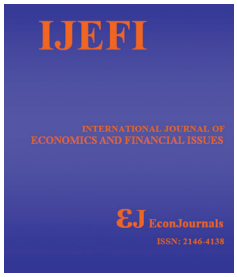

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The Impact of Economic Growth and Financial Crisis on Islamic Financial Development in Terms of Size in Iran

Hacine Gherbi Elhachemi[1]*, Mohammad Azmi Othman[2]

[1]Islamic Business School, College of Business, Universiti Utara Malaysia, Sintok, Malaysia, [2]Islamic Business School, College of Business, Universiti Utara Malaysia, Sintok, Malaysia. *Email: elhachemi2007@yahoo.fr

ABSTRACT

This paper use empirical analysis to examine short run and long Iran's Islamic banking and financial market development in terms of size-growth-crisis nexus and identify the Granger causality relationship among them over the period of 1990Q1-2010Q4 for Islamic banking sector and over the period of 1994Q1-2012Q4 for Islamic financial market sector. This study utilizes the autoregressive distributed lag models and, this study is helpful for the investors, bankers and policy makers for formulating the future policy. In addition, this paper is a first attempt to study the relationship between Islamic financial size development in both of banking sector and financial market and economic growth without ignoring the potential causal link between Islamic financial development and financial crisis (*FC*). The results shows that growth has a positive effect on Islamic financial size development, while *FC* has significant negative effect contrary to the theory in Islamic republic of Iran.

Keywords: Islamic, Banking, Market, Growth, Crisis, Size, Development, Causality, Nexus, Autoregressive Distributed Lag
JEL Classifications: G2, G20

1. INTRODUCTION

Kindleberger and Herrick (1965) and Hagen and Irwin (1986) carried out a comparison between the terms economic growth (*EG*) and economic development based on the structural change level involved. According to them, development calls for structural modifications or transformations that cover the economic, political and social aspects of the country. Other writers, on the other hand, deem development as structural modifications along with heightened results in terms of the above aspects, with the inclusion of *EG*.

More importantly, the financial sector is among the economic sectors that provide financial services to the rest of the sectors, and it is made up of the central bank, non-bank institutions, organized financial markets, and the regulatory and supervisory institutions governing and controlling them. In this context, the financial system can be described as the interrelation of supply and demand in light of provision of capital and financial services. On the basis of the contention of some economists, financial development is what drives growth whereas other economists claimed that it is the result and a signal of real economic development (Schmidt and Tyrell, 2003).

In this context, Islamic finance refers to a financial system with the main objective of achieving the instructions laid down in the Holy Quran, rather than achieving the greatest returns through the financial assets. According to the basic teachings of the Islamic common law, known commonly as Shariah, the exploitative contracts that include interest/usury or those that include risk/speculation (gharar) are not enforceable (Zaher and Hassan, 2001). Furthermore, the Holy Quran promotes and encourages investments resulting from fair profit with economic or social value (Siddiqi, 1999).

Additionally, the Islamic finance holds solid arguments towards its appropriate use as an alternative to the current international financial system, specifically in Islamic countries. In fact, several economists (e.g., Abduh and Chowdhury, 2012; Alam, 2010; Grais and Pellegrini, 2006; Khan, 2009; Khan and Bhatti, 2008; Warde,

2010; Ahmed, 2010; Alamer, 2015) agree that the Islamic financial system contributes to the economic health directly and that modern production of financial system leads to financial development and growth, and is better compared to the convention system owing to the fact that it is not overtly impacted by the financial crisis (*FC*).

According to Furqani and Mulyany (2009) and Farahani and Dastan (2013), only few analysis provide empirical investigation on the Islamic banking development and growth relationship. This few studies show inconsistence results and they overlooked the potential causal relationship between Islamic financial development and *FC*, and the one between Islamic financial development and *FC*. This could be deemed as a major gap in the literature dedicated to analyzing Islamic finance-growth causality relationship and policy planning, especially in emerging nations that are undergoing financial liberalization.

Accordingly, this paper is an attempt to fill the gap highlighted in literature by investigating the short and long-run relationships between Islamic banking development, *EG* and *FC*, and by observing the short and long-run causality hypothesis that is present between Islamic banking developments in terms of size and activity, and *EG*, and the potential causal relationship between Islamic financial development and *FC* in the case of an emerging economy.

To achieve the above aim, the following research questions are formulated; (1) Is Islamic banking and financial market development, in terms of size, significantly affected Iran's *EG* indicators in both short and long-run? (2) Is Islamic banking and financial market development, in terms of size, affected by the *FC* indictors in Iran? (3) Is Islamic banking and financial market development, in terms of size, affected by the international *FC* 2008 in Iran? (4) What is the Granger causality hypothesis that exists between Islamic banking and financial market development, in terms of size and *FC*, in both short and long run in Iran? (5) What is the Granger causality hypothesis that exists between Islamic banking and financial market development, in terms of size and *EG*, in both short and long-run in Iran?

In this study, Iran is selected as the Islamic country to gather data from owing to the availability and compatibility of available data to test the theoretical findings on. Also, Iran and Sudan are the only two countries whose Islamic banking system is wholly operated under Islamic Shariah and consequently, the banks transform into effective allocative institutions, with an average scale efficiency of approximately 89.1%, and average technical efficiency of approximately 95%. Additionally, the sample period of the banking sector in Iran is from 1991Q2 to 2010Q4, with the financial market sample period being 1994Q2-2012Q4.

2. LITERATURE REVIEW

Owing to the potential of finance to affect growth, and the potential for both variables to be in turn affected, (both are endogenous variables), the framework employment seems to be appropriate. Also, the relationship between financial development and *EG* has reported inconclusive findings based on time-series data that were adopted in the prior studies' framework (e.g. Bell and Rousseau, 2001; Rousseau, 2002; Thangavelu and Jiunn, 2004).

Furthermore, development economics literature has highlighted the financial development's role towards *EG* and the relationship between the two variables but empirical studies focused on the impact of conventional financial development (CFD) on *EG* show mixed results, with some studies reporting a significant positive CFD effect on *EG* (e.g. King and Levine, 1993a; Demirgüç Kunt and Vojislav, 1998; Rioja and Valev, 2003), Acaravci et al., 2007; Ozturk, 2008; Acaravci et al., 2009; Hermes and Lensink, 2013; Al-Malkawi et al., 2012; Samargandi et al., 2013).

A major portion of literature about the relationship between financial development and *EG* lack the agreement of the nature of the relationship between the two and its direction. In this regard, Patrick and Reimer (1966) proposed three different hypotheses namely supply-leading, demand-following and bi-directional causality, with the final view contending the lack of causality between the variables (Graff, 1999; Lucas, 1988). In this field, the different research works proposed four types of causality relationships between financial development and *EG* that goes against the premise that financial development leads to *EG* (short and long run). Specifically, the supply-leading view posits that financial development leads to *EG* as advocated by De Gregorio and Guidotti, 91995) and Calderón and Liu (2003), while the demand-following view posits that *EG* leads to financial development as advocated by Robinson (1952), Odhiambo (2010), and Ang and McKibbin (2007). The bi-directional causal relationship posits that financial development leads to *EG* while the latter leads to the former as advocated by Demetriades and Hussein (1996), and Abu-Bader and Abu-Qarn (2008). Lastly, the no causality view posits no causality relationship between financial development and *EG* as advocated by Deidda and Fattouh (2002), Rioja and Valev (2004), Graff (1999), Lucas (1988) and Stern (1989).

Added to the above, the possible negative association between finance and growth has been emphasized by empirical studies that examined the effect of financial development on *EG*. For example, De Gregorio and Guidotti (1995) revealed that in some Latin American nations, financial development adversely affects growth. On a similar line of study, Al-Malkawi et al. (2012) investigated the relationship between financial development and growth (in the long and short-run) in the UAE context and showed a negative association. In a contrasting note, Loayza and Ranciere (2006) revealed that financial intermediation and output growth do exist together in the short-run relationship with a negative direction.

Added to the above, Goaied and Sassi (2010) showed no significant relationship between banking and growth indicating that banks have no role in *EG*. They also found that banks significantly and negatively relate to growth. The same negative effect of financial development upon growth was highlighted by other studies (Adusei, 2013; Hermes and Lensink, 2013).

Some other prior studies like Al-Malkawi et al. (2012) empirically examined the relationship between financial development and

EG in the UAE context with the help of time series data dated 1974 until 2008, and with autoregressive distributed lag (ARDL) and co-integration methods. Their findings revealed a negative and statistically significant relationship between the two as measured by *M*2/gross domestic product (GDP) and growth in the economy.

In the context of Saudi Arabia, Samargandi et al. (2013) investigated the effect of financial development on *EG* via the ARDL and reported an insignificant negative impact on total GDP growth. Similarly, an empirical assessment was conducted by Goaied and Sassi (2010) on the financial development-growth association among the MENA countries. They showed a non-significant relationship between the two supporting the premise that banks do not boost growth in the economy and that some banking indicators significantly and negatively associated with such growth.

Aside from the above studies, a few articles were dedicated to examining the causal relationship between Islamic financial development and *EG* and they include those of Abduh and Chowdhury (2012), Abduh and Omar (2012), Farahani and Dastan (2013), Furqani and Mulyany (2009), Goaied and Sassi (2010), Majid and Kassim (2010), Rajaei-Baghsiyaei (2011), and Yusof and Bahlous (2013).

However, according to Farahani and Dastan (2013), the few studies that are dedicated to this view are not enough to reach a consensus as to the nature of the relationship between the two variables. As such, two different hypotheses are proposed in this paper and both are explained in detail in the following paragraphs in light of the four different views.

The first is the supply-leading notion that posits that financial development boosts *EG* as a productive input. Majid and Kassim (2010) supported this view theoretically and empirically. The second view is the demand-following notion that posits that a causal relationship exists that flows from *EG* to Islamic financial development. In other words, the increase in Islamic financial services requirements may urge the expansion of financial sector and increase in real economy (Calderón and Liu, 2003) and that Islamic financial development passively responds to the *EG* (Furqani and Mulyany, 2009).

In regards to this, Furqani and Mulyany's (2009) investigation of the dynamic relationship between Islamic banking and *EG* in Malaysia through the vector error correction model (ECM) and co-integration test, showed that fixed investment solely is the granger cause of Islamic banking in the short run for the first quarter of 1997 until the fourth quarter of 2005, while in the long-run, a bi-directional relationship was found. Additionally, their findings also showed demand-following hypothesis In light of Islamic banking and GDP, where the GDP causes Islamic banking development but the relationship is not vice versa. The variables covered include Islamic bank total financing (IB financing) proxy for financial sector, and real economic sector proxies namely GDP, real gross fixed capital formation (GFCF), and trade activities entailing export along with import (TRADE).

The third view posits a bi-directional causality from the two variables combination. Stated clearly, the first two hypotheses are combined and deemed valid making Islamic financial deepening and real *EG* causality. This view posits that *EG* is dependent on Islamic financial development and the latter is dependent on the former (Darrat, 1999). Other authors (e.g., Abduh and Omar, 2012; Abduh and Chowdhury, 2012; Farahani and Dastan, 2013) showed empirical support for this bi-directional view.

To begin with, Farahani and Dastan (2013) made use of empirical tools to examine the role of Islamic banks' financing on the economic performance of several countries in the Asian and the Arab region (i.e. Malaysia, Indonesia, Bahrain, UAE, Saudi Arabia, Egypt, Kuwait, Qatar and Yemen). Their data comprised of those from the first quarter of 2001 until the fourth quarter of 2010, and they made use of panel co-integration model framework and the full modify ordinary least square model. They found a positive and statistically significant relationship between the growth in the economy and the financing of Islamic banks in short and long-run the direction of relationship stronger in this order rather than the opposite order. They gathered cross-section and time series data for the purpose of examining the relationship formation between Islamic financing, GDP fixed capital formation.

In addition to the above study, Abduh and Omar (2012) examined the relationships (short and long run) between Islamic banking development and *EG* in the case of Indonesia. They employed a bound testing method of co-integration and ECMs developed based on the ARDL framework. Their findings showed a significant relationship in the short and long-run between Islamic financial development and *EG* but neither Schumpeter's supply leading nor Robinson's demand-following were followed, rather a bi-directional relationship arose. Islamic banks total financing was represented by quarterly time series data dated from the first quarterly of 2003 until the second quarter of 2010, while Islamic financial sector was represented by both GFCF and GDP.

Moreover, in their study of financing, *EG* and total deposit of Islamic banking for the Islamic banking and *EG* relation, Abduh and Chowdhury (2012) made use of the quarterly time-series data for the first quarter of 2004 until the second quarter of 2011, the co-integration and Granger's causality method in Bangladesh. Their result showed supported a bi-directional hypothesis and thus, the Islamic banking development supports the goal of the country to enhance income.

Along the same focus, Yusof and Bahlous (2013) assessed the contribution of Islamic finance to *EG* in nations that are early adopters of Islamic banking namely Malaysia, Indonesia and GCC countries. They employed the panel co-integration analysis, variance decompositions and impulse response tools on the annual data gathered from 2000 to 2009. They reported that Islamic banking does contribute to *EG* in the long and short runs and that this is more significant in the cases of Malaysia and Indonesia compared to the GCC countries. Their results

supported the notion that Islamic intermediation results in economic benefits and it heightens the entrepreneurial skills of management through the involvement of the lender in the decision making, and the partnership between the entrepreneur and the provider of funds. They also showed that Islamic intermediation lessens the agency costs and this produces a positive impact on the development of the economy and the nation as a whole.

The fourth view posits no causal relationship between Islamic financial development and *EG*. Of the authors who are advocates of this view, Goaied and Sassi (2010) contended that Islamic financial development has a negative impact on *EG* as economists over-stress on the financial role in the growth of the economy. This hypothesis posts that there is no relationship between Islamic finance and *EG* in that Islamic financial development does not result in growth, or vice versa.

Accordingly, Goaied and Sassi (2010) employed the generalized method of moments estimation system of dynamic panel model and unbalanced panel data to carry out an empirical assessment of the relationship between conventional and Islamic financial development and economic among MENA countries with data from 1993 to 2006. They entered variables including GDP per capita growth in annual percentage, initial income per capita in constant $2000, credit to private sector by Islamic banks in GDP percentage, credit to private sector by conventional banks in GDP percentage, inflation, consumer prices in annual percentage, import and export in GDP percentage, and general government final consumption expenditure in GDP percentage. The authors revealed that conventional banking indicators had a significant and negative relationship with growth at the significant level of 5%, whereas the Islamic banking sector had the same effect but at the significant level of 10%.

3. DATA AND METHODOLOGY

Owing to the scarce studies dedicated to Islamic financial development system, the researcher selected Iran as the study sample, as only Iran and Sudan have data on Islamic banking development in terms of size for the period under study. For this purpose, the Islamic banking and financial market development, in light of size, model was created for the empirical examination of the nature and direction of causality between the sample country's variables. This called for the acquisition of data from the world development indicators of the world bank and data market database. The ARDL was used based on the co-integration and Granger-causality tests to determine the causality direction between inflammatory bowel disease, *EG* and *FC* in some countries. Because of the short sample data size, the researcher decided to disaggregate data into quarterly sections via the method proposed by Gandolfo et al. (1981). In regards to this, the econometric models specification is provided as follows;

Subsequently, the ADRL frameworks are presented by the following ECMs:

$$\Delta(IBSD)_{t-1} = \theta_1 ECT_{t-1} + \sum_{i=1}^{p-1} \alpha_{11}\ \Delta(IBSD)_{t-1} + \sum_{i=0}^{p-1} \alpha_{12}\ \Delta(FC)_{t-1} + \sum_{i=0}^{p-1} \alpha_{13}\ \Delta(EG)_{t-1} + \alpha_{14}\Delta DUMCRISIS_t + \alpha_{15}\Delta SGDPGRD_t + \alpha_{16}\Delta SM2RVD_t + inpt + \mu_{1t} \quad (3.1)$$

$$\Delta(IMSD)_{t-1} = \theta_2 ECT_{t-1} + \sum_{i=1}^{p-1} \alpha_{21}\ \Delta(IMSD)_{t-1} + \sum_{i=0}^{p-1} \alpha_{22}\ \Delta(FC)_{t-1} + \sum_{i=0}^{p-1} \alpha_{23}\ \Delta(EG)_{t-1} + \alpha_{24}\Delta DUMCRISIS_t + \alpha_{25}\Delta SGDPGRD_t + \alpha_{26}\Delta SM2RVD_t + inpt + \mu_{2t} \quad (3.2)$$

In Equation 3.1, the *ECT* takes the form of:

$$ECT = \theta_{31} IBSD + \theta_{32} FC + \theta_{33} EG + \theta_{34} DUMCRISIS + \theta_{34} SGDPGRD + \theta_{35} SM2RVD_{36} + inpt \quad (3.3)$$

The variables and their proxies included in the study can be summarized as; deposit money bank assets (DMBA) to GDP (%) as proxy of Islamic banking size development (*IBSD*) (Abduh and Chowdhury, 2012; Goaied and Sassi, 2010), GDP growth (%) as the proxy of *EG* King and Levine (1993), market capitalization of listed companies (% of GDP) as proxy of Islamic stock market size development (Adjasi and Biekpe, 2006). Money and quasi money (*M*2) to total reserves ratio volatility (*M*2*RV*) as proxy of *FC* (Fukuda and Dahalan, 2012).

As for their values, the *SGDPGR*, representing the shock in *EG* dummy variable, takes on the value of one if the negative *EG* growth periods are found, or zero otherwise, *SM*2*RVD* representing the shock in money and quasi-money (*M*2) to total reserves ratio volatility takes on the value of one for positive growth periods of *FC*, or zero otherwise. Moreover, the *DUMCRISIS* representing the dummy variable for international *FC* spanning from July 2007-September 2009, takes on the value of one for the *FC*, or zero otherwise as proposed in the studies by Hidayat and Abduh (2012) and Kassim and Majid (2010).

Furthermore, the estimation of ARDL provides $(p + 1)^k$ number of regressions, with *P* representing the greatest number of lags to be utilized and k representing the number of variables in the ARDL equation. Due to the quarterly series data employed, the maximum lag is established at $P = 4$, and at the initial stage, the bounds test is conducted by computing f-statistics to confirm the presence of long-run co-integrating relationships between the underlying variables regardless of whether the variables are I(0) or I(1). In the next stage, the researcher set the optimal lag order foe very variable and the optimal lags are determined by

referring to the Akaike information criteria (AIC) or based on the Schwartz-Bayesian criteria (SBC).

In this study, the researcher also employed the Granger causality test results to identify the relationship between the variables in the short and long-run. The test determines the dynamic relationship between the time series variables and is extensively used in economics literature to identify relationships between two variables in light of their magnitude and directions. As with the name of the test, Granger (1988) was among the first researchers to integrate the concept of co-integration into causality, where the co-integrated variables and their causal relationships are examined within the ECM framework.

Therefore, this study employed the ARDL analysis in three phases as suggested by Kouakou (2011), where the first phrase involves determination of the integration order of all the variables with the help of a unit root test (stationarity) following which the co-integration relationship among the variables was examined via bounds test. The final phase involved the employment of the Granger causality test to examine the variables' causal relationships.

4. RESULTS AND EMPIRICAL FINDINGS

All the variables are found to be at the stationary at a level according to the stationarity test (Table 1). No variable obtained stationarity greater than the first difference and this indicates the green light to proceed with the bound co-integration test as laid down by the ARDL model.

It is evident from the Table 1 that no variable obtained stationarity greater than the first difference and thus, the bound test is ran where the results are displayed in Table 2. In this test, the *IBSD* is considered as the dependent variable. The Table 2 shows that the f-statistic is greater than the upper bound of 1% and then it appears conclusive at 1% where there is significant cointegration relationship among the model's variables.

The results of the long-run ARDL estimation are presented in Table 3, with the dependent variable as the DMBA to GDP (%) as the proxy for *IBSD*. The lag order selected is (3, 1, 0, 0, 0, 2) according to the SBC. Clearly, the long-run estimation shows that *EG* significantly and positively impacts *IBSD* and for every increase of 1% in the former, leads to a 1.69% in the latter, at the level of significance of 1%. Moreover, *FC* significantly and negatively impacts *IBSD*, in a way that for every 1% increase in the former, leads to a decrease of 0.19% in the latter at the significant level of 5%.

In Table 4, the short-run estimates are displayed in its lower panel and within this panel, it is clear that *EG* order insignificantly and negatively impacts *IBSD*. Also, the short-run estimates evidence that *FC* order has a significant and negative sign within the equation. It is also revealed that for every 1% increase in *FC*, the *IBSD* decreases by 0.009% at the significance level of 1%.

With regards to the *IBSD* performance during the 2008 *FC*, it was found to be insignificant and negative. It is evident that for the short-run estimation, *IBSD* is impacted by *FC* shocks, at the

Table 1: Unit root test

Variables	Levels		First differences	
	ADF	PP	ADF	PP
DMBA	−2.73**	−1.55	−0.65	−0.65
GDPGR	−4.53***	−2.66*	−3.41***	−4.78***
M2RV	−8.87***	−8.87***	−10.89***	−72.08***

The lag selection of the ADF is based on AIC with a maximum lag of 4, because the study is dealing with quarterly data. For the PP test is estimated based on Bartlett kernel with Newey-West bandwidth. The maximum lags are automatically selected by EViews in the case of PP test. Generally, the null hypothesis is that of no stationarity. *.**.***Imply stationarity at 10%, 5%, and 1% level of significance, respectively. ADF: Augmented Dickey-Fuller, PP: Phillips–Perron

Table 2: Bound test

Dependent variable	F-statistics	10%		5%		1%	
		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
IBSD	5.07***	2.12	3.23	2.45	3.61	3.15	4.43
EG	5.17***	2.12	3.23	2.45	3.61	3.15	4.43
FC	8.38***	2.12	3.23	2.45	3.61	3.15	4.43

***Imply 1% level of significance. The null hypothesis is no cointegration. Critical values are from Pesaran and Pesaran (2001), IBSD: Islamic banking size development, EG: Economic growth, FC: Financial crisis

Table 3: ARDL long run results

Dependent variable	Independent variables		
	EG	*FC*	C
IBSD	1.69***	−0.19**	3.09***

.*Imply 5%, and 1% level of significance respectively, IBSD: Islamic banking size development, EG: Economic growth, FC: Financial crisis

Table 4: ARDL short run results

Variables	Short run estimates
dIBSD1	0.65*** (0.000)
dIBSD2	0.45*** (0.000)
dEG	−0.07 (0.159)
dFC	−0.009*** (0.003)
dDUMCRISIS	−0.01 (0.815)
dSFC	0.11** (0.035)
dSEG	0.16* (0.075)
dSEG1	−0.31*** (0.001)
dC	0.15** (0.060)
ECM(−1)	−0.05*** (0.001)
Adjusted R^2	0.83

The lag selection is based on Schwarz Bayesian Criterion (SBC). All the variables are in natural form. The figures in the parenthesis are standard errors. The numerics −0, 1, 2, 3 indicate the extent of lag. *,**,***Imply 10%, 5%, and 1% level of significance, respectively. The estimation period is 1991Q2-2010Q4, ARDL: Autoregressive distributed lag, EG: Economic growth, FC: Financial crisis, IBSD: Islamic banking size development

significant level of 5%, but *EG* first-order positively impacted *IBSD* at the significant level of 10%, while the following order negatively impacted the same at the significant level of 1%.

According to the ECM coefficient, 5% of dis-equilibrium in the past period is rectified in the current one and thus evidencing the presence of long-run relationship among the variables, and based on the adjusted R^2, the regression explains approximately 83% of the variation in *IBSD*.

Table 5 displays the diagnostic test results and results show that estimates are devoid from issues of heteroscedasticity, serial correlation or functional forms.

The results of the Granger causality test are displayed in Table 6, where the short run results show that *IBSD* does not Granger cause *EG*, with the same feedback of *EG*. This result supports those of Abduh and Chowdhury (2012) in the context of Bangladesh and Mohammed Ali Al-Oqool, Reem Okab and Mohammed Bashayreh (2014) in Jordan country. As for the short, run, *IBSD* did not Granger causes *FC*, but *FC* Granger causes *IBSD*.

As evident from the unit root test results in Table 7, the variables are stationary at first different I(1) or I(0), indicating that it is advisable to continue with the bound test of cointegration – this condition is an ARDL mandate.

Table 7 shows that no variable obtained stationarity greater than the first difference and thus bound test was carried out - The results of such a test are displayed in Table 8, with the Islamic market size development (*IMSD*) is deemed as the dependent variable. The test results show that the F-statistic is greater than the upper bound of 10%, but lower than the lower bound of 10%. Therefore, the result evidences that at 10%, significant cointegration relationship exists among the variables of the model.

Moving on to the long run and short run ARDL estimates of *IMSD* with *EG* and *FC*, the Islamic Republic of Iran in the Islamic Republic of Iran, the results are displayed in Tables 9 and 10 respectively. Owing to the serial correlation and heteroscedasticity issues, the study set the maximum lag to 6, as recommended by Pesaran. The study thus selected the lag order of (6, 1, 2, 0, 2, 0) on the basis of SBC.

In the long-run estimates, *FC* negatively impacted *IMSD* at the significant level of 5% where for every percentage increase in *FC*, *IMSD* significantly falls by 1.64%. Meanwhile, *EG* positively impacted *IMSD* at the level of significance of 10%, where every percentage increase in *EG*, shows a corresponding increase in *IMSD* by 1.99%.

In Table 10, the lower panel shows the short run estimates and it is clear from them that the *EG* order positively impacted *IMSD* at the level of significance of 1%, while the second *FC* order significantly and positively impacted *IMSD* at same level of significance. Moreover, *EG* shock dummy insignificantly impacted *IMSD* in the short run estimate and the *FC* shock dummy negatively impacted *IMSD* at the level of significance of 1%. Table 10 also shows that *IMSD* insignificantly and positively performed in the *FC* period of 2008.

Table 5: Diagnostic tests

Test statistic	LM version		F version	
A: Serial correlation	CHSQ (4)	4.962 [0.291]	F (4.63)	1.055 [0.386]
B: Faction form	CHSQ (1)	0.008 [0.927]	F (1.66)	0.007 [0.933]
C: Eteroscedasticity	CHSQ (1)	1.586 [0.208]	F (1.77)	1.577 [0.213]

The lagrange multiplier tests are distributed as Chi-squared variates with degrees of freedom in parentheses. The first figures in the parenthesis for the F-test are the degrees freedom. The null hypothesis of the two tests is no serial correlation, normality, correct functional form and homoscedasticity respectively

Table 6: Granger causality results

Variable	Δ*EG*	Δ*FC*	Δ*IBSD*	*ECT*(−1)
Δ*EG*	-	1.73	0.80	21.04***
Δ*FC*	5.62***	-	0.34	53.81***
Δ*IBSD*	2.03	9.21***	-	11.80***

***Imply 1% level of significance. The null hypothesis is no Granger causality. The Chi-square statistics are reported for the variables, while the t-statistic is reported for the ECT, EG: Economic growth, FC: Financial crisis, IBSD: Islamic banking size development

Table 7: Unit root test

Variables	Levels		First differences	
	ADF	PP	ADF	PP
IBSD	−3.22*	−2.56	−3.18*	−4.93***
EG	−2.22	−2.72*	−3.51***	−5.46***
FC	−14.29***	−14.05***	−64.04***	−12.35***

The lag selection of the ADF is based on AIC with a maximum lag of 4, because the study is dealing with quarterly data. For the PP test is estimated based on Bartlett kernel with Newey-West bandwidth. The maximum lags are automatically selected by EViews in the case of PP test. Generally, the null hypothesis is that of no stationarity. *.***Imply stationarity at 10%, and 1% level of significance, respectively, ADF: Augmented Dickey-Fuller, PP: Phillips–Perron, EG: Economic growth, FC: Financial crisis, IBSD: Islamic banking size development

Table 8: Bound test

Dependent variable	F-statistics	10%		5%		1%	
		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
IMSD	3.49*	2.12	3.23	2.45	3.61	3.15	4.43
EG	5.24***	2.12	3.23	2.45	3.61	3.15	4.43
FC	6.062***	2.12	3.23	2.45	3.61	3.15	4.43

*.*** Imply 10%, and 1% level of significance respectively. The null hypothesis is no cointegration. Critical values are from Pesaran and Pesaran (2001), IMSD: Islamic market size development, EG: Economic growth, FC: Financial crisis

Table 9: ARDL long run results

Dependent variable	Independent variables		
	EG	*FC*	C
IMSD	1.99*	−1.64**	2.12

*.**Imply 10%, and 5% level of significance respectively, EG: Economic growth, FC: Financial crisis, ARDL: Autoregressive distributed lag, IMSD: Islamic market size development

Table 10: ARDL short run results

ARDL results	
Variables	**Short run estimates**
dIMSD1	0.439*** (0.000)
dIMSD2	0.14 (0.157)
dIMSD3	0.08 (0.445)
dIMSD4	−0.48*** (0.001)
dIMSD5	0.44*** (0.001)
dEG	0.59*** (0.002)
dFC	−0.003 (0.878)
dFC1	0.073*** (0.006)
dDUMCRISIS	0.06 (0.666)
dSFC	−0.29 (0.435)
dSFC1	−1.34*** (0.001)
dSEG	0.18 (0.565)
dC	0.21 (0.240)
ECM(−1)	−0.09*** (0.005)
Adjusted R^2	0.65

The lag selection is based on SBC. All the variables are in natural form. The figures in the parenthesis are standard errors. The numerics −0, 1, 2, 3 indicate the extent of lag. *** Imply 1% level of significance, respectively. The estimation period is 1994-2012, ARDL: Autoregressive distributed lag, SBC: Schwarz Bayesian Criterion, EG: Economic growth, FC: Financial crisis, ECM: Error correction model

In Table 10, it is evident that the ECM coefficient indicates that 9% of disequilibrium in the past period is put to rights in the present period and hence reinforcing the notion that a long-run relationship exists among the study variables and based on the R^2 value, the regression explains 65% of the variation in *IMSD*.

Furthermore, the results of the diagnostics tests are displayed in Table 11, and according to them, the estimates are devoid of issues of serial correlation or functional form.

In the Table 12, a bidirectional Granger causality is evidenced by the results between *IMSD* and *EG*. Specifically, the results show that *FC* Granger causes *IMSD*, without any feedback from *IMSD*, supporting a unidirectional Granger cause is evident from *FC* to *IMSD*.

5. DISCUSSION AND CONCLUSION

Evidently, in the long-run estimation, *EG* impacts *IBSD* and *IMSD* in a similar way (positively), indicating that Islamic financial size development, in banking and financial market, are both affected significantly by the *EG* in the Islamic Republic of Iran. Such finding supports the notion that *IBSD* is affected by the *EG* shock (dummy variable), whereas Islamic financial market size development is not affected by the *EG* shock (dummy variable) during the study period. From this, it can be stated that the *IBSD* reacts positively towards the *EG* in Iran. It is therefore important for the Iran policy makers to establish regulations and to bring forth a suitable environment in order to motivate Islamic banking and its role in realizing *EG*.

The impact of *FC* is also similar on *IMSD* and *IBSD* in that both are negative impacts, which contradicts the theory but is aligned with prior findings (e.g. Smolo and Mirakhor, 2010; Dridi, 2010; Kassim and Majid, 2010). Also, the Islamic banking development, in light of size, is not negatively affected by the *FC* (dummy variable) but it is negatively affected during the study period. This finding goes against the finding reported by Yusof and Majid (2007) in the context of Malaysia. It is clear that Iran's Islamic financial system is not affected by the International *FC* of 2008 as the results showed that the Islamic banking development (size-wise) insignificantly and negatively performed during the International *FC* but the Islamic financial market development (size-wise) insignificantly and positively performed in the International *FC* of 2008. In an attempt to lessen the impact of the *FC* and to tackle related issues, Iran should lay down policies to improve its Islamic banking development, specifically in terms of Islamic banks deposit and size.

The study findings also show the presence of a bi-directional Granger causality between Islamic financial market development (in short and long run) and *EG*, whereas there is no causality relationship exist between Islamic banking development (size-wise) and *EG*. This finding is consistent with those provided by Abduh and Chowdhury (2012) and Mohammed Ali Al-Oqool, Reem Okab and Mohammed Bashayreh (2014). In addition, Islamic financial size development (banking and market) don't Granger caused *FC*, which is with the theory, in line with Smolo and Mirakhor (2010), Yusof and Majid (2007), Beck et al. (2013), Ahmed (2010) and Samad and Hassan (1999), while *FC* Granger cause Islamic financial size development (banking and market), contrary to the theory, consistent with Hasan and Dridi (2010) and Kassim and Majid (2010). Indeed, from the above discussion, it can be concluded that the Islamic bank size-based system performance in the context of Islamic Republic of Iran is similar to its Islamic market size-based system performance.

Table 11: Diagnostic tests

Test statistic	LM version		F version	
A: Serial correlation	CHSQ (4)	3.48 [0.480]	F (4.53)	0.655 [0.626]
B: Faction form	CHSQ (1)	1.76 [0.184]	F (1.56)	1.370 [0.247]
C: Heteroscedasticity	CHSQ (1)	3.48 [0.062]	F (1.72)	3.557 [0.063]

The Lagrange multiplier tests are distributed as Chi-squared variates with degrees of freedom in parentheses. The first figures in the parenthesis for the F-test are the degrees freedom. The null hypothesis of the two tests is no serial correlation, normality, correct functional form and homoscedasticity respectively

Table 12: Granger causality results

Variable	Δ*EG*	Δ*FC*	Δ*IMSD*	*ECT*(−1)
Δ*EG*	-	1.89	8.34***	11.16***
Δ*FC*	1.35	-	0.41	15.13***
Δ*IMSD*	10.46***	5.39**	-	8.76***

.* Imply 5%, and 1% level of significance respectively. The null hypothesis is no Granger causality. The Chi-square statistics are reported for the variables, while the t-statistic is reported for the ECT, EG: Economic growth, FC: Financial crisis

REFERENCES

Acaravci, A., Ozturk, I., Acaravci, S. (2007), Finance - Growth nexus: Evidence from Turkey. International Research Journal of Finance and Economics, 11, 30-40.

Acaravci, S., Ozturk, I., Acaravci, A. (2009), Financial development and economic growth: Literature survey and empirical evidence from sub-Saharan African Countries. South African Journal of Economic and Management Sciences, 12(1), 11-27.

Alam, M.S. (2009), Islamic finance: An Alternative to the Conventional Financial System?. Korea Review of International Studies, 37-53.

Alamer, A.R.A., Salamon, H.B., Qureshi, M.I., Rasli, A.M. (2015), CSR's measuring corporate social responsibility practice in Islamic banking: A review. International Journal of Economics and Financial Issues, 5(1S), 198-206.

Abduh, M., Chowdhury, N.T. (2012), Does Islamic banking matter for economic growth in Bangladesh. Journal of Islamic Economics, Banking and Finance, 8(3), 104-113.

Abduh, M., Omar, M.A. (2012), Islamic banking and economic growth: The Indonesian experience. International Journal of Islamic and Middle Eastern Finance and Management, 5(1), 35-47.

Abu-Bader, S., Abu-Qarn, A.S. (2008), Financial development and economic growth: The Egyptian experience. Journal of Policy Modeling, 30(5), 887-898.

Adjasi, C.K., Biekpe, N.B. (2006), Stock market development and economic growth: The case of selected African countries. African Development Review, 18(1), 144-161.

Adusei, M. (2013), Financial development and economic growth: Evidence from Ghana. The International Journal of Business and Finance Research, 7(5), 61-76.

Ahmed, A. (2010), Global financial crisis: An Islamic finance perspective. International Journal of Islamic and Middle Eastern Finance and Management, 3(4), 306-320.

Al-Malkawi, H.A.N., Marashdeh, H.A., Abdullah, N. (2012), Financial

development and economic growth in the UAE: Empirical assessment using ARDL approach to co-integration. International Journal of Economics and Finance, 4(5), 105-112.
Al-Oqool, M.A., Okab, R., Bashayreh, M. (2014), Financial Islamic banking development and economic growth: A case study of Jordan. International Journal of Economics and Finance, 6(3), 72-76.
Ang, J.B., McKibbin, W.J. (2007), Financial liberalization, financial sector development and growth: Evidence from Malaysia. Journal of Development Economics, 84(1), 215-233.
Bell, C., Rousseau, P.L. (2001), Post-independence India: A case of finance-led industrialization? Journal of Development Economics, 65(1), 153-175.
Beck, T., Demirgüç-Kunt, A., Merrouche, O. (2013), Islamic vs. conventional banking: Business model, efficiency and stability. Journal of Banking and Finance, 37(2), 433-447.
Calderón, C., Liu, L. (2003), The direction of causality between financial development and economic growth. Journal of Development Economics, 72(1), 321-334.
Darrat, A.F. (1999), Are financial deepening and economic growth causally related? Another look at the evidence. International Economic Journal, 13(3), 19-35.
De Gregorio, J., Guidotti, P.E. (1995), Financial development and economic growth. World Development, 23(3), 433-448.
Deidda, L., Fattouh, B. (2002), Non-linearity between finance and growth. Economics Letters, 74(3), 339-345.
Demetriades, P.O., Hussein, K.A. (1996), Does financial development cause economic growth? Time-series evidence from 16 countries. Journal of Development Economics, 51(2), 387-411.
Demirgüç Kunt, A., Vojislav, M. (1998), Law, finance, and firm growth. The Journal of Finance, 53(6), 2107-2137.
Farahani, Y.G., Dastan, M. (2013), Analysis of Islamic banks' financing and economic growth: A panel cointegration approach. International Journal of Islamic and Middle Eastern Finance and Management, 6(2), 156-172.
Fukuda, T., Dahalan, J. (2012), Finance-growth-crisis nexus in Asian emerging economies: Evidence from VECM and ARDL assessment. International Journal of Economic Sciences and Applied Research, 5(2), 69-100.
Furqani, H., Mulyany, R. (2009), Islamic banking and economic growth: Empirical evidence from Malaysia. Journal of Economic Cooperation and Development, 30(2), 59-74.
Gandolfo, G., Martinengo, G., Padoan, P.C. (1981), Qualitative Analysis and Econometric Estimation of Continuous Time Dynamic Models. Amsterdam: North-Holland Publishing Company.
Goaied, M., Sassi, S. (2010), Financial Development and Economic Growth in the MENA Region: What about Islamic Banking Development. Carthage: Institut des Hautes Etudes Commerciales.
Graff, M. (1999), Financial Development and Economic Growth - A New Empirical Analysis. Dresden Discussion Papers in Economics. p5/99.
Grais, W.M., Pellegrini, M. (2006), Corporate Governance in Institutions Offering Islamic Financial Services: Issues and Options. Vol. 4052. World Bank Publication.
Granger, C.W. (1988), Some recent development in a concept of causality. Journal of Econometrics, 39(1), 199-211.
Hagen, E.E., Irwin, S. (1986), The Economics of Development. IL: Irwin Homewood.
Hasan, M.M., Dridi, J. (2010), The effects of the global crisis on Islamic and conventional banks: A comparative study. IMF Working Papers. p1-46.
Hermes, N., Lensink, R. (2013), Financial Development and Economic Growth: Theory and Experiences from Developing Countries. London: Routledge.
Hidayat, S.E., Abduh, M. (2012), Does financial crisis give impacts on Bahrain Islamic banking performance? A panel regression analysis. International Journal of Economics and Finance, 4(7), 79.
Kassim, S.H., Majid, M.S.A. (2010), Impact of financial shocks on Islamic banks: Malaysian evidence during 1997 and 2007 financial crises. International Journal of Islamic and Middle Eastern Finance and Management, 3(4), 291-305.
Khan, H. (2009), Islamic Finance: Is It an Answer to Global Crisis. The U21 Global Newsletter, 1st Quarter.
Khan, M., Bhatti, M.I. (2008), Islamic banking and finance: On its way to globalization. Managerial Finance, 34 (10), 708-725.
Kindleberger, C.P., Herrick, B. (1965), Economic Development. New York: McGraw-Hill. p330-332.
King, R.G., Levine, R. (1993a), Finance and growth: Schumpeter might be right. The Quarterly Journal of Economics, 108(3), 717-737.
Kouakou, A.K. (2011), Economic growth and electricity consumption in Cote d'Ivoire: Evidence from time series analysis. Energy Policy, 39(6), 3638-3644.
Lucas, R.E, Jr. (1988), On the mechanics of economic development. Journal of Monetary Economics, 22(1), 3-42.
Majid, S.A., Kassim, S. (2010), Islamic Finance and Economic Growth: The Malaysian experience. Kuala Lumpur: Paper Presented at the Kuala Lumpur Islamic Finance Forum.
Odhiambo, N.M. (2010), Finance-investment-growth nexus in South Africa: An ARDL-bounds testing procedure. Economic Change and Restructuring, 43(3), 205-219.
Ozturk, I. (2008), Financial development and economic growth: Empirical evidence from Turkey. Applied Econometrics and International Development, 8(1), 85-98.
Patrick, R., Reimer, C.W. (1966), The diatoms of the United States (exclusive of Alaska and Hawaii). Systematic descriptions of diatoms of the taxonomic orders Fragilariales, Eunotiales, Achnanthales, and Navicuales (family Naviculaceae). Monograph. 13. Vol. 1. Philadelphia, Pennsylvania: The Academy of Natural Sciences.
Rajaei-Baghsiyaei, M. (2011), The Contribution of Islamic Banking to Economic Development (The Case of The Islamic Republic of Iran). Durham University.
Rioja, F., Valev, N. (2004), Finance and the sources of growth at various stages of economic development. Economic Inquiry, 42 (1), 127-140.
Robinson, J. (1952), The Generalization of the general theory. In: The Rate of Interest, and Other Essays. Westport: Hyperion Press. p67-142.
Rousseau, P.L. (2002), Historical Perspectives on Financial Development and Economic Growth: National Bureau of Economic Research.
Samargandi, N., Fidrmuc, J., Ghosh, S. (2013), Financial Development and Economic Growth in an Oil-Rich Economy: The case of Saudi Arabia. Economics.
Samad, A., Hassan, M.K. (1999), The performance of Malaysian Islamic bank during 1984-1997: An exploratory study. International Journal of Islamic Financial Services, 1(3), 1-14.
Schumpeter, J.A. (1912), The Theory of Economic Development: Cambridge, MA: Harvard University Press.
Siddiqi, M. (1999), The growing popularity of Islamic banking. The Middle East, 291, 33.
Smolo, E., Mirakhor, A. (2010), The global financial crisis and its implications for the Islamic financial industry. International Journal of Islamic and Middle Eastern Finance and Management, 3(4), 372-385.
Stern, N. (1989), The economics of development: A survey. The Economic Journal, 99(397), 597-685.
Thangavelu, S.M., Jiunn, A.B. (2004), Financial development and economic growth in Australia: An empirical analysis. Empirical Economics, 29(2), 247-260.
Warde, I. (2010), Islamic Finance in the Global Economy: Edinburgh: Edinburgh University Press.
Yahya, M.H., Muhammad, J., Hadi, A.R.A. (2012), A comparative study on the level of efficiency between Islamic and conventional banking

systems in Malaysia. International Journal of Islamic and Middle Eastern Finance and Management, 5(1), 48-62.

Yusof, R.M., Majid, A.S. (2007), Stock market volatility transmission in Malaysia: Islamic versus conventional stock market. Islamic Economics, 20(2), 17-35.

Yusof, R.M., Bahlous, M. (2013), Islamic banking and economic growth in GCC and East Asia countries: A panel cointegration analysis. Journal of Islamic Accounting and Business Research, 4(2), 151-172.

Zaher, T.S., Hassan, K.M. (2001), A comparative literature survey of Islamic finance and banking. Financial Markets, Institutions and Instruments, 10(4), 155-199.