

Islamic Banking and Economic Growth: Empirical Evidence from Malaysia

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This paper examines the dynamic interactions between Islamic banking and economic growth of Malaysia by employing the Cointegration test and Vector Error Model (VECM) to see whether the financial system influences growth and growth transforms the operation of the financial system in the long-run. We use time series data of total Islamic bank financing (IBFinancing) and real GDP per capita (RGDP), fixed investment (GFCF), and trade activities (TRADE) to represent real economic sectors. We found that in the short-run only fixed investment that granger cause Islamic bank to develop for 1997:1-2005:4. Where as in the long-run, there is evidence of a bidirectional relationship between Islamic bank and fixed investment and there is evidence to support ‘demand following’ hypothesis of GDP and Islamic bank, where increase in GDP causes Islamic banking to develop and not vice versa.

1. Introduction

The link between *financial development*—broadly defined as an increase in the volume of financial services of banks and other financial intermediaries as well as financial transactions on capital markets—and *economic growth* has long been a major subject in the field of development economics. The financial sector plays a growth promoting role if it is able to direct financial resources towards the sectors that demand those most. When the financial sector is more developed, more financial resources can be allocated into productive use, and more

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physical capital being formed which can contribute positively to economic growth.

The Islamic financial system in Malaysia has evolved as a viable and competitive component on the overall financial system as a driver of economic growth and development. Malaysia has set 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, Central Bank of Malaysia (BNM) 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 regional financial centre for Islamic banking and finance. In the Financial Sector Master Plan, Central Bank of Malaysia has envisioned Islamic banking to constitute 20% of the banking market share in 2010 (BNM Annual Report, 2003).

In term of economic growth, Malaysia has a remarkable record of consistently high growth in the past three decades. The growth of GDP in real terms accelerated to 5.3 percent in 2005. As a country slightly shifted toward industrial country, industrial sectors and services contributed 80 percents to total of GDP of Malaysia. With total population 26.7 million, Malaysia maintains its Per capita GDP above US\$ 3,000 since 1995.

A well developed Islamic financial system and a tremendous economic growth at the same time pull our attention to examine whether or not the Islamic banking system that currently applied in Malaysia really contribute in the long-run to economic growth of Malaysia. To do this, we will look at the dynamic interactions between finance and growth by applying models where the financial system influences economic growth and economic growth transforms the operation of the financial system.

2. Islamic Banking in Malaysia

Malaysia established the first Islamic bank in July 1983 with the incorporation of Bank Islam Malaysia Berhad. After a decade, in March

1993, Malaysia introduced an Interest free banking scheme (SPTF). Under this scheme 17 conventional financial institutions (9 commercial banks, 6 finance companies, and 2 merchant banks) participated and offered Islamic-financing techniques by opening separate Islamic counters in their branches known as 'Islamic windows'. In the second decade, as at the end-December 2003, the Islamic banking system had 33 players, comprising 2 Islamic banks, and 31 conventional banking institutions participating in the Islamic Banking Scheme that consisted of 9 commercial banks, 4 foreign banks, 7 finance companies, 4 merchant banks and 7 discount houses (BNM Annual Report, 2003).

The rapid evolution of the domestic Islamic financial system has set the stage for its global integration. Now developmental efforts in Islamic finance have also been intensified to position Malaysia as an international Islamic financial hub that will have a greater role in facilitating international economic and financial flows. These efforts have been directed towards institutional development, enhancing the domestic financial infrastructure, strengthening the Shariah and legal infrastructure, and promoting greater international integration. In line with measures to promote foreign participation and the transfer of knowledge and expertise, foreign equity participation of up to 49% has been allowed in Islamic banking subsidiaries and new takaful companies in Malaysia. In 2005, Malaysia issues licenses for foreign Islamic bank to operate in Malaysia and transforms the 'Islamic windows' in conventional banks to 'Islamic subsidiaries' (BNM Annual Report, 2005).

In term of financial performance, the Islamic banking industry as a whole showed commendable results in 2005, with profitability and assets surpassing for the first time the RM 1 billion and RM 100 billion thresholds respectively. The total assets of the Islamic banking sector in 2005 increased significantly by RM16.8 billion or 17.7% to RM111.8 billion with more than half of the increase attributable to a 16.5% (RM9.5 billion) growth in total financing. As at the end-2005, total outstanding financing amounted to RM67.4 billion (2004: RM57.8 billion) or 60.2% of the total Islamic banking assets (BNM Annual Report, 2005: 166)

The good performance and rapid growth of Islamic financial industries in Malaysia, nevertheless, proved the feasibility of the system. The system has become an integral part of the country's financial system in both total assets and the number of players in the industry. However, some evaluations are important not only to verify the efficiency and effectiveness of the financial system and products but most importantly to examine its contribution to the economic development in general.

3. Finance and Growth Nexus: A Literature Review

The issue on finance and economic growth is actually dating far back into the 19th century at least where Joseph A. Shumpeter (1912) argued the importance of the banking system on the level and growth rate of national income in fostering economic development *via* the identification and funding of productive investment.

More recently, many studies have attempted to deepen this analysis empirically by exploring specific indicators to explain the causal relationship between finance and growth. Three apriori possibilities come to fore, (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.

The empirical test results, however, are mixed and the causality patterns appear to be diverse. Jung (1986), Demetriades and Luintel (1996), Ahmed and Ansari (1998), Rousseau and Wachtel (1998), Xu (2000), Arestis et al. (2001) and Fase and Abma (2003) argue that expansion of the financial system could have a positive repercussion on economic growth. The financial sectors in this case act as 'supply leading' to transfer resources from the traditional, low-growth sectors to the modern high-growth sectors and to promote and stimulate an entrepreneurial response in these modern sectors (Patrick, 1966:75).

Robinson (1952: 86), on the other hand, believes that economic growth leads to the development of financial sector, he called "where enterprise leads finance follows". In this regard, Masih and Masih's study (1996) supports demand following hypothesis where economic growth causes financial sectors to develop. On this view the more rapid the growth of

real national income, the greater will be the demand by enterprises for external funds (the saving of others) and therefore financial intermediation, since in most situations firms will be less able to finance expansion from internally generated depreciation allowance and retained profits. The financial system can thus support and sustain the leading sectors in the process of growth. In this case an expansion of the financial system is induced as a consequence of real economic growth or 'demand following'.

On the other hand, the studies by Odedokun (1992) and Luintel and Khan (1999) favor bidirectional causality between finance and growth. Both financial and economic developments are causally related where financial development causes economic to grow and economic growth triggers financial sector to develop further.

However, there are also economists such as Lucas (1988) who believe that finance is not important at all. Harris (1997) confirms this theory. He provides evidence that stock market can not explain growth in per capita output. Furthermore, recent studies by Galindo and Micco (2004) provide cross-country evidence that state owned banks do not promote the growth rates of manufacturing industries that rely on external sources of funding for their operation and/or that due to reduced access to collateral face tighter financial constraints.

On the Islamic financial system, the empirical studies so far have been done to examine the efficiency, superiority and stability of Islamic bank compared to conventional bank to achieve some intermediate monetary target for the ultimate target which is concentrated towards the achievement of sustaining real economic growth, reducing inflation and lowering unemployment. The results, however, are mixed. Darrat (1988) found that interest-free banking system is more superior to achieve the monetary target, meanwhile Yousefi et al (1997) and Yusuf and Wilson (2005) found no evidence of the superiority and stability of interest-free banking system compared to interest based banking system. Specific empirical studies on relationship Islamic finance and economic growth however is very rare.

4. Research Method and Data Sources

In this paper we use quarterly time series data (1997:1 – 2005:4) for the variables Islamic Bank total financing (IBFinancing) as a represent of ‘financial sector’ and three variables representing ‘real economic sector’ namely real GDP (*GDP*), real gross fixed capital formation (*GFCF*),^c and trade activities that involve export plus import (*TRADE*). The data are gathered from International Financial Statistics, IMF and Monthly Statistical Bulletin of Bank Negara Malaysia.

To provide empirical evidence of the long run integration between Islamic banking sector and economic growth and to see the dynamic causal link between Islamic finance and economic growth, we employ the vector error correction model (VECM) that can be written as follows:

$$\Delta GDP_t = \alpha_1 + \sum_{i=1}^k \beta_{1i} \Delta GDP_{t-1} + \sum_{i=1}^k \theta_{1i} \Delta IBFinancing_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (1)$$

$$\Delta BFinancing_t = \alpha_1 + \sum_{i=1}^k \beta_{1i} \Delta BFinancing_{t-1} + \sum_{i=1}^k \theta_{1i} \Delta GDP_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (2)$$

$$\Delta GFCF_t = \alpha_1 + \sum_{i=1}^k \beta_{1i} \Delta GFCF_{t-1} + \sum_{i=1}^k \theta_{1i} \Delta BFinancing_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (3)$$

$$\Delta BFinancing_t = \alpha_1 + \sum_{i=1}^k \beta_{1i} \Delta BFinancing_{t-1} + \sum_{i=1}^k \phi_{1i} \Delta GFCF_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (4)$$

$$\Delta TRADE_t = \alpha_1 + \sum_{i=1}^k \beta_{1i} \Delta TRADE_{t-1} + \sum_{i=1}^k \theta_{1i} \Delta IBFinancing_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (5)$$

$$\Delta IBFinancing_t = \alpha_1 + \sum_{i=1}^k \beta_{1i} \Delta IBFinancing_{t-1} + \sum_{i=1}^k \theta_{1i} \Delta TRADE_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (6)$$

Where Δ is the first-difference operator, while k_i ($i=1, 2$) represents the various lags on the regressors; and the term γ_{t-1} (error correction term) which must be stationary, is the first lagged value of the error terms from the cointegration regression, and ε_t is the disturbance term. All variables are expressed in logarithms and are not seasonally adjusted.

^c We use GFCF as a representation of investment as it is economic indicators of the level of business activity that measure net new investment by enterprises in the domestic economy in fixed capital assets during an accounting period.

The t-test is used to ascertain the significance of the variables in the short-run while the coefficient of the error correction term captures the short-run effects of the long-run dynamics. Since the variables are cointegrated, in the short run the deviations from this long-run equilibrium will feed back in the changes of the dependent variable forcing the movement of the variables towards the long run equilibrium. Thus, the coefficient of the lagged error-correction term is a short-run adjustment coefficient representing the proportion by which the long-run disequilibrium in the dependent variable is being corrected in each period.

This paper utilizes cointegration and granger causality test by using the error correction terms as a statistical procedure to test the causal relationship between Islamic banking and economic growth. The granger causality test has been developed to check whether or not the inclusion of past values of a variable X do or do not help in the prediction of present values of variable Y (Granger, 1969). However, to avoid spurious causality, the study will be pursuing three subsequent conditions; the *first* is to establish the non-stationary of the variables, as it is well known that the data generating process for most macroeconomics time-series are characterized by unit roots. To examine the unit roots of the time series variables, we employ Augmented Dickey-Fuller (ADF) tests suggested by Dickey and Fuller (1979) and Phillips-Perron tests proposed by Phillips and Perron (1988). The ADF and PP tests conducted with the inclusion of a constant and a trend of the form to determine the order of integration for each variable. However, failure to reject the null hypothesis of unit roots implies that the linear combination of the variables is non-stationary; hence we cannot pursue for the cointegration tests.

Having established the order of integration, the *second* step is to test for co-integration using the Johansen and Juselius cointegration tests. The presence of cointegration suggests that the variables; Islamic bank financing, economic growth, investment and trade possess a long-run relationship, even though they may drift a part in short-run, and consequently, there must be at least one direction of causation in the Granger sense, either unidirectional or bi-directional causality. Johansen and Juselius (1990) have developed two test statistics –the trace test and the maximal eigenvalue test- to determine the number of the

cointegrating vectors. Before applying JJ-cointegration tests, we need to determine the lag length k in VAR model. The JJ results are very sensitive to the lag length chosen; therefore k should be high enough to ensure the residuals are serially uncorrelated and normally distributed. But it should not be too high to avoid the unbiased and inefficient estimation. However, if there is no cointegration of the variables, it suggests that there is no evidence of a common trend in the movement of the two variables.

The *last* step is to run a standard Granger causality test augmented with an appropriate error-correction derived from the long-run cointegrating relationship. As the null-hypothesis of non-cointegration is rejected, then the variables are integrated of order 1, $I(1)$. Following Engle and Granger (1987), to see the dynamic causal link between Islamic finance and economic growth the error correction model (ECM) above have to be pursued.

5. Empirical Results

In this section we shall discuss the results of the unit root test, cointegration test, and Granger-causality test. The lags for the unit root test are set to 4 quarters as suggested by the Akaike Information Criteria, AIC. The lag length for the ADF tests was selected to ensure that the residuals are white noise. The ADF and PP Test show that all series are found to be non-stationary at levels and stationary at their first differences, that is all variables are integrated of the same order, i.e. $I(1)$, based on this result one can expect that these series may be co-integrated as well.

Table 1: Unit Root Test Result

Variables	ADF TEST		PHILLIP-PERRON TEST	
	Level	1st Difference	Level	1st Difference
GDP	-5.719617* (0.0003)	-3.965993** (0.0239)	-1.87943 (0.6437)	-12.43836* (0.0000)
GFCF	-7.082241* (0.0000)	-4.244314** (0.0128)	-1.926872 (0.6194)	-5.067209* (0.0013)
TRADE	-2.462753 (0.3434)	-5.17256* (0.0010)	-2.462753 (0.3434)	-5.383206* (0.0006)
IBFinancing	0.247995 (0.9973)	-4.736033* (0.0031)	-0.901038 (0.9446)	-2.842146*** (0.0631)

Notes: *, **, ***significant at 1%, 5%, 10% level respectively, figures in parentheses are the p-values

Table 2 provides the result of the Johansen-Juselius co-integration test. This test implies a long-run association between Islamic banking and economic growth that constitute GDP, fixed investment, and international trade activities of Malaysia. The Akaike Information Criteria (AIC) was used to select the optimum lag length of the level VAR system required in each case.

Table 2: Johansen's test for the number of cointegrating vectors (VAR, 4lags)

Null	Trace Statistics	Critical Values		Max- Eigenvalue	Critical Values	
		1%	5%		1%	5%
<u>GDP</u>						
Ho: $r = 0$	30.47074*	20.04	15.41	27.77216*	18.63	14.07
Ho: $r \leq 1$	2.698573	6.65	3.76	2.698573	6.65	3.76
<u>Cointegration Equation</u>						
GDP = 1.998918IBFinancing (-0.0144)						
<u>INVESTMENT</u>						
Ho: $r = 0$	56.19311*	20.04	15.41	40.98466*	18.63	14.07
Ho: $r \leq 1$	15.20846*	6.65	3.76	15.20846*	6.65	3.76
<u>Cointegration Equation</u>						
GFCF = 0.028355IBFinancing (-0.02149)						
<u>TRADE</u>						
Ho: $r = 0$	9.47657	20.04	15.41	7.596357	18.63	14.07
Ho: $r \leq 1$	1.880212	6.65	3.76	1.880212	6.65	3.76
<u>Cointegration Equation</u>						
TRADE = 0.342475IBFinancing (0.08085)						

Note: * significant at 1 % level, figures in parentheses are the standard errors.

The result shows that null hypotheses of non-cointegration are rejected at 1 percent level for GDP and Investment. This suggests that at least one cointegrating vector exists in each of the variables. The GDP and Investment cointegration equations suggest that in the long run Islamic bank financing contribute to increase in GDP and investment of Malaysia. Meanwhile for international trade activities, although the cointegration equation shows correct sign, it is not significant at any level. This suggests that Islamic bank financing does not contribute to Malaysia's trade activities in the long run. In general, we can conclude that Islamic bank financing influences the economic growth of Malaysia by increasing her GDP, fixed investment and not through international trade activities.

Since, there is no co-integration between Malaysia's international trade and Islamic bank financing in the long-run, we could not proceed away

trade for the error correction model. The absence of a co-movement in time series on trade and Islamic bank financing implies that searching for a long-run causal relationship between the two loses much of its meaning.

The Granger Causality tests for Islamic banking and economic growth is given in *Table 3*. The results provide the short-run and long-run causality of the variables. In the short-run, it is found that Islamic bank financing does not cause economic growth of Malaysia and vice versa. But, there is a uni-directional causality between Islamic bank financing and investment since it is significant at 1 percent level implied by F-statistics of Wald test. Thus, Islamic banking granger causes the development of real economic sector in Malaysia through increasing her fixed investment.

However, in the long-run, the results are very encouraging. The signs and significance levels of t-statistics of ECM for Islamic banking and investment suggests that in the long-run there is a 'virtuous circle' of Islamic banking development and investment, as increase in Islamic bank financing stimulates an entrepreneurial response in the productive sectors and promotes more investments, at the same time, more investment in the country facilitates Islamic banking to develop further.

In the case of GDP, this finding seems to support *demand following* hypothesis where financial development follows economic growth. Here, Islamic bank financing as dependent on the growth of GDP. 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. On the other hand, there is no clear evidence of a feed back causality running from Islamic bank financing to GDP growth in the long-run since t-statistics of ECM is not significant at any level.

Table 3: Granger Causality Test - Finance and Economic Growth

ECONOMIC GROWTH			
	GDP	IBFinancing	ECM
	Wald Statistics		t-statistics
GDP	8.04131* (0.0005)	1.585668 (0.2169)	-2.247738** (0.0360)
IBFinancing	1.462709 (0.2507)	2.780031*** (0.0550)	-0.049549 (0.9610)
INVESTMENT			
	GFCF ^a	IBFinancing ^a	ECM ^a
	Wald Statistics		t-statistics
GFCF	8.111326* (0.0005)	1.876229 (0.1541)	-4.805411* (0.0001)
IBFinancing	4.526144* (0.0091)	5.681089* (0.0032)	-3.648231* (0.0016)

Notes: *, ** significant at 1% and 5% level, figures in parentheses are the P-value

6. Conclusion

This paper is an initial empirical study on the relationship between Islamic banking and economic growth in the long-run. For that reason, we use co-integration technique and Vector Error Correction Model (VECM).

The results generally show that in the long-run, Islamic bank financing is positively and significantly correlated with economic growth and capital accumulation of Malaysia. In this regard, Islamic banking has effectively played its main role as financial intermediaries that facilitate the transmission of savings from surplus households to deficit households. Thus, we can say that the current policies by Bank Negara Malaysia to develop a comprehensive Islamic financial system in Malaysia is considered as effective since financial development and

economic growth are strongly linked. Furthermore, this finding also shows the reliability and contribution of Islamic banking to the real economic sectors of Malaysia specifically economic growth and investment. This result also indicates that improvement of the Islamic financial infrastructure in Malaysia may benefit economic development and it is important in the long run for economic welfare.

In the case of trade, the result suggests that in the long-run there is no co-integration of Islamic bank financing and international trade activities. This, we suspect, might be due to the share of Islamic bank financing to international trade activities is relatively small and not significant to boost international trade. However, with the current commitment to develop a comprehensive Islamic financial system and to be more liberalized and integrated with the international financial system, this problem could be overcome in the future. In addition, Malaysia is issuing licenses to four foreign Islamic banks and actively attracting foreign Islamic bank to set up their operations in Malaysia. This policy could enlarge the share of total financing of Islamic bank and could positively boost international trade activities in the long run.

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