

# Empirical Analysis of Islamic Banking and Economic Growth

Melloul Anass<sup>\*</sup>

Chaik Saif Eddine<sup>\*\*</sup>

Oujgha Reda<sup>\*\*\*</sup>

## Summary

The last decades have been characterized by sustained economic growth in which the financial system has played a crucial role. Banks have been at the center of this development and have undergone a profound change. Indeed, the emergence of Islamic finance and its place internationally justify the question of its role as a real generator of financial intermediation.

In this context, the purpose of this paper is to examine the relationship between Islamic financial model evaluated by Banks Islamic and economic growth. Via a study the in a sample of nine countries, the Islamic Bank system was developed during the period (2008-2014), by employing the Panel Model to see the link between financial development and economic growth. We use time series data of Islamic financial expressed by the following independent variables (total Islamic Bank assets, investment accounts and financial assets, Cost to income ratio, Non-financial income

ratio, income on asset ratio). Moreover, real GDP per capita as dependent variable has been used.

An Econometric Modelling by the Generalized Method of Moments (GMM) of some indicators and the index of economic growth GDP. Consequently, our study confirms the existence of a positive correlation but not strong, enough for the size of Islamic banks in this sample, and weight in the financial system that remains average compared to conventional banks.

**JEL classification:** E44, G21, O47, C50

**Key words:** Financial Development, Islamic Bank, Economic Growth, Econometric Modeling

## 1. Introduction

The Islamic Finance also known as "asset-based" or "participatory finance", has emerged as an effective tool for financing development worldwide<sup>1</sup>. **The Islamic finance was established approximately 40 years ago in Dubai was there a few years, not marginal, the term would be too strong, but a niche, it is now a growing interest.** It represents 1.8 billion dollars of investment in the world, a

<sup>\*</sup> Ph.D. Student, University Mohamed V, Faculty of Social Economics and Legal of SALE –FSJESS-, Morocco, Anas.mell90@gmail.com, GSM: +212.60.41.72.10

<sup>\*\*</sup> Ph.D. Student, University Mohamed V, Faculty of Social Economics and Legal of SALE –FSJESS-, Morocco, Saif.chaik50@gmail.com, , GSM: +212.61.32.68.210

<sup>\*\*\*</sup> Ph.D. Student, University Mohamed V –FSJESS-, Administrative Framework in the Ministry of Agriculture and Maritime Fishing, Morocco, Oujghareda@gmail.com, GSM: +212.66.15.08.293

<sup>1</sup> The World Bank, 2015, Islamic Finance, [Online], Available: <http://www.worldbank.org/en/topic/financialsector/brief/islamic-finance> [Accessed 10 September 2016]

balance lower than that of a large European bank, but the sector is growing. The last five years, trade in the sector grew by 17%, and is expected double to 3,000 billion in 2020.

Many investors today relish the principles of Islamic finance as they see it as a more socially responsible finance and one that is slightly fairer than conventional finance by the principles on which it rests. Moreover, Islamic finance is not targeted only at 1.5 billion Muslims. Several western countries are also interested in it because it has interesting features on transparency and banking regulation. On this point, the United Kingdom is considered a pioneer.

During the last two decades, Islamic banking has seen a rapid growth. The liberalization of financial regulations, financial globalization, changes in technology, product innovation, the birth of several new Islamic markets, and the most notable of them is the financial crises stimulate the spread of the Islamic finance (Rosman, Wahab, & Zainol, 2014)<sup>2</sup>.

Islamic finance emerged as a rapidly growing industry. With instruments that respect the Islamic law, it tried to promote inclusive growth, equitable risk-sharing and social justice. Although industry represents less than 2% of the banking assets worldwide, it now holds about \$1.6 trillion of the global assets. The same bureau highlights that "globally, the Islamic finance market was growing by between 10% and 15% annually, from 2000 to 2012." Shariah-compliant assets rose by more than 160% between 2009 and 2011. Islamic finance investments are now worth \$1.6 trillion and expected to reach \$2.5 trillion by 2015.

In this context, the interest of this paper is to analyze the role of the Islamic or participatory financing that the latter could play in promoting the economic activity of

our panel of countries, especially since the global economy has experienced a significant recession since the last financial crisis of 2008, with very low levels of investment.

However, the purpose of this research is to reveal the importance of Islamic financing on economic growth. Indeed, we conducted a seven-year study on a set of countries (Bahrain, Saudi Arabia, Emirate, Kuwait, Malaysia, Indonesia, Qatar, Turkey, and Pakistan) that had already established such funding Islamic banking. From a regression of the panel data, the results of our research intended to clarify to the public authorities of other Islamic countries that have not yet introduced this alternative financing method like Morocco, the contribution that Play Islamic finance on the economic development of these countries.

The paper will also present a scientific contribution to the debate on the effects of Islamic financing on economic growth especially for developing countries, notably because of the period of this study that coincides with the six critical years after the advent of the international economic and financial crisis.

## 2. Historical Framework of Islamic Banks and their Introduction in Morocco

In the beginning, the fundamental principles of Islamic finance were established and framed by the Fatwas opinions voiced by the Muslim jurists specializing in the jurisprudence of economic transactions and limiting themselves to the analysis and description of what is allowed by the Shari'ah and what is not. Then in the second phase, with the evolution of the currents of economic thought with the communist and capitalist system, Islamic finance was

<sup>2</sup> Daly, S., Frikha, M., 2016, Banks and economic growth in developing countries: What about Islamic banks? Cogent Economics & Finance, [Online], 4 (1). Available: <http://www.readcube.com/articles/10.1080/23322039.2016.1168728> [Accessed 19 September 2016]

focused on establishing criticisms of the latter. It was only in the third quarter of the last century that the principles of Islamic finance started gaining ground as true science and industry.

Despite its name, Islamic finance is not a religious product. It is however, a growing series of financial products developed to meet the requirements of a specific group of people. Conventional finance includes elements (interest and risk) which prohibited under Shari'ah law. Developments in Islamic finance have allowed Muslims to invest savings and raise finance in a way that does not run counter to or undermine their religious or ethical beliefs.

Islamic finance has undergone a remarkable evolution and expansion over the past 30 years, and it was during the period that striking events speeding up its development occurred. We should point out the oil shocks led to the oil surpluses as a result. The first commercial Islamic financial institution was established in 1975 in Dubai.

Islamic banking is the branch of Islamic finance that has seen the most dynamic growth to date. This is because the most important underlying principle of conventional banking is that money creates money or that money has a premium, known as interest or usury. This practice (known in Arabic as Riba) is the antithesis of Islamic finance because Islamic law, from the beginning, has categorically denounced it. Money has never been perceived as a commodity for which there is a price for its use. Instead, Islamic law consistently views money as a medium of exchange, a store of value and a unit of measurement.

In the same vision, Islamic financial institutions include Islamic banks, Islamic insurance companies, Takaful, Islamic investment funds and issuers of sukuks (the Islamic equivalent of bonds). By the

end of 2010, there were more than 300 Islamic financial institutions in more than 75 countries around the world. Assets under management exceeded \$1 trillion. According to a study published by Ernst & Young, retail banks are the main vehicle of the Islamic financial industry, accounting for 74% of Islamic financial assets, as against 10% for sukuks, 10% for banks, 5% for funds Investment and only 1% for Takaful companies<sup>3</sup>.

In 1975, the Islamic Development Bank (IDB) had already set up by Saudi Arabia in Jeddah, the United Arab Emirates, Libya and Kuwait under the auspices of the organization of the Islamic Conference, the authority that today still has a determining role in the financing of major projects and infrastructures of the States.

The 1970s saw the creation of the Dubai Islamic Bank (DIB), the Kuwait Finance House (KFH) and the Bahrain Islamic Bank (BIB). In 1982, the Qatar Islamic Bank (QIB) was set up. At the end of 2010, there were more than 300 Islamic financial institutions in more than 75 countries around the world. Assets under management exceed \$1 trillion.

The Islamic financial system is now equipped with supervisory and regulatory bodies. In this context, there are the different bodies of standardization, standardization, training, scoring, arbitration and control. These include (AAOIFI) the Accounting and Auditing Organization for Islamic Financial Institutions, (CIFAFI) the General Council for Islamic Banks and Financial Institutions), the Islamic International Rating Agency (IIRA), the International Islamic Center for Reconciliation and Arbitration (IICRA).

In this context, the introduction of Islamic bank in Morocco will enable a large proportion of citizens to access financial services. In terms of the governance

<sup>3</sup> Economic Agendas of Islamic Actors.

of participatory banks, in this phase of regulation, the Moroccan law goes in the direction of a hybrid approach. This approach based on the setting up of a Sharia Committee for Participating Finance, a sort of Central National Sharia Board, managed by the Ulemas Higher Council. Moreover, the setting up, within each participative bank, of the internal audit committee to ensure the conformity of the participatory products in relation to the Muslim law "Sharia"<sup>4</sup>.

### 3. Theoretical framework

The rapid expansion of Islamic banks attracted a lot of attention for some time in economic studies. At the same time, older publications have shown that, generally speaking, financial development has a favourable impact on economic growth, which raises the question as to whether the same applies to Islamic finance.

Several researches have focused on the role of banks on economic growth (see, e.g. Bernanke, 1983; Brunner & Meltzer, 1963; Chang, Jia, & Wang, 2010; Cole, Moshirian, & Wu, 2008; Hondroyannis, Lolos, & Papapetrou, 2005; Kashyap & Stein, 2000; Naceur & Ghazouani, 2007; Ueda, 2013 etc.)<sup>5</sup>. There is a general controversy of these studies about the relationship between the banks and economic growth. Bernanke (1983), Brunner and Meltzer (1963) and Kashyap and Stein (2000) have investigated the role of banks in the transmission of monetary policy and economic fluctuations down to the local level. They confirmed that local financial development matters.

Indeed, the studies on economic growth and the banking system have shown a rapid expansion in the recent years. However, the majority of researchers have pointed out that there is no consensus on the existence of a strong relationship between the real economy and the banking system.

Some authors prefer simply to ignore the financial system, but others are trying to integrate it somehow in their analysis on the assumption that the banking system has a positive effect on economic growth. A recent trend makes an attempt to study in detail the relationship between the two domains.

The model is part of a framework using recent theoretical developments on the relationship of financial intermediation (conventional banking system and Islamic banking system) with economic growth. It draws on the work of Levine (1993), of Renelt and Levine (1992), Pagano (1993), Gregorio and Guidotti (1994), Mankiw, Romer and Weil (1992) and Bassanini and Scarpeta (2001). Some studies consider that Islamic finance can have an effect on the improvement of financial development and the acceleration of growth (Chapra, 1993, Kazarian, 1993, Siddiqui, 1983)<sup>6</sup>.

There is evidence pointing to a close correlation between financial sector development and economic growth. Countries whose financial sector offers a wide variety of services, including consumer banking and insurance, show generally faster growth. Banks, Islamic or otherwise, play a key economic role in serving financial intermediaries and facilitators of payments (King and Levine,

<sup>4</sup> Sharia is the Islamic law that frames derived from the Qur'an, from the Sunna (practice) of the effort of reflection and deduction of Muslim scholars. The Shari'ah literally means "The Way" - one speaks readily of precepts of the Muslim religion or precepts of Islam - since it is a set of religious rules. The purpose of these rules is to help believers in all areas of daily life, including finance.

<sup>5</sup> Daly, S., Frikha, M., 2016, Banks and economic growth in developing countries: What about Islamic banks? *Cogent Economics & Finance*, [Online], 4 (4). Available: <http://www.readcube.com/articles/10.1080/23322039.2016.1168728> [Accessed 20 September 2016]

<sup>6</sup> Johnson, K., 2013, the Role of Islamic Banking in Economic Growth, Claremont McKenna College, [Online], (642). Available: [http://scholarship.claremont.edu/cgi/viewcontent.cgi?article=1618&context=cmc\\_theses](http://scholarship.claremont.edu/cgi/viewcontent.cgi?article=1618&context=cmc_theses) [Accessed 20 September 2016]

1993)<sup>7</sup>. They also help stimulate saving and allocate resources efficiently.

Some empirical studies assume that Islamic finance can have an effect on the improvement of financial development and growth acceleration (Chapra 1993 Kazarian 1993, Siddiqui, 1983)<sup>8</sup>. This would then finance considered a real growth driver. Islamic banks may aimed to invest in major projects that contribute to improving the growth of certain economic sectors such as agriculture (Kazarian, Saffari 1993 and 1995).

#### 4. Empirical investigation

This paper uses empirical evidence, our analysis covers a panel of aggregate bank balance sheets by country. The sample nine countries (Bahrain, Saudi Arabia, Emirate, Kuwait, Malaysia, Indonesia, Qatar, Turkey, Pakistan). The period of study is from 2008 to 2014. Our sample is composed of aggregated data by country and focuses exclusively on Islamic banks.

The variables from reports of central banks in these countries, as well as the world Islamic Banking Competitiveness Repot<sup>9</sup> of 2010 to 2016 for data on the Islamic financial system, and the base of the World Bank and the International Monetary Fund on macroeconomic data<sup>10</sup>.

We introduce three types of variables in our model. First, the growth variable, dependent variable of the model. Next we introduce indicators of financial development. Finally, we introduce a matrix of conditional

information to control the variables that affect long-term economic growth.

- **PIB**: Growth indicator, we chose the "log of real GDP per capita" (Levine et al., 2000, Beck et al., 2000, and Beck and Levine, 2004)<sup>11</sup>;
- **X<sub>1</sub>**: Islamic banking development indicators (Total Islamic Bank assets, investment accounts and financial assets);
- **X<sub>2</sub>**: Control variables (Inflation, Exchange Rate, Ratio of Public Expenditure per GDP, Ratio of commercial opening);

Our panel model by MCO method expressed as a result:

$$Y_{it} = \alpha + X_{it} \beta + \varepsilon_{it} = \alpha + \beta_1 X_{1,it} + \dots + \beta_k X_{k,it} + \varepsilon_{it}$$

So, our specific model written as follows:

$$\text{Log(PIBHA)}_t = \alpha_0 + \beta_1 \log X_1 + \beta_2 X_2 + \varepsilon_{it}$$

#### A. Regressions and Interpretations

The table below shows the average values with Std.Dev for the variables of the study in the context of Islamic banks:

In our Model, the presence of 63 observations over a period of 7 years (2008 to 2014), regarding the endogenous variable Log (PIBHA), the Std.Dev = 1.04 for this variable is much less than ½ mean, which means that the dispersion is low around the mean.

For other exogenous variables namely Log(BANKASSET), Log (INVSTACC), Log (FINASSET), their Std.Dev is slightly less than ½ mean, which is a normal dispersion around

<sup>7</sup> Goaid.M, Sassi.S, 2010, Financial Development and Economic Growth in the MENA Region : What about Islamic Banking Development, [Online], Available: file:///C:/Users/Dell/Downloads/Financial\_Development\_and\_Economic\_Growth\_in\_the\_M%20(2).pdf [Accessed 10 September 2016]

<sup>8</sup> Kpodar. K, Patrick. I, 2015, Is Islamic Banking Good for Growth. , IMF Working Paper , [Online], Available: <https://www.imf.org/external/pubs/ft/wp/2015/wp1581.pdf> [Accessed 11 September 2016]

<sup>9</sup> World Islamic Banking Competitiveness Report, 2016, New realities New opportunities, [Online], Available: [http://www.ey.com/Publication/vwLUAssets/ey-world-islamic-banking-competitiveness-report-2016/\\$FILE/ey-world-islamic-banking-competitiveness-report-2016.pdf](http://www.ey.com/Publication/vwLUAssets/ey-world-islamic-banking-competitiveness-report-2016/$FILE/ey-world-islamic-banking-competitiveness-report-2016.pdf) [Accessed 10 September 2016]

<sup>10</sup> World Bank, World Development Indicators 2008, 2009, 2010, 2011, 2012, 2013 and 2014, [Online], Available: <http://data.worldbank.org> [Accessed 02 September 2016]

<sup>11</sup> Caporale.M, 2009, Financial Development and Economic Growth: Evidence from Ten New EU Members, German Institute for Economic Research, [Online], (3), Available: [https://www.diw.de/documents/publikationen/73/diw\\_01.c.342404.de/dp940.pdf](https://www.diw.de/documents/publikationen/73/diw_01.c.342404.de/dp940.pdf) [Accessed 15 September 2016]

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
log_PIBHA	63	10.29778	1.033985	8.32	11.86
log_BANKASSET	63	3.653875	1.157634	0	5.6733
log_INVEST	63	3.601397	1.157364	1.9459	6.0403
log_FINASSET	63	3.322057	1.237035	.6931	5.5053
TINF	63	4.428571	3.425306	0	15
TCH	63	1131.73	3203.94	.27	11865.21
RATIO_D PUB	63	18.03492	7.196732	4	38
RATIO_OUVERT	63	48.19048	21.85573	16	90

Source: Established by me in EVIEWS

the mean. Finally for the control variables there is a strong dispersion (exchange rate, inflation), and a normal dispersion (Debt Ratio, trade openness ratio).

the explanatory variables namely Log (BANKASSET); Log (INVESTACC); Log (FINASSET), are all stationary at zero level. This conclusion is confirmed by

Table 2. Correlation and Covariance

	log_PIBHA	log_BANKAST	log_INVEST	log_FINASSET
log_PIBHA	1.0000			
log_BANKAST	0.5610	1.0000		
log_INVEST	0.5438	0.9359	1.0000	
log_FINASSET	0.6811	0.9097	0.9358	1.0000

Source: Established by me in EVIEWS

### B. Panel Econometrics

Panel data or longitudinal data have both dimensions (individual and temporal) and connect the values of variables considered identified for a set or panel of individuals over time.

So, by using Panel Mode<sup>12</sup> the two sources of variation we can exploit Statistical Information: Temporal where intra-individual variability and individual or inter-individual variability. Increasing the number of observations allows for greater accuracy of the estimators to reduce the risk of multi collinear, and, in particular, to broaden the scope of investigation.

#### • TEST OF STATIONARY

The set of variables studied that is the variable explained Log (PIBHA), and

the Levin-Lin-Chu stationarity test, after testing all variables are stationary with an error coefficient well below the theoretical threshold of 5%.

Indeed, we reject the null hypothesis that presents a Panels with unit roots, and we accept the alternative hypothesis that confirms that our Panel model is stationary for our variables.

You can find the set of stationary tables generated by the Eviews software in the appendices (1; 2; 3)

#### • MODEL ANALYSIS

The identification of the best model requires treatment and analysis by tests of global and specific significances. In effect, we

<sup>12</sup> Hauser.M, Panel Data Models, Financial Econometrics,[Online], (3), Available: [http://statmath.wu.ac.at/~hauser/LVs/FinEtricsQF/FEtrics\\_Ch5.pdf](http://statmath.wu.ac.at/~hauser/LVs/FinEtricsQF/FEtrics_Ch5.pdf) [Accessed 18 September 2016]

treated each exogenous variable in order to choose the most relevant explanatory variable in our Panel model, and which influences most The variable explained Log (PIBHA).

We carried out a study for each explanatory variable through the two Panel models, namely: The model has fixed effects. The random effects model, for the first exogenous log variable (BANKASST), contributes less than the exogenous variable Log (INVESTACC), on the economic growth of our panel of countries. In addition, the weigh of the second Log variable (FINASST) is small compared to the variable Log (INVESTACC) considered to be the best in our Panel Model.

Consequently, the model that explains best the effect of participatory Islamic banks on the economic growth of these countries is the model with the exogenous variable Log (INVESTACC). In this case, we will present our best Panel model, with the fixed effect model and the random effect model.

**• THE FIXED EFFECTS MODEL:  
INDEPENDENT VARIABLE "INVESTMENT  
ACCOUNTS"**

The fixed effects model assumes that the relationship between the dependent variable and the explanatory variables are the same for all individuals.

In statistics, a fixed effects model is a statistical model that represents the

Table 3.

log_PIBHA	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
log_INVEST	.2613798	.0378098	6.91	0.000	.1855088	.3372508
TCH	.0000731	.0000283	2.58	0.013	.0000162	.0001299
_cons	9.273744	.1376365	67.38	0.000	8.997556	9.549932
sigma_u	1.0644156					
sigma_e	.06787174					
rho	.99595058					

F test that all u\_i=0: F (8, 52) = 1152.30 Prob > F = 0.0000

Source: Established by me in EViews

observed quantities in terms of explanatory variables that are treated as if the quantities were non-random. This runs counter to random effects models and mixed models in which either all or some of the explanatory variables are treated as if they arise from random causes. In panel data analysis, the term fixed effects estimator (also known as the within estimator) is used to refer to an estimator for the coefficients in the regression model.

If we assume fixed effects, we impose time independent effects for each entity that are possibly correlated with the regressors.

$$Y_{it} = \beta_0 + \beta_1 \ln(\text{INVESTACC})_{it} + \beta_2 (\text{TCH})_{it} + \epsilon_{it}$$

$$Y_{it} = 9.27 + 0.26 \ln(\text{INVESTACC})_{it} + 0.00007 (\text{TCH})_{it} + \epsilon_{it}$$

Fixed-effects (within) regression  
 Group variable: COUNTRY\_CODE  
 R-sq: within = 0.5258 Between = 0.0438 Overall = 0.0471  
 Number of obs = 63  
 Number of groups = 9  
 Obs per group: min = 7 avg = 7.0 max = 7

F (2, 52) = 28.83

Corr (u\_i, Xb) = -0.0907 Prob > F = 0.0000

All the variables in our Model are significant with a t-Student <5%, and we see the weight of the independent variable (Investment Accounts) on the dependent variable of our model.

However, the effect of participation banks on economic growth seems positive.

Statistic Fisher:  $F(2, 52) = 28.83$  confirms the heterogeneity of individuals as a fixed effect, since the p-value  $< 5\%$ . After having analyzed the fixed effect model with exogenous variable (Bank Assets), we will then studied a Random Effects Model.

• **THE RANDOM EFFECTS MODEL: INDEPENDENT VARIABLE "INVESTMENT ACCOUNTS"**

The composed error model assumes that the individual specificity is under random shape. The constant term specific to individual is random. It decomposes a fixed term and a specific term in the random individual to control individual heterogeneity.

In statistics, a random effects model, also called a variance components model, is a kind of hierarchical linear model. It assumes that the data being analysed is drawn from a hierarchy of different populations whose differences relate to that hierarchy. In econometrics, random effects models are used in the analysis of hierarchical or panel data when one assumes no fixed effects (it allows for individual effects).

In the Random Effect Model, the same variables will be applied to the final model with fixed effect. Here are the results generated by the statistical software:

$$Y_{it} = \beta_0 + \beta_1 \ln(\text{INVESTMENT})_{it} + \beta_2 (\text{TCH})_{it} + \epsilon_{it}$$

The coefficient on the control variable (T-Student of Exchange rate = 2.6%) is least

**Random-effects GLS regression**  
 Number of obs = 63  
 Group variable: COUNTRY\_CODE  
 Number of groups = 9  
 R-sq: within = 0.5241  
 Between = 0.0788  
 Overall = 0.0822  
 Obs per group: min = 7  
 avg = 7.0  
 max = 7  
 Wald chi2(2) = 57.45

corr(u\_i, X) = 0 (assumed) **Prob > chi2 = 0.0000**

significant than the Fixed Effect Model, the conventional threshold of 5%. However, the effect of participation banks on economic growth seems positive.

Statistic **Wald chi2 (2) = 57.47** confirms the significance of the model's variables, since the p-value  $< 5\%$ . Moreover, the estimation results of the model errors made are not better than the first order as those obtained by the fixed effects model. Indeed, this conclusion confirmed by the Hausman test below:

b = consistent under Ho and Ha;  
 obtained from xtreg

B = inconsistent under Ha, efficient  
 under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2} (2) = (b-B)'[(V_b - V_B)^{-1}] (b-B) = 13.15$$

**Prob > chi2 = 0.0014**

- The probability of this test (Prob > chi2 = 0.0014) is less than 5%.

• **THE RESULTS OF THE MODELS**

Analysis of three models with independent

Table 4.

log_PIBHA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
log_INVEST	.2672524	.0377183	7.09	0.000	.1933259 .3411788
TCH	.0000611	.0000275	2.22	0.026	7.14e-06 .000115
_cons	9.266179	.3635453	25.49	0.000	8.553643 9.978714
sigma_u	1.002825				
sigma_e	.06787174				
rho	.99544023				

Source: Established by me in EVIEWS



Table 5.

	Coefficients Fx	Coefficients Rd	(b-B) Difference	sqrt (diag(V_b-V_B))
log_INVEST	.2613798	.2672524	-.0058726	.0026297
TCH	.0000731	.0000611	.000012	6.71e-06

Source: Established by me in EVIEWS

variables (Bank Assets; Financial Assets; Investment Assets), in addition to their weight of influences and impacts on the economic growth of nine countries (Bahrain, Saudi Arabia, Emirate, Kuwait, Malaysia, Indonesia, Qatar, Turkey, Pakistan), in the period between 2008 and 2014 has been made.

Indeed, after a relevant and robust analysis of the three Fixed Effects Models, the best model remains the model of the independent variable (**The Investment Accounts**), and that significant contribution to Economic Growth, based on student test and Fisher and the coefficient of each variable in said model:

$$Y_{it} = 9.84 + 0.11 \ln(\text{BANKASSETS})_{it} + 0.00007 (\text{TCH})_{it} + \varepsilon_{it}$$

$$*** Y_{it} = 9.27 + 0.26 \ln(\text{INVESTACC})_{it} + 0.00007 (\text{TCH})_{it} + \varepsilon_{it}$$

$$Y_{it} = 9.50 + 0.22 \ln(\text{FINASSETS})_{it} + 0.00007 (\text{TCH})_{it} + \varepsilon_{it}$$

\*\*\* The best Model

It should be noted that all models (Fixed and Random) have a positive sign for the exchange rate (control variable), which explains that a growing exchange rate contributes positively to economic growth, of these grace countries to stimulation of growth by meeting domestic demand and public investment.

In reality, investment accounts are now operational in various countries of the world

Table 6.

log_PIBHA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
log_PIBHA L1.	.5012167	.1295097	3.87	0.000	.2473824 .7550511
log_INVEST	.2154977	.0384746	5.60	0.000	.140089 .2909065
TCH	.000014	.0000198	0.71	0.480	-.0000248 .0000527
_cons	4.351241	1.216524	3.58	0.000	1.966897 6.735585

Source: Established by me in EVIEWS

led by the United States, which has aroused the interest of Islamic financial specialists in the development of investment funds in accordance with the principles of Islamic Law "The sharia", in order to diversify and expand the areas of intervention of Islamic financial engineering.

### 5. Generalized Method of Moments (GMM)

The generalize method of moments (GMM) is a general framework for deriving estimators, Arellano and Bond (1991) propose a more efficient estimator based on the use of additional instruments, then determining a set of conditions on the moments, hence the name of estimation by

**Arellano-Bond dynamic panel-data estimation** Number of obs = 45

Group variable: COUNTRY\_CODE Number of groups = 9

the generalized moment method (MMG). The estimator of Arellano and Bond has been widely used to estimate investment functions on panel data.

Time variable: YEAR

Number of instruments =18 Wald chi2 (3) = 196.24

Obs per group: min = 5

Avg = 5

Max = 5

Prob > chi2 = 0.0000

One-step results

The coefficient on the control variable (T-Student of Exchange rate= 47%) is not significant, the conventional threshold of 5%, we can say that the exchange rate has a minor impact on the economic growth in these countries. Yet, it seems that participation banks have a positive effect on economic growth.

An increase of 1% of Total Islamic Investments Banking resulted in a net increase of 0.22% of Economic Growth in these panel countries, which confirms the crucial role that it can play for Islamic banks on growth through investment.

Actually, several Islamic banking have embarked on Islamic Investment Funds and intervene internationally to finance SMEs / SMIs, infrastructures; Industrial enterprises, services, agricultures, petrochemicals, etc.

The results of this study are quite significant, considering that it is one of the pioneering studies of Islamic finance. This result reveals the role that Islamic banking investment can play in contributing to the economic growth of these countries. Moreover, Islamic banks characterized by their heavy and remarkable investment policies based on the sharing of losses and profits.

## 6. Results and Conclusions

This paper attempts to examine the relationship between the development of Islamic finance and economic growth in the wake of the crisis of 2008, especially in the countries where Islamic finance emerged exponentially. We carried out an empirical analysis of the relationship between Islamic banks' financing and economic growth. Since, the variables in this paper are significant

The accounts of Islamic banking investment are the main source of funds of Islamic banks. They are based on the principle of sharing profits and losses that combines two factors: capital and labor. The mode of operation is consistent with the principles of Sharia. These are the funds collected through Mudaraba and Musharaka techniques.

In general terms, the results show that despite its relatively small size compared to all economic activities and the financial system, the development of Islamic finance positively correlated with economic growth, and even impacted the effect of various determinants growth such as the depth of the financial sector.

The encouraging and significant effect of Islamic banking investment accounts exposes that, in the context of our sample of banks, the capital invested by the Islamic banks in this country off a panel that improves profitability and boosting economic growth.

Although there is a burgeoning literature on the relationship between finance and economic growth, the relationship between Islamic finance and economic growth has not been subject to a comprehensive analysis so far. However, the results of our research comprise a substantial contribution to the understanding of the link between economic growth and Islamic finance.

## References

- Cadot.O, 2012, Stata pour les nuls, [Online], Available : [https://hec.unil.ch/docs/files/21/1307/stata\\_pour\\_les\\_nuls.pdf](https://hec.unil.ch/docs/files/21/1307/stata_pour_les_nuls.pdf) [Accessed 05 September 2016].
- Caporale.M, 2009, Financial Development and Economic Growth: Evidence from Ten New EU Members, German Institute for Economic Research , [Online], (3), Available: [https://www.diw.de/documents/publikationen/73/diw\\_01.c.342404.de/dp940.pf](https://www.diw.de/documents/publikationen/73/diw_01.c.342404.de/dp940.pf) [Accessed 15 September 2016]
- Daly.S, Frikha.M, 2016, Banks and economic growth in developing countries: What about Islamic banks? Cogent Economics & Finance, [Online], 4 (1-26). Available: <http://www.readcube.com/articles/10.1080/23322039.2016.1168728> [Accessed 20 September 2016].

Economic Agendas of Islamic Actors.

Goaied.M, Sassi.S, 2010, Financial Development and Economic Growth in the MENA Region: What about Islamic Banking Development, [Online], Available: file:///C:/Users/Dell/Downloads/Financial\_Development\_and\_Economic\_Growth\_in\_the\_M%20(2).pdf [Accessed 10 September 2016].

Hauser.M, Panel Data Models, Financial Econometrics, [Online], Available: [http://statmath.wu.ac.at/~hauser/LVs/FinEtricsQF/FEtrics\\_Chp5.pdf](http://statmath.wu.ac.at/~hauser/LVs/FinEtricsQF/FEtrics_Chp5.pdf) [Accessed 18 September 2016].

Johnson.K, 2013, the Role of Islamic Banking in Economic Growth, Claremont McKenna College, [Online], Available: [http://scholarship.claremont.edu/cgi/viewcontent.cgi?article=1618&context=cmc\\_theses](http://scholarship.claremont.edu/cgi/viewcontent.cgi?article=1618&context=cmc_theses) [Accessed 20 September 2016].

Kpodar. K, Patrick. I, 2015, Is Islamic Banking Good for Growth? , IMF Working Paper , [Online], Available: <https://www.imf.org/external/pubs/ft/wp/2015/wp1581.pdf> [Accessed 11 September 2016]

The World Bank, 2015, Islamic Finance, [Online], Available: <http://www.worldbank.org/en/topic/financialsector/brief/islamic-finance> [Accessed 10 September 2016].

World Bank, World Development Indicators 2008, 2009, 2010, 2011, 2012, 2013 and 2014, [Online], Available: <http://data.worldbank.org> [Accessed 02 September 2016]

World Islamic Banking Competitiveness Report, 2016, New realities New opportunities, [Online], Available: [http://www.ey.com/Publication/vwLUAssets/ey-world-islamic-banking-competitiveness-report-2016/\\$FILE/ey-world-islamic-banking-competitiveness-report-2016.pdf](http://www.ey.com/Publication/vwLUAssets/ey-world-islamic-banking-competitiveness-report-2016/$FILE/ey-world-islamic-banking-competitiveness-report-2016.pdf) [Accessed 10 September 2016].

## 8. Annexes

### Annex 1. The Stationarity Test for Endogenous Variable Log (PIBHA)

Levin-Lin-Chu unit-root test for <b>log_PIBHA</b>		
Ho: Panels contain unit roots	Number of panels = 9	
Ha: Panels are stationary	Number of periods = 7	
AR parameter: Common	Asymptotics: N/T -> 0	
Panel means: Included		
Time trend: Not included	Cross-sectional means removed	
ADF regressions: 1 lag		
LR variance:	Bartlett kernel, 6.00 lags average (chosen by LLC)	
	Statistic	p-value
Unadjusted t	-18.1270	
Adjusted t*	-18.1460	0.0000

### Annex 2. The Stationarity Test for Exogenous Variable Log (BANKASSET)

Levin-Lin-Chu unit-root test for <b>log_BANKASSET</b>		
Ho: Panels contain unit roots	Number of panels = 9	
Ha: Panels are stationary	Number of periods = 7	
AR parameter: Common	Asymptotics: N/T -> 0	
Panel means: Included		
Time trend: Not included	Cross-sectional means removed	
ADF regressions: 1 lag		
LR variance:	Bartlett kernel, 6.00 lags average (chosen by LLC)	
	Statistic	p-value
Unadjusted t	-23.0499	
Adjusted t*	-20.9900	0.0000

**Annex 3. The Stationarity Test for Exogenous Variable Log (BANKASSET)**

Levin-Lin-Chu unit-root test for **log\_INVEST**

Ho: Panels contain unit roots	Number of panels = 9
Ha: Panels are stationary	Number of periods = 7
AR parameter: Common	Asymptotics: N/T -> 0
Panel means: Included	
Time trend: Not included	Cross-sectional means removed
ADF regressions: 1 lag	

log_PIBHA	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
log_BANKASSET	.1030938	.0195137	5.28	0.000	.0639367	.1422509
TCH	.0000774	.0000316	2.45	0.018	.0000139	.0001408
_cons	9.833545	.0781536	125.82	0.000	9.676719	9.990372
sigma_u	1.1507345					
sigma_e	.07584497					
rho	.99567465					

LR variance:	Bartlett kernel, 6.00 lags average (chosen by LLC)	
	Statistic	p-value
Unadjusted t	-10.8521	
Adjusted t*	-9.9139	0.0000

**Annex 4. The Stationarity Test for Exogenous Variable Log (BANKASSET)**

Levin-Lin-Chu unit-root test for **log\_FINASSET**

Ho: Panels contain unit roots	Number of panels = 9	
Ha: Panels are stationary	Number of periods = 7	
AR parameter: Common	Asymptotics: N/T -> 0	
Panel means: Included		
Time trend: Not included	Cross-sectional means removed	
ADF regressions: 1 lag		
LR variance:	Bartlett kernel, 6.00 lags average (chosen by LLC)	
	Statistic	p-value
Unadjusted t	-10.1114	
Adjusted t*	-10.1114	0.0000

**Annex 5. The Fixed Effects Model : Exogenous Variable "BANK ASSETS"**

<b>Fixed-effects (within) regression</b>	Number of obs = 63
Group variable: COUNTRY_CODE	Number of groups = 9
R-sq: within = 0.4079 Between = 0.0252 Overall = 0.0198	Obs per group: min = 7 avg = .0 max = 7
Corr (u_i, Xb) = -0.3576	F (2, 52) = 17.91 Prob > F = 0.0000

F test that all u<sub>i</sub>=0: F (8, 52) = 873.02 Prob > F = 0.0000

**Annex 6. The Random Effects Model: Exogenous Variable "BANK ASSETS"**

<b>Random-effects GLS regression</b>	Number of obs = 63
Group variable: COUNTRY_CODE	Number of groups = 9
R-sq: within = 0.4040 Between = 0.0038 Overall = 0.0018	Obs per group: min = 7 avg = 7.0 max = 7
corr(u_i, X) = 0 (assumed)	Wald chi2(2) = 33.06 Prob > chi2 = 0.0000

**Annex 7. The Hausman Test of Exogenous Variable "Bank Assets"**

b = consistent under Ho and Ha; obtained from xtreg  
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg  
 Test: Ho: difference in coefficients not systematic  
 chi2 (2) = (b-B)'[(V<sub>b</sub>-V<sub>B</sub>)<sup>-1</sup>] (b-B) = 8.29  
**Prob>chi2 = 0.0159**  
 (V<sub>b</sub>-V<sub>B</sub> is not positive definite)

log_PIBHA	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
log_BANKASSET	.106046	.0199933	5.30	0.000	.0668599	.1452321
TCH	.0000589	.000031	1.90	0.057	-1.80e-06	.0001196
_cons	9.843641	.335278	29.36	0.000	9.186508	10.50077
sigma_u	.95107206					
sigma_e	.07584497					
rho	.99368063					

	Coefficients Fx	Coefficients Rd	(b-B) Difference	sqrt(diag(V_b-V_B))
log_BANKASSET	.1030938	.106046	-.0029522	
TCH	.0000774	.0000589	.0000185	6.40e-06

**Annex 8. The Fixed Effects Model:  
Exogenous Variable "FINANCIAL ASSETS"**

Fixed-effects (within) regression	Number of obs = 63
Group variable: COUNTRY_CODE	Number of groups = 9
R-sq: within = 0.5129 Between = 0.0832 Overall = 0.0865	Obs per group: min = 7 avg = 7.0 max = 7
corr(u_i, Xb) = -0.0040	F(2,52) = 27.38 Prob > F = 0.0000

Random-effects GLS regression	Number of obs = 63
Group variable: COUNTRY_CODE	Number of groups = 9
R-sq: within = 0.5089 Between = 0.1722 Overall = 0.1737	Obs per group: min = 7 avg = 7.0 max = 7
Corr (u_i, X) = 0 (assumed)	Wald chi2 (2) = 53.28 Prob > chi2 = 0.0000

log_PIBHA	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
log_FINASSET	.217582	.0323839	6.72	0.000	.1525989	.2825652
TCH	.0000707	.0000287	2.46	0.017	.000013	.0001283
_cons	9.494981	.1097805	86.49	0.000	9.27469	9.715271
sigma_u	1.0377546					
sigma_e	.06879027					
rho	.99562518					

**Annex 9. The Random Effects Model:  
Exogenous Variable "FINANCIAL ASSETS"**

log_PIBHA	Coef.	Std. Err.	t	P> t	[95% Conf.	Interval]
log_FINASSET	.2267463	.0329457	6.88	0.000	.1621739	.2913187
TCH	.000053	.0000281	1.88	0.059	-2.12e-06	.0001081
_cons	9.484545	.3123059	30.37	0.000	8.872437	10.09665
sigma_u	.85080052					
sigma_e	.06879027					
rho	.99350516					

**Annex 10. The Hausman Test of  
Exogenous Variable "FINANCIAL ASSETS"**

	Coefficients Fx	Coefficients Rd	(b-B) Difference	sqrt(diag(V_b- V_B))
<b>log_FINASSET</b>	.217582	.2267463	-.0091643	
<b>TCH</b>	.0000707	.000053	.0000177	5.98e-06

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho;  
obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2 (2) = (b-B)'[(V\_b-V\_B) ^ (-1)] (b-B) = 8.65

**Prob>chi2 = 0.0132**

(V\_b-V\_B is not positive definite)