

ISLAMIC BANKING DEVELOPMENT AND FINANCIAL INCLUSION IN OIC MEMBER COUNTRIES: THE MODERATING ROLE OF INSTITUTIONS

Kabiru Kamalu¹ and Wan Hakimah Binti Wan Ibrahim²

¹Universiti Sultan Zainal Abidin, Gong Badak, Terengganu, Malaysia, kamalu.kabiru@gmail.com

²Universiti Sultan Zainal Abidin, Gong Badak, Terengganu, Malaysia, wanhakimah@unisza.edu.my

ABSTRACT

This study argues that the effect of Islamic banking development on financial inclusion is enhanced when there exist better quality institutions. A cross section dependency test, cointegration test, causality test, and system GMM (generalized method of moments) are applied to achieve this objective. Employing panel data from 30 Organisation of Islamic Cooperation (OIC) member countries over the period 2013-2018, the analysis suggests that Islamic banking promotes financial inclusion. Furthermore, it documents evidence which suggests negative and significant coefficients of the interaction between Islamic banking development and institutional quality. This means that Islamic banking development works well in promoting financial inclusion in countries with low institutional quality.

Keywords: Financial inclusion, Islamic banking development, System GMM, Organization for Islamic Cooperation (OIC).

JEL classification: C33; E02 ; E50; G21.

Article history:

Received : September 14, 2020

Revised : March 27, 2021

Accepted : May 27, 2021

Available online : August 31, 2021

<https://doi.org/10.21098/jimf.v7i3.1364>

I. INTRODUCTION

Emerging as a fast-growing segment of the global financial scene in recent years, Islamic banking has taken centre stage in scholarly and policy discussion, in particular regarding its viability as an alternative to the ailing conventional banking system. Over the years, the Islamic banking sector has evolved and competed with the conventional sector in mobilising financial resources, not only for Muslims and Muslim-majority countries, but also for non-Muslim customers and Muslim-minority countries (Jouti, 2018). According to Hassan and Aliyu (2017), unlike the conventional system, Islamic banking system is based on Shari'ah principles, which protect it from excessive exposure to risk. The experiences and better performance of Islamic banks during and following the 2008 global financial debacle are generally taken as anecdotal evidence for its resiliency, in contrast to the severe impacts suffered by conventional banks (Alexakis, Izzeldin, Johnes, & Pappas, 2019). The assertion in financial circles is that there is a need for a paradigm shift toward sustainable financial practices, which provides an opportunity for the Islamic banking system, backed by the principles of equity, justice and morality, to play a bigger role in the economy.

1.1. Background

According to World Bank's Global Findex (2018), almost 1.8 billion people globally do not have formal banking accounts, 90% of whom live in developing countries. In 2019, 50% of global unbanked adults resided in seven developing countries, four of these being members of the OIC (Bangladesh, Indonesia, Nigeria and Pakistan), with the remaining three being China, India and Mexico. In the OIC member countries, more than half (54.7%) of adults aged 15 and above are financially excluded, which is well above the global average of 31%. These countries are considered to be among those at the lower end of access to the formal financial system (Global Findex, 2017). The main reasons for financial exclusion include lack of income; lack of the required documentation to open formal bank accounts; lack of ATMs/bank branches, especially in remote locations; lack of trust in the system; financial illiteracy; and religious/cultural factors (Kim, Yu, & Hassan, 2018).

Arguably, the Islamic banking system that has shaped the financial scene in major OIC countries can play an important role in promoting financial inclusion (Gheeraert, 2014; Kamalu & Ibrahim, 2020). Islamic financial instruments provide different means of financing projects and achieving an egalitarian society based on shared prosperity and inclusive growth, free from the conventional practices of interest rates, uncertainty and speculation (Léon & Weill, 2017). The profit-risk-sharing arrangement can essentially bring those who have previously been unbanked due to their abhorrence of interest-based conventional instruments into the ambit of the formal financial system. Furthermore, the profit-and-loss arrangements of Islamic finance provide further motivation for such people to be financially included, since, unlike the interest-based system, business risk is shared without any need for collateral. As noted by Mohieldin, Iqbal, Rostom, & Fu (2012), barriers that borrowers experience in accessing conventional credit are reduced drastically in the Islamic banking system, and thereby promote financial inclusion.

Regarding the role of Islamic finance in promoting financial inclusion, we argue that the quality of institutions is likely to be important. The Islamic financial system is guided by the Islamic legal system, which prohibits interest-based dealings in all financial transactions; the financing of businesses considered harmful to society; and practices such as speculation, fornication, and gambling. The instruments of profit-loss sharing (Mudharabah and Musharakah) are based on Islamic principles that require the sharing of risk in place of collateral. In addition, in relation to redistribution instruments (*Zakat*, *Sadaqat*, *Qard al Hassan*) if these are properly institutionalized, end receivers have to open accounts with formal financial institutions through which the redistribution can be made, thereby increasing the level of financial inclusion. In summary, the Islamic banking system requires a better institutional framework to operate effectively and efficiently, ensuring that contractual dealings and property rights will be protected and linked to Islamic redistribution institutions. Consequently, in the process, more people hitherto outside the formal banking system will be financially included.

In the literature, various studies have explored the direct relationship between Islamic banking and financial development (Gheeraert, 2014); economic growth (Imam & Kpodar, 2016) and financial inclusion (Jouti, 2018), but with little or no attention having been paid to the moderating role of institutions. Institutional quality is a broad term that encapsulates effective and efficient applications of laws and regulations, human rights and freedom in society (Singh & Pradhan, 2016). In addition, institutional quality is considered to be a key determinant of socioeconomic outcomes across all sectors of an economy (Rasheed, 2017). Therefore, this study examines the effect of Islamic banking on financial inclusion through the moderating role of institutional quality. Moreover, financial inclusion as multidimensional phenomenon cannot be comprehensively measured by a single variable (Sarma, 2012), as in previous works (Matekenya et al., 2020; Rasheed, 2017). Consequently, this study employs three dimensions of financial inclusion to construct a financial inclusion index to serve as a comprehensive measure of financial inclusion for the OIC.

1.2. Objective

The paper examines the relation between Islamic banking and financial inclusion and the role of institutions within it in the case of OIC member countries. We argue that the Islamic banking system, based on profit-loss sharing financial instruments and redistributive instruments, will operate effectively and efficiently when quality institutions are in place, thereby facilitating financial access to those excluded from conventional banking. Most previous studies (Barajas, Naceur, & Massara, 2015; Kamalu & Ibrahim, 2020; Mohieldin et al., 2012) have examined the direct effect of Islamic banking/finance on financial inclusion, but neglected the potential moderating role of institutions. Quality institutions that protect property rights, uphold the rule of law, and reduce transaction costs (Uddin, Ali, & Masih, 2021), promote trust and confidence in the banking sector, encourage capital formation and investment, and consequently encourage individuals to take part in the formal banking system. By evaluating the interactive effect of Islamic banking development and institutions, it can be inferred whether they

complement or substitute each other in determining the level of financial inclusion in OIC member countries.

The remainder of the paper is organised as follows: Section 2 reviews the related literature; Section 3 details the methodology and data; Section 4 presents and discusses the results; and Section 5 concludes and provides recommendations.

II. LITERATURE REVIEW

This section reviews related theoretical and empirical studies to serve as a foundation and context for the analysis.

2.1. Theoretical Literature

The relation between finance and economic growth has been well established in the literature since the seminal works by Schumpeter (1911), McKinnon (1973), Fry (1989) and King and Levine (1993). Recently, in considering the role of finance, more emphasis has been placed on financial inclusion, which refers to the availability and accessibility, and the use of financial products and services by people previously without access (Sharma, 2014). It is argued that access to an affordable formal financial system by the poor will encourage them to participate in small and medium scale businesses, or to expand existing ones and invest in human capital. Consequently, such individuals will improve their lifetime earnings and living standards, thus raising them above the poverty line (Besley, Burchardi, & Ghatak, 2019; Mincer, 1974). The financial products and services provided through branches and ATMs in areas without financial services will boost economic activities (the supply-leading hypothesis). In addition, the growth of economic activities attracting the provision of financial infrastructures (the demand-following hypothesis) also results in wider financial inclusion (Sharma, 2016). Therefore, the supply-leading and demand-following hypotheses explain how financial development facilitates financial inclusion, which serves as a channel that links finance to growth. In this case, we extend this argument to link Islamic financial development to the promotion of the level of financial inclusion, in particular through financial products that are shariah compliant.

Al-Jarhi (2014, 2016) presents the theory of Islamic finance based on shariah-compliant financial instruments. Being interest free and in line with Islamic teachings, such instruments serve as a catalyst for bringing those who are financially excluded, either voluntarily or involuntarily, into the mainstream financial system. In Islamic finance, the issue of financial inclusion is addressed through profit-loss sharing financial instruments (Mudharabah and Musharakah) and redistribution instruments (*Zakat, Sadaqat, Waqf, Qard al Hassan*). These provide different means of financing projects and achieving an egalitarian society based on shared prosperity and inclusive growth. In sharp contrast to the conventional financial system, in which the creditworthiness of borrowers is determined on the basis of wealth and collateral, in Islamic finance it is based on morality and the viability of an investment project. As a result, risk taking is encouraged, and risk is shared, with no requirement for any collateral in, for example, financing. This means that those who are not qualified for financing from conventional banks

will find an alternative in Islamic ones. In short, financial inclusion is promoted. Moreover, the redistribution instruments of Islamic finance further encourage financial inclusion, as end receivers of financial assistance should have accounts with formal institutions for the redistribution to be made.

Mohieldin et al. (2012) also make several arguments in supporting the roles of Islamic banking in financial inclusion. First, Islamic banking promotes financial intermediation by mobilising savings using different Islamic financial products and services. It attracts unbanked individuals through the provision of alternative saving methods. This is likely to inculcate a savings culture, thereby enhancing financial development. Second, Islamic financial instruments of redistribution ensure that there is justice in the allocation of resources, which emphasises equal opportunities for all members of society; justice in the production process, which stresses the utilisation of resources without waste; justice in distribution and the exchange of goods and services; and justice in generated income, which requires the rich to donate an obligatory percentage of their wealth as *zakat*, together with the voluntary aspects of *Sadaqat*, *Waqaf* and *Qard al Hassan* loans. Hence, the Islamic financial system ensures not only economic growth and development, but also economic justice for all members of society. Third, the basic principle of property rights delineates that members of society who are unable to participate in the process of production and exchange must be given share of the wealth generated from societal resources by able-bodied members.

2.2. Previous Studies

Empirical works on the effect of Islamic banking development on financial inclusion are scant due to the lack of data for measuring Islamic banking development. The few related empirical studies are examined below.

Gheeraert (2014) investigates the relationship between Islamic finance and banking sector growth using data from the Middle East and South Asia. The study argues that even though there are many previous studies on this topic, the debate has reached no acceptable conclusion. Gheeraert used the newly-constructed database IFIRST to construct Islamic finance variable. The results indicate that Islamic banking development in Muslim majority countries promotes banking sector growth and development, thereby increasing the level of financial inclusion. The study also found that Islamic banking complements its conventional counterpart, so there is no crowding out effect when Islamic banks develop new products that are Shariah compliant. The study by Grassa and Gazdar (2014) examines the effects of different legal origins on Islamic financial development, using data from 30 developing countries over the period 2005 to 2010. Their findings indicate that the Islamic financial system has grown more in countries with an established Islamic (Sharia) legal system. In addition, countries with mixed legal systems, for instance common and Islamic legal ones, show more flexibility, which positively affects Islamic financial development, but the opposite was found when civil law and Shariah law was in placed. Moreover, it was found that Islamic banking develops better in countries with a majority Muslim population.

In another study, Barajas et al. (2015) evaluate the effect of Islamic banking on financial inclusion in OIC member countries, finding that there was a significant

positive link between Islamic banking development and financial inclusion. Similarly, the study by Ren and Shi (2016) on institutions, finance and economic growth using evidence from Islamic finance data argues that higher quality institutions had a vital role to play in promoting growth and development. The findings of the study reveal that the impact of Islamic finance on economic growth is influenced by better institutions which has a threshold. In addition, even though the availability of physical financial services has grown extensively in member countries, the use of such financial products and services is still low.

The work of Imam and Kpodar (2016) examines the effect of Islamic banking development on economic growth using data from 52 countries from 1990 to 2010. Their findings reveal that although the size of Islamic banking is small compared to that of conventional banking, it still has a positive impact on economic growth. The identified channel through which this positive effect takes place is through financial inclusion, access to formal credit, and capital accumulation. In another work, Lebdaoui and Joerg (2016) evaluate the impact of Islamic banking on the growth of Southeast Asian economies from first quarter of 2000 to the fourth quarter of 2012. The study used the Pool Mean Group (PMG) method of analysis and the results established a long-run relationship between Islamic banking and economic growth in the Southeast Asian region.

Interestingly, Boukhatem and Moussa (2018) evaluated the effects of Islamic banking development on GDP growth in the MENA region. The study used system GMM and fully modified OLS methods of analysis. The existence of a cointegration relationship was confirmed between GDP per capita growth and Islamic private sector credit. Moreover, the results reveal that Islamic finance promotes GDP per capita growth. The results of the interaction term between Islamic finance and institutional quality on GDP growth show coefficients in all the models estimated, which explains that the effect of Islamic finance on economic growth does not depend on institutional quality. The results also show that inflation has negative and significant effects on growth.

The study by Jouti (2018) investigates the effects of Islamic finance on financial inclusion, and considers whether Islamic financial leads to financial inclusion or migration. The results reveal that Islamic financial development will cause not only financial inclusion, but also financial migration. The study results also confirm that people using conventional banks but who abhor interest dealings will migrate to Islamic banking whenever such services become available. Moreover, people who voluntarily exclude themselves from the conventional financial sector because of religious issues will also become financially included with the availability of Islamic financial services. Therefore, Islamic banking development will lead not only to financial inclusion, but also to financial migration from the traditional banking system to the Islamic. The study by Zamer (2018) evaluates the link between Islamic banking and financial inclusion using data from Muslim-majority countries in the Middle East and sub-Saharan Africa. The findings show that barriers to access to finance varied across countries and regions, with the most cited one related to involuntary exclusion due to religious reasons and interest rate charges. In another work, Nawaz (2018) examines financial inclusion and banking sector growth in emerging markets, with the results revealing that Islamic banking promotes financial inclusion in such markets.

In the same vein, the work of Akhter, Umer Majeed, and Roubaud (2019) examines the effect of Islamic banking on financial inclusion using data from 14 middle income and 14 lower income countries in Africa and Asia from 2005 to 2014, employing the static panel data method. Based on the Hausman test, the results of the random effects model reveal that Islamic banking contributes significantly to financial inclusion, especially demand-side inclusiveness. The study by Halim and Hafez (2019) compares conventional and Islamic banking efficiency before and after the global financial bubbles of 2007, using data from 35 Egyptian banks. Their findings reveal that Islamic banks and conventional ones with Islamic windows performed less well than conventional bank before the financial crisis. However, they also found that the efficiency of conventional banks decreased after the crisis, whereas Islamic banks experienced improved efficiency and performed better than their conventional counterparts. Therefore, based on these results, Islamic banks are shown to be more resilient and efficient in times of financial crisis compared to conventional banks. Halim and Hafez conclude that Islamic banks were not affected by the financial bubbles, unlike their counterparts in the conventional banking system. It is believed that the stability of Islamic banks will attract more people, thereby promoting financial inclusion.

The work of Kamalu and Ibrahim (2020) examines the effect of Islamic banking development on financial inclusion in OIC member countries from 2013 to 2018 using dynamic system GMM and second generation cointegration and causality test. The study obtained its data from Global Findex and the world development indicators of the World Bank database. The results show that Islamic banking development promotes financial inclusion in OIC member countries. The causality results also confirm the GMM results, showing a unidirectional causal link that runs from Islamic banking to financial inclusion.

The studies reviewed examine the direct effect of Islamic banking on different macroeconomic variables, but with few works focusing on the effect of Islamic banking on financial inclusion in the OIC. Even though most studies report a positive impact of Islamic banking on economic and banking sector growth, there are few empirical findings on the indirect effect of Islamic banking on financial inclusion. The debate on the determinants of Islamic banking development is far from reaching consensus in the literature. The studies reviewed also show different proxies of Islamic banking development. Gheeraert (2014) measured Islamic banking penetration using the ratio of Islamic finance assets to the total assets of the economy, while Mustafa, Baita, & Usman (2018) and Barajas et al. (2015) used total Islamic banking assets to measure Islamic banking development. Basically, there is no comprehensive database for Islamic banking indicators; for instance, databases such as Bankscope has been criticised for not differentiating between Islamic banks and Islamic windows, and at the same time omitting many Islamic banks (Čihák & Hesse, 2010). Many studies, such as those of Gheeraert (2014) and Gheeraert and Weill (2015) constructed their indicators using manually-collected data from Islamic financial institutions. This study used Islamic banking assets obtained from the Statistical, Economic, Social and Training Centre (SESRIC, 2018) on the OIC database. This database is unique, as it differentiates between Islamic banking assets from fully-fledged Islamic banks and conventional banks with Islamic banking windows, and also covers all Islamic banks in OIC member countries which conduct Islamic banking operations.

III. METHODOLOGY

This study examines the relationship between Islamic banking development and financial inclusion, together with the role of institutions in the relationship in the case of OIC countries. Data were gathered from 30 OIC member countries that have stand-alone Islamic banks operating alongside conventional banks, the so-called dual banking countries, covering the period from 2013 to 2018.

3.1. Data

Data were collected from 30 out of the 57 OIC member countries with data available regarding Islamic banking operations. The countries included Afghanistan, Algeria, Azerbaijan, Bahrain, Bangladesh, Brunei, Egypt, Gambia, Indonesia, Iran, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Malaysia, Morocco, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Syria, Sudan, Tunisia, Turkey, UAE and Yemen. Financial inclusion as a dependent variable was represented by a financial inclusion index (FII) based on three dimensions of inclusion, availability, accessibility and usage, as used by Sarma (2012), with principal component analysis employed to construct the index. The accessibility dimension was measured by commercial bank branches per 100,000 people; the availability dimension by ATMs per 100,000 people; and the usage dimension by the number of borrowers from commercial banks. The data were obtained from Global Findex of the World Bank. In line with Akhter et al. (2019), Islamic banking development (LIA) was measured by the total assets of Islamic banks (% GDP), taken from the Statistical, Economic, Social and Training Centre database (SESRIC, 2018). With regard to institutions, the study employed Rule of Law (RL) from the World Governance Indicators (WGI). Apart from these key variables, real GDP per capita (LGDP1), remittance inflows (LRMI), and inflation (IF) were also included. Representing the level of development, real GDP per capita reflects the increase in the demand of financial services. The inclusion of remittances follows Arun and Kamath (2015), while inflation is to capture macroeconomic uncertainty. The data on these variables were taken from the World Bank World Development Indicators. Table 1 lists the variables, together with their expected relations with financial inclusion and their sources.

Table 1.
Variables, Measurements and Expected Signs

Variable	Measurement	Expected Sign	Sources
Financial inclusion (LFII)	Financial inclusion index constructed using three dimensions (accessibility, availability, and usage). Accessibility measured by number of commercial bank branches per 100,000 people; availability by ATMs per 100,000 people; and usage by number of borrowers from commercial banks	Dependent variable	Global Findex, World Bank database

Table 1.
Variables, Measurements and Expected Signs Continued

Variable	Measurement	Expected Sign	Sources
Islamic Banking Development (LIA)	Total assets of Islamic banks	Positive	Statistical, Economic, Social and Training Centre (SESSRIC) OIC Database
Institutions (RL)	Rule of law	Positive	World Governance Indicators (WGI), World Bank Database
GDP per capita (LGDP)	Per capita GDP at current USD	Positive	World Governance Indicators (WGI), World Bank Database
Remittance inflows (LRMI)	Personal remittance inflows (% GDP)	Positive	World Development Indicators (WDI), World Bank Database
Inflation (IF)	Consumer Price Index (CPI)	Positive	World Development Indicators (WDI), World Bank Database

Source: Authors' compilation

3.2. Empirical Models

The paper first employed the following model to examine the relation between Islamic banking development and financial inclusion:

$$LFII_{it} = \phi LFII_{i,t-1} + \beta_1 LIA_{it} + \beta_2 LRL_{it} + \beta_3 LGDPC1_{it} + \beta_4 LRMI_{it} + \beta_5 LIF_{it} + v_i + \varepsilon_{it} \quad (1)$$

where all the variables are as defined in Table 1; v_i is the individual-specific effect; and ε_{it} is the standard error term. Note that the model includes the lagged dependent variable to capture persistence in financial inclusion. In equation (1), the key parameter is β_1 . If Islamic banking development promotes financial inclusion, as argued in the preceding section, then β_1 is expected to be positive.

To assess the moderating role of institutions, we then extended equation (1) to include the interaction term between Islamic banking development (LIA) and the rule of law (LRL), as follows:

$$LFII_{it} = \phi LFII_{i,t-1} + \beta_1 LIA_{it} + \beta_2 LRL_{it} + \beta_3 LGDPC1_{it} + \beta_4 LRMI_{it} + \beta_5 LIF_{it} + \beta_6 [LIA \times LRL]_{i,t} + v_i + \varepsilon_{it} \quad (2)$$

In equation (2), the coefficient of the interaction term, β_6 , captures the moderating role of institutions in the relationship between Islamic banking development and financial inclusion. If β_1 is positive and β_6 is negative, then the effect of Islamic banking development on financial inclusion will be less positive or even become negative in countries with higher institutional quality. In other words, Islamic banking development can play an important role in promoting

financial inclusion in countries with low institutional quality. Meanwhile, if β_6 is positive, the inclusion-promoting role of Islamic banking development will be further enhanced by better quality institutions.

To estimate the above models, the System Generalised Method of Moments (GMM) was employed, as proposed by Arellano and Bover (1995). GMM is well-suited for this purpose, given the inherent endogeneity in dynamic panel models, which stems from the presence of the lagged dependent variable. It is also an improvement on first-difference GMM, in that system GMM incorporates information in the level variables in the estimation, as well as addressing potential weak instruments in first-difference GMM.

IV. RESULTS AND ANALYSIS

4.1. Descriptive Statistics

Tables 2 and 3 respectively present the descriptive statistics and pairwise correlations of the variables used in the models.

Table 2.
Descriptive Statistics

Variable	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
LFII	180	-3.1500	1.5954	-2.0054	8.0230
LIA	180	6.0800	3.3000	1.1702	9.4040
LGDP	180	8.6371	1.3571	6.2556	11.3510
LRL	180	-0.3915	0.7053	-2.0903	0.9585
LRMI	180	19.5597	4.7040	0.0145	33.2216
IF	180	14.9333	3.2588	5.0836	12.6390

Source: Research findings

Table 3.
Correlation Matrix

Correlation Matrix	FI	IA	GDP	RL	LRMI	IF	IAxRL
LFII	1.0000						
LIA	0.2132	1.0000					
LGDP	0.5014	0.4747	1.0000				
LRL	0.4508	0.2244	0.5816	1.0000			
LRMI	0.3828	-0.0272	0.3265	0.4447	1.0000		
IF	0.2288	-0.0734	0.3626	0.6541	0.4911	1.0000	
LIAxLRL	0.0718	-0.0573	0.2422	0.1039	0.1334	0.1334	1.0000

Source: Research findings

The descriptive statistics reported in Table 2 include the mean, standard deviation, minimum, and maximum. The statistics suggest variations not only in financial inclusion, but also in Islamic banking development and institutional quality. Accordingly, it would be interesting to establish how they are related to each other. From the correlation matrix, an a priori indication can be seen that both Islamic banking development and institutions are positively related to financial inclusion. It can also be observed that other independent variables are positively correlated with financial inclusion. It should also be noted that none of the independent variables show high correlation between themselves. Therefore, the issue of multicollinearity is of little concern.

4.2. Results and Analysis

Table 4 presents the estimation results of models 1 and 2 using system GMM. The Sargan test statistics, as shown at the bottom of the table, indicate instrument validity. The Arellano-Bond test for autocorrelation of order 2 also fails to reject the null of no autocorrelation. Accordingly, the estimates are consistent. Note that we did not face the problem of instrument proliferation, since the number of instruments is less than the number of cross-sectional units in all the regressions. Finally, in all three models significant coefficients of the lagged dependent variable can be observed. This reaffirms the persistence and the appropriateness of the dynamic model specification used in the study.

Table 4.
System GMM Results on the Moderating Role of Institution in the Relationship between Islamic Banking Development and Financial Inclusion

Variable	Model 1	Model 2	Model 3
	Two-Step	Two-Step with Interaction	Two-Step Robust
Dependent Variable: Financial Inclusion (LFII)			
Lagged Dependent (LFII _{t-1})	0.6716** (0.0132)	0.6764* (0.0168)	0.6764* (0.1606)
Islamic Banking (LIA)	0.1198* (0.0035)	0.1759* (0.0083)	0.1759* (0.02039)
Gross Domestic Product per Capita (LGDP)	0.8799* (0.1632)	0.2884* (0.1032)	0.2884 (0.2230)
Remittance Inflows (LRMI)	0.1321*** (0.0731)	-0.1537** (0.1032)	0.1537* (0.0202)
Institution (LRL)	1.5062* (0.5023)	0.5873 (0.5091)	0.5873** -27.415
Inflation (IF)	0.0017 (0.0021)	0.0016 (0.0025)	0.0016 (0.0127)
Interaction (LIA*LRL)		-0.1587* (0.0213)	-0.1576* (0.0220)

Table 4.
**System GMM Results on the Moderating Role of Institution in the Relationship
between Islamic Banking Development and Financial Inclusion Continued**

Variable	Model 1	Model 2	Model 3
	Two-Step	Two-Step with Interaction	Two-Step Robust
Constant	-5.8113** -26.579		
Number of Groups	30	23	23
Number of Instruments	20	20	20
Time Period	6	6	6
Years	2013-2018	2013-2018	2013-2018
Number of Countries	30	30	30
Sargan Test	205.567 (0.0822)	142.447 (0.3568)	
AR (2)	-0.6043 (0.5457)	-0.8315 (0.4057)	0.5556 (0.5785)

***, ** & * indicate levels of significance of 1%, 5% and 10% respectively. The parentheses contain the standard errors. L is the logarithm. Source: Research findings

The results of the basic model regarding the effect of Islamic banking development on financial inclusion (model 1) show that Islamic banking development, as represented by the natural logarithm of the total assets of Islamic banks (LIA) to GDP, is positively and significantly related to financial inclusion. This means that Islamic banking development promotes financial inclusion in OIC member countries. Its estimated coefficient of 0.1198 suggests that a 1% increase in Islamic assets to GDP is associated with an approximate 12% increase in financial inclusion for OIC member countries. Our results thus confirm the findings and the assertion that Islamic banking development can provide access to financial products and services to people without formal access through interest-free Islamic financial instruments (Barajas et al., 2015; Kamalu & Ibrahim, 2020; Mustafa et al., 2018).

The results of the other explanatory variables, GDP per capita (LGDPC), remittance inflows (LRMI) and institution, are all positively and significantly related to financial inclusion. According to a survey by the World Bank Global Findex, most people cite lack of income as a reason of not having a formal bank account (Global Findex, 2017). The positive coefficient of LGDPC confirms the assertion that when people without an income start earning, they will require banking services, thereby becoming financially inclusive. This result is consistent with the findings of Rasheed (2017). Moreover, the positive and significant coefficient of remittance inflows (LRMI) shows that remittance is an important determinant of financial inclusion in OIC member countries. This finding is consistent with the argument of Adams (2011) that recipients of remittances are mostly lower income families without access to the formal financial system. In order to receive their remittance, they will be required to open a bank account at a formal financial institution.

Institution (LRL) is also found to be highly positive and statistically significant. This result indicates that strong institutions are an important determinant of financial inclusion, as they provide an important framework for businesses and investments to flourish, which is crucial for banking sector growth. Institutions also protect property rights and enhance people's confidence in saving their money in the formal financial sector, thereby increasing the level of financial inclusion. This finding is consistent with those of Kamalu and Ibrahim (2020), Rasheed (2017) and Sadi Ali et al. (2016). Inflation was found to be insignificant, which seems to contradict previous studies, as inflation plays a vital role in macroeconomic policies (Anarfo et al., 2019).

In Table 4, models 2 and 3 estimate the moderating role of institutions in the relationship between Islamic banking development and financial inclusion. The results show that the coefficients of the interactions between Islamic banking development and institutions are negative and statistically significant in both models. However, model 3 (Table 4) was estimated with robust standard error, which is argued to produce robust parameters. Interestingly, the coefficients of the interaction term in model 3 with robust standard error are the same as those of model 2, without robust standard error (-0.1587). These results indicate that better institutions complement the positive effect of Islamic banking development on financial inclusion in OIC member countries, and are consistent with Khanh (2018) and Sadi Ali et al. (2016). Unlike conventional banking practice, borrowers from Islamic banks do not need to present any collateral security before accessing bank credit. In addition, the creditworthiness of borrowers depends on the viability of their proposed project, rather than their net worth or collateral (Tatiana et al., 2015). Furthermore, Islamic banking practice is based on Islamic laws and regulations that govern all financial transactions, which shows the crucial role of institutions in Islamic banking development. However, rules codified by acts of legislation are unambiguous in the degree to which they build trust in those to whom they apply. Without well-functioning and trustworthy legal and political institutions, laws, regulations and procedures might be unfairly and arbitrarily enforced (Iqbal & Mirakhor, 2013). Therefore, this result confirms the argument of the study, that better institutions will shape Islamic banking development, in turn promoting financial inclusion. Interestingly, the coefficient of Islamic banking development is positive and significant, but higher in the model with interaction (0.18) than without interaction (0.12).

V. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This work has examined the moderating role of institutions in the relationship between Islamic banking development and financial inclusion in OIC member countries. It used data from 30 OIC member countries with full Islamic banking operations, covering the period 2013 to 2018. In order to achieve the study objective, we estimated three models: a basic model (model 1), an interaction model (model 2) and an interaction model with robust standard errors (model 3). The findings reveal that the effect of Islamic banking development on financial inclusion is enhanced when there are better institutions. It is therefore concluded

that higher quality institutions play a vital role in promoting better Islamic banking development, which enhances financial inclusion in OIC member countries.

5.2. Recommendations

The findings show the significance of institutions in enhancing the positive effect of Islamic banking development on financial inclusion. Therefore, they demonstrate the important role that institutions play in building people's trust and confidence in using formal Islamic financial institutions, through strengthening the rule of law, protecting property rights, and improving regulatory quality, thereby reducing transaction costs, facilitating effective monitoring and enforcing contracts, consequently promoting Islamic banking development. Therefore, policymakers in OIC countries with Islamic banking operations should facilitate the development of better institutional frameworks that will complement Islamic banking operations, thus providing an avenue for alternative formal financial systems which allow the inclusion of those from outside them, and thereby increasing the level of financial inclusion. In addition, stakeholders in the Islamic banking industry should expand their operations, especially to disadvantaged populations and communities, by establishing more branches and ATM centres, and providing micro credits based on the principles of Islamic financing, so that more people previously outside the formal system will be financially included. Islamic microfinance banks should be established to cater for small and medium scale business, increasing the access to and availability of credit, hence leading to financial inclusion.

However, this work is limited to the use of total Islamic banking assets to measure Islamic banking development in OIC member countries. Future research should attempt to obtain data on Islamic banking credit to private sector to measure Islamic banking development.

REFERENCES

- Adams, R. H. (2011). Evaluating the economic impact of international remittances on developing countries using household surveys: A literature review. *Journal of Development Studies*, 47(6), 809–828.
- Akhter, W., Umer Majeed, M., & Roubaud, D. (2019). Islamic banking and financial inclusion: Evidence from Asian and African markets. *Journal of Islamic Business and Management (JIBM)*, 9(2), 341–354.
- Al-Jarhi, M.A. (2014). Towards an economic theory of Islamic finance regulation. *Journal of Islamic Banking and Finance*, 2(1), 345–366.
- Al-Jarhi, M.A. (2016, October). Islamic finance at crossroads. Paper presented at the 11th International Conference of Islamic Economics and Finance, Kuala Lumpur, October. Published in *Intellectual Discourse*, 24–43.
- Alexakis, C., Izzeldin, M., Johnes, J., & Pappas, V. (2019). Performance and productivity in Islamic and conventional banks: Evidence from the global financial crisis. *Economic Modelling*, 79(June 2019), 1–14.
- Anarfo, E. B., Abor, J. Y., Osei, K. A., & Gyeke-Dako, A. (2019). Monetary policy and financial inclusion in Sub-Sahara Africa: A panel var approach. *Journal of African Business*, 20(4), 1–24.

- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68(1), 29–51.
- Arun, T., & Kamath, R. (2015). Financial inclusion: Policies and practices. *IIMB Management Review*, 27(4), 267–287. <https://doi.org/10.1016/j.iimb.2015.09.004>
- Barajas, A., Naceur, S. Ben, & Massara, A. (2015). Can Islamic banking increase financial inclusion? (*IMF Working Papers 2015/031*). Middle East and Central Asia: International Monetary Fund.
- Besley, T., Burchardi, K., & Ghatak, M. (2019). The Gains from financial inclusion: Theory and a Quantitative Assessment. *Academia*, 1–42.
- Boukhatem, J., & Moussa, F. Ben. (2018). The effect of Islamic banks on GDP growth : Some evidence from selected. *Borsa Istanbul Review*, 18(3), 231–247. <https://doi.org/10.1016/j.bir.2017.11.004>.
- Čihák, M., & Hesse, H. (2010). Islamic banks and financial stability: An empirical analysis. *Journal of Financial Services Research*, 38(2), 95–113.
- Fry, M. J. (1989). Financial development: Theories and recent experience. *Oxford Review of Economic Policy*, 5(4), 13–28. <https://doi.org/10.1093/oxrep/5.4.13>.
- Gheeraert, L. (2014). Does Islamic finance spur banking sector development? *Journal of Economic Behavior and Organization*, 103(Supplement), S4–S20. <https://doi.org/10.1016/j.jebo.2014.02.013>.
- Gheeraert, L., & Weill, L. (2015). Does Islamic banking development favor macroeconomic efficiency? Evidence on the Islamic finance-growth nexus. *Economic Modelling*, 47(June 2015), 32–39.
- Global Findex. (2017). *Measuring Financial Inclusion and the Fintech Revolution*.
- Grassa, R., & Gazdar, K. (2014). Law and Islamic finance : How legal origins affect Islamic finance development? *Borsa Istanbul Review*, 14(3), 158–166. <https://doi.org/10.1016/j.bir.2014.05.001>.
- Halim, M., & Hafez, H. M. (2019). The efficiency of Islamic banks versus conventional banks : An empirical study of an emerging economy. *Journal of Banks and Bank Systems*, 14(02), 1–14.
- Hassan, M. K., & Aliyu, S. (2017). A contemporary survey of Islamic banking literature. *Journal of Financial Stability*, 34(February 2018) 12–43.
- Imam, P., & Kpodar, K. (2016). Islamic banking : Good for growth?. *Economic Modelling*, 59(2016), 387–401. <https://doi.org/10.1016/j.econmod.2016.08.004>.
- Iqbal, Z., & Mirakhor, A. (2013). *Economic development and Islamic finance*. The Washington, D. C.: World Bank.
- Jouti, A. T. (2018). Islamic finance : Financial inclusion or migration? *International Journal of Islamic Finance*, 10(2), 277–288. <https://doi.org/10.1108/IJIF-07-2018-0074>.
- Kamalu, K., & Ibrahim, W. H. B. W. (2020). How does the Islamic banking development spur financial inclusion in oic member countries? *Asian People Journal*, 3(1), 170–185.
- Khanh, L. C. (2018). The effects of institutional quality on formal and informal borrowing across high-, middle-, and low-income countries. New York: Cornell University. Retrieved from <https://arxiv.org/ftp/arxiv/papers/1903/1903.07866.pdf>.

- Kim, D. W., Yu, J. S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance*, 43(January 2018), 1–14. <https://doi.org/10.1016/j.ribaf.2017.07.178>.
- King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics*, 108(3), 717–737. <https://doi.org/10.2307/2118406>.
- Lebdaoui, H., & Joerg, W. (2016). Islamic banking presence and economic growth in Southeast Asia. *International Journal of Islamic and Middle Eastern Finance and Management*, 9(4), 551–569. <https://doi.org/10.1108/IMEFM-03-2015-0037>
- Léon, F., & Weill, L. (2017). Islamic banking development and access to credit. *Pacific Basin Finance Journal*, 52(April 2017), 54–69.
- Matekenya, W., Moyo, C., & Jeke, L. (2020). Financial inclusion and human development: Evidence from Sub-Saharan Africa. *Development Southern Africa*, 38(5), 1–18.
- McKinnon, R. I. (1973). *Money and capital in economic development*. Washington, D.C: The Brookings Institution Press.
- Mincer, J. (1974). Progress in human capital analyses of the distribution of earnings. (NBER Working Papers 0053). National Bureau of Economic Research, Inc.
- Mohieldin, M., Iqbal, Z., Rostom, A., & Fu, X. (2012). The Role of Islamic finance in enhancing financial inclusion in organization of islamic cooperation (oic) countries. *Islamic Economics Studies*, 20(2), 55–120.
- Mustafa, D., Baita, A. J., & Usman, A. Y. (2018). Impact analysis of Islamic finance on financial inclusion and economic growth in selected muslim countries: Lessons for Nigeria. *International Journal of Economics, Management and Accounting*, 26(2), 393–414.
- Nawaz, T. (2018). Lifting the lid on financial inclusion : Evidence from emerging economies. *International Journal of Financial Studies*, 6(2), 59-66. <https://doi.org/10.3390/ijfs6020059>.
- Rasheed, B. (2017). Determinants of financial inclusion and their impacts on income inequality and poverty (Thesis). Malaysia: University Putra Malaysia.
- Ren, X., & Shi, J. (2016). Institution, finance and economic growth: An evidence from multinational panel data of islamic finance. 1–22.
- Sadi Ali, H., Law, S. H., Yusop, Z., & Chin, L. (2016). Institutional quality and financial inclusion nexus in developing countries : A dynamic panel GMM estimation analysis. *18th Malaysian Finance Association Annual Conference (MFAC) 2016 and The 7th Islamic Banking, Accounting and Finance Conference (IBAF)*, May.
- Sarma, M. (2012). Index of financial inclusion - A measure of financial sector inclusiveness. *Journal Economic Literature*, 24(07), 472–476. <http://www.ncbi.nlm.nih.gov/pubmed/11718037>.
- Schumpeter, J. A. (1911). The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle. In M. Fritsch (Ed), *Regional Studies* (255). Cambridge: Harvard University Press. <https://doi.org/10.4324/9781315135564>.
- Sharma, D. (2016). Nexus between financial inclusion and economic growth: Evidence from the emerging Indian economy. *Journal of Financial Economic Policy*, 8(1), 13–36. <https://doi.org/10.1108/JFEP-01-2015-0004>.

- Sharma, P. (2014). *A study of the impact of financial inclusion in rural development*. Prestige Institute of Management and Research, Indore, India.
- Singh, B. P., & Pradhan, K. C. (2016). Institutional quality and economic performance in South Asia. *Journal of Public Affairs*, 19, 1–20. <https://doi.org/10.1002/pa.2401>.
- Tatiana, N., Igor, K., & Liliya, S. (2015). Principles and instruments of Islamic financial institutions. *Procedia Economics and Finance*, 24(July), 479–484. [https://doi.org/10.1016/S2212-5671\(15\)00613-9](https://doi.org/10.1016/S2212-5671(15)00613-9).
- Uddin, M. A., Ali, M. H., & Masih, M. (2021). Institutions, human capital and economic growth in developing countries. *Studies in Economics and Finance*, 38(2), 361–383. <https://doi.org/10.1108/SEF-10-2019-0407>.
- Zamer, K. Z. (2018). Islamic banking: A new approach for financial inclusion. *International Journal of Economics and Finance*, 10(7), 118-124. <https://doi.org/10.5539/ijef.v10n7p118>.

This page is intentionally left blank