Granger-causal relationship between islamic bank financing and macroeconomic variables: evidence from Malaysia based on ARDL

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Abstract:

The paper attempts to study the Granger-causal relationship between Islamic bank financing and interest rate, stock price and real industrial production as the proxy of macroeconomic variables.. Malaysia is used as a case study and the ARDL method is used for the analysis. The results tend to indicate that Islamic bank financing is not independent of interest rate but is mainly driven by interest rate followed by stock price. That is a very interesting finding since at least in theory, the Islamic bank financing should be free from the conventional interest rate Also, it is evidenced that the Islamic bank financing is led by the stock market. Finally, Islamic bank financing is not dependent on the real economic activity in terms of industrial production. These findings are plausible and have important policy implications for a developing country like Malaysia.

Keywords: Islamic bank financing, macroeconomic variables, Granger-causality, ARDL, Malaysia

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Introduction: The Issue Motivating the Study

Islamic banking and finance has been in practice in Malaysia for almost 30 years. The first Islamic Malaysia established in Malaysia was Bank Islam Malaysia Berhad (BIMB) which commenced their business operations on 1 July 1983. Islamic banking in general term, is banking activity that operates based on the Sharia (Islamic) principles. From this point onwards, Islamic banking and financing has developed and moved beyond the confinement of Muslim only market into a more open and global provider of financing facilities. Non-Muslim are also aware of the benefits and financing options available from various financial instruments offered by Islamic banking and financing. As of today, according to Bank Negara Malaysia, the central bank of Malaysia, there are 16 licensed Islamic banks that offered vast options of Islamic financing contracts.

The role of Islamic banks is very much similar to their conventional banking counterpart except that Islamic banks operate within the scope of Sharia principles. Islamic banks rely on the sources of funds which can be obtained from their own capital and equity i.e. the retained earnings resulting from business activities. However, most of the time, the main source of fund is coming from the transaction deposits such as from the savings/current account *(Wahdiah)* and/or from the investment account such as under *Mudarabah* account.

Like most banks, in order to generate revenue, Islamic banks utilized those funds from depositors by granting financing facilities based on the Islamic principles stipulated by Sharia. In brief, Islamic financing can loosely be clustered as follows: i. under sale-based such as *Murabahah* and *Bai Bithaman Ajil ("BBA")*; ii. Under profit-sharing such as *Musyarakah* and *Mudharabah*; iii. lease-based such as *al-ijara thumma al-bay'* and *al-ijara al-muntahiyah bi al-tamlik*; iv. benevolent-loan such as *Qard Hassan*; v. fee based such as *Wakalah* and *Kafalah* vi. Supporting principle such as *Hawalah, Rahn* and *Wadiah*.

Our studies show there is a significant causal relationship of interest rate on Islamic financing, medium result for stock price and very low result from real production to Islamic financing. This shows that Islamic financing in Malaysia is robust enough to thrive during the good/bad economic condition with regard to the stock price or real industrial productivity. As such, by controlling the interest rate, the policy makers can provide the stability in terms of Islamic banking financing in the market.

Since the main objective of Islamic banks is to maximize their stakeholders' profit, more studies should be made by the management or by the interested parties such as the policy makers on the dynamism of the macroeconomic variables and Islamic bank financing. From the literature reviews and theoretical underpinnings, the macroeconomic variables selected for this study are Islamic Banking financing (FIN), Kuala Lumpur Composite Index (CI), Industrial Production Index (IPI) (as proxy for GDP) and 3-month Treasury Bill (INT).

The objective of this study is to examine the effect of certain macroeconomic variables on Islamic banking financing in Malaysia. We have performed ARDL approach directed towards the relationship between the Islamic banking financing and various determining factors as above. The results show there is a significant causal relationship of interest rate on Islamic financing, medium result for stock price and very low result from real production to Islamic financing. This shows that Islamic financing in Malaysia is robust enough to thrive during the good/bad economic condition with regard to the stock price or real industrial productivity. However, Islamic banks are not free from the fluctuations in interest rate of the country. As such, by controlling the interest rate, the policy makers can provide the stability in terms of Islamic banking financing in the market. However, the theoretical controversy relating the causal relationship between the Islamic bank financing and interest rate remains unsolved.

In general terms, Gross Domestic Product (GDP) measures a country's total economic activity on which it represents the real economic situation of the country for all goods and

services produced over a specified period of time. Most empirical studies on bank lending to conventional banks show that commercial bank loans to the private sector has a direct effect on real income (Shanti, 2003). In terms of the role of financial sector, Okuda (1990) mentioned that financial sector has a role in the growth of an economy which is the mobilization of domestic savings and efficient allocation of capital.

According to De Gregario and Guidotti (1995), the contribution of commercial banks in relation to economic growth is derived from the value of loans granted by commercial banks to the private sector divided by GDP. In this regard, it agrees that GDP can be a significant determinant in relation to the Islamic bank financing.

However, there is still no general consensus on the direction of the long term relationship between the Islamic banking financing and real economic growth and to what extent the Islamic bank financing contributes to the economic growth and this issue still remains unsolved.

Composite index is defined as a group of indexes combined in a structured activities which provide useful and meaningful statistical data of overall market over certain time period. As such Kuala Lumpur Composite Index (KLCI) represents the current economy position in Malaysia and is used for future growth estimation by its people. If people have positive expectation towards Malaysian economy, they will invest in stocks hoping that they will gain higher return in terms of dividend and capital gains as a result of positive economic growth in the country. Thus, KLCI is considered as one of the determinants in Islamic bank financing due to its relationship with economic growth.

3-month Treasury bills (T-bills) is a short term financial instrument and considered to be very liquid. T-bills are used as a determinant in structuring the financing rate of the banking sector. It is believed that the financing rate will increase with the increase in treasury bills rate and vice versa which will affect the total Islamic bank financing amount. Hence T-bill rates should be considered in predicting the lending rate of banks.

This paper focuses more on the Islamic banking financing and the macroeconomic variables using ARDL approach which is very much different from the available studies as we found from the literature review. The main focus here is to determine which among the variables appears to be significant and important.

This paper is organized as followed; Section 2 the theoretical underpinnings, Section 3 reviews the important literature. Section 4 specifies the empirical model and discusses econometric methodology and regression results. Section 5 provides the conclusions.

Theoretical Underpinnings

In order to discuss further on the studies over the causal relationship between Islamic banking financing, we should have the clear understanding of the theoretical background of the issue.

As mentioned earlier, in order to generate revenue, Islamic bank must provide financing to their customer by using the depositors' money or from their own capital or equities. By using the credit multiplier concept, the creation of money of a nation's money supply is a result from the ability of bank to lend. The size of the expansion of money supply created depends on the reserve ratio that the banks obliged to adhere to.

From banks' perspective, according to (Wenner, 2015), during the past century, three different theories of banking were dominant at different times: (1) the currently prevalent financial intermediation theory of banking (2) The older fractional reserve theory of banking (3) The credit creation theory of banking.

(Wenner, 2015) continues that according to the financial intermediation theory of banking, banks act merely as intermediaries like other non-bank financial institutions, collecting deposits and then lent them out. It is quite common

during the past century that banks acted just as the intermediaries on which they just received the money and later on gave them out to other people by granting loan.

Fractional reserve theory of banking (Wenner, 2015), on the other hand, stated that individual banks are mere financial intermediaries that cannot create money, but jointly they will creating money through systemic transactions among themselves.

(Dewatripont, Rochet, & Tirole, 2010) mentioned that banks create liquidity by borrowing short and lending long. In simpler terms, banks borrow from their depositors with shorter maturity terms and later on lend to customers with longer term period. This practice is currently adopted by most of the banks including the Islamic bank. However, care must be taken in order to reduce the liquidity problems especially during the crunch period on which depositors are prepared to withdraw their savings.

Based on the above theoretical viewpoints, we try to provide theoretical answers to our research question by performing our own empirical analysis and determine its findings. Both theoretical and empirical analysis are vital since real-world practice may differ from the theoretical relations subject to other factors i.e. time horizon and economic conditions of Malaysia.

Literature Review

As mentioned earlier, Islamic banks generate revenue by providing financing to the customers and the source of funds would be from the depositors fund or from its own capital or equities. Thus, it is very important to clearly understand the factors in determining the Islamic banks financing in Malaysia and to observe the effect of selected macroeconomic variables on Islamic

bank financing either they are significant or insignificant. There is abundance of literature related to bank lending and very much limited on the Islamic bank financing. However, based on the literature review, we can broadly categorized them on the bank lending or financing behavior, the determinants of financing and the effect of fiscal and monetary policies on financing.

In general terms, Gross Domestic Product (GDP) measure a country's total economic activity on which it represent the real economic situation of the country for all goods and services produced over a specified period of time. Most empirical studies on bank lending are on conventional banks shows that commercial bank loans to the private sector has a direct effect on real income (Shanti, 2003).

According to (Sajid, 2002) in the short run, real GDP turns out to have an impact which is statistically significant on the claims on private sector, but in the long run, the claims on private sector turn out to affect real GDP at the 1% significance level. (Furqani,2009) explain the causal relationship between finance and growth with three possibilities outcome namely, (1) financial development is a determinant of economic growth - "supply-leading";(2) financial development follows economic growth - "demand-following"; and (3) bidirectional causality between finance and growth. (Lavine, 1997) put it clearly that financial sector development can play a leading role in economic growth i.e. supply leading or just resort to a more passive role (derived demand) in response to expanding economics needs.

In addition, (Furqani, 2009) summarized that in the long-run, a bidirectional relationship between Islamic bank and fixed investment do exist and there is proof of "demand following" hypothesis of GDP and Islamic bank, where increase in GDP causes Islamic banking to develop and not vice versa.

From local perspective, (Raditya,2010) stated that both Islamic banks' financing and deposit play important roles in the monetary transmission

process in the Malaysian economy. She further explains that both Islamic deposit and financing are shown to be statistically significant in associating the monetary policy indicator to the real output.

On the other hand, (Sheilla, 2014) concludes that there is no clear-cut evidence that shows the existence of causal relationship between financial development and economic growth. Sheilla states further that the notion that financial development automatically leads to economic growth is merely based on unambiguous evidence.

As from the literature review above, we conclude that, GDP is one of the macroeconomic variables determining the financial growth and from Islamic profitability perspective, GDP will encourage the Islamic financing in Islamic banks in Malaysia.

Composite index is defined as a group of indexes combined in a structured activities which provide useful and meaningful statistical data of overall market over certain time period. As such Kuala Lumpur Composite Index (KLCI) represents the current economy position in Malaysia and is used for future growth estimation by its people. Thus, KLCI is considered as one of the determinant in Islamic bank financing due to its relationship with economic growth.

(Sajid, 2011) reveals that the level of financial development has contributed to the growth of the domestic capital stock in Malaysia but its impact on economic growth is statistically insignificant. An increase in the stock of foreign investment in Malaysia has contributed to an increase in the stock of domestic capital and economic growth but the stock of foreign investment is affected significantly only by the level of openness of the economy and its real exchange rate. As we are more concern on the domestic capital market, then it safe for us to take this position that stock price do have significant impact to the financial growth.

According to (Muslumov, 2000) investors are more easily influenced to invest in common stocks, when there is confidence on their marketability in stock exchanges. With this regard, it encourages companies to go to public for more when they need more finance to invest in capital goods. He explain further by stating that stock prices determined in exchanges help investors make better investment decisions which lead to better allocation of resources and a higher rate of economic growth.

(Majid,2009) found that treasury bill rate together with other variables i.e. real effective exchange rate, money supply M3, and federal fund rate will be the appropriate objectives for the government to concentrate on, in order to stabilize the Islamic stock market and to boost more capital inflows into the market.

The Methodology Used

We adopt an ARDL framework to examine the interactions between Islamic bank financing and the macroeconomic variables i.e. interest rate (INT), Gross Domestic Product (IPI as proxy to GDP) and real stock prices in KLCI (CI). The reason ARDL model is picked over other cointegration approaches is due to we are using small sample size consisting of 48 observations only (taken from January 2010 to December 2014) and the level form of the data shows a result that have non-stationary and stationary for one of the variables.

The second step in the analysis is to whether there is cointegration between all variables by using F-statistic using the error correction model (ECM). A simple model is used to examine the variations in Islamic Financing Scheme (FIN) in Islamic Banks of Malaysia. There are number of factors which influence the Islamic banks financing scheme in Malaysia. The functional form of the model is as:

FIN = f (IPI, INT, CI)

Where

FIN = Total Islamic Financing Scheme of Islamic banks in Malaysia.

IPI = Gross Domestic Product , Proxy (Industrial production)

CI = Kuala Lumpur Composite Index.

INT = 3 month Treasury Bills

Data, Empirical Results and Discussions

The source of all these variables is Bank Negara Malaysia (BNM) monthly statistical bulletin. A total of 48 observations were obtained and the data used are monthly data starting period from January 2010 to December 2014.

For our lead-lag analysis, we are using the following macroeconomic variables; Islamic Financing Scheme (FIN), Growth Domestic Product (IPI), Kuala Lumpur Composite Index (CI) and 3 month Treasury Bills (INT). All the variables are transformed into logarithms to achieve stationarity in variance.

The empirical testing starts by determining the stationarity of the variables used. For the best result possible, we try to achieve the I(1) for our variables in level form i.e. non-stationary and in their first differenced form the variables are stationary. The identification is required in order to proceed with the cointegration in the later stage. The differenced form for each variable used is simply done by taking the difference of their log forms. For example, DFIN = LFIN – LFINPt-1.

We then conducted unit root test under the Augmented Dickey-Fuller (ADF), Philip-Perron (PP) and KPSS test.

The table below summarizes the results for the relevant unit root test:

Variable		ADF	Value	Test Statistic	Critical Value	Implication
Variables in Level Form						
LFIN	AIC	ADF(1)	193.1244	-2.1616	-3.4503	Variable is non-stationary
	SBC	ADF(1)	189.1464	-2.1616	-3.4503	Variable is non-stationary
LINT	AIC	ADF(5)	154.6951	-1.7119	-3.4689	Variable is non-stationary
	SBC	ADF(3)	148.1222	-1.5123	-3.4031	Variable is non-stationary
LIPI	AIC	ADF(3)	110.2316	-4.4933	-3.4031	Variable is stationary
	SBC	ADF(1)	105.8408	-4.9712	-3.4503	Variable is stationary
LCI	AIC	ADF(2)	123.1845	-3.299	-3.3841	Variable is non-stationary
	SBC	ADF(1)	118.8155	-2.8591	-3.4503	Variable is non-stationary
Variables in Differenced Form						
DFIN	AIC	ADF(1)	187.6275	-5.4057	-2.9689	Variable is stationary
	SBC	ADF(1)	184.6720	-5.4057	-2.9689	Variable is stationary
DINT	AIC	ADF(4)	152.0851	-4.4151	-2.9189	Variable is stationary
	SBC	ADF(2)	146.8090	-3.9415	-2.8687	Variable is stationary
DIPI	AIC	ADF(5)	105.2502	-6.2999	-3.0104	Variable is stationary
	SBC	ADF(5)	98.3541	-6.2999	-3.0104	Variable is stationary
DCI	AIC	ADF(1)	116.8614	-4.5738	-2.9689	Variable is stationary
	SBC	ADF(1)	113.9059	-4.5738	-2.9689	Variable is stationary

Variable	Test Statistic	Critical Value	Implication
Variables in Level Form			
LFIN	-0.81407	-2.9255	Variable is non-stationary
LINT	-5.8941	-2.9255	Variable is stationary
LIPI	-3.6211	-2.9255	Variable is stationary
LCI	-2.2971	-2.9255	Variable is non-stationary
Variables in Differenced Form			
DFIN	-9.2149	-2.9594	Variable is stationary
DINT	-9.6242	-2.9594	Variable is stationary
DIPI	-34.3639	-2.9594	Variable is stationary
DCI	-8.5993	-2.9594	Variable is stationary

KPSS	Variables in Level Form		
	Test statistic	C.V	Implications
LFIN	0.13629	0.16398	Variable is non-stationary
LINT	0.13218	0.16398	Variable is non-stationary
LIPI	0.15731	0.16398	Variable is non-stationary
LCI	0.12791	0.16398	Variable is non-stationary
KPSS	Variables in Differenced Form		
	Test statistic	C.V	Implications
DFIN	0.14364	0.16398	Variable is stationary
DINT	0.15882	0.16398	Variable is stationary
DIPI	0.14382	0.16398	Variable is stationary
DCI	0.119	0.16398	Variable is stationary

From the above test result, we observe that the unit root test provide inconsistent result. Due to this reason, we opt to use ARDL approach to test the long run relationship among variables in the cointegration step.

Prior to that, we try to identify the order of the Vector Auto Regression (VAR) i.e. the number of lags to be considered in the next remaining steps. As per the table below, results show that AIC and SBC recommend order of three lag.

Order	Choice Criteria			
	AIC	SBC	p-Value	C.V.
3	553.5468	502.3192	[.461]	5%

Testing Cointegration

The test of cointegration is performed in order to determine that the relationship among the variables is not spurious which means that there is a theoretical relationship among the variables and that they are in equilibrium in the long run.

Engle –Granger (E-G) Test

Engel Granger	
T-statistic	Critical Value
-3.6946	-4.3064

From the Engle-Granger (E-G) test above, we find that the critical value is higher than t-statistics. As such, the null that the residuals are non-stationary remains and cannot be rejected. This means that in some combination, from the selected variables, will result in non-stationary error terms which indicates that there is no cointegration. Since the result from this test is not really acceptable to us, we proceed to perform the Johansen cointegration test.

Table: F-statistics for Testing the Existence of Long-Run Relationship under ARDL

Variables	F-statistics	Critical Lower	Critical Upper
LFIN	0.49773	2.85	4.049
LINT	1.1507	2.85	4.049
LIPI	4.4974	2.85	4.049
LCI	5.4654	2.85	4.049

This step is taken in order to test the existence of long-run relationship among variables under ARDL. This test will determine whether the variables are moving together in the long run. From the table above, the resulting F-statistics is higher than the upper bound critical value 4.049 at the 5% significance level. This indicates that the null hypothesis of no cointegrating long-run relationship can be rejected.

These results shows there is a theoretical relationship exists between the macroeconomic variables and Islamic banks financing in Malaysia which remove out the possibility of any spurious relationship existing between the variables.

The next step is the Error Correction Model (ECM) for the ARDL model under the selection of Akaike information criterion (AIC). From the table below, the estimated long run coefficients of the long run relationship of the variables determined earlier demonstrate that Interest rate and IPI have significant effects on the total Islamic bank financing scheme in Malaysia.

Results of Error Correction Models

ecm1(-1)	Coefficient	Standard Error	P-value
dLFIN	-0.19104	0.015393	0.001
dLINT	-0.28619	0.34898	0.704
dLIPI	-0.064282	0.11706	0.022
dLCI	-0.41443	0.086585	0.053

Cointegration shows us that there is a long run relationship between the variables. Yet, cointegration does not show whether there is a deviation in the short run from the long-run equilibrium. Error correction model identifies whether the short run deviation form equilibrium has significant impact or not on the dependent variable. ECM will provide the information that whether the variables are exogenous or endogenous.

From the table above, we found that there is statistically significant value for the error-correction coefficient which confirms there is a theoretical relationship between the variables. The value coefficient i.e. high/low shows the intensity of the arbitrage activity to reach into long-run equilibrium.

The error correction coefficient estimated at -0.28619 (0.704) is highly significant and we identify that the Interest rate and Kuala Lumpur Composite Index have significant effects on the Islamic bank financing.

Variance Decompositions (VDC)

Variance Decomposition will determine the relative degree of endogeneity or exogeneity of the variables. Error correction model successfully indicate the endogeneity or exogeneity of a variable but it has the limitation to give the ranking of the endogenous or exogenous variables. By applying othogonalized VDCs, we will be able to determine the relative exogeneity or endogeneity of a variable that represent the proportion of the variance explained by its own past. Under orthogonalized VDCs, the variable that is described mostly by its own shocks is to be considered as the most exogenous.

	HORIZON	DFIN	DINT	DIPI	DCI
DFIN	12	87.96%	5.74%	0.44%	5.86%
DINT	12	4.76%	88.98%	4.21%	2.04%
DIPI	12	31.11%	2.90%	52.05%	13.95%
DCI	12	17.09%	3.50%	9.75%	69.66%

	HORIZON	DFIN	DINT	DIPI	DCI
DFIN	24	87.96%	5.74%	0.44%	5.86%
DINT	24	4.76%	88.98%	4.21%	2.04%
DIPI	24	31.11%	2.89%	52.03%	13.97%
DCI	24	17.09%	3.50%	9.75%	69.66%

	HORIZON	DFIN	DINT	DIPI	DCI
DFIN	36	87.96%	5.74%	0.44%	5.86%
DINT	36	4.76%	88.98%	4.21%	2.04%
DIPI	36	31.11%	2.89%	52.03%	13.97%
DCI	36	17.09%	3.50%	9.75%	69.66%

	HORIZON	DFIN	DINT	DIPI	DCI
DFIN	48	87.96%	5.74%	0.44%	5.86%
DINT	48	4.76%	88.98%	4.21%	2.04%
DIPI	48	31.11%	2.89%	52.03%	13.97%
DCI	48	17.09%	3.50%	9.75%	69.66%

At the end of the time horizon 48, the results shows that the Islamic banks financing variable is the most exogenous of all and also, it explains 5.74% of the variance of interest rate and 5.86% of the CI. However, the interest rate variable shows only 4.76% of the variance of total Islamic bank financing and it has 2.04% of CI. IPI explains 31.11% of the variance of Islamic bank financing and 15.97% of variance of CI. CI explains 17.09% of Islamic bank financing and 9.75% of IPI.

Orthogonalized VDCs has the limitation that it is solely depend on the exact order of the variables in VAR and it has the assumption that all variables in the system are going to be switched off when a particular variable is shocked. Due to this limitation, we apply the Generalized VDCs.

	HORIZON	DFIN	DINT	DIPI	DCI	RANKING
DFIN	12	62.84%	3.51%	22.29%	11.35%	3
DINT	12	4.35%	81.34%	7.78%	6.53%	1
DIPI	12	23.67%	2.35%	60.45%	13.53%	4
DCI	12	15.11%	3.07%	15.38%	66.44%	2

	HORIZON	DFIN	DINT	DIPI	DCI	RANKING
DFIN	24	62.84%	3.51%	22.29%	11.36%	3
DINT	24	4.35%	81.34%	7.78%	6.53%	1
DIPI	24	23.67%	2.35%	60.43%	13.55%	4
DCI	24	15.11%	3.07%	15.38%	66.44%	2

	HORIZON	DFIN	DINT	DIPI	DCI	RANKING
DFIN	36	62.84%	3.51%	22.29%	11.36%	3
DINT	36	4.35%	81.34%	7.78%	6.53%	1
DIPI	36	23.67%	2.35%	60.43%	13.55%	4
DCI	36	15.11%	3.07%	15.38%	66.44%	2

	HORIZON	DFIN	DINT	DIPI	DCI	RANKING
DFIN	48	62.84%	3.51%	22.29%	11.36%	3
DINT	48	4.35%	81.34%	7.78%	6.53%	1
DIPI	48	23.67%	2.35%	60.43%	13.55%	4
DCI	48	15.11%	3.07%	15.38%	66.44%	2

Generalized VDCs shows a result which is slightly different from the orthogonalized VDCs performed earlier. At the end of the forecast horizon 48 months, Islamic bank financing variables explains 62.84%, interest rate explains 81.34% IPI explains 60.43% and CI explains 66.44%.

Under Generalized VDCs, interest rate is the most exogenous variable. It means that total Islamic bank financing mostly affected by Interest rate and slightly from the CI. IPI is considered as endogenous relative to interest rate and Islamic bank financing. The most reasonable explanation that can come up from our mind is that, stock market does not bring so much weight in determining the Islamic bank financing maybe due to the assumptions that stock market does not represent the real economic perform of the market and it is open for manipulation. In addition to that, most Muslim are in more

concern with the actual performance of the companies and whether the stocks involve any *gharar* or speculation elements.

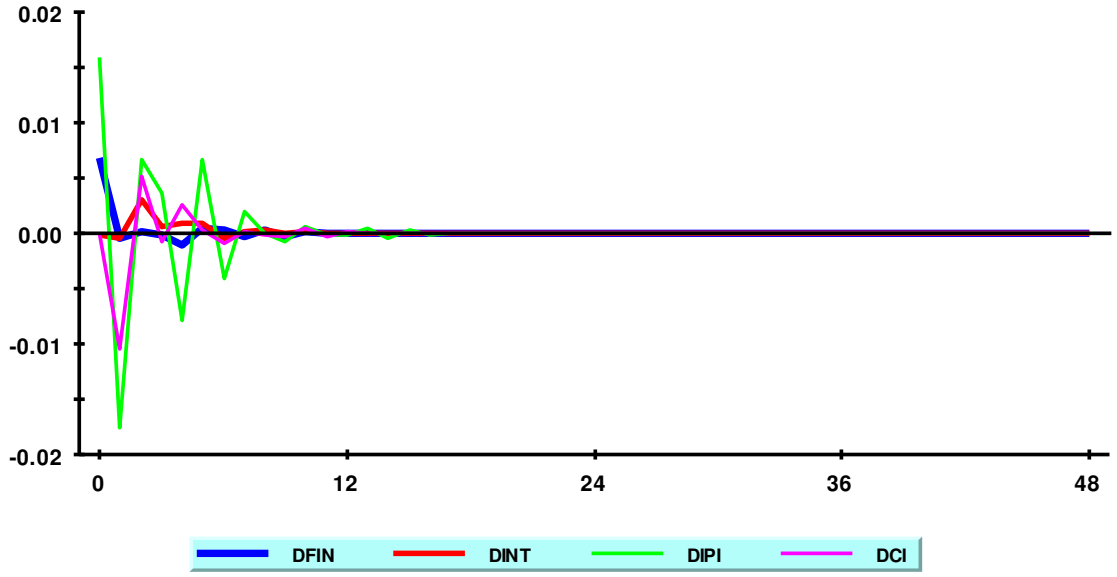
Our findings reveals that higher interest rate increases Islamic bank financing. Banks tend to refer to the interest rate in determining the amount of financing they are going to give. Theory postulates that higher interest rate leads to higher amount of financing and our findings are in the same direction.

Theory postulate that GDP should bring effect to the financial growth. In this regards, endogeneity criteria of GDP means that it will not bring much impact on the Islamic bank financing. Our result indicates that GDP does not have significant impact on Islamic banks financing. The possible justification is that GDP is a derived demand and financial growth is the one factor which can increase the GDP and not the other way round.

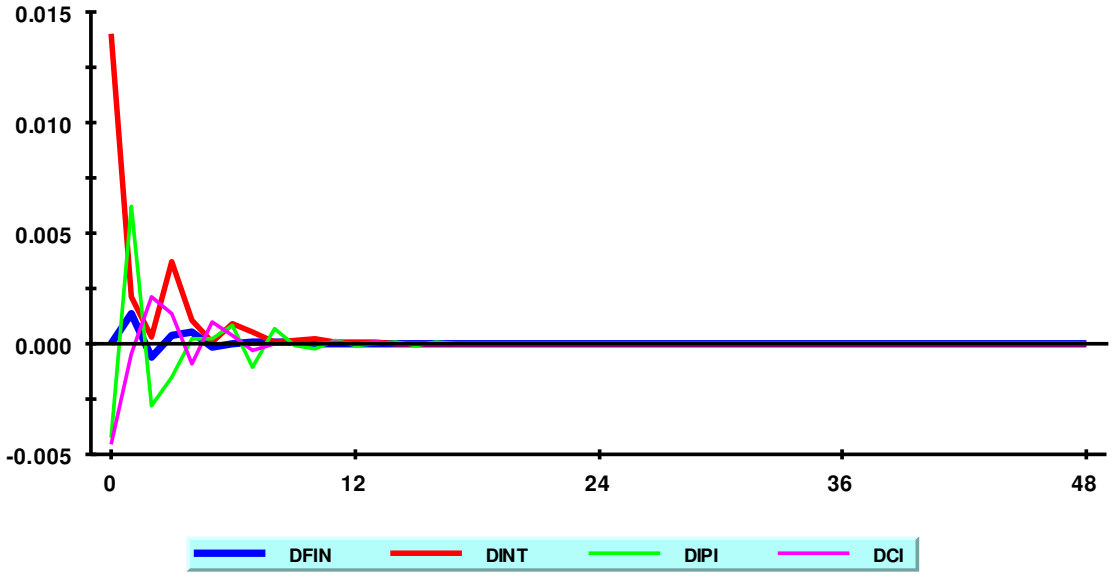
Impulse Response Analyses Result

The impulse response functions (IRFs) in general is the graphic version of VDCs and they provide similar information as the VDCs.

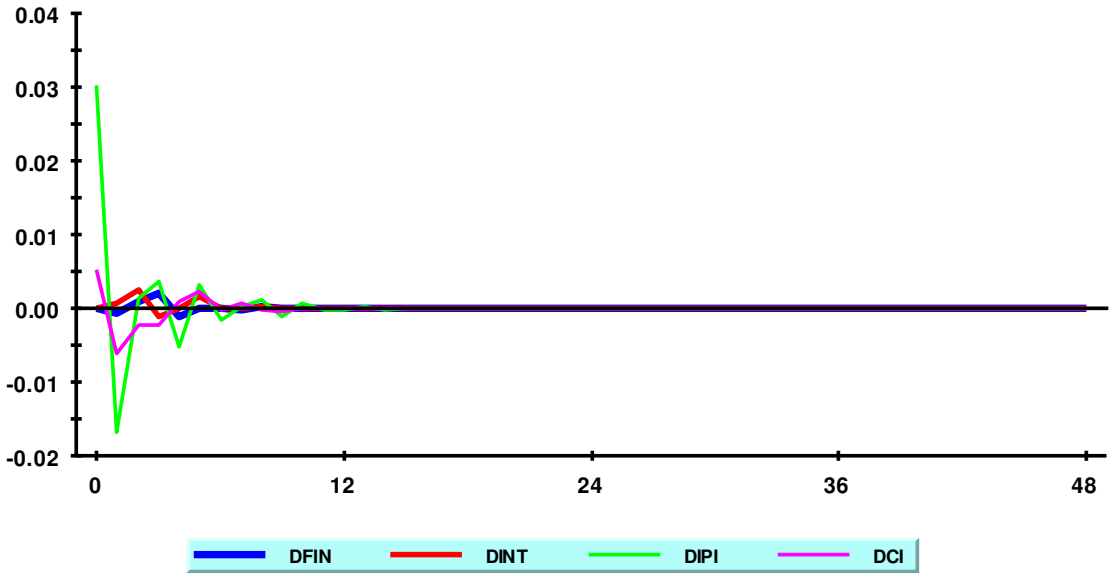
Orthogonalised Impulse Responses to one SE shock in the equation for DFIN



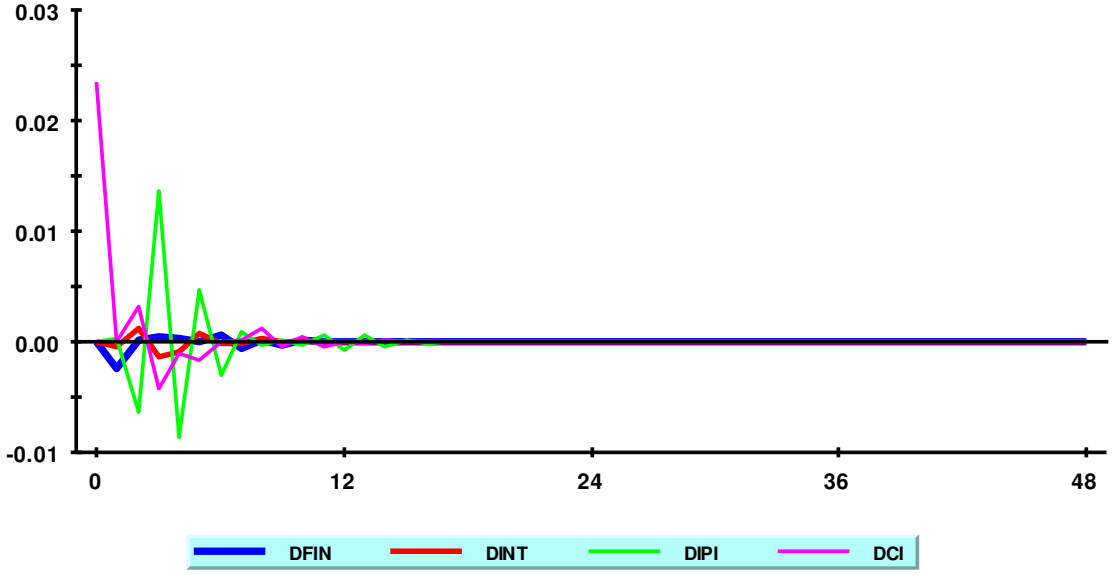
Orthogonalised Impulse Responses to one SE shock in the equation for DINT



Orthogonalised Impulse Responses to one SE shock in the equation for DIPI

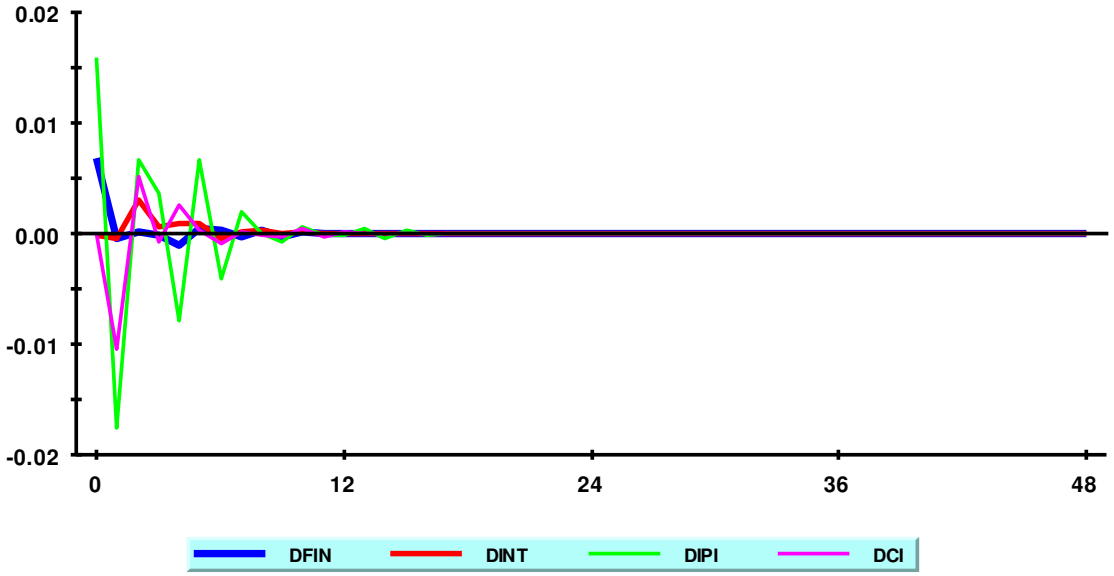


Orthogonalised Impulse Responses to one SE shock in the equation for DCI

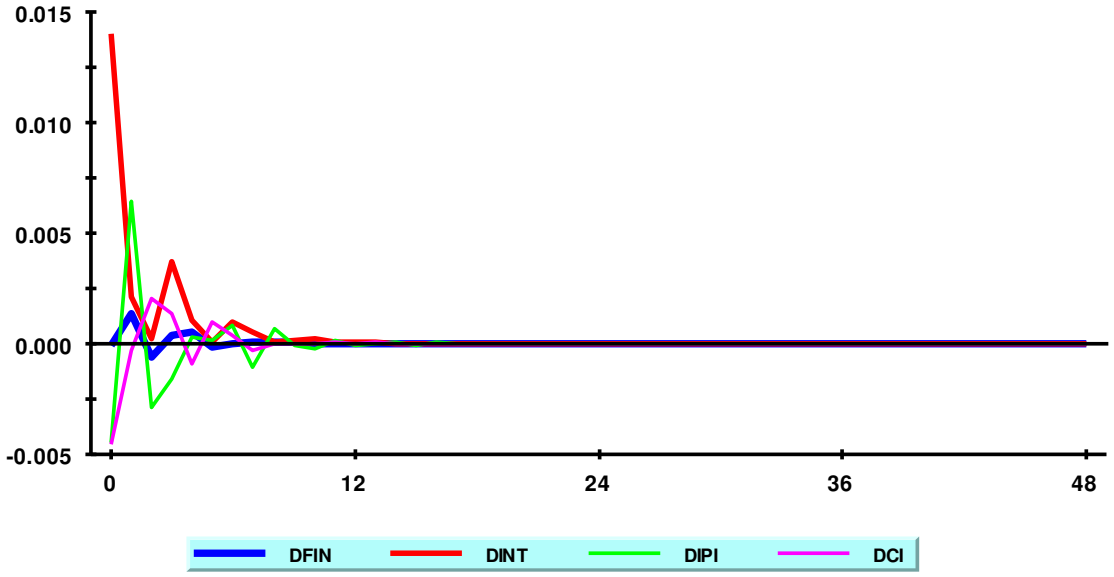


Generalized

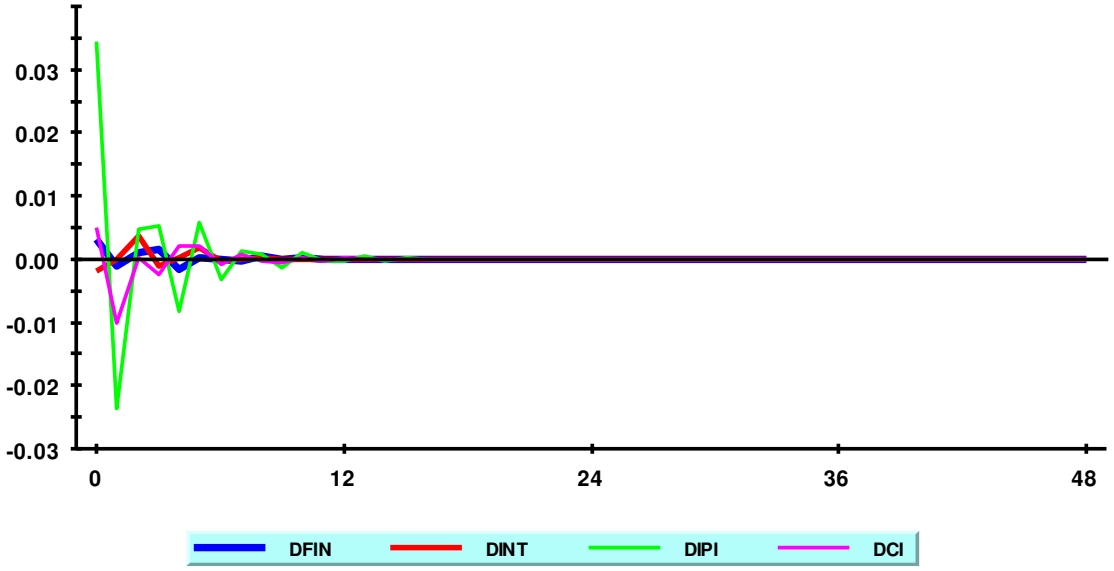
Generalised Impulse Responses to one SE shock in the equation for DFIN



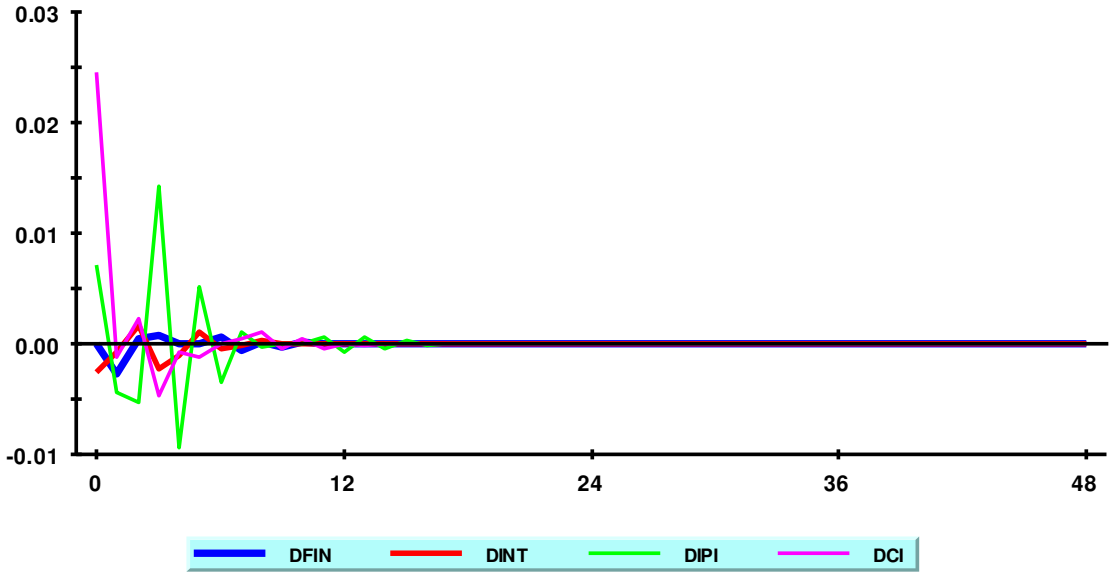
Generalised Impulse Responses to one SE shock in the equation for DINT



Generalised Impulse Responses to one SE shock in the equation for DIPI



Generalised Impulse Responses to one SE shock in the equation for DCI



Figures present the orthogonalised and generalised responses of dependent variables to shocks on their independent variables. GDP will responds immediately responds immediately to a shock in Islamic bank financing. As a matter of facts, GDP will reacts immediately after any shocks made to other variables. This is to conform to the endogeneity nature of the variable itself.

Islamic bank financing are very much unchanged to the shocks on the other variables. A possible justification for this is that, Islamic bank financing is a very well controlled and monitored by the authority and most of the macroeconomics variables are more lean towards the conventional banking interrelationship.

Concluding Remarks and Policy Implications

We are using time series techniques of cointegration, causality and ARDL framework to study the theoretical relationships in the long run between Islamic bank financing scheme and macroeconomic variables (i.e. Interest rate, GDP and Kuala Lumpur Composite Index).

Firstly, from the cointegration test, we found that there is a theoretical relationship between the variables and they are moving together into equilibrium in the long run. From the adjustment process, we note that interest rate or CI will create positive adjustment from GDP and Islamic bank financing.

The results tend to indicate that Islamic bank financing is not independent of interest rate but is mainly driven by interest rate followed by stock price. That is a very interesting finding since at least in theory, the Islamic bank financing should be free from the conventional interest rate Also, it is evidenced that the Islamic bank financing is led by the stock market. Finally, Islamic bank financing is not dependent on the real economic activity in terms of industrial production. These findings are plausible and have important policy implications for a developing country like Malaysia.

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