

Study On Islamic Financial System and Real Economic (Case Study On QISMUT + 3 Countries): A Panel Cointegration Approach

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Abstract

QISMUT + 3 countries (Qatar, Indonesia, Saudi Arabia, Malaysia, UAE, Turkey, Sudan, Pakistan and Iran), as well as long-term relationships as needed. This study uses semester data (2010: S1-2018: S2), GDP as a proxy for economic growth, financing and market share as a proxy for Islamic banking, trade (trade), and customer price index (CPI). This study uses a model that is approved by the cointegration panel. This research finds a long-term link between Islamic banking and economic growth and has a significant correlation in QISMUT + 3 countries. The results of the Granger causality test show market share as a proxy of Islamic banking has a causality relationship (two-way relationship) to economic growth and financing as a banking proxy has causality (one-way relationship) on economic growth.

Keywords: GDP, Financing, Market Share, cointegration panel, causality.

1. Introduction

Islamic banking is currently seen as a viable alternative financial system and has many systems to offer in the financial sector. Initially, the development of Islamic banking was only to meet the needs of the Islamic financial system, universally Islamic banking began to be accepted as a financial system. Data released by World Islamic Banking related to the growth of Islamic bank assets in QISMUT + 3 countries (Qatar, Indonesia, Saudi Arabia, Malaysia,

UAE, Turkey, Pakistan, Sudan and Iran) grew by 16.4%. In data released by the World Islamic Banking Competitiveness 2010 - 2014, Saudi Arabia and Qatar have the highest average asset growth of 15% compared to QISMUT countries (Qatar, Indonesia, Saudi Arabia, Malaysia, UAE, Turkey, Pakistan, Sudan and Iran). Turkey has a low average economic asset growth of 6%. The average growth of Islamic bank assets in Indonesia is slightly better than that of Malaysia at 9% and 7%. The growth of Islamic bank assets in QISMUT countries is also strongly influenced by economic growth in each country. World Islamic Banking Competitiveness estimates that in 2020 QISMUT sharia bank asset growth will grow twice the current asset growth.

Conceptually, the role of banks can be a pulse for economic development. Various studies were conducted by economists to prove the concept. In conventional banking, there is a positive and significant relationship about the banking financial sector to economic growth. In research (Apergis et al, 2007) there are positive and significant variables between financial development and economic growth. Control variables such as government spending, human capital and investment also have a positive effect on economic growth. Macroeconomic policies can improve in the financial sector. Especially in industrialized countries, the development of the financial sector is very helpful in economic growth. The company needs in funding for investment activities and technological innovation can improve company performance resulting in an increase in gross domestic product in the country.

Unlike the case with research conducted by (Al-Malkawi et al, 2012) there is a negative relationship between the banking financial sector and economic growth. Likewise, control variables such as government spending, human capital, and investment have a negative relationship with economic growth. Research that uses cointegration ARDL as an

analytical tool in the 1979-2008 sample period, states that a negative relationship between variables occurs because in that period the financial sector in the UAE experienced a period of transition and weak regulation from the government so it could not save banks.

Research conducted by (Zarrouk, 2014) shows positive results between the development of Islamic finance and economic growth. Research conducted in the United Arab Emirates in the period 1990 - 2012, stated that during the research period in financial development has increased from year to year which resulted in the rate of economic growth in the country. Islamic financial development is able to be the main driver of economic growth, even though the country experiences uncertain state income. Economic growth in the UAE which has increased, can not be separated from reforms in the development of Islamic finance. The Islamic financial sector system is renewed, starting from deregulation, liberalization and increasing opening of the financial sector to foreign participation. The development of Islamic finance which is pursued and planned in the UAE is able to boost its economic growth.

The purpose of this study is to narrow the gap between literature and practice by analyzing the long-term relationship of Islamic banking and economic growth in QISMUT + 3 countries using Full Modified Ordinary Least Square (FMOLS) and Panel Dynamic Least Squares (DOLS). Various research studies in this field have implemented cointegration-bound testing approaches, error correction models (ECM), regressive automatic distributed lags (ARDL) and vector autoregressive models (VAR). The advantage of this article is to apply the FMOLS and DOLS models that have stable and consistent coefficients and are dynamic models. With regard to previous research, this paper covers more countries that improve the reliability of results.

The questions of this research are:

Q1: Does Islamic banking have a long-term relationship to economic growth in QISMUT + 3 countries?

Q2: Is there a causal relationship between Islamic banking and economic growth in QISMUT + 3 countries?

This study uses QISMUT + 3 countries based on data availability and compatibility to test the validity of theoretical findings. Thus, the following hypothesis is considered:

H1: There is a long-term relationship between Islamic banking and economic growth.

H2: There is a causal relationship between Islamic banking and economic growth.

This study still refers to research (Farahani and Dastan, 2013) "Analysis of Islamic banks' financing and economic growth: a panel cointegration approach" and the article Abduh and Azmi Omar (2012) "The relationship between Islamic financial development and economic growth for Asian countries".

In this paper the relationship between Islamic finance and economic growth is tested using cointegration panel data in QISMUT + 3 countries over the 2010-2018 period. This research consists of four parts. Part 1 discusses the introduction that explains the background and rationale of the study. Section 2, includes a literature review, the relationship between Islamic banking and economic growth. Section 3, includes detailed data and research methodology used in this study and reports findings and discussion. The last part contains conclusions.

2. Literature Review

Economists have done a lot of research related to Islamic banking and economic growth with various other supporting variables. Research conducted by (Akpan et al, 2017) examines whether the banking sector represented by credit has an effect on economic growth. In this study, researchers used the variable credit to private sector, total bank deposits, prime lending rates, market capitalization, money market instruments as a proxy for measuring financial sector developments, while GDP was used to represent economic growth. In this study, the test results using Johansen Co Integration show that in the long run there is a relationship between banking and economic growth. Meanwhile, in the granger causality test there is a two-way causality from the total bank deposit, credit to private sector, and market capitalization, to economic growth, and there is one direction between prime lending rate, and economic growth. In this study, it implies a link between financial developments and economic growth. So this research provides recommendations to the Nigerian government to increase access to credit to private business actors to develop their businesses. Effective regulation and access to credit services will be able to increase business growth so as to provide economic growth in the country of Nigeria.

Theories about the relationship of the financial sector and economic growth occurred in the 1870s. At that time the British economist Walter Bagehot and other classical economists Adam Smith as the founder of financial system theory which was very important for economic growth. In theory Walter Bagehot highlights about money circulation. For traders, capital is a major component for business continuity. This is where the role of banks to implement its function as a fundraiser and channel funds. For those who have excess funds, they can save it to the bank so that the money does not settle at home. And banks use savings

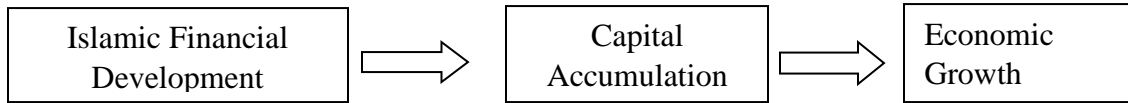
funds from customers to channel funds into the real sector, which on the way will spread to economic development. Meanwhile, scientist Keynes believes that the financial system is not a major factor in the pace of economic growth. The financial system is an additional product to support economic growth (Stolbov, 2013).

Research on the development of Islamic finance and economic growth does not only affect the relationship between the two variables. Looking at the long-term relationship and causality of the two variables needs to be done. As research conducted by (Pratiwi, 2016) which uses VECM analysis tools to see the long-term Islamic bank financing on economic growth.

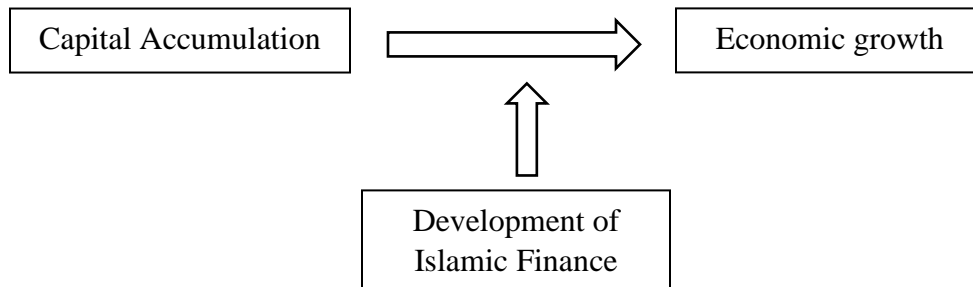
To see the short-term and long-term effects of Islamic bank financing variables and economic growth not only using the VECM analysis tool, the ARDL analysis tool can also look at the short-term and long-term. As conducted by (Abduh and Omar, 2012) who examined the Islamic banking and economic growth: The Indonesian Experience, using the ARDL analysis tool concluded that there is a significant relationship between Islamic banking and economic growth between the short term and long term. In addition, other findings in the study contained a causal or two-way relationship between Islamic banking financing and economic growth. The banking sector not only affects economic growth, but conversely economic growth also affects Islamic banking.

The relationship between the development of Islamic finance on economic growth has developed in recent years. The instability of the conventional economic system makes economists look for solutions in stabilizing the economy. There are two impacts of financial activities on the economy as a whole (Khalil, 2014).

The first relates to volume effects. In financial activities increase savings and resources and can be a source of investment financing. The mechanism is:



The second relates to the allocation effect. Financial development in Islamic banking can increase the allocation of resources for investment. The mechanism is:



3. Data and Methodology

The panel data provides a large amount of data points, increasing degrees of freedom and reducing colinearity between regressors. Therefore, it allows for stronger statistical tests and normal distribution of test statistics. It can also take into account the heterogeneity of each cross-sectional unit, and provide "more variability, less collinearity between variables, more degrees of freedom, and more efficiency" (Baltagi, 2001).

This research uses secondary data to examine the development of Islamic finance and economic growth. The secondary data used is panel data covering Islamic banking in QISMUT + 3 Countries (Qatar, Indonesia, Saudi Arabia, Malaysia, UAE, Turkey, Pakistan, Sudan and Iran) with a span of 2010: S1 - 2018: S2. In this study, the proxy of Islamic Banking Financing is the total financing variable, and market share as the independent

variable and GDP as the dependent variable which is a representation of economic growth. The control variables in this study are Trade and Consumer Price Index. The data processed is sourced from (a) World Bank (b) Bankscope.

3.1 Model Specifications

In this study we collected cross-section and time series data to study the relationship between Islamic banking and economic growth. The similarities of this research are:

$$GDP = f(\text{IBF}, \text{Trade}, \text{CPI}) \quad (1)$$

The form of an empirical model for this specification is given by:

$$GDP_{it} = \beta_0 + \beta_1 \text{IBF}_{it} + \beta_2 \text{Trade}_{it} + \beta_3 \text{CPI}_{it} + \varepsilon_{it} \quad (2)$$

Where IBF, Trade, CPI, and GDP are defined in equation (1). β_0 is a constant and β_1 to β_3 are the parameters estimated in the model and i is the cross section data of each country, t is the time series data and ε_{it} is an error.

3.2 Estimation Procedures

To investigate the possibility of a cointegration panel, it is first necessary to pay attention to the existence of a unit root test in the data series. There are findings to test unit root tests such as Levin, Lin, and Chu (2002), Breitung (2000), Hadri (1999), and Im, Pesar and Shin (2003). In this research, the writer uses Levin, Lin and Chu test (LCC) at the level level to see the existence of the unit root test. The equation for the LCC unit root method is:

$$\Delta y_{it} = \rho y_{i,t-1} + \sum_{L=1}^p \theta_{iL} \Delta y_{it-L} + \alpha_{mi} \partial_{mt} + \varepsilon_{it} \quad m = 1,2,3 \quad (3)$$

Where ∂_{mt} denotes the deterministic variable vector and α_{mi} vector coefficient that are suitable for the model $m = 1, 2, 3$.

3.3 Cointegration Test Panel

The next step to see the long-term relationship between Islamic banking and economic growth is with the cointegration panel. The determination of the existence of cointegration relations has been developed methodologically by Pedroni (1999), (Engle & Granger, 2015). The panel data processing method has undergone various developments in order to improve the results of better and consistent allegations. The panel method approach in this study is:

a. Fully - Modified OLS (FMOLS)

If there is a linear combination that uses several independent variables and is bound to a certain proportion between one and the other in the long run, we can do the test to produce individual allegations on the long-term equation. FMOLS not only creates consistent predictors but also controls individual effects (endogeneity) between objects of observation. The following cointegration system for panel data:

$$y_{it} = \alpha_i + x'_{it}\beta + u_{it} \quad (4)$$

$$x_{it} = x_{i,t-1} + e_{it} \quad (5)$$

b. Dynamic OLS (DOLS)

The method with the DOLS model was developed by Saikkonen (1991) to estimate and test hypotheses about cointegration vectors in panel data. The DOLS panel method is a fully parametric model and offers a statistically better alternative to FMOLS proposed by Pedroni (1999), and Philips and Moon (1999). The nature of DOLS when there are fixed effects in cointegrated regression has been discussed by Kao and Chiang (2000). The DOLS (β) panel estimator can be described in the following equation:

$$\beta_{NT} = [\sum_{i=1}^N \sum_{t=1}^T q_{it} q_{it}]^{-1} [\sum_{i=1}^N \sum_{t=1}^T q_{it} y_{it}]^{-1} \quad (6)$$

c. Kao Residual Cointegration Test

This test is basically done to find out whether the models from FMOLS and DOLS have been cointegrated or not. Kao and Chiang (2000) found that there are two types of cointegrity tests, namely through the Dickey Fuller and Augmented Dickey Fuller tests. Kao and Chiang's calculations gave the following results:

$$ADF = \frac{tadf + \frac{\sqrt{6N\partial u}}{2\partial v}}{\sqrt{\frac{\partial v^2}{2\partial v^2} + 3\partial v^2 / 10\partial v^2}} \quad (7)$$

3.4 Empirical Results

Table I presents the results of the LCC unit root test at the level level that shows that all variables are stationary, different as if testing via IPS, and PP - Fisher. This result clearly shows that the null hypothesis of the root unit at the serial level cannot be rejected at various lag lengths. We assume that there is no time trend.

Variabel	LCC	IPS	PP-Fisher
GDP	-2.81184 (0.0025)	-2.93952 (0.0016)	41.1513 (0.0015)
Financing	-2.22817 (0.0129)	-1.95828 (0.0251)	74.0499 (0.0000)
Market Share	-44.5937 (0.0000)	-20.9356 (0.0000)	293.738 (0.0000)
CPI	-4.34008 (0.0000)	-0.25173 (0.4006)	42.5482 (0.0009)
Trade	-3.76961 (0.0001)	-3.21251 (0.0007)	17.7970 (0.4691)

Table I: LCC Unit Root Test

We can conclude that the unit root unit test results reported in Table I support the unit root hypothesis in all variables in all countries. The next step after stationary data at the 1% level and significance test whether there is cointegration in the equation model. There are two testing methods at this stage, namely Fully Modified OLS (FMOLS) and Dynamic OLS (DOLS). Test results on the equation model are evaluated primarily by looking at whether the independent variables have a real and significant influence on the dependent variable. The following are the results of estimating various tests on several methods performed:

Variabel	FMOLS	DOLS
Financing	0.0001 *** -15.92134	0.0279 ** -4.911963
Market Share	0.0039 *** 0.156623	0.0285 ** 0.129702
CPI	0.0112 ** 0.018012	0.0412 ** 0.008842
Trade	0.4704 0.020339	0.0233 ** 0.029034
R – squared	0.431120	0.327743
Adjusted R-squared	0.382359	0.273601

Table II: GDP Estimation Results

Note: ***, **, * represent 1%, 5%, and 10%

Based on table II, it can be seen that most of the variables are significant at the 5% real level, there are even some significant variables at the 1% real level. In the FMOLS variable financing method, market share and CPI have a significant effect on GDP. However, after being tested with the DOLS method all variables have a significant influence on GDP. The DOLS method can provide better and consistent predictors.

Islamic banking proxies consisting of financing and market share have different interpretations of economic growth, which is a proxy for GDP. In both the FMOLS and DOLS methods the financing coefficient has a negative sign while the market share has a positive coefficient on GDP. Variable financing has a significant negative effect on economic growth, which indicates that every one percent increase in financing will reduce economic growth. Inversely proportional to the market share variable has a significant positive effect on economic growth which indicates that every one percent increase in market share will increase economic growth. The difference in interpretation of the two sharia banking variables on economic growth is based on the still small proportion of financing allocated by sharia banks to the real sector. In addition, because this research is in developing countries, the large proportion of funding will result in default and will reduce economic growth.

In other variables such as the customer price index (CPI) the FMOLS and DOLS methods have coefficients of 0.018028 and 0.008842. A positive sign indicates that each one percent increase in CPI will increase one percent of economic growth. Likewise, the trade variables have coefficients of 0.020339 and 0.029034 on the FMOLS and DOLS methods. A positive sign indicates that each one percent increase in trade will increase one percent of economic growth.

The next test is to find out whether the relationship described by the model has a long-term relationship or not. There are 3 methods in testing, they are Pedroni test, Kao Residual Cointegration Test and Fisher (Combined Johansen). From the cointegration test on the three tests. Cocoa residual cointegration test and Fisher have a long term relationship.

Metode	T-statistic	Prob
ADF	-4.525641	0.00000

Table III: Kao Residual Cointegration Test Results

Table III shows the equation model has a probability of 0.00000 which is smaller than α of 5% even 1%. Therefore, based on these values it can be concluded that all the variables tested in this study are cointegrated or have a long-term equilibrium relationship.

After looking at the long-term relationship, the next step is to see whether Islamic banking has a causal relationship to economic growth. Granger causality test is used to see whether the variables have a reciprocal relationship.

Null Hypothesis:	F-Statistic	Prob.
FIB does not Granger Cause GDP	2.37948	0.0434
GDP does not Granger Cause FIB	1.78536	0.1221
MS does not Granger Cause GDP	7.65323	4.E-06
GDP does not Granger Cause MS	9.33243	2.E-07

Figure I: Granger causality test results

From picture I, it can be seen that Islamic banking and economic growth reject H_0 , which means there is causality between Islamic banking and economic growth. From the estimation results, there are different results from Islamic banking proxies. If the market share on Islamic banking proxies has a two-way relationship to economic growth, it is different from financing that has a one-way relationship to economic growth.

4. Conclusions

This research is an empirical study of the relationship between Islamic banking and economic growth using the cointegration panel approach. The LCC root test unit is used to see the stationary between variables before the cointegrasu test can be performed. After all variables are confirmed stationary at the level level, the Kao Residual Cointegration test is conducted to see the long-term relationship between Islamic banking and economic growth. From the test results there is a long-term relationship between Islamic banking and economic growth. This is also supported in the co-integration panel with FMOLS and DOLS models. In this method Islamic banking also has a significant effect on economic growth. In the findings, there are differences in interpretations of Islamic banking in financing proxies and market shares. Likewise with causality. Financing has a one-way relationship, while market share has a two-way causality to economic growth.

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