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Islamic Banking and Financial Development: A Cross-Country Analysis

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Abstract

Islamic banking has become an integral part of the modern financial system. Therefore, this study examined the effect of Islamic banking on financial development in countries with a matured practice of Islamic finance. These countries include Iran, Saudi Arabia, Malaysia, UAE, Kuwait, Qatar, Turkey, Bangladesh and Indonesia. Besides, this study collected data on Islamic banks' assets and financial development indicators over nine (9) years between 2012 and 2020. The study applied heteroscedastic panel corrected standard errors (HPCSE) regression model to estimate results. The findings indicated that Islamic banks contribute significantly to improving financial development after controlling for banking characteristics (credit risk and capital adequacy ratio) and macroeconomic factors (real per capita GDP, inflation and trade openness). The findings provided insight into the contribution of Islamic banks to financial development, which can motivate regulatory authorities and policymakers to improve the practice of Islamic banking and finance through the provisions of enabling and motivational regulations and policies. This study provided a novel contribution as this issue is under researched. Most existing studies concentrate on the macroeconomic and institutional determinants of financial development, thus relegating the role of Islamic banking in spurring financial development.

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I. Introduction

Generally, financial development plays a vital role in enhancing the mobilization of savings and decreasing information asymmetries that induce better allocation of resources (Anwar & Sun, 2011). That is why Zarrouk et al., (2017) observed that the financial sector becomes one of the essential factors that promote real economic activity because a higher level of financial sector development leads to channeling more financial resources into a real productive investment that may propel economic growth. Specifically, the development of the Islamic financial sector provides numerous benefits, such as the supply and transfer of financial resources from the traditional and low-growth sectors to the modern high-growth sectors and improving entrepreneurship in these sectors (Tabash & Dhankar, 2014).

Furthermore, Islamic finance has become an emerging sector of the global financial industry that is growing more incredibly (Iqbal, 1997). It offers an alternative source of finance that supports Islamic and other global investors (Tabash & Dhankar, 2014). Nowadays, Islamic finance is not only applied in Islamic countries but also in Muslim minority countries. Again, the contribution of Islamic finance to economic growth is widely acknowledged because it accounts for a significant share in various industries like micro, small and medium enterprises (MSMEs) and retail lending (Hassan et al., 2020). Interestingly, the global Islamic financial sector has grown tremendously in the past four decades (Sabiu & Abduh, 2020). From USD 1.975 trillion in 2014, Islamic finance assets have increased to USD 3.374 trillion in 2020, projected to reach USD 4.94 trillion in 2025. In addition, Islamic banks contributed USD 2.349 trillion, accounting for 70 percent of the total assets in the Islamic finance industry in 2020. Similarly, Refinitiv2016) states that the industry will grow by more than 40 percent to reach USD 3.306 trillion in 2025.

Besides, Islamic banks provide a feasible alternative for all economies irrespective of religious beliefs (Saeed et al., 2020). Subsequently, European financial institutions and trader save now used various concepts, techniques and products (Iqbal, 1997). The continuous growth in the number of Islamic banks globally brought about a heated debate about its advantages and capability to develop the financial sector (Lebdaoui & Wild, 2016). According to Saeed et al. (2020), the moral values of Islamic banking direct and lead to economic growth toward achieving economic prosperity and goodwill. In contrast to the case of conventional banks, Islamic banks were not significantly affected by the global financial crisis, which signifies the ability of the former to contribute positively to sustainable economic growth (Sabiu & Abduh, 2020).

The global financial crisis vindicates the suitability of the Islamic finance industry to serve as a possible alternative. In fact, the endurance of the Islamic finance industry as the global financial crisis has a less significant impact on it. According to Smolo & Mirakhor (2010), the crisis has a moderate effect on the Islamic finance industry due to its peculiar features. Islamic finance, as an ethical system, prohibits interest (usury), avoids *gharar* (excessive risks), encourages risk sharing in economic transactions and directs economic activities toward the public interest. The authors further argued that the industry is insulated from the crisis because of "...the limited sophistication of Islamic finance..." (Smolo & Mirakhor, 2010). Again, finding durable solutions to the consequences of the novel coronavirus (COVID-19) has become a topical issue among

academics and practitioners worldwide (Umar et al., 2022). Specifically, the emergence of the pandemic, which brought an enormous disruption to the entire global financial industry, has thrown another challenge to the Islamic finance industry to offer alternative and sustainable solutions (Hassan et al., 2020). Islamic finance and banks have been tasked to overcome the deficiencies and disruptions caused by the COVID-19 pandemic in the global finance industry.

Even though the debate on whether Islamic banks contribute to financial development is ongoing, the authors found a few studies that examined the relationship (Abedifar et al., 2016; Ahsan & Qureshi, 2022; Lebdaoui & Wild, 2016). The period for a study by Abedifar et al., (2016) spanned between 1999 and 2011; Lebdaoui & Wild (2016) utilized data between 2000 and 2013 and Abedifar et al., (2016) and Ahsan & Qureshi (2022) extended the period from 2010 to 2018. In contrast, the current study utilized the most recent and current available data between 2012 and 2020 for 9 Islamic countries where Islamic banking is strongly accepted and practiced. The countries are Malaysia, Iran, Indonesia, Saudi Arabia, Kuwait, Qatar, Turkey, Bangladesh and the UAE. Notably, our study covered 2020, when COVID-19 was declared a pandemic. Based on the preceding discussions, this study examines the relationship between Islamic banking and financial development.

The remainder of the paper is organized into four sections. Section 2 reviews the relevant literature. Section 3 presents the methodology. Section 4 accommodates results and discussion. Finally, section 5 provides the conclusion and recommendations.

II. Literature Review

Theoretical Background

Theoretically, Islamic banking and financial development are interconnected (Imam & Kpodar, 2016). Al-Jarhi (2017) proposes a model of Islamic finance that functions under a mixed system (conventional and Islamic). While identifying the theoretical connection between Islamic banks and the financial system development, Al-Jarhi (2017) advances a thesis: "Islamic finance…would focus on the profitability of…investment. Financial resources would be directed to the most productive investments, thereby improving the efficiency of the financing process and reinforcing efficiency in the real sector." This points to the critical importance of Islamic banking in the modern financial architecture. In fact, establishing Islamic banks increases the financial inclusion of ethical depositors and investors, resulting in higher financial development. Besides, the author emphasizes the efficacy of conventional banking characteristics in influencing financial stability.

Moreover, Imam and Kpodar (2016) elucidate that the emergence of Islamic banking has led to converting many national banks into the Islamic banking model and the introduction of the Islamic window system by international banks. Islamic banking permeates all aspects of the financial sector, including investment banking, insurance (takaful), capital market products such as sukuk, etc. The authors observe that the Islamic banking industry's growing trajectories manifest itself in expanding the financial landscape by broadening the financial products in the financial system. Similarly, Hassan (1999) argues for the role of Islamic banking in promoting financial

intermediation, as the proliferation of Islamic financial instruments facilitates the development of the financial system. However, Hassan (1999) observes complexity in the process as he asserts: "...(Islamic) banking operations will...be more varied and complex, as compared to the traditional banking system." These complexities stem from differences in assessing clients' credit-worthy nature, where Islamic banks select profitable and viable projects in contrast to conventional banking, which relies on interest.

Empirical Literature and Hypothesis Development

Islamic financial development is a product of the Islamic financial system, which comprises Islamic banking banks, Islamic insurance (Takaful) companies and money and capital markets. Hence, the efficiency and effectiveness of the various financial sectors will determine a country's overall financial development. At the same time, a heated debate exists on the worthiness and capability of Islamic banks to enhance the financial sector due to their growing number in the world (Lebdaoui & Wild, 2016). Similarly, the financial sector renders financial services to the rest of the economy. It consists of the central bank, non-banking institutions, organized financial markets and their regulatory and supervisory bodies that govern and control the activities in the financial market (Elhachemi & Othman, 2016).

In this connection, recent studies on the effect of Islamic banking on financial development are Ahsan and Qureshi (2022), Abedifar et al., (2016), Lebdaoui and Wild (2016), and Ahsan and Qureshi (2022) examined the impact of the Islamic banking index and Islamic financial development on the performance of Islamic and conventional banks. They found that the Islamic banking index positively impacts the performance of Islamic banks, and Islamic financial development significantly moderates the impact of the Islamic banking index in a positive direction. Lebdaoui and Wild (2016) utilized panel data between 2000 and 2013 for 22 countries; the findings established significant positive effects of Islamic banks' assets on banking size and overall financial development, while inflation significantly negatively affected financial development. However, real per capita GDP and trade openness appeared insignificant in influencing financial development. Islamic banks' assets also do not significantly affect financial deepening (M2/GDP).

Similarly, Abedifar et al., (2016) documented a significant positive effect of the medium-size Islamic banks' market share on financial development in countries with a Muslim-populated majority. Moraes et al., 2021) analyzed the effect of the efficiency of conventional banks on financial development. The findings established significant negative effects of banking concentration and competition on financial development. Again, the study controlled for bank characteristics using credit risks, capital adequacy ratio, and macroeconomic factors comprising GDP growth rate and inflation. They also found that credit risks and capital adequacy ratio have a significant negative influence on financial development. Ozili (2018) examined the influences of financial development in Africa between 1996 and 2015. The findings revealed the non-significant influence of credit risk and inflation on financial development.

In a related study, Saeed et al., (2020) investigated the Islamic banking industry's contribution to Pakistan's economic growth over ten years between 2006 and 2016. The results, among others,

indicated a considerable contribution of full-fledged Islamic banks to the country's economic growth. Similarly, (Boukhatem & Moussa, 2018) examined the effect of Islamic banking activity on economic growth in the MENA region using panel data between 2000 and 2014. They established that Islamic banking activity, banking size and trade openness have a significant positive effect on economic growth, while inflation has a significant negative impact. Similarly, Tabash and Dhankar (2014) found that Islamic financing significantly improved long-term investments in the U.A.E. Adnan (2011) developed an index for financial development comprising banks, stock markets, insurance companies and bond markets in forty-one (41) economies for the period that spanned from 1988 to 2009. The study found that widening the degree of their financial development would improve the soundness of countries' financial systems.

Recently, Sabiu and Abduh (2020) analyzed the association between Islamic financial development and economic growth in Nigeria. The study revealed a significant short- and long-run association between Islamic financial development and economic growth. A related study by Muhammad and Dauda (2018) investigated the effect of Islamic finance in promoting economic growth in Nigeria by utilizing time-series data from 2012 to 2015. The results indicated a positive relationship between Islamic banks' financing and economic growth in Nigerian GDP, with economic growth resulting in a long-run relationship. Zarrouk et al., (2017) analyzed the time series data between 1990 and 2012 to assess the causality between financial development (Islamic finance in particular) and real economic growth in the UAE. The study revealed that financial development could lead to real economic activity growth and consequently lead to Islamic finance development. Gazdar and Grassa (2015) investigated the determinants of Islamic financial development in five (5) GCC countries, including Saudi Arabia, U.A.E. Bahrain, Qatar and Kuwait, from 1996 to 2010. The study reported that macroeconomic factors such as income per capita and economic openness are important determinants of the region's Islamic financial development. Tabash and Dhankar (2014) assessed the association between Islamic finance development and economic growth in the UAE between 1990 and 2020. The study found a significant positive relationship between Islamic banking financing and economic growth in the country. In another study, Grassa and Gazdar (2014) found the development of the Islamic banking sector as a key determinant of economic growth in GCC countries. Based on the review of the previous empirical studies, the study formulates the following research hypothesis:

H1: Islamic banking has a significant positive relationship with overall financial development.

III. Methodology

Data and Sample

The study collected panel data on Islamic banks' assets from the Islamic Finance Development Report, while data on indicators of financial development were obtained the World Development Indicators (WDI) and Global Financial Development Database. The study covered a sample of nine most developed countries globally in the Islamic finance industry. The sample includes Iran, Saudi Arabia, Malaysia, UAE, Kuwait, Qatar, Turkey, Bangladesh and Indonesia. Besides, the data covered nine years between 2012 and 2020. Islamic finance assets for the sampled countries

stood at USD 3.64 trillion, accounting for 91 percent of the Islamic finance industry in 2021 (Refinitiv, 2023). Except for Qatar, total banking assets for the sampled countries reached USD 2.39 trillion, equivalent to 85% of the Islamic banking industry share (Refinitiv, 2023).

Variables of the Study

Dependent variable

Financial development is the dependent variable. Following Lebdaoui and Wild (2016), this study used liquid liabilities as a proxy for financial development proxies. This has been widely employed in previous studies to measure the level of development (Saci et al., 2009). According to Hassan et al., (2020), liquid liabilities are necessary to foster crucial sectors that drive the economy by ensuring the availability of loans for investment reasons. In addition, this study introduced the domestic credit ratio and the financial system deposit ratio as alternative indicators of financial development to conduct robustness testing. High values of these signify more funds, indicating more remarkable financial development.

Explanatory variables

Islamic banks increase the financial inclusion of ethical depositors and investors, resulting in higher financial development (Al-Jarhi, 2017). Besides, Islamic banks have pushed the frontier of modern financial system (Imam & Kpodar, 2016), which streamlined financial intermediation (Hassan, 1999). More so, the size of a bank can enhance its performance and stability; consequently, a larger banking size corresponds to greater financial development in an economy (Ahsan & Qureshi, 2022). Thus, Islamic banking is the major independent variable. In line with Ahsan and Qureshi (2022), the paper measured Islamic banking as the natural logarithm of Islamic banks' assets.

Furthermore, the model controls for banking characteristics credit risk and capital adequacy ratio) in line with past studies (Abedifar et al., 2016; Ahsan & Qureshi, 2022). Credit risk represents the percentage of non-performing or non-productive loans that will lead to deterioration in bank performance (Ahsan and Qureshi, 2022). Therefore, a lower value of credit indicates a reduction in bank stability, leading to a decrease in financial development. Besides, an increase in the capital adequacy ratio tends to minimize portfolio risk, indicating improved stability (Zhang et al., 2008). Therefore, a higher value of capital adequacy ratio indicates enhanced strength for a bank (Ahsan and Qureshi, 2022). Therefore, an increase in the capital adequacy ratio can lead to an improvement in financial development.

Moreover, in line with prior studies, this study used macroeconomic controls, including real per capita GDP, inflation, and trade openness, which are expected to influence financial development. Boukhatem and Moussa (2018) documented that the GDP per capita growth rate positively influenced Islamic financial development. They added that inflation is expected to lower economic growth. Also, Kim et al., (2010) established a positive long-term association between trade openness and financial development with a negative short-term association. Table 1 summarizes the description of variables and sources of data.

Table 1. Variable descriptions and data sources

Variable	Description	Data source
Liquid liabilities (LL)	Broad money (M3) as a percent of GDP	World Development Indicators
Domestic credit (DC)	Domestic credit to the private sector by banks as a percent of GDP	World Development Indicators
Financial system deposit (FSD)	Total deposit of deposit money banks and other financial institutions as a percent of GDP	Global Financial Development Database
Islamic banking (IB)	The natural logarithm of Islamic banks' assets	Islamic Finance Development Report
Credit risk (CR)	Bank non-performing loans as a ratio of total loans (%)	Global Financial Development Database
Capital adequacy ratio (CAR)	Bank regulatory capital as a percent of risk-weighted assets	Global Financial Development Database
Per capita GDP (PCGDP)	Real per capita GDP (in USD)	World Development Indicators
Inflation (INF)	Consumer price index	World Development Indicators
Trade openness (OPEN)	The sum of exports and imports as percent of GDP	World Development Indicators

Econometric Model

As mentioned earlier, the study used a sample of nine (9) countries and used data for nine years (2012-2020). The study employed panel data analysis due to its ability to compute high-precision parameter estimates and account for heterogeneity across the individual units (Ascarya & Indra, 2022). Initially, the Hausman test selected fixed effect (FE) regression as the suitable model instead of random effect regression, as the result is statistically significant (Torres-Reyna, 2007). Furthermore, this study conducted a panel heteroskedasticity test and found its presence in the model. Hence, the study used the heteroscedastic panels corrected standard errors (HPCSE) model as the most appropriate model for the major results because the test's result is statistically significant (Umar, 2022). The HPCSE panel model addresses the problem of heteroscedasticity as well as incorporates heterogeneity of the sample countries. Equation 1 expressed the main research model in which liquid liabilities serve as the dependent variable.

$$LL_{it} = \beta_0 + \beta_1 IB_{it} + \beta_2 CR_{it} + \beta_3 CAR_{it} + \beta_4 PCGDP_{it} + \beta_5 INF_{it} + \beta_6 OPEN_{it} + \varepsilon_{it} \quad (1)$$

Where: *LL* represents liquid liabilities, the proxy for financial development; *IB* stands for Islamic banking; *PCGDP* is the real per capita GDP (in USD); *INF* is the inflation; *OPEN* represents trade openness; *β₀,* is the constant term; *β₁- β₆* are the coefficients of the explanatory variables (independent and control); Subscript *i* and *t* stand for country and year, respectively; and ε_{it} stands for the error term.

In order to check for robustness, this study utilized domestic credit (DC) and financial system deposit (FSD) as the alternative proxies for financial development.

IV. Results and Discussions

Descriptive Statistics

The descriptive statistics show the summary of each variable in terms of the number of observations, mean, minimum and maximum values, standard deviation, skewness and kurtosis. Table 2 provides the descriptive statistics of the dependent, independent and control variables.

Table 2. Descriptive statistics

Variable	Obs.	Mean	Min.	Max.	S.D.	Skewness	Kurtosis
Liquid liabilities (LL)	72	75.85	38.39	140.09	27.94	0.79	2.74
Domestic credit (DC)	71	66.64	29.89	136.56	29.16	0.84	2.67
Financial system deposits (FSD)	71	67.70	27.33	129.25	29.07	0.64	2.24
Islamic banking (IB)	77	11.03	10.21	11.85	0.44	-0.06	1.96
Credit risk (CR)	56	3.76	1.08	9.89	2.67	1.07	2.78
Capital adequacy ratio (CAR)	56	17.15	9.45	23.31	3.26	0.60	3.22
Real per capita GDP (PCGDP)	79	37,074.32	3,195.78	96,261.48	28,087.50	0.68	2.39
Inflation (INF)	79	143.62	104.89	308.83	53.61	3.29	15.69
Openness (OPEN)	78	81.89	30.76	176.75	42.35	0.80	2.49

Table 2 shows that the mean liquid liabilities are three-quarters of GDP, while the average domestic credit is three-third of GDP. Credit risk is small, with a mean of 3.76 percent. Still, the average capital adequacy ratio, a measure of the risk of insolvency, is high, representing 17.15 percent with a minimum of 9.45 percent and a maximum of 23.31 percent. The average real per capita income is USD 37,074.32. The average inflation is 143.62, which is more than 40 percent above the normal price level in the base year. The highest inflation (308.83) is 200 percent above the base year price level. Trade openness is high, with an average of 81.89 percent. This implies that the sampled countries have a high level of trade liberalization, though a country with 30.76 percent openness is not as liberalized as an economy with 176.75 percent. This suggests a high variation of trade openness across the countries under study.

Also, Table 2 shows the results of the tests for skewness and kurtosis for the variables. According to Nomran and Haron (2021), variables are considered not normally distributed if their skewness and kurtosis values are greater than 3 and 10, respectively. On this premise, all the variables are normally distributed except inflation, which has outliers. Inflation is minorized at the 5 percent and 95 percent significance thresholds, following the approach of past studies to mitigate the impact of outliers on the predictions (Bala et al., 2020; Umar, 2022).

Correlation Matrix

Correlation is a preliminary investigation to find the degree of association among the variables. Table 3 presents the correlation matrix among the variables.

Table 3. Correlation matrix

Variable	LL	DC	FSD	IB	CR	CAR	PCGDP	INF	OPEN	VIF
LL	1									
DC	0.937***	1								
FSD	0.962***	0.936***	1							
IB	0.547***	0.477***	0.459***	1						2.32
CR	-0.155	-0.240*	-0.146	-0.418**	1					2.23
CAR	-0.156	-0.049	-0.097	0.324**	-0.636***	1				1.74
PCGDP	0.257**	0.267**	0.305***	0.191	-0.276**	0.281**	1			1.70
INF	-0.212*	-0.204*	-0.165	0.238**	0.314**	-0.193	-0.453***	1		1.62
OPEN	0.649***	0.631***	0.673***	0.271**	-0.085	0.183	0.583***	-0.465***	1	2.84

Table 3 shows the correlation among the variables. Domestic credit and financial system deposit ratio are significantly positively correlated with liquid liabilities. Additionally, Islamic banking, real per capita GDP and trade openness have a significant positive association with financial development (liquid liabilities) at most at a 5 percent significance level. However, inflation is marginally and negatively correlated with liquid liabilities. Similarly, Islamic banking, real per capita GDP and trade openness are positively associated with banking size and financial system deposit ratio. At the same time, credit risk and inflation are negatively correlated with banking size at a 10 percent significant level. The results of the multicollinearity test using variance inflation factor (VIF) reveal that all the explanatory variables have VIF below 5. These results suggest that the variables are free from the collinearity problem.

Major Regression Results

In order to analyze the effect of Islamic banking on financial development, the authors employed HPCSE model based on the result of the Hausman test and panel heteroskedastic test. Though HPCSE is the major model, this study complemented it with fixed effect (FE) model for comparative purpose. Table 4 presents the regression results using liquid liabilities as a proxy for financial development.

Table 4. Multiple Regression Results Using Liquid Liabilities as a Proxy of Financial Development

Explanatory Variables	FE Model		HPCSE Model	
	Coef.	p-value	Coef.	p-value
Islamic banking (IB)	34.899	0.074*	19.573	0.016**
Credit risk (CR)	-3.861	0.099*	-5.195	0.000***
Capital adequacy ratio (CAR)	-2.795	0.006***	-5.122	0.000***
Real per capita GDP (PCGDP)	-0.001	0.237	-0.001	0.000***
Inflation (INF)	0.158	0.075*	0.137	0.071*

Explanatory Variables	FE Model			HPCSE Model
Trade openness (OPEN)	0.003	0.99	0.566	0.000***
Constant (CONS)	-235.510	0.271	-83.613	0.331
No. of observations	72			72
F-value	4.460			
Wald Chi2				369.750
Prob>Chi2				0.0000
Prob>F	0.0017			
R^2	0.1259			0.8429
Hausman test (p-value)	0.0273			
Panels heteroskedastic test (p-value)	0.0000			

Notes: *p <0.10; **p <0.05; ***p <0.01
  DV means dependent variable (liquid liabilities)
  EV means explanatory variables (independent and control)
  HPCSE means heteroskedastic panels corrected standard errors

In Table 4, HPCSE is the most appropriate model based on the Hausman test and the presence of heteroscedasticity; however, HPCSE panel regression is presented along with FE regression to check robustness of the main model. In both models, the parameters are jointly significant at 1 percent, with high values of Wald chi-square. The findings indicated that Islamic banking is positively significant in promoting financial development in both HPCSE and FE regressions. Regarding macroeconomic factors, inflation is marginally significant in influencing financial development, and trade openness significantly affects financial development in the second model. At the same time, real per capita income is not a significant driver of financial development. The implication is that a country at a lower stage of development may witness high financial development if there is a sound regulatory environment for the financial institutions. In contrast, credit risk and capital adequacy ratios negatively affect financial development significantly. These results imply that higher credit and insolvency risks stifle financial development, while lower levels propel financial development.

Robustness Test

For the sake of conducting robustness checking, this study used two alternative measurements of financial development: domestic credit and financial system deposit. Table 5 provides the regression results where domestic credit is the proxy of financial development.

Table 5. Multiple Regression Results Using Domestic Credit as Indicator of Financial Development

Explanatory Variables	Random Effects Regression		FGLS Regression	
	Coef.	p-value	Coef.	p-value
Islamic banking (IB)	34.347	0.005***	17.049	0.007***
Credit risk (CR)	-4.015	0.027**	-6.418	0.000***
Capital adequacy ratio (CAR)	-1.826	0.035**	-4.294	0.000***
Real per capita GDP (PCGDP)	0.000	0.293	-0.001	0.000***

Explanatory Variables	Random Effects Regression		FGLS Regression	
Inflation (INF)	0.144	0.043**	0.229	0.000***
Trade openness (OPEN)	0.093	0.49	0.559	0.000***
Constant (CONS)	-280.783	0.032	-83.469	0.210
No. of observations	71		71	
Wald Chi2	27.720		368.80	
Prob>Chi2	0.0001		0.0000	
R^2	0.5104			
Hausman test (p-value)	0.3594			
Breusch and Pagan LM (p-value)	0.0075			
Panels heteroskedastic test (p-value)	0.0000			

Notes: *p <0.10; **p <0.05; ***p <0.01

  DV means dependent variable (Banking size)

  EV means explanatory variables (independent and control)

  CT FGL regression means cross-sectional time-series FGLS regression

  Breusch and Pagan LM means Breusch and Pagan Lagrangian multiplier test for random effects

The results in Table 5 are based on random effect (RE) regression, as suggested by the Hausman test result. However, the RE regression results are compared with the cross-sectional time-series FGLS regression due to the existence of panel heteroskedasticity. Coincidentally, the finding indicates the positive significance of Islamic banking in explaining financial development at a 1 percent level. Similar to the results of Table 4, macroeconomic controls have positive implications for financial development, while higher levels of banks' risk controls drive down financial development. It should be noted that though real per capita income appears significant at 1 percent in the second model, it practically does not affect financial development since its absolute size is zero.

Moreover, Table 6 shows the regression results using financial system deposits as an alternative measurement of financial development. The results of Table 6 confirm our findings that Islamic banking has a significant positive effect on financial development.

Table 6. Multiple Regression Results Using Financial System Deposit as Proxy of Financial Development

Explanatory Variables	Random Effect Regression*	
	Coef.	p-value
Islamic banking (IB)	24.539	0.010**
Credit risk (CR)	-2.895	0.081*
Capital adequacy ratio (CAR)	-2.356	0.026**
Real per capita GDP (PCGDP)	0.000	0.305
Inflation (INF)	0.116	0.023**
Trade openness (OPEN)	0.356	0.010**
Constant (CONS)	-189.291	0.053*
Wald Chi2	665.38	

Prob>Chi2	0.0000
R^2	0.6594
Hausman (p-value)	0.0511
Panels heteroskedastic test (p-value)	0.0000

Notes: *p <0.10; **p <0.05; ***p <0.01

* Robust standard errors

  DV means dependent variable (financial system deposit ratio)

  EV means explanatory variables (independent and control)

Discussion

The findings indicate the significant role played by Islamic banking in promoting financial activities in the economy. Islamic banking is pro-financial development as it expands money in circulation, as well as enhances credit expansion and size of deposits in the domestic financial system. The findings align with the works of Abedifar et al., (2016), Imam and Kpodar (2016) Ahsan and Qureshi (2022), and Lebdaoui and Wild (2016). Specifically, research by Abedifar et al., (2016) indicated the significant contribution of Islamic banking to promoting financial development in Islamic nations. The findings of a study by Imam and Kpodar (2016) show that Islamic banking is positively associated with economic growth. Also, Lebdaoui and Wild (2016) established that Islamic banking significantly influenced banking size and overall financial development; however, it has no significant effect on financial deepening (liquid liabilities).

It is worth noting that the growth of Islamic banking is believed to contribute positively to its conventional counterpart. For example, the findings of Abedifar et al., (2016) suggest that an increased market share for Islamic banks is related to greater efficiency in conventional banks. This is like the empirical evidence by Belkhaoui (2023), which demonstrates that Islamic banking in MENA nations not only promotes economic growth but also has a significant positive impact on the development of conventional banking.

However, excessive credit risk and low capital adequacy can hamper financial development. Despite the benefits of Islamic banking for financial development, high credit risk in the banking industry may dampen the tempo in financial development. Our findings suggest that credit risk could reduce financial development by about 3 to 6 percentage points. Though capital adequacy has a lower harmful effect on financial development, it can account for 2 to 5 percentage points decrease in financial development. Consequently, the combined effect of credit risk and capital adequacy lies between 5 and 11 percentage point reduction in financial development. This highlights the fact that Islamic banking could have limited contribution to the enhancement of financial development in the context of excessive credit risk and low capital adequacy. This supports the findings of de Moraes et al., (2021) who found deleterious effects of credit risks and capital adequacy ratio on financial development. In contrast, Ozili (2018) did not find any influence of credit risk in driving financial development.

Moreover, inflation and trade openness are significantly positive in driving financial development among the control variables, while real per capita income appears practically insignificant. The significant effect of trade openness is confirmed by (Gazdar & Grassa, 2015), while the insignificant influence of real per capita income is not in conformity with the same study. The significant positive impact of inflation on financial development contrasts with the study by Lebdaoui and Wild (2016), who observed that inflation is negatively significant in explaining financial development (Moraes et al., 2021) cannot find evidence that inflation influences financial development in developing countries. Concerning the results of the negative effect of credit risk and capital adequacy ratio on financial development, the findings conform to the work of Moraes et al., (2021).

However, certain key issues need to be addressed to sustain the contribution of Islamic banking to financial development. Recently, Islamic banking constituted more than 75% of the entire Islamic finance industry, which amounted to approximately USD 1.821 trillion (Belkhaoui, 2023). This signifies the need to address the challenges associated with the operations and practices of Islamic banks. For example, Jatmiko et al., (2024) provide both theoretical and empirical evidence about the persistence of unethical issues in the modes of financing provided by Islamic banks despite the endorsement by their Shari'a supervisory boards. Modern Islamic banks have been criticized for mimicking conventional banks in their operations and developing financial products to the extent that many of these products do not strictly comply with Shari'a. The fact is that Islamic banks aim to offer financial services consistent with Islamic teachings and if they are successful in reaching this prospective Muslim audience, this might accelerate the economic growth of these nations (Imam & Kpodar, 2016). Other obstacles to expanding Islamic banking are skilled employees, tax rates, and regulations (Cham, 2018). In summary, considering the global acceptability, addressing challenges and obstacles faced by Islamic banks is essential to sustain the role of Islamic banking in promoting financial development.

V. Conclusion and Recommendation

Based on the findings, the study concludes that Islamic banking is an important factor in improving financial development in countries where the Islamic banking industry is highly developed. In addition, strong financial development is not unconnected with the size of credit and insolvency risks, respectively. Low ratios of credit risk and insolvency risk facilitate financial development. However, the level of economic development may not necessarily improve financial development. In fact, a country's strategic focus on developing the financial sector may provide a competitive advantage over its income level.

The major finding indicates that an increase in Islamic banking, measured in terms of Islamic bank assets, is expected to enhance financial development. Islamic bank assets cannot be sustainably improved unless some key challenges and obstacles are addressed by the relevant regulatory bodies. For instance, there are issues of mimicking conventional bank financial products and unethical practices, even though they are certified to be fully Shari'a-compliant by the Shari'a supervisory board. These issues will cause investors, including shareholders and depositors, to reduce their investments in Islamic banks or divest their funds for other businesses that strictly

comply with Shari'a, leading to a reduction in financial development. Accordingly, the relevant regulatory bodies, both local and international (such as the Islamic Financial Service Board, Accounting and Organization for Islamic Financial Institutions, etc., need to provide comprehensive Shari'a frameworks and guidelines for developing Islamic banking products that not only mimic their conventional counterparts but also strictly conform to Shari'a. Additionally, the board of directors needs to appoint competent Shari'a supervisory board members capable of screening out any product that violates the teachings of Islam, regardless of its size. Moreover, Islamic banks need to collaborate with relevant agencies to enhance awareness and knowledge of their products, thereby attracting more investors and customers.

Though the period covered reached 2020, the sample size of the countries is limited to nine (9). These countries are the most developed in the Islamic banking industry, accounting for more than 85 percent of Islamic banking assets and 90 percent of Islamic finance assets. However, future studies should cover more countries, particularly those actively participating in the Islamic banking industry. Another limitation is that the effect of the COVID-19 pandemic has not been accounted for in the study. The pandemic may likely moderate the effect of Islamic banking on financial development. Again, the study has not considered Islamic financial development in the research model. This study also expects future research to examine the effect of Islamic banking on both financial and Islamic financial development, respectively. Therefore, the study recommends that the activities of Islamic banks should be further strengthened to deepen financial development, which is essential for a vibrant economy.

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Conceptualization, A.J.B., U.H.U and J.S.S.; Methodology, A.J.B; Investigation, U.H.U. and J.S.S.; Analysis, U.H.U; Original draft preparation, A.J.B. and U.H.U.; Review and editing, A.J.B.

Conflicts of Interest
The authors declare no conflict of interest.

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