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RESEARCH PAPER

Does Islamic Finance Development Support Economic Growth? (A New Overlook)[1]

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Abstract
In the study, the relationship between the development of Islamic finance and economic growth in 40 countries where the share of the value of Islamic finance assets in total financial assets is determined to be the highest in the world is examined. Econometric models, which are defined based on the extension of the Cobb-Douglas production function, are analyzed from 2012 to 2018 within the scope of panel data methodology that takes into account cross-section dependence. According to the results of the analysis made on two different models in which the total market value of Islamic finance assets is measured as flow and stock variables: Islamic finance development affects economic growth in a positive and statistically significant way in the 40 countries that make up the sample. This result reveals that there may be practices for the development of Islamic financial markets among the policies that countries can follow to achieve stable and sustainable economic growth.
Keywords: Cobb-Douglas Production Function, Economic Growth, Islamic Finance, Islamic Finance Indices, Panel Data Analysis.
JEL Classifications: G15, O16, O47, O50.

1. Introduction
The opinion that the economic growth performance of the countries where the financial markets are well organized and their functions work well will increase is generally accepted in the finance-growth literature (Bagehot, 1873; Schumpeter, 1911; Goldsmith, 1969; McKinnon, 1973; King and Levine, 1993; Demirgüç et al., 1998; Calderón and Liu, 2003; Hassan et al., 2011; Veselinović and Despotović, 2021). In addition, the destruction that occurred in almost all countries' economies, especially in the 1997 Asian financial crisis and the 2008 global financial crisis, caused the existing (traditional) financial system to be questioned.

[1]. This study is derived from a doctoral thesis titled "The Relationship between Islamic Finance Development and Economic Growth" completed in 2021.

These crises, which increase the savings gap and reduce the efficiency of the financial system functions, on the one hand, bring up discussions on improving the weaknesses of the current financial system and, on the other hand, alternative financial systems. The Islamic finance system, which is considered an alternative to the traditional financial system, comes to the forefront of the debates that develop in the context of bringing the idle savings of investors, who are especially sensitive to interest, to the economy and the necessity of a fairer system on risk/profit/loss sharing. The Islamic financial system, which is a faith-based financial system, is aimed not only to maximize utility and/or profit but also to realize elements such as justice, equality, empathy, cooperation, the general well-being of the environment and society, entrepreneurship, and ethics. In the Islamic financial system, principles such as efficient use of money and fair sharing of the resulting profit/loss between the parties are adopted, rather than competition that harms the individual wealth or the society.

In a modern sense, the development of Islamic finance applications, which started with Mit Ghamr Local Saving Bank being established for the first time in Egypt in 1963, gained momentum with the high fund inflows provided to the Gulf Arab countries by the increasing oil prices after the oil crisis in 1973. During this period, Islamic financial institutions, which were only active in banking, started to take place in the capital markets and insurance markets at the end of the 20th century. These developments in Islamic finance markets have led countries with a high Muslim population and also other countries, such as Germany, France, the USA, China, Luxembourg, Hong Kong, Singapore, and especially England, to become interested in the Islamic finance system. England, one of these countries, where there are many initiatives, large and small, to get a share of the cake, has come to the fore in becoming the Western Center of Islamic finance by making the necessary legal arrangements for the development of Islamic finance.

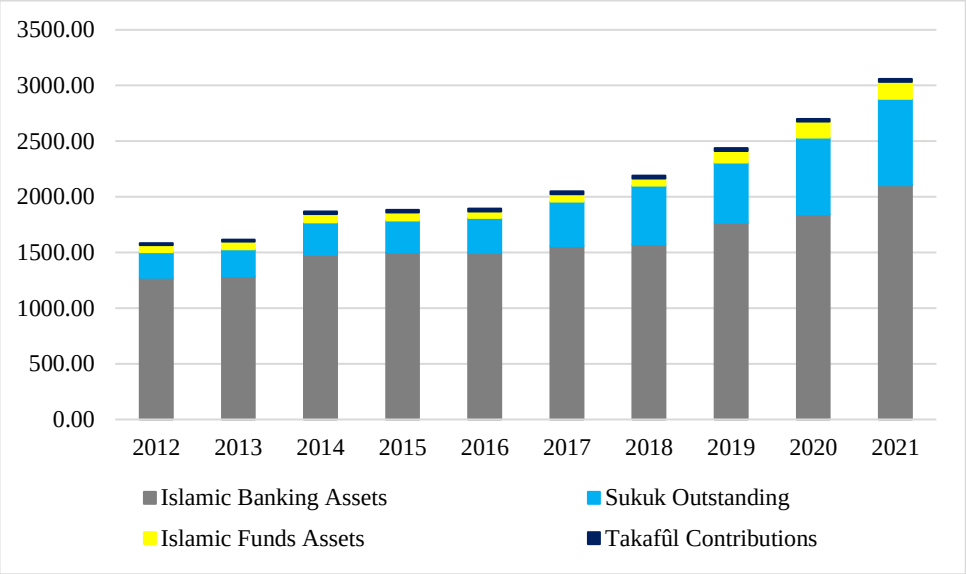

Figure 1. The Development of Islamic Financial Assets by Years
Source: Islamic Financial Services Industry Stability Reports.

Figure 1 shows developing assets traded in Islamic financial markets over the years. It is seen that the total values of Islamic finance assets have doubled in the last ten years. The steady increase in the share of Sukuk assets, one of the favorite products of Islamic capital markets, is striking. Although Islamic banking assets have increased cumulatively, its share in total Islamic finance assets has decreased. This is among the possible reasons for the dazzling performance of Sukuk assets. Despite this, Islamic banking assets still have the largest share in total Islamic finance assets on a global scale. The performance of other Islamic financial assets such as Islamic funds and Takaful, and their share in the total, follow a stable course.

It is seen that the developments in Islamic finance markets have brought to the fore studies on testing the relationship between Islamic finance development and economic growth. Although many theoretical and empirical studies deal with the relationship between financial development and economic growth, limited studies focus on the connections of economic growth specifically with Islamic finance development. In these studies, it is seen that various data belonging to the Islamic banking market are generally used to represent the development of Islamic finance and that the development of the Islamic banking market has predominantly a positive effect on economic growth.

This current study differs from other studies in the literature on several points. First of all, while studies in the literature generally only use data on Islamic banking assets to measure the development of Islamic finance, data on assets in all markets that make up the Islamic finance sector are analyzed. Secondly, apart from a few studies in the literature (Goaied and Sassi, 2010; Johnson, 2013; Imam and

Kpodar, 2016; Hussain et al., 2020), the impact of Islamic finance development on economic growth is tested on samples consisting of one or more country groups. 40 countries, which are determined to have the highest share of the value of Islamic finance assets in their total financial assets, are the subject of analysis. Obtaining the total value of the assets representing the development of Islamic finance from the variables used in the analysis in two different ways, as flow and stock, and the creation of two different models in which these variables are used, that are brought to the index form by using the min-max method, also make this study different. The use of second-generation methods that take into account the cross-section dependency over models based on the extended Cobb-Douglas production function based on neoclassical economic growth theory is also applied for the first time in the Islamic finance development and economic growth literature, as far as can be determined.

This study, which examines the relationship between Islamic finance development and economic growth, consisting five chapters. After the first chapter, which is an introductory chapter, in which the motivation of the study is discussed, the literature on the relationship between financial development and economic growth is summarized in the second chapter, and then Islamic finance is discussed from a conceptual point of view. Subsequently, empirical studies on the relationship between Islamic finance development and economic growth are included. The third chapter summarized the information on the countries that make up the sample of the analysis, the data used, the model, and the econometric tests applied. In the fourth chapter, the applied methodology and empirical results are given. In the fifth chapter, where a general evaluation is made, policy recommendations are presented.

2. Literature Review

Theoretical studies on the relationship between financial development and economic growth are discussed from 5 main perspectives. In the supply-leading approach, it is stated that financial development accelerates capital accumulation by increasing savings and investments and positively affects economic growth (Patrick, 1966: 175-176). In the demand-following approach, it is argued that the emergence of financial institutions and services is due to the increased demand of investors and savers for financial services. Therefore, it is emphasized that the development of financial systems is a result of a widespread and comprehensive economic growth process and financial institutions play a passive role in this process (Patrick, 1966: 174). According to Patrick, these two opposite situations can also interact. In the stages of development approach, it is stated that financial development can accelerate economic growth and financial development (Kirkpatrick and Green, 2002: 207). In the non-correlated approach, which is based

on the classical economic thought that monetary variables will not have an effect on real variables, it is emphasized that financial development has a negligible limited effect on economic growth (Lucas, 1988: 6). On the other hand, the negative causality approach, in which financial development is accepted as an obstacle to economic growth, focuses on the potentially destabilizing effects of commercial activities and crises that require excessive capital. In this approach, it is asserted that the intervention of governments in financial markets will create financial pressure and reduce interest rates artificially, which will reduce savings and negatively affect investments and economic growth (Graff, 1999: 2).

The effect of financial development on economic growth is discussed within the framework of internal economic growth models and the neoclassical economic growth model. In the internal economic growth models, in which financial development is included, it is emphasized that these functions determine the saving and investment decisions of the decision units and affect the economic growth through this channel by referring to the importance of the functions undertaken by financial systems. Greenwood and Jovanovic stated that financial systems encourage economic growth by increasing the efficiency of capital, thanks to the function of providing efficiency in resource allocation (Greenwood and Jovanovic, 1990: 16-24). Levine (1991) stated that financial systems accelerate economic growth through transaction cost reduction function and risk management function. Drawing attention to the division of labor between financial markets and firms, Saint-Paul states that financial systems accelerate economic growth through technological selection (Saint-Paul, 1992: 763). Pagano (1993) argued that financial markets cause faster economic growth by increasing the ratio of savings to investment and the social marginal productivity of capital. Greenwood and Smith state that financial markets play an important role in the efficient distribution of resources and accelerate economic growth by supporting specialization (Greenwood and Smith, 1997: 6-9).

In studies based on the neoclassical economic growth model, the effect of financial development on economic growth is examined by adding the variables, as a separate production factor, representing financial development to the production function taking place in the MRW model (Mankiw et al., 1992). Atje and Jovanovic stated that financial development (especially in stock markets) positively affected the level and/or growth rate of economic activities (Atje and Jovanovic, 1993: 635-636). Stating that the stock market is among the important determinants of long-term economic growth, Cooray emphasizes that policies aimed at increasing the size, liquidity, and efficiency of the stock market will accelerate economic growth (Cooray, 2010: 459). Durusu-Çiftçi, İspir, and Yetkiner, in their studies that include an assumption in the form of a saving function in addition to the assumptions of the Solow-Swan growth model, state

that the developments in the stock exchange and credit markets positively affect economic growth in the long run (Durusu-Çiftçi et al. 2017: 303).

Islamic and traditional finance systems have similar functions such as directing savings, meeting fund needs, and routine banking transactions. In the context of this similarity, when the empirical studies on the relationship between Islamic finance development and economic growth are examined, it is seen that these studies were created based on the level of financial development (traditional) and economic growth literature.

3. Theoretical Background of Islamic Finance

It is accepted that the expressions of "Muslim financial transactions" or "interest-free finance" used to define Islamic finance are made in a very narrow framework (Alrifai, 2015: 117; Askari et al., 2010: 80). Because this definition includes only the prohibition of interest among the principles of Islamic finance, and it is insufficient to define Islamic finance with all its principles (Ibrahim, 2007: 664). The Islamic finance system, which is a faith-based financial system, is aimed not only to maximize utility and/or profit but also to realize elements such as justice, equality, empathy, cooperation, the general well-being of the environment and society, entrepreneurship, and ethics (Habib, 2018: 3). In the Islamic financial system, principles such as efficient use of money and fair sharing of the resulting profit or loss between the parties are adopted rather than individual wealth or harmful competition to the society. For this reason, it emphasized the importance that the Islamic financial system should be seen as an economic order that directly complies with Islamic moral principles rather than being an alternative to socialist or capitalist economic systems (Millar, 2008: 3; Tripp, 2006: 103). In the Islamic financial system, which consists of institutions whose purpose and operation are accepted to be based on the principles of the Qur'an, apart from the prohibition of ribâ (interest), there are also principles consisting on avoiding Gharar (uncertainty), focusing on religiously permitted halal activities, and more generally seeking justice and other moral and religious goals (Warde, 2000: 5). In line with these principles, Islamic finance refers to a way of applying Islamic principles related to the economy (Visser, 2009: 1). Islamic finance offers new solutions to be able to carry out financial activities under Islamic legal rules and Islamic traditions, and in this respect, it makes it possible for Muslims to make financial transactions following their beliefs (Ernst, 2011: 17).

4. Empirical Literature of Islamic Finance

It is understood that the increase in the number of studies examining the macroeconomic effects of financial developments since the 1980s has led researchers to focus on the field of Islamic finance in empirical studies. Although

its origins date back to ancient times, Islamic finance, which has found the opportunity to be applied in the modern sense since the middle of the 20th century, started to be the subject of empirical studies after the global financial crisis in 2008. In the time series, cross-section and panel data analyses made for both single country and country groups in the Middle East and Southeast Asian countries where the Muslim population is dense in general, it is seen that economic growth is represented by real GDP per capita and Islamic finance by the total financing of Islamic banks or the total assets of Islamic banks variables. In these analyses conducted to determine the short- and long-term relationships between Islamic finance development and economic growth, results showing that predominantly causality and cointegration tests are mostly applied and that generally support either the supply-leading approach or the mutual interaction approach are obtained. However, few studies supported the non-correlated approach, which concludes that there is no relationship between Islamic finance development and economic growth, and the demand-following approach, which argues that there is unidirectional causality from economic growth to Islamic finance development.

The empirical literature investigating the relationship between Islamic finance development and economic growth begins with the analysis made in 2009 by Furqani and Mulyany. In this study, which examines the dynamic interaction between the development of the Islamic banking sector and economic growth in Malaysia, the variable of the total financing of Islamic banks is used to represent Islamic banking. In the results of the Vector Error Correction Model (VECM) and Johansen Co-integration tests applied in the time series analysis made with quarterly data covering the years 1997-2005, it has been determined that only real gross fixed capital formation contributes to the development of Islamic banking in the short run, while Islamic bank financing has a positive and significant relationship with economic growth and gross fixed capital formation in the long run. In addition, according to the Granger causality test results, it was determined that the increases in real GDP caused the development of the Islamic banking sector, in line with the demand-following approach in the literature. Following this pioneering work by Furqani and Mulyany (2009), Ellahi and Saghir (2014), and Tunay (2016) for the Islamic banking market and Avcı (2020) for the Sukuk market have reached results supporting the demand-following approach.

On the other hand, it is seen that several studies have reached conclusions that there is a one-way causality relationship between the development of Islamic finance to economic growth is more. First, Manap et al. (2012) examined the relationship between Islamic banking development and economic growth in Malaysia. Toda-Yamamoto and Bootstrap causality tests were applied using quarterly data in the 1998:1–2012:2 range. Using the variables of the total financing of Islamic banks, real gross domestic product, and gross fixed capital

formation, it has been reached a conclusion supporting the supply-leading approach that there is unidirectional causality from Islamic financial development to economic growth. In other studies, which are in parallel with the result of this study, Yusof and Bahlous (2013), Grassa and Gazdar (2014), Tabash and Dhankar (2014b), Imam and Kpodar (2016), Majid and Kassim (2015), Kassim (2016), Lawal and Imam (2016), Tabash and Anagreh (2017), Koçak (2018), Tabash (2018), Boukhatem and Moussa (2018), Tabash (2019) have reached results that support the supply-leading approach with different econometric methods applied for different periods on samples consisting of a single and/or several countries.

Abduh and Omar (2012), Abduh and Chowdhury (2012), Abduh et al. (2012), Yazdan and Mohammad Hossein (2012), Tabash and Dhankar (2013), Tajgardoon, Behname and Noormohamadi (2013), Abduh and Sukmana (2013), Yazdan and Mohammad Hossein (2013), Al-Oqool et al. (2014), Tabash and Dhankar (2014a), Tabash and Dhankar (2014b), Bozkurt et al. (2020), Naz and Gulzar (2020) reached conclusions supporting the mutual interaction approach, which stated that there is a mutual feedback mechanism between financial development and economic growth. Finally, Goaied and Sassi (2010), Johnson (2013), Kutlu and Karamustafa (2019), and Sekmen (2021), on the other hand, stated that there is no significant relationship between Islamic financial development and economic growth and that the traditional financial system generally has a greater effect on economic growth.

4. Data and Model

In this current study, the data for the period of 2012-2018 of 40 countries[1], which are determined to have the highest share of the value of Islamic finance assets in their total financial assets, are provided from the Thomson Reuters database, and the relationship between Islamic finance development and economic growth in these countries is analyzed by panel data method. The short time dimension of the analysis constitutes one of the most important constraints encountered in the study. Since the Sukuk assets in the Islamic capital markets constituting the Islamic finance sector have been issued regularly since 2012 and the data on these markets is limited, the analysis period starts from 2012. In the analysis, in which economic growth is used as the dependent variable, physical capital accumulation, human capital accumulation, technological development, and Islamic finance development are included as independent variables. The data used to represent these variables and the sources from which these data were obtained are presented in Table 1.

[1]. Sample countries are shown in Appendix.

Table 1. Descriptive Information of Variables

Abbreviation of Variable	Definition	Source
PCRGDP	per Capita Real Gross Domestic Product (in 2010 fixed prices - USD)	The World Bank-WB (World Development Indicators-WDI-2020)
PCRGFI	per Capita Real Gross Fixed Capital Formation (in 2010 fixed prices- USD)	
EMP	Employed Workforce in Active Population	The Conference Board (Total Economy Database-TED, 2020)
TFP	Total Factor Productivity	
IFS1	Global Islamic Finance Assets (Stock)	Thomson Reuters
IFS2	Global Islamic Finance Assets (Flow)	Thomson Reuters

The data set of per capita real gross domestic product (PCRGDP) used to represent economic growth and per capita real gross fixed capital formation (PCRGFI) variables representing physical capital were obtained from the World Bank's "World Development Indicators" database. The data on the employed workforce (EMP) variable, which is among the independent variables and represents human capital accumulation, and the total factor productivity (TFP) variables that measure technology, were obtained from the Total Economy Database (TED-2020). Finally, data on the total Islamic finance assets (IFS1 and IFS2) variables representing the development of Islamic finance were obtained from the Thomson Reuters database. While providing the data for PCRGDP, PCRGFI, IFS1, and IFS2 variables, the real form of all data and their values in US dollars (USD) were taken into account.

The PCRGDP variable used to represent economic growth, was obtained from the relevant database in real terms with US dollar fixed prices for 2010. The PCRGFI variable, which is used to represent the physical capital accumulation, is calculated as per capita values by dividing the gross fixed capital formation data of the countries by the 2010 prices in USD and dividing them by the total population values in the middle of the year obtained from the same database. The EMP variable used to represent human capital accumulation in the model was obtained as per capita values by proportioning the employed labor force data in the active population obtained from the relevant database with the total population values in the middle of the year obtained from the same database. The TFP variable created by taking into account the quantitative and qualitative differences of physical and human capital accumulation and calculated in terms of annual growth rate was included in the model to represent technological progress. Since the values of the data belonging to the TFP variable are included as the annual growth rate in the relevant database, the annual growth rate values were used to avoid any discrepancy in the PCRGDP, PCRGFI, and EMP variables used in the analysis. In addition, in the empirical literature investigating economic growth, it has been seen

that variables such as R&D investments, number of patents, education level of the active population, and trade openness ratio are frequently used to represent technology. This study aimed to use a single variable that is considered to contain the effects of all these variables. Another reason for using the TFP variable to represent the level of technological progress in the model is that, compared to other variables, this variable can be obtained uninterruptedly in the relevant period for all countries within the scope of the analysis.

The IFS1 and IFS2 variables used to represent the development of Islamic finance represent the series consisting of the sum of Islamic banking market assets, Islamic capital market assets (Sukuk assets and Islamic mutual funds issued by the public and private sectors), Islamic insurance market assets and other Islamic financial institutions assets that make up the Islamic finance sector. By using these series, two different variables, IFS1 and IFS2, are created and two different models are constructed with these variables. In this context, the IFS1 variable refers to the series consisting of the cumulative sums of Islamic finance assets, and the IFS2 variable refers to the series consisting of the annual values of Islamic finance assets. In other words, IFS1 is included in the analysis as a stock variable and IFS2 as a flow variable.

The large numerical differences between the data on Islamic financial assets make it difficult to analyze these data directly. Therefore, it is necessary to apply the normalization method, which will ensure that these data are distributed within a certain range. There are normalization methods such as z-score, minimum-maximum (min-max), median, and sigmoid in the literature (Jayalakshmi and Santhakumaran, 2011: 91). In this study, the min-max normalization method, which is one of the most used normalization methods in the finance literature and in which the relationship between the data is preserved by providing linear transformation in the original data range, is used to convert the IFS1 and IFS2 series into the index (Sarma, 2008: 6; Dorrucci et al., 2009: 24; Albulescu, 2010: 86; Herrero et al., 2012: 254).

In the min-max normalization method, based on the Equation (1), the minimum value in the series is demeaned to 0 and the maximum value to 1 (Svirydzenka, 2016: 15):

$$I_x = \frac{(x - x_{min})}{(x_{max} - x_{min})} \quad (1)$$

In Equation (1), I_x represents data normalized to the range 0-1 (index value), x_{max} represents the highest value in series, x_{min} represents the lowest value in the series and x represents the value of the basic raw data before normalization.

In econometric analysis, annual growth rates of PCRGDP, PCRGFI, EMP, and TFP variables in Table 1 and level values of IFS1 and IFS2 variables calculated as indexes are used.

Econometric models established to determine the relationship between Islamic finance development and economic growth are constructed by expanding the basic Neoclassical Cobb-Douglas production function in Equation (2).

$$Y = AK^{\alpha}L^{\beta} \qquad (A > 0; \quad 0 > \alpha > 1; \quad 0 > \beta > 1) \tag{2}$$

In Equation (2): Y represents income, A represents technology, K represents physical capital and L represents labor force. By expanding the Basic Neoclassical Cobb-Douglas production function to include the effects of Islamic finance development on economic growth, it can be written as in Equation (3).

$$Y_{it} = A_{it}K_{it}^{\alpha}L_{it}^{\beta}I_{it}^{\gamma}e^{\varepsilon_{it}} \qquad (A > 0; \quad 0 > \alpha > 1; \quad 0 > \gamma > 1) \tag{3}$$

From the terms in Equation (3); Y_{it} is economic growth represented by real gross domestic product per capita (PCRGDP), A_{it} is the level of technological development represented by total factor productivity (TFP), K_{it} is physical capital accumulation represented by per capita real gross fixed capital formation (PCRGFI), L_{it} shows the human capital accumulation represented by the employed workforce (EMP) within the active population and I_{it} indicates the Islamic finance development level represented by the total Islamic finance assets (IFS1 and IFS2). The i remarks cross-section data (countries), t remarks time, and (ε_{it}) remarks the error term. By taking the natural logarithm of Equation (3), two different models are obtained in Equations (4) and (5).

$$PCRGDP_{it} = \alpha_{it} + \beta_{1_{it}}PCRGFI_{it} + \beta_{2_{it}}EMP_{it} + \beta_{3_{it}}TFP_{it} + \beta_{4_{it}}IFS1_{it}u_{it} \tag{4}$$

$$PCRGDP_{it} = \alpha_{it} + \beta_{1_{it}}PCRGFI_{it} + \beta_{2_{it}}EMP_{it} + \beta_{3_{it}}TFP_{it} + \beta_{4_{it}}IFS2_{it}u_{it} \tag{5}$$

Equation (4) represents Model-1, which measures Islamic finance assets as stock variables, and Equation (5) represents Model-2, which measures Islamic finance assets as flow variables.

5. The Methodology and Empirical Results

In the first stage of econometric analysis, it is necessary to test whether the series of variables contain a unit root, in other words, whether they are stationary. Spurious regression problems can be encountered in analyzes with non-stationary series and biased results can be obtained. In panel data analysis, the cross-section dependence, which expresses the correlation between the series, is effective in the selection of the unit root and cointegration tests to be applied. In this context, first of all, cross-section dependency tests should be performed for both models to be estimated. Because, in the globalizing world economy, due to the integration of

financial markets with each other and the freedom of international capital mobility, it is expected that there will be a high probability of cross-section dependence between the series of Islamic financial assets (IFS1 and IFS2). In this context, to test the existence of cross-section dependence on a variable basis: the LM_{adj} test, which is recommended for cases (N>T) where the number of cross-section units (N) is greater than the time dimension (T) and which is stated to give unbiased results, has been tried to be applied; however, since the minimum time dimension (9 years) required for this test could not be achieved, the test results of Pesaran (2004) were taken into account.

Table 2. Cross-Section Dependency Test Results Based on Variable

	Pesaran CD (2004)	
Variables	**CD**	**p-value**
PCRGDP	-1.105	0.269
PCRGFI	1.583	0.113
EMP	-0.864	0.388
TFP	1.008	0.314
IFS1	11.482	0.000
IFS2	3.143	0.002

Source: Research finding.

According to Table 2, which includes the results of the cross-section dependency test performed based on the variable; the null hypothesis (H_0:There is no cross-section dependency) suggesting that there is no cross-sectional dependence is rejected for IFS1 and IFS2 variables at the 5% significance level. In other words, the statistics in Table 3 show that there is a cross-sectional dependence between the series of IFS1 and IFS2 variables. The results of the cross-section dependence and homogeneity based on the model are given in Table 3.

Table 3. Cross-Section Dependency and Homogeneity Tests Based on Model

	Model-1		**Model-2**	
Cross-Section Dependency Tests	**Statistics**	**p-value**	**Statistics**	**p-value**
Breusch-Pagan Chi-square	1916.087	0.0000	1837.895	0.0000
Pesaran LM Normal	27.75127	0.0000	25.77156	0.0000
Pesaran CD Normal	-0.938814	0.3478	-0.746996	0.4551
Friedman Chi-square	7.221429	0.3009	7.435714	0.2824
Frees Q*	1.540555	0.0000	1.501962	0.0000
Homogeneity Tests				
Delta title **	1.102	0.135	1.121	0.262
Delta title adj**	2.204	0.014	2.967	0.003

Source: Research finding.

Note: *Frees Q Test Critical Values at 1%, 5%, and 10% significance level, respectively: 0.767776, 0.492251, 0.358288; ** Represents the asymptotic p-value.

According to all tests except Pesaran CD Normal and Friedman Chi-square tests, the null hypothesis suggesting that there is no cross-sectional dependence in Models 1 and 2 is rejected at the 5% significance level. In other words, according to the test results, it is understood that there is a cross-section dependence for both models. On the other hand, the slope parameters of the variables in dynamic panel data analysis can have a homogeneous or heterogeneous structure. According to the delta title test results, the null hypothesis, asserting that the models are homogeneous cannot be rejected at the 5% significance level. On the other hand, according to the delta title adj test, the null hypothesis claiming that the models are homogeneous is rejected, and both models are accepted at the 5% significance level as heterogeneous. In their study, Pesaran and Yamagata state that the delta title adj test gives better results when the number of cross-sections to be used in the analysis is larger than the time dimension (N>T) (Pesaran and Yamagata, 2008: 57). Since the cross-section size used in the analysis is larger than the time dimension, it is accepted that the slope coefficients of the panel data exhibit a heterogeneous structure considering the delta title adj test results.

Since both models used in the analysis have heterogeneous parameters and include cross-section dependence, the unit root tests to be applied should be tests that take these characteristics into account. In this context, Hadri and Kurozumi (2012) Panel Unit Root test, one of the second-generation unit root tests developed for heterogeneous panels under cross-section dependence, is applied to determine stationarity.

Table 4. Panel Unit Root Test Results

	Hadri (2000)		**Hadri and Kurozumi (2012)**			
	Z(Mu)	**p-value**	**Z_A^{SPC}**	**p-value**	**Z_A^{LA}**	**p-value**
PCRGDP	4.509	0.0000	14.7042	0.0000	686.6035	0.0000
PCRGFI	1.977	0.0240	15.9462	0.0000	229.5558	0.0000
EMP	2.958	0.0015	1.4446	0.0743	148.1615	0.0000
TFP	1.447	0.0739	16.1734	0.0000	207.3451	0.0000
IFS1	9.449	0.0000	45.4423	0.0000	616.7050	0.0000
IFS2	-0.416	0.6613	36.1860	0.0000	6801.2398	0.0000

Source: Research finding.

Note: The maximum lag length is chosen according to Schwarz criteria.

According to Hadri and Kurozumi (2012) Panel Unit Root test results in Table 4: the null hypothesis suggesting that the series does not contain a unit root is rejected at the 10% significance level for the EMP variable and the 5% significance level for all other series in the Z_A^{SPC} test statistics. In Z_A^{LA} test statistics, the null hypothesis is rejected at a 5% significance level for all variables. Since the Z_A^{SPC} test gives more consistent results in small samples, Z_A^{SPC} results are taken into account in this study (Hadri and Kurozumi, 2012: 33; Sul, et al., 2005: 518-

531). It is observed that the series used in the study, except for the EMP variable, are not stationary at the 5% significance level. For this reason, the long-term relationships of all series used in the model should be examined by cointegration analysis.

The LM test developed by Westerlund and Edgerton (2007) allows cointegration analysis to be performed on heterogeneous panels consisting of small samples and cross-sectional dependence. For this reason, a cointegration analysis developed by Westerlund and Edgerton (2007) was applied to test the long-term relationship between the series.

Table 5. Westerlund and Edgerton (2007) LM Test Results

	LM statistic	**Bootstrap p-value**	**Asymptotic p-value**
Model-1	567.934	0.140	0.000
Model-2	666.386	0.132	0.000

Source: Research finding.

Note: Bootstrap probability values were produced with 5000 simulations and asymptotic probability values were produced from standard normal distribution.

According to Table 5, which includes the results of Westerlund and Edgerton's (2007) cointegration analysis, Bootstrap probability values show that the null hypothesis suggesting that there is a cointegration relationship for both models cannot be rejected at the 5% significance level, so the series is considered to be cointegrated. Since Westerlund and Edgerton (2007: 186) stated in their studies that bootstrap probability values give more consistent results under cross-section dependence, the series is considered to be cointegrated.

The fact that the models used in the analysis have heterogeneous parameters, include cross-sectional dependence, and are cointegrated requires the estimation of long-term coefficients with appropriate methods. In this context, the effects of Islamic finance development on economic growth for 40 countries within the scope of the analysis are examined with CS-DL and CS-ARDL models.

Table 6 shows the Panel CS-DL ($p = 2, p_{\bar{x}} = 2$) and CS-ARDL ($p_y = p_X = 2;\ p_{\bar{z}} = 2$) results for two different models defined to determine the impact of Islamic finance development on economic growth in the 40 countries included in the analysis.

Table 6. Estimation Results of Models (CS-DL, CS-ARDL)

	Model-1			
	CS-DL		CS-ARDL	
	Coefficients	**SE.**	**Coefficients**	**SE.**
PCRGFI	0.5856[a]	0.1287	0.4313[a]	0.1210
EMP	1.2678[a]	0.1090	0.8266[a]	0.1005
TFP	0.6387[a]	0.1100	0.5346[a]	0.1336
IFS1	2.1808[a]	0.0973	1.6260[a]	0.2815
IFS2	—	—	—	—
	Model-2			
	CS-DL		CS-ARDL	
	Coefficients	**SE.**	**Coefficients**	**SE.**
PCRGFI	0.5614[a]	0.0211	0.2995[a]	0.0190
EMP	0.6572[a]	0.0320	0.6509[a]	0.0214
TFP	0.9567[a]	0.0518	0.4972[a]	0.0375
IFS1	—	—	—	—
IFS2	0.9926[a]	0.1053	1.5332[a]	0.0839

Source: Research finding.

Note: The "SE." term indicates the standard errors of the coefficients, and the sign "[a]" indicates that the coefficients are significant at the 1% significance level.

According to Table 6, which includes the CS-DL and CS-ARDL estimation results, it is seen that the long-term coefficients calculated for the PCRGFI, EMP, and TFP variables, which are the main determinants of economic growth, are positive and significant in both models. These results show that the increases in physical capital and human capital accumulation in the level of technological development during the review period in the 40 countries within the scope of the analysis have a positive and statistically significant effect on economic growth, in line with the proposals of the Cobb-Douglas production function at the theoretical level. On the other hand, considering the magnitudes of the effects of PCRGFI, EMP, and TFP variables on economic growth, it is seen that the ranking for both models is generally EMP, TFP, and PCRGFI. In other words, it is understood that the factor affecting economic growth the most for the countries in question is human capital, followed by total factor productivity and physical capital accumulation, respectively.

According to the CS-DL estimation results for Model-1, a one-unit positive change in physical capital accumulation will increase economic growth by 0.5856 units, a one-unit positive change in human capital accumulation will increase economic growth by 1.2678 units, and a one-unit positive change in total factor productivity will increase economic growth by 0.6387 units. In addition, according to the CS-ARDL estimation results, it is seen that a one-unit positive change in physical capital accumulation will increase economic growth by 0.4313 units, a

one-unit positive change in human capital accumulation will increase economic growth by 0.8266 units, and a one-unit positive change in total factor productivity will increase economic growth by 0.5346 units.

According to the CS-DL estimation results for Model-2, it is clear that a one-unit positive change in physical capital accumulation will increase economic growth by 0.5614 units, a one-unit positive change in human capital accumulation will increase economic growth by 0.6572 units, and a one-unit positive change in total factor productivity will increase economic growth by 0.9567 units. On the other hand, according to the CS-ARDL estimation results, it is seen that a one-unit positive change in physical capital accumulation will increase economic growth by 0.2995 units, a one-unit positive change in human capital accumulation will increase economic growth by 0.6509 units, and a one-unit positive change in total factor productivity will increase economic growth by 0.4972 units.

When the CS-DL and CS-ARDL estimation results in Table 6 are examined in terms of Islamic finance variables that form the core of the study, it is understood that the coefficients of the Islamic finance development indexes in both models defined in the countries included in the analysis are in the same direction and at similar significance levels. This means that, at first glance, the two models created to include Islamic financial assets indices calculated as two for each country using the min-max method are consistent and that the CS-DL and CS-ARDL estimators yield stable and mutually supportive findings. The findings obtained from the CS-DL and CS-ARDL estimations in Table 6 show that Islamic finance assets have a positive and statistically significant effect on economic growth, regardless of the method in which they are measured.

When the coefficients of Islamic financial assets indices created by using the min-max normalization method are analyzed separately according to the CS-DL and CS-ARDL estimation results, in case other things being equal, a one-unit positive change in Islamic finance assets will increase economic growth by 2.1808 and 0.9926 units, respectively, according to CS-DL estimation results, and 1.6260 and 1.5332 units, respectively, according to CS-ARDL estimation results.

When the CS-DL and CS-ARDL estimation results made for Model-1 and Model-2, which are created by obtaining the stock and flow variables of Islamic finance assets, are evaluated in general, it is understood that physical capital, human capital, and technological progress, which are the main determinants of economic growth, are compatible with theoretical predictions on the effects of technological progress on economic growth. Similarly, the effects of financial development on economic growth specific to Islamic finance are consistent with the theoretical literature.

According to CS-DL and CS-ARDL estimation results, Islamic finance development affects economic growth more than other variables in the model.

Among the possible reasons for this situation are the insufficient technological progress in the sample countries, the lack of development of human capital, and the low accumulation of physical capital.

6. Conclusion and Policy Implication

In this current study, the effects of Islamic finance development on economic growth were examined in the data from 2012 to 2018 for 40 countries, which were determined to have the highest share of the value of Islamic finance assets in their total financial assets worldwide. According to the regression results, it has been determined that the long-term coefficients calculated for the variables of per capita real gross fixed capital formation, employed labor force in the active population, and total factor productivity, which are the main determinants of economic growth, have positive and significant effects in both models. It has been determined that this result is compatible with the proposals of the Cobb-Douglas production function at the theoretical level. When the results are examined in terms of Islamic finance variables that form the core of the study, it has been determined that the coefficients of the Islamic finance development indexes in both models are in the same direction and at similar significance levels and that Islamic finance assets have a positive and statistically significant effect on economic growth. The results gathered from the study show parallelism with Manapet al. (2012), Yusof and Bahlous (2013), Grassa and Gazdar (2014), Tabash and Dhankar (2014b), Imam and Kpodar (2016), Majid and Kassim (2015), Kassim (2016), Lawal and Imam (2016), Tabash and Anagreh (2017), Tabash (2018), Boukhatem and Moussa (2018), and Tabash (2019). In other words, this study's conclusion supports the supply-leading approach, which argues that financial development accelerates economic growth. Since one of the main macro goals of the countries is to achieve a rapid and sustainable economic growth momentum, one of the factors that will ensure this goal is to implement policies to accelerate the development of Islamic finance. In countries where the Islamic finance market has not yet been formed, policies towards the creation of these markets can be implemented, and it is seen that countries, where Islamic finance practices are already in effect, can take steps to increase the variety and quality of products and services offered in these markets. Thus, more recognition, globalization, and integration of Islamic finance practices across the world will be ensured. In this context;

- For the development of Islamic finance, first of all, the adoption of Islamic finance principles by the whole society and cooperation between individuals, institutions, investors, and governments are required. In particular, the establishment and development of the legal basis by institutions and governments to establish trust between the parties will accelerate the development of Islamic finance.

- Provided that they adhere to the principles of Islamic finance, it is important to diversify the financing models implemented by Islamic financial institutions and to make necessary legal arrangements that will facilitate the applicability of these models by the governments.
- The epidemic caused by the COVID-19 virus, which emerged in 2019, has significantly affected social and economic life in all countries, regardless of the rich or poor, as of today. In this process, where significant changes were experienced in production methods, working conditions, and consumption behavior patterns in almost all sectors, the principle of social state came to the fore. Employment rates decreased as a result of reductions in production volume in many countries, and social assistance payments increased substantially compared to previous years. In this process, where the deterioration in income distribution is increasing, the importance of the principles of Islamic finance such as equality, social benefit, and social justice has become more evident. In this context, it is expected that more implementation of Islamic financing models such as benevolent loan (Qard Hasen), which plays an important role in the development of social infrastructure and the fight against poverty, will make significant contributions to the fight against possible social and economic crises.
- The Islamic financial system is not only considered as a regional, ethnic, or class financial system to meet the financial needs of Muslims. On the contrary, with its moral-based functions, which are based on sharing, where social benefit is more important than individual benefit, provided that it remains within the framework of Islamic legal rules, a fair financial system that all humanity can benefit from is aimed. In this context, the fact that the institutions in the Islamic financial markets are subject to the activities of international surveillance, supervision, and rating agencies will enable the Islamic financial system to make a comprehensive development at the universal level. This matter will also increase the competitiveness of Islamic financial institutions against their competitors in the traditional financial system.
- Finally, with the development of Islamic financial markets and their spread to cover more countries worldwide, the content of the studies to be carried out in the coming periods will also be enriched. In this context, in the results obtained from the analyses to be made on samples that include more countries and using data from longer periods, the impact of Islamic finance development on economic growth is expected to be more pronounced.

References

Abduh, M., Brahim, S., & Omar, M. A. (2012). A Study on Finance-Growth Nexus in Dual Financial System Countries: Evidence from Bahrain. *World Applied Sciences Journal*, *20*(8), 1166-1174.

Abduh, M., & Chowdhury, N. T. (2012). Islamic Banking–Economic Growth Nexus: Evidence from Bangladesh. *Journal of Islamic Economics, Banking and Finance*, *8*(3), 104-113.

Abduh, M., & Omar, M. A. (2012). Islamic Banking and Economic Growth: The Indonesian Experience. *International Journal of Islamic and Middle Eastern Finance and Management*, *5*(1), 35-47.

Abduh, M., & Sukmana, R. (2013). The Role of Stock Markets in Promoting Economic Growth in Malaysia: Islamic Vis-Vis Conventional. *Global Review of Islamic Economics and Business*, *1*(1), 1-10.

Albulescu, C. T. (2010). Forecasting the Romanian Financial System Stability Using a Stochastic Simulation Model. *Romanian Journal of Economic Forecasting*, *13*(1), 81-98.

Alrifai, T. (2015). *Islamic Finance and the New Financial System: An Ethical Approach to Preventing Future Financial Crises*. Singapore: John Wiley & Sons Pte. Ltd.

Al-Oqool, M. A., Okab, R., & Bashayreh, M. (2014). Financial Islamic Banking Development and Economic Growth: A Case Study of Jordan. *International Journal of Economics and Finance*, *6*(3), 72-79.

Askari, H., Iqbal, Z., Krichene, N. & Mirakhor, A. (2010). *The Stability of Islamic Finance: Creating a Resilient Financial Environment for a Secure Future*. Singapore: John Wiley & Sons.

Atje, R., & Jovanovic, B. (1993). Stock Markets and Development. *European Economic Review*, *37*(2-3), 632-640.

Avcı, T. (2020). The Relationship between Sukuk Market and Economic Growth: Panel Causality Analysis. *Journal of Economics, Finance and Accounting (JEFA)*, *7*(1), 66-74.

Bagehot, W. (1873). *Lombart Street: A Description of the Money Market*. New York: E. P. Dutton and Company (Reprint 1920).

Boukhatem, J., & Moussa, F. B. (2018). The Effect of Islamic Banks on GDP Growth: Some Evidence from Selected MENA Countries. *Borsa Istanbul Review*, *18*(3), 231-247.

Bozkurt, M., Altıntaş, N., & Yardımcıoğlu, F. (2020). The Effects of Participation Banking and Conventional Banking on Economic Growth: An Analysis on Turkey. *International Journal of Islamic Economics and Finance Studies*, *6*(1), 95-114.

Calderón, C., & Liu, L. (2003). The Direction of Causality between Financial Development and Economic Growth. *Journal of Development Economics*, *72*(1), 321-334.

Cooray, A. (2010). Do Stock Markets Lead to Economic Growth? *Journal of Policy Modelling*, *32*(4), 448-460.

Demirgüç-Kunt, A., Levine, R., & Min, H. G. (1998). Opening to Foreign Banks: Issues of Stability, Efficiency, and Growth. *The Implications of Globalization of World Financial Markets*, 83-115.

Dorrucci, E., Meyer-Cirkel, A., & Santabárbara, D. (2009). Domestic Financial Development in Emerging Economies: Evidence and Implications. *ECB Occasional Paper*, *102*, 1-64.

Durusu Çiftçi, D., İspir, M. S., & Yetkiner, H. (2017). Financial Development and Economic Growth: Some Theory and More Evidence. *Journal of Policy Modelling*, *39*(2), 290-306.

Ellahi, N., & Saghir, R. (2014). Analyzing the Empirical Link between Islamic Finance and Growth of Real Output: A Time Series Application to Pakistan. *Academic Research International*, *5*(6), 180-187.

Ernst, A. (2011). Promoting Islamic Finance and Islamic Banking: A Legal Analysis of the Potential for Islamic Banking Products in Germany. *Rechtspolitisches Forum*, *56*, 1-57.

Furqani, H., & Mulyany, R. (2009). Islamic Banking and Economic Growth: Empirical Evidence from Malaysia. *Journal of Economic Cooperation & Development*, *30*(2), 59-74

Goaied, M., & Sassi, S. (2010). Financial Development and Economic Growth in the MENA Region: What about Islamic Banking Development. *Institut des Hautes Etudes Commerciales, Carthage, 1*, 1-23.

Goldsmith, R. W. (1969). *Financial Structure and Development.* New Haven: Yale University Press.

Graff, M. (1999). Financial Development and Economic Growth- A New Empirical Analysis. *Dresden Discussion Papers in Economics, 5/99*, 1-19.

Grassa, R., & Gazdar, K. (2014). Financial Development and Economic Growth in GCC Countries. *International Journal of Social Economics*, *41*(6), 493-514.

Greenwood, J., & Jovanovic, B. (1990). Financial Development, Growth, and the Distribution of Income. *Journal of Political Economy*, *98*(5-1), 1076-1107.

Greenwood, J., & Smith, B. D. (1997). Financial Markets in Development, and the Development of Financial Markets. *Journal of Economic Dynamics and Control*, *21*(1), 145-181.

Habib, S. F. (2018). *Fundamentals of Islamic Finance and Banking*. West Sussex: John Wiley & Sons.

Hadri, K. (2000). Testing for Stationarity in Heterogeneous Panel Data. *The Econometrics Journal*, *3*(2), 148-161.

Hadri, K., & Kurozumi, E. (2012). A Simple Panel Stationarity Test in the Presence of Serial Correlation and a Common Factor. *Economics Letters*, *115*(1), 31-34.

Hassan, M. K., Sanchez, B., & Yu, J. S. (2011). Financial Development and Economic Growth: New Evidence from Panel Data. *The Quarterly Review of Economics and Finance, 51*(1), 88-104.

Herrero, C., Martínez, R., & Villar, A. (2012). A Newer Human Development Index. *Journal of Human Development and Capabilities*, *13*(2), 247-268.

Hussain, T., Arshed, N., & Kalim, R. (2020). An Appraisal of the Role of Islamic Banking Development and Economic Growth. *Journal of Applied Economics and Business Studies*, *4*(4), 215-236.

Ibrahim, A. A. (2007). The Rise of Customary Businesses in International Financial Markets: An Introduction to Islamic Finance and the Challenges of International Integration. *American University International Law Review, 23*(4), 661-732.

Imam, P., & Kpodar, K. (2016). Islamic Banking: Good for Growth? *Economic Modelling, 59*, 387-401.

Jayalakshmi, T., & Santhakumaran, A. (2011). Statistical Normalization and Back Propagation for Classification. *International Journal of Computer Theory and Engineering, 3*(1), 1793-8201.

Johnson, K. (2013). The Role of Islamic Banking in Economic Growth. *Journal of Finance Services of Research, 38*, 95-113.

Kassim, S. (2016). Islamic Finance and Economic Growth: The Malaysian Experience. *Global Finance Journal, 30*, 66-76.

King, R. G., & Levine, R. (1993a). Finance and Growth: Schumpeter Might be Right. *The Quarterly Journal of Economics, 108*(3), 717-737.

Kirkpatrick, C., & Green, C. (2002). Finance and Development: An Overview of the Issues. *Journal of International Development, 14*(2), 207.

Koçak, E. (2018). Islamic Finance and Economic Growth: An Econometric Application on Turkey. *Erciyes University Journal of Economics and Administrative Sciences, 51*, 67-91.

Kutlu, M., & Karamustafa, O. (2019). Participation Banks Role in Economic Growth: A Comparative Analysis with Deposit Bank, *Journal of Business Research-Turk, 11*(4), 3025-3034.

Lawal, I. M., & Imam, U. B. (2016). Islamic Finance and Economic Growth: Empirical Evidence from Nigeria. *Journal of Economics and Sustainable Development, 7*(16), 99-108.

Levine, R. (1991). Stock Markets, Growth, and Tax Policy. *The Journal of Finance, 46*(4), 1445-1465.

Lucas Jr, R. E. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics, 22*(1), 3-42.

Majid, M. S. A., & Kassim, S. H. (2015). Assessing the Contribution of Islamic Finance to Economic Growth. *Journal of Islamic Accounting and Business Research*, *6*(2), 292-310.

Manap, T. A. A., Abduh, M., & Omar, M. A. (2012). Islamic Banking-Growth Nexus: Evidence from Toda-Yamamoto and Bootstrap Granger Causality Test. *Journal of Islamic Finance*, *1*(1), 59-66.

Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A Contribution to the Empirics of Economic Growth. *The Quarterly Journal of Economics*, *107*(2), 407-437.

McKinnon, R. I. (1973). *Money and Capital in Economic Development*. Washington: Brookings Institution.

Millar, R. (2008). Religious Foundations of Islamic Finance. In Roderick Millar & Habiba Anwar (Eds.), *Islamic Finance: A Guide for International Business and Investment* (3-8). London: GMB Publishing Ltd.

Naz, S. A., & Gulzar, S. (2020). Impact of Islamic Finance on Economic Growth: An Empirical Analysis of Muslim Countries. *The Singapore Economic Review*, *67*(01), 245-265.

Pagano, M. (1993). Financial Markets and Growth: An Overview. *European Economic Review*, *37*(2-3), 613-622.

Patrick, H. T. (1966). Financial Development and Economic Growth in Underdeveloped Countries. *Economic Development and Cultural Change*, *14*(2), 174-189.

Pesaran, M. H., & Yamagata, T. (2008). Testing Slope Homogeneity in Large Panels. *Journal of Econometrics*, *142*(1), 50-93.

Saint-Paul, G. (1992). Technological Choice, Financial Markets and Economic Development. *European Economic Review*, *36*(4), 763-781.

Sarma, M. (2008). Index of Financial Inclusion. *Indian Council for Research on International Economic Relations Working Paper*, *215*, 1-27.

Schumpeter, J. A. (1911). *The Theory of Economic Development*. Cambridge: Harvard University Press.

Sekmen, T. (2021). Islamic Banking and Economic Growth in the Dual Banking System. *Optimum Journal of Economics and Management Sciences*, *8*(1), 183-196.

Sul, D., Phillips, P. C., & Choi, C. Y. (2005). Prewhitening Bias in HAC Estimation. *Oxford Bulletin of Economics and Statistics, 67*(4), 517-546.

Svirydzenka, K. (2016). Introducing a New Broad-Based Index of Financial Development. *IMF Working Paper, 16/5*, 1-43.

Tabash, M. I. (2018). Islamic Financial Investments and Economic Growth Evidence from Emerging Economy, United Arab Emirates. *International Journal of Economics and Business Research, 15*(1), 125-139.

Tabash, M. I. (2019). An Empirical Investigation on the Relation between Disclosure and Financial Performance of Islamic Banks in the United Arab Emirates. *The Journal of Asian Finance, Economics, and Business*, *6*(4), 27-35.

Tabash, M. I., & Anagreh, S. (2017). Do Islamic Banks Contribute to the Growth of the Economy? Evidence from United Arab Emirates (UAE). *Banks & Bank Systems*, *12*(1), 113-118.

Tabash, M. I., & Dhankar, R. S. (2013). An Empirical Analysis of the Flow of Islamic Banking and Economic Growth in Bahrain. *International Journal of Management Sciences and Business Research, 3*(1), 96-103.

Tabash, M. I., & Dhankar, R. S. (2014a). The Flow of Islamic Finance and Economic Growth: An Empirical Evidence of Middle East. *Journal of Finance and Accounting*, *2*(1), 11-19.

Tabash, M., & Dhankar, R. S. (2014b). The Relevance of Islamic Finance Principles in Economic Growth. *International Journal of Emerging Research in Management and Technology, 3*(2), 49-54.

Tabash, M. I., & Dhankar, R. S. (2014c). Islamic Banking and Economic Growth: An Empirical Evidence from Qatar. *Journal of Applied Economics and Business, 2*(1), 51-67.

Tajgardoon, G., Behname, M., & Noormohamadi, K. (2013). Islamic Banking and Economic Growth: Evidence from Asia. *Journal of Modern Accounting and Auditing*, *9*(4), 542.

The Conference Board. (2020). Total Economy Database. Retrieved from https://www.conference-board.org/data/economydatabase

The World Bank. (2015). World Development Indicators. Retrieved from http://data.worldbank.org/data-catalog/world-development-indicators

Tripp, C. (2006). *Islam and the Moral Economy: The Challenge of Capitalism*. Cambridge: Cambridge University Press.

Tunay, B. (2016). Causality Relations between Islamic Banking and Economic Growth. *Journal of Management and Economy*, *23*(2), 485-502.

Veselinović, N., & Despotović, D. (2021). Financial Development, Foreign Direct Investment and Economic Growth: Panel Causality Approach. *Industrija*, *49*(3-4), 47-61.

Visser, H. (2009). *Islamic Finance: Principles and Practice*. Cheltenham: Edward Elgar Publishing.

Warde, I. (2000). *Islamic Finance in the Global Economy*. Edinburgh: Edinburgh University Press.

Westerlund, J., & Edgerton, D. L. (2007). A Panel Bootstrap Cointegration Test. *Economics Letters*, *97*(3), 185-190.

Yazdan, G. F., & Hossein, S. S. M. (2012). Analysis of Islamic Bank's Financing and Economic Growth: Case Study Iran and Indonesia. *Journal of Economic Cooperation & Development*, *33*(4), 1-24.

Yazdan, G. F., & Dastan, M. (2013). Analysis of Islamic Banks' Financing and Economic Growth: A Panel Cointegration Approach. *International Journal of Islamic and Middle Eastern Finance and Management*, *6*(2), 156-172.

Yusof, R. M., & Bahlous, M. (2013). Islamic Banking and Economic Growth in GCC & East Asia Countries: A Panel Cointegration Analysis. *Journal of Islamic Accounting and Business Research*, *4*(2), 151-172.

Appendix

Table A1. Sample Countries of This study

1	Albania	21	Malaysia
2	Algeria	22	Mauritius
3	Austria	23	Nigeria
4	Bahrain	24	Oman
5	Bangladesh	25	Pakistan
6	Bosnia and Herzegovina	26	Philippines
7	Canada	27	Saudi Arabia
8	Egypt	28	Senegal
9	Hong Kong	29	Singapore
10	India	30	South Africa
11	Indonesia	31	Sri Lanka
12	Iran	32	Sudan
13	Iraq	33	Switzerland
14	Ireland	34	Tanzania
15	Jordan	35	Thailand
16	Kazakhstan	36	Türkiye
17	Kenya	37	Tunisia
18	Kyrgyzstan	38	United Arab Emirates
19	Lebanon	39	United Kingdom
20	Luxembourg	40	United States

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