Examination of Relationship Between Financial Development and Economic Growth in Islamic Development Bank Countries

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Abstract

This study investigates the relationship between the economic growth and financial development of 13 major shareholding countries of Islamic development bank (IDB) from 1993 to 2015. By applying Konya (2006) estimation technique on various proxies of economic growth and financial development this study reports its results. According to the results of this study there is strong evidence in favor of the direction of casuality from economic growth to financial development thus supporting demand following hypothesis. The findings of this study reveal that economic growth leads to financial development in 13 major shareholding countries of Islamic development bank (IDB). Although majority of results favor the demand following hypothesis, however nuetrailty hypothesis is also present in some countries.

Key words: Economic growth, financial development, Seemingly Unrelated Regression, Islamic development bank

Introduction

Economic development has always been a major concern for economist and policymaker as it has great importance in the development of policy. Economic growth is the development of economic wealth of countries, regions or communities for the well-being of their inhabitants (Samuelson & Nordhaus, 2012). Economic growth accelerates through efficient allocation of capital in an economy (Levine, 1997). Financial markets play a vital role in the economic growth of country by averting financial funds from unproductive to productive users. In his seminal work of Schumpeter (1911), he argues that financial markets are crucial for econimic growth by their ability to allocate savings and funding of useful investements. Financial sector provides the prerequsite information before potential investment and then it monitors and applies corporate governance to safeguard investment as well. Developed economies have the well-functioning and more integrated financial systems relatively to under-developed countries (Gurgul & Lach, 2012). Better financial system will ultimately raise the savings and investment in that countries and will become the reason for the better economic growth on the long-term basis (Gurgul & Lach, 2012). Due to the effect of financial development on economic growth, their relationship has been a key concern area for the research in the field of development economics. The debate on the path of causality between economic growth and the financial development started in a late 19th century (Marwa & Zhanje, 2015). There is no consensus on whether financial development leads to economic growth or whether economic growth leads to financial development or whether there is bi-directional between financial development and relationship?

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A better understanding of the relationship between economic growth and financial development is important for countries so that they can target or direct or develop their policies to achieve economic growth

Research Problem.

These member countries of IDB have instigated new rules and also implemented new policies in order to achieve high growth (Khan & Bhatti,2008). Moreover, majority of these countries have done a number of the changes in the financial policies to liberalize the financial sector for betterment and alignment of financial sector with the developed countries in the last two decades (Naceur, Ghazouani & Omran, 2008). The experiences with financial reforms clearly raise questions about the nature of the relationship between financial development and economic growth in the medium size and emerging economies. After the fiscal crisis of 2007-08, the policy maker and the economists have become more concerned about the role of the financial sector in the economic growth (Ferreira, 2017).

Research Question

Thus, this study is aimed at answering the question i.e. identify the causality direction between financial development and economic growth in the 13 major shareholding countries of IDB.

Research Objectives

The objectives of this study are

1. To investigate the existance of a relationship between financial sector development and the economic growth of the major shareholding countries of the IDB during 1992-2015.
2. To investigate the direction of the causal relationship between financial sector development and the economic growth of the major shareholding countries of the IDB during 1992-2015.

Contribution

The thirteen memeber countries represent the more than 46% of the population of member's countries. There is not a lot research in these major countries of (IDB) (Grassa & Gazdar, 2014; Samargandi, Fidrmue & Ghosh, 2014). Since the economies of the countries of the major shareholding of Islamic development banks (IDB) are the developing and mixed economies (Grassa & Gazdar, 2014). So, this research is also a good contribution to the literature regarding the relationship of the financial development and economic growth in developing economies. The second contribution of the study is that this paper investigates the relationship between financial sector development and the economic growth in 13 major countries of (IDB) by using multiple proxies. The third contribution of the study lies in the methodology Seemingly Unrelated Regression (SUR) used in this study. Though this methodology is not new, however this estimation method is not extensively applied in IDB countries research.

Literature Review

The theoretical background of this study can be found in finance-growth nexus. The work of by the British economists Bagehot (1971) can be credited with cornerstone of this theory. He described, how the finance development link with the economy? He also stated in his research

that the finance will find the profitable way for investment in the different sector of the economy. The major assumptions of this theory are; frictionless economy, perfect information, and mobile resources available. He predicted that "capital will run as surely and instantly where it wanted, and where there is most to be made of it, as water runs to find its level". This implies that finance finds its flow path own its own, that mobility of finance causes increase in per capita income, hence evident the economic growthThis section discusses some empirical studies on the finance-growth nexus. There is lot of research conducted on individual countries; however here focus is on panel studies.

Agbetsiafa (2004) investigated relationship between economic development and financial development in the 10 sub-Saharan African countries from 1963-2001. By employing cointegration test to check the nature of the relationship between the variables, he concluded unidirectional relationship i.e. finance to growth in six countries. They were of the view that financial development is a major determinant of economic growth. Apergis, Filippidis, and Economidou (2007) explored the link between the financial development and economic growth in 15 OECD countries for the period 1975 to 2000. The reported mixed findings on the basis of their estimation. Abu-Bader and Abu-Qarn (2008) examined the relationship between financial sector growth and economic development in six Middle Eastern and North African countries for the period of 1960 to 2004. They used augmented vector autoregression vector (VAR) methodology of Toda and Yamamoto to exam for Granger causality. They findings supported the unidirectional relationship of finance to growth hypothesis. Masoud and Hardaker (2012) investigated that relationship between economic growth and financial development in the 42 emerging countriess from 1995 to 2006. By taking stock market development indicators as proxy for financial development they arrived at their results. They reported that the stock market and economic growth have the bidirectional relationship with each other. They found the stock market development and the banking sector in developing economy to be complementary factors. Akinci, Akinci and Yilmaz (2014) examined the relationship between the financial development and the economic growth in OECD countries during 1980-2011. By employing Granger causality analysis they found unidirectional causality relationship running from economic growth to financial development. Caporale, Rault, Sova, and Sova (2015) explored the relationship of economic growth and financial development in the ten countries of European Union from 1994 to 2007. They reported that an efficient banking sector plays an important role in economic growth. Assefa and Mollick (2017) looked at the Financial Development and Economic Growth debate for the 15 African countries for the period 1995 to 2010. By using static and non-static panel data techniques they reported their results. They concluded that financial openness and stock market capitalization as proxies of financial development have positive effects on econmomic growth.

Hypothesis

There exist four different hypotheses; Demand following hypothesis (i.e. growth leading finance hypothesis), (2) Supply following hypothesis (i.e. finance leading growth hypothesis), (3) The bi-directional causality view (i.e. feedback hypothesis), (4) there is no causal relationship between financial development and economic growth.

H1: Financial sector development may have induced the economic growth process in IDB countries over the period 1993-2015.

H2: Economic growth may have induced the financial sector development process in IDB countries over the period 1993-2015.

H3: Financial sector development may have induced the process of economic growth in IDB countries over the period 1993-2015; or vice versa, i.e. the process of economic may have induced financial sector development in IDB countries over the period 1993-2015.

H4: There is no causal relationship between financial development and economic growth in IDB countries over the period 1993-2015

Research Methodology

Sample

The sample of this research are 13 major shareholding countries (Algeria, Bangladesh, Egypt, Indonesia, Iran, Malaysia, Morocco, Pakistan, Saudi Arabia, Turkey, United Arab Emirates, Yemen and Sudan.) of Islamic Development Bank (IDB). According to IDB website these countries provide around 65% capital of the IDB. The time period of the research is from 1993 to 2015. The data is annual and collected from the World Bank Database.

Empirical Model

The econometric model of this study is presented below.
Economic Growth =f(Financial Development)

Measurement of the variables

We used two variables to measure the economic growth i.e. gross domestic product growth and gross domestic product per capita growth and three proxies to measure the financial development in the 13 countries of Islamic development bank.

Gross domestic product growth (GDPGR)

GDPGR (annual variation in %) is the change in growth of previous year Gross Domestic Product (GDP) to this year GDP. This has been used by following (Bremus & Buch, 2017).

GDP per capita growth (GDPCGR)

Growth rate of GDP per capita is the other proxy of economic growth. It is year on year change in GDP per capita of a country. Bongini et. al (2017) have used this in their study.

Deposit money banks' assets to GDP (DMBAGDP)

This ratio tells the total assets held by deposit money banks as a share of GDP. It shows the deepening of country's banking sector. Agbetsiafa (2004) have used this proxy in his research.

Domestic credit to private sector (DCPS)

Domestic Credit to private Sector is domestic credit given by the banks to the general public in a specific country with respect to GDP. It also reprenets the depth of financial sector of a country. Pradhan, Arvin, Norman, and Nishigaki (2014) used this indicator in the their research.

Credit to government and state-owned enterprises to GDP (CGSEI)

Claims on focal government incorporate credits to focal government establishments net of stores also include loans to central government institutions net of deposits (Pradhan et al. (2014)) argue that the best indicator of the financial development. This is a sign of efficiency of financial sector.

Estimator Technique

Konya (2006) developed a panel causality testing approach based on Seemingly Unrelated Regressions (SUR) on the set of equations and Wald tests with country specific bootstrap critical values in detecting causal relationships. This method is based on the SUR estimation, by considering the cross-sectional dependence among the countries of panel. The results of Wald tests determine the route of causation with the country specific bootstrap critical values. This estimation technique does not require combine hypothesis for all countries in a panel, rather it allows simultaneous correlation among members or countries in a panel (Kónya, 2006).

$$
\begin{aligned}
y_{1,t} &= \alpha_{1,1} + \sum_{i=1}^{1y1} \beta_{1,1,1} y_{1,t-1} + \sum_{i=1}^{1x1} \varphi_{1,1,1} x_{1,t-1} + \varepsilon_{1,1,t} \\
y_{2,t} &= \alpha_{1,2} + \sum_{i=1}^{1y1} \beta_{1,2,1} y_{2,t-1} + \sum_{i=1}^{1x1} \varphi_{1,2,1} x_{2,t-1} + \varepsilon_{1,2,t} \\
&\vdots \\
y_{N,t} &= \alpha_{1,N} + \sum_{i=1}^{1y1} \beta_{1,N,1} y_{N,t-1} + \sum_{i=1}^{1x1} \varphi_{1,N,1} x_{N,t-1} + \varepsilon_{1,N,t}
\end{aligned}
\tag{2}
$$

$$
\begin{aligned}
x_{1,t} &= \alpha_{2,1} + \sum_{i=1}^{1y_2} \beta_{2,1,1} y_{1,t-1} + \sum_{i=1}^{1x_2} \varphi_{2,1,1} x_{1,t-1} + \varepsilon_{2,1,t} \\
x_{2,t} &= \alpha_{2,2} + \sum_{i=1}^{1y_2} \beta_{2,2,1} y_{2,t-i} + \sum_{i=1}^{1x_2} \varphi_{2,2,1} x_{2,t-1} + \varepsilon_{2,2,t} \\
&\vdots \\
x_{N,t} &= \alpha_{2,N} + \sum_{i=1}^{1y_2} \beta_{2,N,1} y_{N,t-1} + \sum_{i=1}^{1x_2} \varphi_{2,N,1} x_{N,t-1} + \varepsilon_{2,N,t}
\end{aligned}
\tag{3}
$$

Results and Discussion

This includes the descriptive statistics, cross section dependence test and bootstrapping panel causality technique.

Descriptive Statistics

The table 1 shows the distribution, central tendency and the dispersion of the variables for all countries in the sample. By having a look at table 4.1 it is apparent that average value of gross domestic product growth is 4.12%. The maximum value of gross domestic product growth is 12.37% (Morocco, 1996) and its lowest value is -28% (Yemen, 2015) approximately. The mean value of GDP per capita growth stands at 1.87% while its maximum and minimum value ranges from 13% (Sudan, 2012) to -30% (Yemen, 2015) approximately. Deposit money banks' asset to GDP ratio has average value of 48 % and its high and low value fluctuates from 164.22 % (Malaysia, 1998) to 1.82% (Sudan, 1999). As for as domestic credit to private sector ratio is concerned, it has mean value of 36.10 % and maximum and minimum ranges from 158.51 % (Malaysia, 1998) to 1.62%. (Sudan, 1999) Similarly credit to government and state-owned enterprises to GDP ratio mean value is 14.6 % and (Egypt, 2015) has high and (Sudan, 1999) has low value and are reported in table 1 as well.

Table 1: Descriptive Statistics

	GDPGR	GDPCGR	DMBAGDP	DCPS	CGSEI
Mean	4.12	1.87	48.01	36.10	14.6
Std. Dev.	3.94	4.21	30.87	30.59	10.35
Maximum	12.37	12.82	164.22	158.51	49.14
Minimum	-28.1	-29.89	1.82	1.62	0.12

Cross Section Dependence

Before conducting the Konya causality test (2006), cross-section dependence test is the necessary test which tells about the dependency and heterogeneity of the data. So CDlm1, CD lm2 tests and Bias-Adjusted lm proposed by Breusch-Pagan (1980), Pesaran (2004) and Pesaran et al. (2008) respectively are used to test the cross section dependence. Results in Table 2 show that that cross-section dependency is present in the data as the results of all three tests are significant so it would be possible to conduct the casualty test proposed by Konya (2006).

Table 2:.Cross-Sectional Dependence Tests Results

Test	GDPGR	GDPCGR	DMBAGDP	DCPS	CGSEI
CD(LM1)	414.680 (0.000)	414.445 (0.000)	422.036 (0.000)	578.893 (0.000)	391.496 (0.000)
CD(LM2)	26.956 (0.000)	26.937 (0.000)	27.545 (0.000)	40.104 (0.000)	25.100 (0.000)
CD(BA)	53.765	53.879	67.751 (0.000)	58.606	50.347

	(0.000)	(0.000)		(0.000)	(0.000)

Panel Causality Test

The result of causality between GDPGR and DMBAGDP is given in the Table 3. According to the result in Table 3 there is the unidirectional causality from economic growth to financial development i.e. GDPGR to DMBASGDP in almost all of countries except Sudan thus accepting H2. These results support the demand following hypothesis. According to this hypothesis economic development is the major contributor and creates demand for the financial services in the developing economies that are major countries in the IDB's. However this hypothesis is accepted at different significance level except Sudan which accepts H4. With respect to the causality from financial development to economic growth i.e. from DMBASGDP to GDPGR is concerned, here there is no causality in all countries thus rejecting the H1 hypothesis. The results of Table 3 also reject neutrality hypothesis i.e. H3 in all countries. While H4 i.e. neutrality hypothesis is accepted only in case of Sudan.

Table 3: *Results of Panel Causality Test for GDPGR and DMBAGDP*

Countries	**H0: GDPGR does not cause DMBAGDP**				**H0: DMBAGDP does not cause GDPGR**			
	Wald stat.	**Bootstrap Critical Values**			**Wald stat.**	**Bootstrap Critical Values**		
		1%	**5%**	**10%**		**1%**	**5%**	**10%**
Algeria	108.270*	237.187	111.818	74.540	0.024	331.734	161.287	112.605
Bangladesh	130.182 **	254.058	114.046	75.106	6.947	312.067	152.776	104.936
Egypt	243.562* **	130.664	59.883	38.765	48.651	250.280	125.260	85.894
Indonesia	224.484**	237.051	112.308	74.501	31.934	334.826	161.969	112.943
Iran	176.357 **	254.993	114.150	75.029	2.556	312.386	152.930	104.918
Malaysia	286.314***	130.561	59.833	38.761	21.279	250.626	125.349	86.021
Morocco	264.712***	236.285	112.432	74.615	98.069	335.824	162.286	113.117
Pakistan	208.542**	255.317	114.318	75.010	11.043	312.032	153.051	104.755
Saudi Arabia	278.234***	130.847	59.829	38.809	28.987	250.050	125.356	85.901
Turkey	268.043***	236.457	111.844	74.712	63.585	334.607	162.648	113.288
UAE	195.456**	255.224	114.290	75.135	19.484	311.367	152.844	104.917
Yemen	85.229**	130.292	59.712	38.684	0.762	250.535	124.877	85.932
Sudan	22.266	234.876	111.272	74.204	1.028	335.973	162.622	112.668

***,**,* is 1%, 5% and 10%

The result of the causality between the economic growth i.e. GDPGR and financial development i.e. DCMBS is given in the Table 4. Here majority results also support the direction of causality from economic growth to financial development accepting H2 hypothesis except Algeria, Indonesia and Morocco which accepts H4 hypothesis. When we turn our attention towards the causality DCMBS to GDPGR, here null hypothesis of no causality from is accepted in all countries. Thus we can say that financial development does not cause economic growth in this case. So from the results presented in table 4 it is apparent that unidirectional relationship in the form of demand following hypothesis is present in this case as well.

Table 2. *The Result of Panel Causality Test for GDPGR and DCMBS*

Countries	**H0: GDPGR does not cause DCMBS**				**H0: DCMBS does not cause GDPGR**			
	Wald stat.	**Bootstrap Critical Values**			**Wald stat.**	**Bootstrap Critical Values**		
		1%	**5%**	**10%**		**1%**	**5%**	**10%**
Algeria	37.551	199.239	88.817	59.423	0.296	217.350	113.958	79.293
Bangladesh	31.547*	76.723	39.778	26.220	0.391	212.979	106.812	71.433
Egypt	55.491**	99.473	49.395	31.933	1.803	187.258	98.839	66.835
Indonesia	24.736	199.384	88.797	59.411	9.739	216.618	114.157	79.300
Iran	116.983*	76.574	39.808	26.240	10.708	214.471	107.192	71.354
Malaysia	100.840**	99.505	49.478	31.989	0.465	190.787	99.110	67.050
Morocco	28.132	199.482	88.688	59.435	4.894	217.856	114.036	79.248
Pakistan	131.650***	76.612	39.932	26.315	24.244	214.601	107.072	71.479
Saudi Arabia	110.530***	99.398	49.548	31.916	2.332	190.121	98.875	66.999
Turkey	65.903*	199.506	88.931	59.466	0.870	216.485	114.079	79.378
UAE	84.273***	76.721	39.866	26.273	18.364	214.572	107.064	71.408
Yemen	124.247***	99.916	49.388	31.897	5.492	189.707	98.906	66.982
Sudan	62.277 *	199.254	88.906	59.484	0.711	216.109	114.004	79.257

***,**,* is 1%, 5% and 10%

Finally, the nature of causality result between the GDPGR and CGSEI summarized in the Table 5. The results in Table 5 are in agreement to findings of results 3 and 4 i.e. unidirectional relationship from economic growth to financial development in all but Algeria, Bangladesh, Indonesia and Morocco. In these countries four countries neutrality i.e. H4 hypothesis is accepted.

Table 5: *The Result of Panel Causality for GDPGR and CGSEI*

Countries	**H0: GDPGR does not cause CGSEI**				**H0: CGSEI does not cause GDPGR**			
	Wald stat.	**Bootstrap Critical Values**			**Wald stat.**	**Bootstrap Critical Values**		
		1%	**5%**	**10%**		**1%**	**5%**	**10%**
Algeria	55.464	*195.325*	*93.161*	*61.390*	0.560	243.710	121.150	85.366
Bangladesh	18.160	*82.983*	*41.362*	*28.201*	2.966	207.403	102.276	71.524
Egypt	75.076**	*124.649*	*58.269*	*37.734*	1.063	197.399	103.177	71.019
Indonesia	59.356	*194.987*	*93.239*	*61.515*	5.471	242.941	121.113	85.438
Iran	129.08***	*83.512*	*41.376*	*28.075*	0.048	206.123	102.714	71.663
Malaysia	42.435*	*124.318*	*58.164*	*37.881*	28.413	198.201	103.635	71.377
Morocco	49.751	*194.541*	*92.801*	*61.632*	2.471	245.056	121.593	85.546
Pakistan	129.827***	*83.354*	*41.321*	*28.023*	0.260	206.382	102.762	71.695
Saudi Arabia	61.290**	*124.391*	*58.303*	*37.824*	27.841	198.442	103.771	71.535
Turkey	143.315**	*192.391*	*93.071*	*61.256*	20.059	242.701	121.475	85.368
UAE	46.618**	*83.703*	*41.368*	*28.003*	0.274	207.209	102.714	71.413
Yemen	71.182**	*124.385*	*58.193*	*37.775*	44.950	198.947	103.393	71.515
Sudan	71.101*	*192.088*	*92.672*	*61.547*	2.249	244.005	121.661	85.349

***,**,* is 1%, 5% and 10

The above results of causality between economic growth and different proxies of financial development are presented in the Table 6 in another way.

Table 6: Summary for direction of causality

	Panel A: from economic growth to FD			Panel A: from FD to economic growth		
Countries	*DMBAGDP*	*DCMBS*	*CGSEI*	*DMBAGDP*	*DCMBS*	*CGSEI*
Algeria	→	no	no	no	no	no
Bangladesh	→	→	no	no	no	no
Egypt	→	→	→	no	no	no
Indonesia	→	no	no	no	no	no
Iran	→	→	→	no	no	no
Malaysia	→	→	→	no	no	no
Morocco	→	no	no	no	no	no
Pakistan	→	→	→	no	no	no
Saudi Arabia	→	→	→	no	no	no
Turkey	→	→	→	no	no	no
UAE	→	→	→	no	no	no
Yemen	→	→	→	no	no	no
Sudan	no	→	→	no	no	no

Here majority of results are pointing towards the causation of economic growth to financial development thus accepting H2. As for as the causality from financial development to economic growth is concerned; no causality is found in any country thus rejecting H1. However some countries are also accepting H4 as well. From the results reported in above tables it is clear that unidirectional relationship is prevalent in majority of countries of this study. This direction of this relationship is from economic growth to financial development i.e. demand following hypothesis is observed with the exception of few countries where neutrality hypothesis is observed. This result is in line with expectations as almost all the major shareholding countries are developing in nature and in developing countries financial institutions are not strong enough to create substantial impact on growth of economy. So demand following hypothesis is dominant in case of IDB major shareholding countries.

Conclusion

This purose of this study is to exlopre the relationship between the economic growth and financial development of 13 major shareholding countries of Islamic development bank from 1993 to 2015. The findings of study support unidirection relationship from economy growth to financial development by applying Konya (2006). As these countries are evolving economically and in emerging countries growth in economy causes deveoplment so the results of this stduy back the notion of economic growth causing fianacial development. Although majority of results favor the demand following hypothesis, however nuetrailty hypothesis is also present in some countries.

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