

# Does Islamic Banking Matter for Economic Growth in Bangladesh?

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## Abstract

*Islamic banking started three decades ago in Bangladesh and was expected to have a significant relationship and contribution towards the economic growth of the country. This study aims to investigate the long run and dynamic relationship between Islamic banking development and economic growth in the case of Bangladesh. The quarterly time-series data of economic growth, total financing and total deposit of Islamic banking from Q1:2004 to Q2:2011 are used in this study. Using cointegration and Granger's causality method, Islamic bank financing is found to have a positive and significant relationship with economic growth both in the long and short run. It implies that the development of Islamic banking is one of the policies, which should be considered by the government to improve their income.*

**Keywords:** Islamic banking, economic growth, cointegration, Granger causality, Bangladesh

## 1. Introduction

Islamic banking in Bangladesh is started in 1983 when the first Islamic bank in South Asia, Islami Bank Bangladesh Limited (IBBL), was established. IBBL is a public limited company with limited liability under the companies Act, 1913; it is a joint venture multinational bank with sixty-four percent of equity being contributed by the foreign sources.

To date, the development of Islamic banking industry in Bangladesh is quite promising. For the case of IBBL, total deposit is increasing from Tk. 70,552.65 million in 2003 to Tk. 244,292.14 million in 2009 due to the increase in the number of deposit account holders from 1,994,266 in 2003 to 4,361,896 in 2008 but slightly decrease to 4,272,123 in 2009. Total income is also increasing from Tk. 6,710.44 million in 2003 to Tk. 25,403.86 million in 2009 and total investment goes up from Tk. 62,755.90 million in 2003 to Tk. 255,272.41 million in 2009 and the number of

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the shareholders rise to 52,164 in 2009 from 14,196 in 2003. Moreover, numbers of employees increase from 4673 in 2003 to 9,588 in 2009 and the number of branches also increase from 141 in 2003 to 231 in 2009 (Table 1).

Table 1. Selected development indicators of IBBL

	Year	2003	2004	2007	2008	2009
1.	Total Deposits (mill. Taka)	70,552.65	88,452.18	166,812.78	200,725.00	244,292.14
2.	Total Investments (mill. Taka)	62,755.90	83,893.63	174,365.55	198,763.00	255,272.41
3.	Total Income (mill. Taka)	6,710.44	8,262.73	17,699.51	23,454.00	25,403.86
4.	No. of deposit account holder	1,994,266	2,291,269	3,802,709	4,361,896	4,272,123
5.	Number of Shareholders	14,196	15,892	26,488	33,686	52,164
6.	Number of Employees	4,673	5,306	8,426	9,397	9,588
7.	Number of Branches	141	151	186	196	231

Source: Various issues of IBBL Annual Report.

Meanwhile, the performance of Al-Arafah Islami Bank Limited (ALBI), second largest Islamic bank in Bangladesh, is also impressive. Total deposits increase from Tk. 10,108.28 million in 2004 to Tk. 29,690.12 million in 2008 whilst total income increases more than three times from Tk. 1,120.85 million in 2004 to Tk. 4,387.26 million in 2008. Furthermore, total investment increase from Tk. 8,150.16 million in 2004 to Tk. 29,723.79 million in 2008 and numbers of shareholders become double from 5,379 in 2004 to 10,664 in 2008. The numbers of employees also increase as the branches grow more (Table 2). Overall, Ahmed, et.al (2006) and Khan et.al (2007) say that Bangladesh Islamic banks have better performance in various financial measures than the conventional banks.

Table 2. Selected development indicators of ALBI

	Year	2004	2005	2007	2008
1.	Total Deposits (mill. Taka)	10,108.28	11,643.66	23,009.13	29,690.12
2.	Total Investments (mill. Taka)	8,150.16	11,474.41	22,906.37	29,723.79
3.	Total Income (mill. Taka)	1,120.85	1,452.68	2,955.61	4,387.26
4.	No. of deposit account holder	-	-	-	-
5.	Number of Shareholders	5,379	5,402	12,013	10,664
6.	Number of Employees	803	771	1,033	1,080
7.	Number of Branches	40	41	46	50

Source: Various issues of ALBI Annual Report.

However, it is well-known that the objectives of the establishment of Islamic banks are not merely company's profit-oriented goals but also to create welfare in the society and eventually to improve the economic growth of the country. Islamic banks should not replicate the practice and goals of conventional banks, so they can play a more significant role than conventional banks in improving the economic performance of the country.

Unfortunately, after three decades of the establishment of Islamic banking in Bangladesh, researches conducted within the framework of Islamic banking in Bangladesh are lacking this issue and focused more on the development, performance, and efficiency of Islamic banks. Therefore, this study aims to empirically investigate the long run and dynamic relationship between the development of Islamic banking in Bangladesh and their economic growth.

## 2. Finance – Growth Nexus

The nexus between financial development and economic growth has received great attention from economists in the literature of development economics. From the many research works carried out in this field, there are at least three types of nexus between

financial development and economic growth that have been found i.e. supply-leading, demand-following, and bi-directional causal relationships.

Supply-leading relationship is “the creation of financial institutions and instruments in advance of demand for them in an effort to stimulate economic growth. This strategy seeks to make allocation of capital more efficient and to provide incentives for growth through the financial system” [Patrick, 1966: 175]. King and Levine (1993) for instance, study this issue using data from 80 countries over the 1960-1989 periods. They have constructed four indicators of the level of financial sector developments, which is regressed with the real GDP per capita and its sources. First is “financial depth” which equals the ratio of liquid liabilities of the financial system to GDP. Second is the ratio of deposit money bank domestic assets to deposit money bank deposit assets plus central bank domestic assets to measure the relative importance of specific financial institutions. The third and fourth financial development indicators are designed to measure domestic asset distribution. The proportion of credit allocated to private enterprises by the financial system and the ratio of claims on the non-financial private sector to GDP are the third and fourth indicators respectively. Their conclusion is consistent with Schumpeter’s view of supply-leading theory that the financial development promotes economic growth. This conclusion is also supported by the works of many researches such as Gregorio and Guidotti (1995) and Calderón and Liu (2002).

Demand-following relationship, on the other hand, appears as a consequence of the development of the real sector. This implies a continuous widening of markets and a growing product differentiation which makes necessary more efficient risk diversifications as well as better control of transaction cost [Hermes and Lensink, 1996: 17]. Finally, bi-directional causal relationship shows interdependency between financial development and economic growth. Demetriades and Hussein (1996), for instance, study 16 countries from all around the world which has the following criteria; the country (i) must not be highly developed in 1960, (ii) has at least 27 continuous annual observations on the variables of interest and (iii) its population must exceed 1 million in 1990. In spite of the rather technical nature of their criteria, the data set contains countries with rich experiences in relation to both economic and financial development. All of these countries, however, displayed some evidence of reverse causation so that the relationship between financial development and growth appears to be bi-directional. Again, Deidda and Fattouh (2002) and Rioja and Valev (2002) posit that there is no significant relationship between financial depth and economic growth in countries with low income per capita. The significant relationship only appears in the high income countries.

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

### 3. Data and Methodology

#### 3.1. Data

The quarterly time series data from Q1:2004 to Q2:2011 of the total deposits (TD) and financing (TF) of Islamic banking and economic growth (GDP) are used in this study. The choice of the period is determined by the availability of data. The data are collected from the world development indicators (WDI) of the World Bank, the handbook of statistics on Bangladesh economy and Bangladesh Bank, and the International financial statistics (IFS) of International Monetary Funds (IMF).

To study the relationship between the development of Islamic banking and the economic growth of Bangladesh, the following models are derived:

$$\ln gdp_t = \alpha_0 + \alpha_1 \ln r_t + v_t \quad (1)$$

$$\ln i_t = \alpha_0 + \alpha_1 \ln gdp_t + v_t \quad (2)$$

$$\ln gdp_t = \alpha_0 + \alpha_1 \ln tndib_t + v_t \quad (3)$$

$$\ln tndib_t = \alpha_0 + \alpha_1 \ln gdp_t + v_t \quad (4)$$

Where:

$\ln gdp$  : natural logarithm of real gdp

$\ln fib$  : natural logarithm of Islamic banks' total financing

$\ln tndib$  : natural logarithm of Islamic banks' total deposits,

$\alpha$ 's : coefficients ,

$v$  : disturbance term.

### 3.2. Stationary Test

A unit root is tested with Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) test. Do the variables observed have a tendency to return to the long-term trend following a shock or the variables follow a random walk? If the variables follow a random walk after a temporary or permanent shock, the regression between variables is spurious. Hence, the OLS will not produce consistent parameter estimates.

All series should be stationary at the same level. ADF test is can be determined as in Equation (5).

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \alpha_i \sum_i^m \Delta Y_{t-1} + \varepsilon_t \quad (5)$$

The hypothesis tested:

H0:  $\delta = 0$  (contains a unit root, the data are not stationary)

H1:  $\delta < 0$  (does not contains a unit root, the data are stationary)

Meanwhile, PP test can be determined as in Equation (6).

$$\Delta Y_t = \eta_0 + \eta_1 t + \delta Y_{t-1} + v_t \quad (6)$$

The hypothesis tested:

H0:  $\delta = 0$  (contains a unit root, the data are not stationary)

H1:  $\delta < 0$  (does not contains a unit root, the data are stationary)

### 3.3. Cointegration Test

Cointegration means that even though the variables are not stationary individually, the linear combination between two or more variables may be stationary. To test cointegration, Johansen cointegration test is used.

Components in vector  $Y_t$  is said to be cointegrated at  $d, b$  degree, presented by  $CI(d, b)$  if:

- (i) All components of  $Y_t$  is  $I(d)$
- (ii) There is a non-zero vector  $\beta = (\beta_1, \beta_2, \dots, \beta_n)$  so that the linear combination of  $\beta Y_t = \beta_1 Y_{1t} + \beta_2 Y_{2t} + \dots + \beta_n Y_{nt}$  will be cointegrated at  $(d - b)$  degree where  $b > 0$ . Vector  $\beta$  is the cointegration vector. In the case of  $b = d = 1$ ,  $Y_t$  is  $I(1)$  and their linear combination is  $I(0)$ .

Johansen (1991) and Johansen and Juselius (1990) produce the maximum likelihood approach using the VAR model to estimate the cointegration relationship amongst components in vector  $k$  variable  $Y_t$ . Consider VAR model for  $y_t$ :

$$A(L)x_t = \varepsilon_t \quad (7)$$

The parameter can be presented in the form of Vector Autoregressive Error Correction Mechanism:

$$\Delta Y_t = \sum_{i=1}^{p-1} \Pi_i \Delta Y_{t-i} + \alpha \beta Y_{t-p} + \varepsilon_t \quad (8)$$

Where vector  $\beta = (-1, \beta_2, \dots, \beta_n)$  that contain  $r$  cointegration vectors, and speed of adjustment parameter is given as  $\alpha = (\alpha_1, \alpha_2, \dots, \alpha_n)$  when  $\text{rank } \beta = r < k$ ,  $k$  is the number of endogenous variables. If the number of cointegration relations is known, hypothesis testing on  $\alpha$  and  $\beta$  can be performed. Lag length specification for the model can be determined by VAR equation using the AIC and SC criteria.

## 4. Results and Discussion

### 4.1. Stationary Test

This study utilizes Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests to identify the variables' order of integration. Table 3 reports the result of those tests. It can be seen that based on ADF and PP unit root test, *lngdp*, *lnfib* and *lntdib* contain unit root. It is therefore can be concluded that all variables are stationary at I(1).

Table 3. Stationary Test

Variable	ADF		Phillip-Perron	
	Level	1 <sup>st</sup> Difference	Level	1 <sup>st</sup> Difference
<i>lngdp</i>	-0.752	-6.148***	-0.598	-6.156***
<i>lnfib</i>	-1.722	-4.238***	-1.307	-8.142***
<i>lntdib</i>	-0.193	-5.383***	-1.099	-5.414***

Note: \* Significant at 10% alpha; \*\* Significant at 5% alpha; \*\*\* Significant at 1% alpha.

### 4.2. Cointegration and Long Run Equation

Having concluded that each of the series is stationary at first differenced, we continue to examine whether there exist long run equilibrium between deposit and its determinants. Table 4 presents the result from the Johansen-Juselius cointegration test. We employ two criteria, which are commonly used i.e. AIC and SC in order to determine the vector autoregressive lag order, and the optimal lag length is 2 for both relationships tested.

For a small sample analysis, Reinsel and Ahn (1992) suggested an adjustment to the estimated trace statistics. The degree-of-freedom correction suggested by Reinsel and Ahn (1992) is to multiply the computed trace statistic by  $(T-pk)/T$ , where  $T$  is the sample size,  $p$  is the number of variables, and  $k$  is the lag length of the estimated VAR system. In the analysis that follows, we relied on the Reinsel and Ahn suggestion to check for the significance and the robustness of the cointegration tests.

Table 4. Cointegration Test

Equation	Hypothesized No of CE(s)	Trace Statistic	5% Critical Values	Reinsel-Ahn Adjustment
<i>lngdp - lntfib</i>	$r \leq 0$	23.795***	15.495	20.622***
	$r \leq 1$	3.518	3.842	3.329
<i>lngdp - lntdib</i>	$r \leq 0$	15.199	15.494	13.172
	$r \leq 1$	3.853**	3.841	3.339

Note: \* Significant at 10% alpha; \*\* Significant at 5% alpha; \*\*\* Significant at 1% alpha.

For *lngdp-lntfib* relationship, one cointegrating vector is shown by the fact that Reinsel-Ahn adjustment trace statistic value is 20.622 and it is greater than 5% critical value of 15.495. It means that economic growth and Islamic bank financing found to be cointegrated or there is a long run equilibrium governing the relationship among the variables. However, there is no evidence of cointegration between *lngdp* and *lntdib* after the Reinsel-Ahn adjustment towards its computed trace statistic.

$$ect = lngdp - 0.557895lntfib - 1.446171 \quad (9)$$

(-30.5826)

$$ect = lntfib - 1.792452lngdp + 2.592192 \quad (10)$$

(-30.5826)

In order to see the direction of the relationship between *lngdp* and *lntfib*, Granger causality and long run equation analysis are executed. Equation 9 and 10 above are depicting the long run equation between *lngdp* and *lntfib*. It is shown in the equation 9 that total financing of Islamic banking has a positive relationship with Bangladesh economic growth in the long run. Similarly, economic growth has also positive relationship with total financing of Islamic banking. This suggests that the development in Islamic banking and finance stimulates growth and, at the same time, the support received from the government in the expansion of the real sector can

significantly influence the development of Islamic banking in Bangladesh. These bi-directional relationships are also depicted by the Granger causality test below.

Table 5. VEC Granger Causality Test

Independent Variable	Dependent Variable	
	D( <i>lngdp</i> )	D( <i>lnfib</i> )
D( <i>lngdp</i> )	-	10.75136***
D( <i>lnfib</i> )	6.450388**	-

Note: Figures in the cell are chi-squared value of VEC Granger causality test.

\* Significant at 10% alpha; \*\* Significant at 5% alpha; \*\*\* Significant at 1% alpha.

This finding implies that developing Islamic banking and finance industry is one of the relevant policy options to promote economic growth in Bangladesh. In this context, continuously improving Islamic financial infrastructure and regulation in Bangladesh may provide sustainable economic growth in the long-run.

## 5. Conclusion

This paper is aimed at investigating the role Islamic banking upon economic growth, particularly in Bangladesh. Using cointegration methodology, the results show that Islamic bank financing has shared long run positive relationship with economic growth. The relationship is neither supply leading nor demand following. It appears to be bi-directional relationship between Islamic bank deepening and economic growth. It implies that the development of Islamic banking will also support the goal of the country in improving their income.

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