10%	3
LCPI	50	33%	54%	6%	**7%**	100%	7%	4

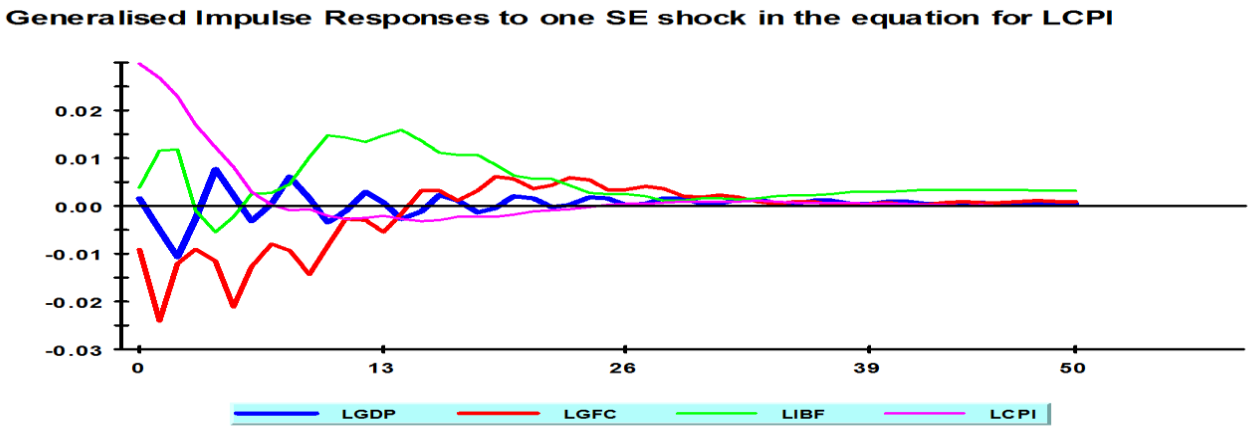
From the table we can see that in 10 quarters horizon, gross domestic product is the most exogenous, on the other hand total Islamic bank financing is the endogenous. In the 20 quarters horizon, Gross domestic product is still the most exogenous. More interestingly investment has become more exogenous in the long run. In the short to long term, consumer price index is becoming more endogenous however for the case of Islamic banks it tends to remain same in the longer horizon, this may be due to quarterly data for shorter period. Most exogenous variable growth however becomes relatively stronger exogenous in the long run.

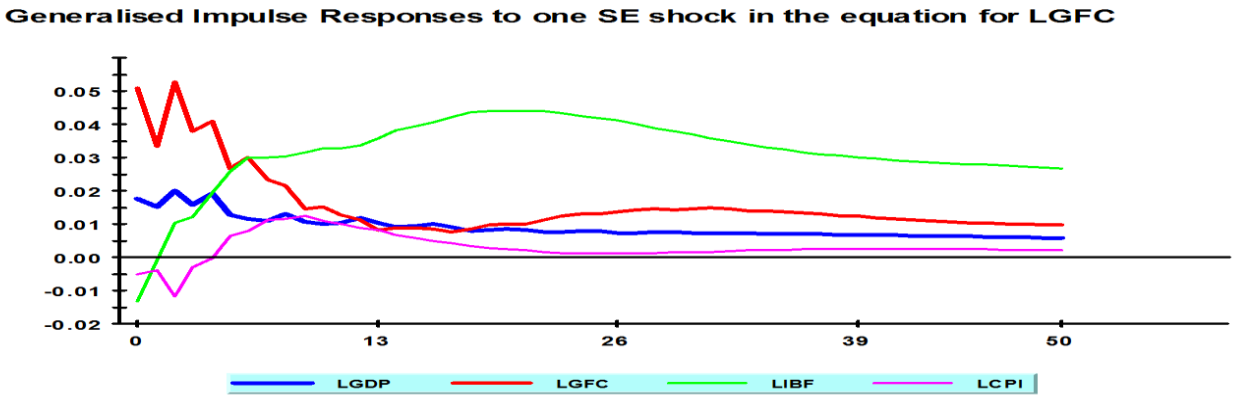
IMPULSE RESPONSE FUNCTIONS:

We investigate the short-run dynamics of the variables we consider by using the generalized impulse response functions that assess the response of a variable to shock in another variable at some time horizon.









From the analysis of VDC and impulse response (IR), which necessarily shows the same result in different form, by shocking our target variables mostly investment and growth to identify their effect on Islamic bank development. We can argue that the result in IR seems to support the findings from VDC; however, some of them are supported by theory while some of them are counter intuitive.

We can argue that shock in the GDP has more impact on the Islamic bank financing, at the same time in the long run the GDP of Malaysia is not sensitive to the Islamic financing. Thus the effect of Islamic finance on the economic growth in the long run is less important than short run. The economic result can be explained by the structure of the Islamic bank financing that marginalizes the PLS based instruments. This turns out to be consistent with the economic reality in Malaysia, as the Islamic banks engage more in non participatory activities whose impact is generally for short run. Therefor it seems that the Malaysian Islamic banks have not played effectively what they should have done as financial intermediaries. Our findings also are in line with Hachicha, N., & Ben Amar, A. (2015).

POLICY IMPLICATIONS:

In the last decades, many empirical research studies attempted to investigate how Islamic finance exerts an impact on economic growth directly or indirectly through some channels. Our findings indicate that the application of the ARDL approach enhances the understanding of the causal links between Islamic finance and economic growth for developing economy like Malaysia, provide a demand following hypothesis where financial development follows economic growth. Here Islamic bank financing as dependent on the growth of GDP in Malaysia. Economic growth creates a demand for financial intermediation, thus Islamic financial institutions and services is a response to the demand from investors and savers in the economy. In this regard economic growth causes Islamic banking institutions to change and develop. The link is of great interest for economic policy makers, Indeed, the significant relationship between the variables we consider can help the Malaysian government to make deep economic policies over the short-run and long-run depending on the causality direction and its magnitude, and on whether the impact of each variable on the others is positive or negative. Government should take measures to promote the Islamic financial system through the financial infrastructure. The government should also support projects to stimulate profitable investment opportunities by improving small investments, and creating new businesses in productive sectors of the economy. To that effect, the government should have the policy scheme to increase the long term financing to the private sectors by Islamic banks and Profit loss sharing activities more. Hence Islamic banks should extend their PLS activities in the rural area in order to make the macroeconomic stability and to reduce the impact of negative shocks. The authorities should also create favorable conditions to utilize the Islamic bank financing into productive investment through, thus creating employment and economic growth opportunities. In this context, the government should offer incentives such as developed public infrastructure in disadvantaged areas and tax exemption for new projects during the early years to enhance investment opportunities.

Conclusion:

In this study, the unidirectional relationship between the development of Islamic bank and economic growth for Malaysia has been meticulously investigated based on the ARDL bounds testing approach and by including investment as channel through which the impact is examined. Our analysis shows absence of Islamic finance growth nexus and instead showed a unidirectional causality from growth to the development of Islamic finance. The contribution of Islamic financial sector is weak. The GDP is not dependent on the Islamic finance. The GDP variable behaves exogenously. We also find that the causality among the variables depends on whether we are in the short-term or long-term. As a check of the robustness of the results, alternative methods allow drawing the same conclusions as the ARDL bounds testing approach, implying that this latter seems to be appropriate for examining the causal link between the variables. We consider. future empirical research works could introduce Islamic capital market and zakat fund (as it plays significant role in the rural areas unlike the formal financial channels), indicators to explain and to distinguish the causal impact. In this context, it is also important to understand how policy makers could address this issue.

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