DO PARTICIPATION BANKS CONTRIBUTE TO ECONOMIC GROWTH? TIME-SERIES EVIDENCE FROM TURKEY

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Abstract

One of the most important goals of developing nations is to achieve rapid economic growth. There is a consensus in the literature of economics that a well-developed financial sector will accelerate economic growth. However, few studies have examined the link between participation banks and economic growth. To contribute to the literature, this study aims to analyze the relationship between participation banks and economic growth for the case of Turkey. To reach this purpose, we established a neoclassical growth model by employing gross domestic product, total credits given by participation banks, gross fixed capital formation and the number of employed persons using time series data covering the period of 2005Q4-2020Q2. We conducted a battery of unit root tests, co-integration, and causality tests. The results reveal that there is a long run stable relationship among the variables. As for the long-run estimators, a 1% increase in gross fixed capital formation, employment and credits given by participation banks will lead to 0.715%, 0.422% and 0.021% increase in economic growth in Turkey. These findings suggest that participation banks, as well as capital and labor, have a statistically significant impact on the economic growth of Turkey. The causality test results show that there is a one-way causal relationship from participation banks' funds to economic growth both in the short and long run but not vice versa. Two important policy implications emerge from this study. Firstly, participation banks may play an essential role in bringing idle funds to the banking system in Turkey. Therefore, participation banks should be seen as complementary to conventional banks rather than a substitute. Secondly, participation banks should diversify their products by introducing new financial products and services to unleash their untapped potential.

Keywords: Islamic economy, participation banks, economic growth, unit root, structural break, co-integration, causality.

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KATILIM BANKALARI EKONOMİK BÜYÜMEYE KATKI SAĞLIYOR MU? TÜRKİYE İÇİN ZAMAN SERİSİ ANALİZİ

Gelişmekte olan ülkelerin en önemli hedeflerinden biri hızlı ekonomik büyümeyi sağlamaktır. Gelişmiş bir finans sektörünün ekonomik büyümeyi hızlandıracağı konusunda iktisat literatüründe bir uzlaşı vardır. Ancak Türkiye örneğinde katılım bankaları ile ekonomik büyüme arasındaki ilişkiyi inceleyen az sayıda çalışma vardır. Literatüre katkı sağlamak amacıyla, bu çalışmanın amacı katılım bankaları ile ekonomik büyüme arasındaki ilişkiyi araştırmaktır. Bu amaca ulaşmak için gayrisafi yurtiçi hasıla, katılım bankaları tarafından kullandırılan krediler, sabit sermaye oluşumu ve istihdam edilen kişi sayısı verileri kullanılarak 2005Ç4-2020Ç2 dönemini kapsayan bir neo-klasik üretim fonksiyonu oluşturulmuştur. Analiz kısmında bir dizi birim kök, eşbütünleşme ve nedensellik testleri gerçekleştirilmiştir. Sonuçlar ele alınan değişkenler arasında istikrarlı bir uzun dönem eşbütünleşme ilişkisinin varlığına işaret etmektedir. Uzun dönem eşbütünleşme katsayılarına göre ise, sabit sermaye oluşu, istihdam ve katılım bankalarının kullandırdığı kredilerde %1'lik bir artış ekonomik büyüme üzerinde sırasıyla %0.715, %0.422 and %0.021 artışa yol açmaktadır. Bu sonuçlara göre, emek ve sermayenin yanı sıra, katılım bankalarının kullandırdığı kredilerin de büyüme üzerine anlamlı bir etkisi vardır. Nedensellik testi sonuçlarına göre ise, katılım bankalarının kredilerinden ekonomik büyümeye doğru hem kısa hem uzun dönemde tek yönlü bir nedensellik ilişkisi vardır.

Bu çalışmanın iki önemli politika önerisi vardır. Birincisi, katılım bankaları atıl fonların bankacılık sistemine kazandırılmasında önemli bir rol oynayabilir. Bu nedenle, katılım bankalarının geleneksel bankaların ikamesi olarak değil de tamamlayıcısı olarak görülmesi gerekir. İkincisi, katılım bankaları sahip oldukları potansiyeli açığa çıkarmak için yeni finansal ürünler ve hizmetler sunarak ürünlerini çeşitlendirmelidir.

[Türkçe geniş öz çalışmanın sonunda yer almaktadır.]

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Introduction

"Riba" is an Arabic noun derived from the verb "raba" literally meaning "to increase", "to grow", "to exceed". In Islamic terminology, riba means profit gained with no effort. Riba includes interest paid by banks or on loans such as home loans, car loans or credit card debt. One of the main concerns of Muslims, when it comes to financial transactions, is to avoid riba in any form. This is despite the fact that the basic foundation of modern business and

finance involves interest-based transactions. The Prophet foretold of a time when the spread of riba would be so overwhelming that it would be extremely difficult for Muslims to avoid it. This situation calls for Muslims to be extra cautious before deciding on what financial methods to use in any personal or business transaction (Kettell, 2011, p. 51).

There are many proofs showing that riba is haram in Islam. There are twelve verses in the Quran dealing with *riba,* and the word *riba* occurs eight times. This is a clear verse prohibiting riba: "...Allah has permitted trade and has forbidden riba." (Qur'an 2:275). In the Quran, Allah does not declare war on anyone except the people who deal in riba: "O you who believe, fear Allah and give up what remains of your demand for riba if you are indeed believers. If you do it not, take notice of war from Allah and His Messenger." (Qur'an 2:278-279). To these, an earlier revelation may be added: "O you who have believed, do not consume usury, doubled and multiplied, but fear Allah that you may be successful." (Qur'an: 3:130).

Islamic scholars have put forward five reasons for the prohibition of riba (Kettell 2011, p.53): "It is unjust, it corrupts society, it implies the improper appropriation of other people's property, it results in negative economic growth, it demeans and diminishes human personality".

There have been many impediments to the development of financial markets in developing countries such as underdevelopment of financial institutions and the lack of diversity of institutions and instruments. The problem even deteriorates in countries where a significant number of individuals tend not to engage in the conventional interest-based banking system for various reasons. Eventually, this leads to a leakage of savings from the financial system and savings are often channeled to unproductive areas.

Although there have been extensive studies investigating the relationship between conventional finance and economic growth, there are limited studies that examine the relationship between Islamic finance and economic growth. Because of the insufficient studies, Islamic banking and finance research has not achieved international recognition. The aim of this study is to explore the relationship between Islamic banking and economic growth for the Turkish economy over the period of 2005Q4-2020Q2.

The remainder of this study is organized as follows. In the following section, we present the history and functioning of the participation banking in Turkey. Subsequently, we provide a brief review of pertinent literature. We then present the data, introduce the econometric methodology and discuss the empirical results. The paper concludes with highlighting the

findings of the research and its main policy implications.

A. Participation Banking in Turkey

The banking system in Turkey comprises of deposit banks (conventional banks), development and investment banks, and participation banks, also referred to as interest-free banks or Islamic banks. The history of participation banks in Turkish financial system dates to 1983 with the establishment of "Special Finance Houses". The first application of interest-free banks in Turkey was the establishment of Albaraka Türk in 1985, which opened its doors to clients who preferred to stay away from conventional banks due to interest rate sensitivity and continued with Faysal Finans entering the sector in the same year. Another Gulf-origin bank, Kuveyt Türk, also gained a place in the participation banking sector in 1989. Later, Faysal Finance turned into Family Finans and in 2005 Türkiye Finans was established when Anadolu Finans and Family Finans, which entered the sector in 1991, merged.

Turkish capital owners stayed away from the Islamic banks until the first domestically owned participation banks were launched in 1991. Over the years, participation banks in Turkey have grown significantly as they satisfy Muslims' preferences of not paying or getting paid interest on loans and of not getting engaged in any kind of investment in firms that sell goods or services considered haram in Islamic teachings. 2005 became a turning point for Islamic banking in Turkey as participation banks received bank status replacing the name "special finance house" as "participation bank", according to 5411 Banking Law. In addition, all participation banks became a member of the Participation Banks Association of Turkey (TKKB), an umbrella organization of the participation banks operating in Turkey.

In 2015, Ziraat Participation Bank officially began operating, being the first state-owned participation bank. One year later, another state-owned bank following Islamic banking policies, Vakıf Katılım, was founded. In 2019, Emlak Katılım became the newest member of the participation banking industry after getting granted banking license by the Banking Regulation and Supervision Agency (BDDK). As of 2020, three private and three state-run participations banks -Albaraka, Kuveyt Türk, Türkiye Finans, Ziraat Katılım, Vakıf Katılım and Emlak Katılım are currently active in Turkey.

The participation banks, like all other banks in Turkey, operate under the prevailing Turkish Banking Law, regulated and supervised by BDDK. The functionality of participation banks is similar to conventional banks, but they differ in their collecting and lending methods of funds. A wide number of

banking services are provided by participation banks including inbound and outbound money remittances, letters of guarantee, cheque book services, credit cards, foreign currency transactions, internet and telephone banking, all interest-free.

Parallel to the rapid economic growth Turkey has gone through starting from the 2000s, the participation banking sector has grown very sharply. Total assets of participation banks in Turkey reached TRY 284 billion in 2019, from TRY 2.3 billion in 2001. In addition, the number of participation banks' branches rose sharply from 188 in 2003 to 1,179 in 2019 (TKKB, 2020). The total amount of funds collected by the participation banks have recently exceeded TRY 215 billion while the funds allocated reached approximately TRY 150 billion. While in 2001, participation banks had only accounted for the 1.08% of the Turkish banking industry in terms of asset volume, they managed to increase their share up to 6.3% in 2019.

In light of these achievements, Turkey's more than 30 years of experience in participation banking reveals how ambitious the country is about participation banks. However, despite the remarkable progress in participation banking in the last decade, the market share of participation banks is still far away from other countries. According to World Islamic Banking Competitiveness Report of Ernst & Young (2016), market share of participation bank is 48.9% in Saudi Arabia, 45.2% in Kuwait, 29.3% in Bahrain, 25.8% in Qatar, 21.6% in the United Arab Emirates and 21.3% in Malaysia.

B. Literature Review

Understanding the dynamics of economic growth is one of the most appealing areas of research in the literature of empirical economics. Recent examples of investigating the determinants of economic growth include domestic savings (Aghion, Comin, Howitt, & Tecu, 2016), defense spending (Çetin, Yıldırım, Koy, & Köksal, 2018), tax structure (Ecevit, Yücel, & Yücel, 2016), female labor participation (Erdem et al., 2016b) and shadow economy (Köksal, Işik, & Katircioglu, 2020). Also, there has been a growing body of literature that recognizes the importance of the relationship between the financial sector and the overall economy. In economic theory, the development of the banking system leads to economic growth as the activity of banks enlarges the savings and improves the efficiency of resource allocation as well as stimulating the innovation.

Most of the studies investigating the relationship between financial development and economic growth focus on conventional banks as a

measure of the financial sector. Participation banks, on the other hand, may play an important role in promoting the economic growth by channeling the idle savings, staying away from conventional banks primarily due to concerns about interest-bearing accounts, into the economy. However, not much attention has been paid to participation banks as a determinant of economic growth.

In their pioneering study, Furqani and Mulyany (2009) search for the relationship between Islamic banking and economic growth for the case of Malaysia using quarterly time series spanning the period of 1997:1-2005:4. The results of cointegration test and vector error correction model show that in the short-run only fixed investment (one of the proxies for economic growth) Granger causes Islamic banks to develop, whereas in the long-run there is a bidirectional relationship between Islamic banking and fixed investment.

Goaied and Sassi (2011) have investigated the nexus of Islamic financial development and economic growth in the MENA region. The authors demonstrate that the nexus is quite heterogeneous across MENA countries where the relationship is negative for Petroleum Exporting MENA Countries and positive but not significant in MENA countries without oil.

Abduh and Azmi Omar (2012) investigate the short-run and the long-run relationship between Islamic banking development and economic growth for Indonesia. Employing the ARDL bounds testing approach covering the period from 2003:1 to 2010:2, the authors find that there is a significant bidirectional relationship between the variables both in the short and long-run.

Focusing on the Malaysian economy, Abdul Manap et al. (2012) examine the causal relationship between Islamic banking development and economic growth. Using Toda-Yamamoto and bootstrap Granger causality tests and spanning the period of 1998:1-2012Q:2, they find a significant unidirectional causality from Islamic financial development to economic growth.

Farahani and Dastan (2013) investigate the role of Islamic banks financing on the economic performance of selected countries (i.e., Malaysia, Indonesia, Bahrain, UAE, Saudi Arabia, Egypt, Kuwait, Qatar and Yemen) using quarterly data (2000:1-2010:4). Applying FMOLS model and Granger Causality tests, they find a positive and statistically significant relationship between economic growth and Islamic banks' financing both in the short run and in the long run. More interestingly, the obtained long-run relationship is

stronger than that of the short run.

Tabash and Dhankar (2013) explore the link between the development of the Islamic finance system and economic growth using annual time series from 1990 to 2008 for the case of Bahrain. The results indicate that there is a positive and statistically significant relationship between economic growth and Islamic banks' financing in the long-term.

Al-Oqool et al. (2014) examine the relationship between financial Islamic banking development and economic growth over the periods of 1980-2012 for Jordan. The authors formulate two models within the context of the VECM framework. According to the findings, in the short-run there is not a causality relationship between financial Islamic banking development and economic growth. In the long run, they detect unidirectional relation from real GDP (a proxy for economic growth) to deposits (a proxy for Islamic banking).

With regard to the Turkish participation banks, there exists a limited number of studies on the relationship between participation banks and economic growth. Dar (2013) argues that Turkey has the potential to become the next hub for Islamic banking and finance. The author emphasizes that it is crucial for Turkey to show more commitment to Islamic banking and use it as a strategic tool to attract funding.

Daly and Frikha (2016) compare the contribution of both participation banks and conventional banks to economic growth for a set of 10 countries, including Turkey. The authors study a sample of 66 conventional banks and 54 participation banks between 2005 and 2012. Employing three ordinary least-square regressions, the authors reveal that participation banks contribute better to economic growth than conventional banks. Moreover, the authors argue that cooperation between the two financing models improves economic growth.

Using Johansen cointegration and Granger causality test, Kalayci and Tekin (2016) examine the cointegration and causal relationships between economic growth, foreign direct investment and participation banks in Turkey over the period 2002-2014. Empirical results show that economic growth is determined by foreign direct investment and participation banks in the long run. Empirical results also show that there exists bidirectional causality between participation banks' funds and economic growth.

Jobarteh and Ergec (2017) investigate the impact of Islamic finance development on economic growth by using the ADF unit root test, co-integration and Granger causality approach over the period 2005-2015. The

results of the model indicate that there are a unidirectional short-run and long-run causality running from Islamic finance development to economic growth.

More recently, Koçak (2018) analyzes the impacts of Islamic finance on economic growth in Turkey covering 2005Q1-2015Q4. Employing unit root tests without/with structural breaks and cointegration tests, the author argues that Islamic banking in Turkey has a positive and statistically significant effect on economic growth.

C. Data and methodology

This paper employs advanced time series analysis in order to investigate the link between participation banks and economic growth in Turkey. We follow the economic growth literature, in which gross domestic product (GDP) is utilized as a proxy for economic growth (Cetin, Ecevit, & Yucel, 2018; Islam, 1995; Mankiw, Romer, & Weil, 1992, among others). We use total credits given by participation banks (PB) as a proxy for Islamic banking. Also, we use gross fixed capital formation (GCF) and the number of employed persons (EMP) as control variables. We compiled GDP, participation banks' total credits, gross fixed capital formation, and the number of employed person data from the Electronic Data Delivery System of the Central Bank of the Republic of Turkey, which are expressed in natural logarithms and noted by *lnGDP, lnPB, lnGCF* and *lnEMP*, respectively. Even though we have monthly data for participation banks' total credits, we had to restrict our sample to quarterly frequencies as GDP data is released quarterly. Therefore, the quarterly time series spanning the period of 2005Q4-2020Q2 for Turkey was used in the study.

We examine the impacts of participation banks' total financing on economic growth using the below equation;

$$\ln GDP_t = \beta_0 + \beta_1 \ln GCF_t + \beta_2 \ln EMP_t + \beta_3 \ln PB_t + \varepsilon_t. \quad (1)$$

where $\beta_0, \beta_1, \beta_2, \beta_3$ are the parameters to be estimated, t is the time period and ε is the error term. Table 1 summarizes the descriptive statistics of the variables. It appears that *lnPB* has the highest standard deviation, which means higher variations and thereby more volatility as a result of the remarkable performance that the Islamic finance sector in Turkey has shown in recent years. The probability of Jarque-Bera statistics is greater than the 5% significance level for all the variables meaning that all the series are normally distributed.

Table 1. Descriptive statistics of variables

	lnGDP	*lnGCF*	*lnEMP*	*lnPB*
Mean	19.896	18.602	10.089	16.699
Median	19.886	18.620	10.108	16.292
Maximum	20.912	19.575	10.285	19.044
Minimum	18.906	17.594	9.854	14.635
Std. Dev.	0.567	0.605	0.133	1.425
Skewness	0.138	0.039	-0.236	0.167
Kurtosis	1.819	1.648	1.664	1.514
Jarque-Bera	3.614	4.507	4.932	5.699
Probability	0.164	0.105	0.084	0.057
Sum	1173.916	1097.548	595.301	985.254
Sum Sq. Dev.	18.661	21.235	1.036	117.879
Observations	59	59	59	59
lnGDP	1.000			
lnGCF	0.989***	1.000		
lnEMP	0.947***	0.955***	1.000	
lnPB	0.874***	0.892***	0.843***	1.000

Note: *** denotes statistical significance at the 1% level.

The lower panel of Table 1 indicates the Pearson correlation matrix of the variables. According to results, a statistically significant high positive correlation is observed between all variables.

The empirical methodology consists of four stages. In the first stage, stationary properties of the series are examined using both conventional unit root tests such as Augmented Dickey-Fuller (ADF), Dickey Fuller-Generalized Least Squares (DF-GLS) and Kwiatkowski–Phillips–Schmidt–Shin (KPSS) and unit root tests with structural break(s) such as Lee and Strazicich (Lee & Strazicich, 2003, 2013), Carrion-i-Silvestre and Sansó (2007), Narayan and Popp (2010) and Carrion-i-Silvestre et al. (2009). In the second stage, the cointegration test allowing for an unknown number of structural breaks developed by Maki (2012) is conducted to explore the long-run relationship between series. To avoid multicollinearity, we opt for fully modified ordinary least squares (FMOLS) estimator to obtain long-run coefficients, which corrects the possible correlation between the series. In the third stage, the existence and direction of causal relations between series are investigated with the Hatemi-J (2012) asymmetric causality test. Finally, long-run coefficients were calculated with FMOLS estimator.

1. Unit root tests

In their seminal study, Granger and Newbold (1974) showed that if the series are nonstationary, the spurious regression problem will occur. In

another inspiring study, Nelson and Plosser (1982) provided statistical evidence which confirmed the hypothesis of a unit root in the autoregressive representations of twelve macroeconomic time series for the US economy, including GDP, employment, wages, stock prices and interest rates. Later, Johansen and Juselius (1990) also pointed out that most macroeconomic times series are nonstationary.

Unit root tests are performed to check whether the variables are stationary in order to avoid the spurious regression problem. Therefore, testing the unit root properties of the time series is crucial before proceeding with further tests. ADF, DF-GLS, and KPSS unit root tests are commonly used in the applied econometric studies. These tests do not take into account the presence of structural breaks in the series and, therefore, tend to accept the unit root hypothesis, which should be, in fact, rejected (Perron, 1989). In his study, Yucel (2020) showed that empirical findings change from nonstationary to stationary when structural breaks are incorporated. Therefore, we employed Lee and Strazicich (2013) and Lee and Strazicich (2003) minimum Lagrange multiplier (LM) unit root tests with one and two structural breaks, respectively. To further investigate the unit root properties of the variables, we also employed Narayan and Popp (2010) unit root test with two structural breaks in level and slope at an unknown time, Carrion-i-Silvestre and Sansó (2007) KPSS test with two structural breaks and finally, Carrion-i-Silvestre et al. (2009) GLS-based unit root test with multiple structural breaks.

Following Kim and Perron (2009), Carrion-i-Silvestre et al. (2009) generate a GLS-based unit root testing procedures by (i) considering for an arbitrary number of changes in level and the slope of the trend function, (ii) choosing the so-called quasi-GLS detrending method recommended by Elliott et al. (1996) that permits tests which have local asymptotic power functions close to the local asymptotic Gaussian power envelope and (iii) taking into account a variety of tests, in particular M-class unit root tests which were presented in Stock (1999) and examined in Ng and Perron (2001).

The structural break dates in Carrion-i-Silvestre et al. (2009) unit root test are obtained from Bai and Perron (2003) by using a dynamic programming method. Following Elliott et al. (1996) and Perron and Rodríguez (2003), the feasible point optimal statistic is given by:

$$P_T^{GLS}\left(\lambda^0\right) = \frac{\left\{S\left(\bar{\alpha},\lambda^0\right) - \bar{\alpha}, S\left(1,\lambda^0\right)\right\}}{s^2\left(\lambda^0\right)},$$

(2)

where λ signifies the estimate of the break fraction, $\bar{\alpha} = 1 + \bar{c}/\mathrm{T}$ ($\bar{c}$ is the non-centrality parameter) and $s^2(\lambda^0)$ is an estimate of the spectral density at frequency zero of the disturbance term v_t (Erdem et al., 2016a). Furthermore, *M-class* statistics are calculated considering multiple structural breaks as follows:

$$MZ_\alpha^{GLS}\left(\lambda^0\right) = \left(T^{-1}\tilde{y}_T^2 - s\left(\lambda^0\right)^2\right)\left(2T^{-2}\sum_{t=1}^{T}\tilde{y}_{t-1}^2\right)^{-1},$$

(3)

$$MSB^{GLS}\left(\lambda^0\right) = \left(s\left(\lambda^0\right)^{-2} T^{-2}\sum_{t=1}^{T}\tilde{y}_{t-1}^2\right)^{1/2},$$

(4)

$$MZ_t^{GLS}\left(\lambda^0\right) = \left(T^{-1}\tilde{y}_T^2 - s\left(\lambda^0\right)^2\right)\left(4s\left(\lambda^0\right)^2 T^{-2}\sum_{t=1}^{T}\tilde{y}_{t-1}^2\right)^{-1/2},$$

(5)

with $\tilde{y}_t = y_t - \hat{\psi}'z_t(\lambda^0)$, where $\hat{\psi}$ minimizes the objective function[1] and $s(\lambda^0)^2$ is an autoregressive estimation function. Carrion-i-Silvestre et al. (2009) used another statistic, following Ng and Perron (2001), named *modified feasible point optimal test.* This test is computed as follows:

$$MPT_T^{GLS}\left(\lambda^0\right) = \frac{\left(\bar{c}^2 T^{-2}\sum_{t=1}^{T}\tilde{y}_{t-1}^2 + \left(1-\bar{c}\right)T^{-1}\tilde{y}_T^2\right)}{s\left(\lambda^0\right)^2}.$$

(6)

The test statistic in Equation (6) is considerable because its limiting distribution fits with that of the feasible point optimal test. The asymptotic critical values are obtained from bootstrap replications. If the estimated test statistic is lower than the critical value, the null hypothesis is rejected. The rejection of the null hypothesis in the GLS-based unit root tests implies the presence of a stationary process in the data.

2. Cointegration analysis

After determining that the variables are not stationary at their levels, the next stage is to investigate whether there exists a cointegration relationship among the variables. Conventional cointegration tests which do not consider the presence of structural breaks mostly produce biased results for nonstationary variables (Westerlund & Edgerton, 2006). Therefore, these tests perform poorly while testing for long-term relationships, as stated by

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[1] Interested reader may refer to Carrion-i-Silvestre et al. (2009) for further details.

Gregory et al. (1996). The cointegration test developed by Maki (2012) allows an examination of cointegration relationship for an unknown number of multiple structural breaks. Maki (2012) test follows Bai and Perron (1998) test for multiple structural breaks and the unit root test with m-structural breaks introduced by Kapetanios (2005). Four different regression models depending on whether the shifts affect the level, the slope, or the trend are formed as:

$$y_t = \psi + \sum_{i=1}^{k} \psi_i D_{i,t} + \beta' x_t + u_t, \tag{7}$$

$$y_t = \psi + \sum_{i=1}^{k} \psi_i D_{i,t} + \beta' x_t + \sum_{i=1}^{k} \beta'_i x_t D_{i,t} + u_t, \tag{8}$$

$$y_t = \psi + \sum_{i=1}^{k} \psi_i D_{i,t} + \xi t + \beta' x_t + \sum_{i=1}^{k} \beta'_i x_t D_{i,t} + u_t, \tag{9}$$

$$y_t = \psi + \sum_{i=1}^{k} \psi_i D_{i,t} + \xi t + \sum_{i=1}^{k} \xi_i t D_{i,t} + \beta' x_t + \sum_{i=1}^{k} \beta'_i x_t D_{i,t} + u_t, \tag{10}$$

where $t = 1, 2, \ldots, T$. y_t and x_t denote observable $I(1)$ variables, and u_t is the equilibrium error. Ψ_i, β'_i and ξ_i, signify shifts in the level, slope and trend coefficients, respectively, $D_{i,t}$ is a dummy variable and takes a value of 1 if $t > T_{Bi}$ ($i = 1, \ldots, k$) and 0 otherwise, where k is the maximum number of breaks and T_{Bi} symbolizes the time period of the break. Eq. (7), the level shift model, covers changes in the level (Ψ) only. Eq. (8), which is called the regime shifts model, considers structural breaks in the level (Ψ) and slope (β). Eq. (9) is the regime shift model with trend (ξ) and finally Eq. (10) accounts for structural breaks in levels, trends and regressors. The null hypothesis of the test is no cointegration, and the alternative hypothesis is cointegration under the structural breaks (Maki, 2012).

3. Empirical results

Before testing for a long-run relationship, the stationary properties of the variables are examined using conventional unit root tests. ADF and DF-GLS unit root tests are based on the null hypothesis of non-stationarity, whereas the KPSS unit root test considers the null hypothesis of stationarity. The robustness of unit root test results with respect to alternative null hypotheses is investigated by considering these kinds of tests. The results of the conventional unit root tests are given in Table 2:

Table 2. Conventional Unit Root Tests Results

Level	ADF test stat.	DF-GLS test stat.	KPSS test stat.
lnGDP	-3.036 (4)	-2.329 (4)	0.136* [8]
lnEMP	0.012 (4)	-1.207 (4)	0.140* [8]
lnGCF	-1.721 (3)	-1.338 (3)	0.107 [5]
lnPB	-2.144 (0)	-1.642 (0)	0.139* [9]
First Difference			
lnGDP	-12.022*** (1)	-8.131*** (1)	0.121* [12]
lnEMP	-15.313*** (1)	-14.824*** (1)	0.157** [7]
lnGCF	-3.581** (5)	-5.837*** (2)	0.126* [13]
lnPB	-7.443*** (0)	-7.490*** (0)	0.121* [14]

Notes: The numbers in the parentheses indicate lag orders selected based on Schwarz Info Criterion. Maximum number of the lags set to 5. The numbers in the brackets indicate the truncation for the Bartlett Kernel, as suggested by the Newey and West test. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. The critical values for KPSS test are 0.216, 0.146 and 0.119 for 1%, 5% and 10%, respectively.

According to Table 2, the ADF and DF-GLS test results show that the null hypothesis of unit root cannot be rejected for all of the variables, implying that the series is not stationary at their levels for the intercept and trend case. To investigate with more detail the unit root characteristics of the series, we employ the KPSS unit root test of which null-hypothesis is stationary. The results reveal that the null hypothesis of stationarity is rejected at the 10% significance level for *lnGDP, lnEMP* and *lnPB*. It cannot be rejected for *lnGCF* at levels. However, all variables are stationary at their first differences; in other words, all the variables are integrated of order one, *I* (1).

Given the low power of the conventional unit root tests in the existence of structural breaks, we further investigate with Carrion-i-Silvestre and Sansó (2007) (CiSS-2007), Lee and Strazicich (2003, 2013) (LS-2003, LS-2013), Narayan and Popp (2010) (NP-2010) unit root test with one or two structural breaks (see, Table 3) and Carrion-i-Silvestre et al., (2009) (CiSKP-2009) unit root test, which allows for multiple endogenous structural breaks. CiSKP-2009 test allows up to five structural breaks but considering the structure of the variables and the time period, we restrict the number of structural breaks to three.

Table 3. Unit root tests with one or two structural breaks

Level	LS-2013 LM-Stat.	$\widehat{T_B}$ (λ)	LS-2003 LM-Stat.	$\widehat{T_B}$ (λ1;λ2)	NP-2010 ADF-Stat.	$\widehat{T_B}$	CiSS-2007 KPSS-Stat.	$\widehat{T_B}$ (λ1;λ2)
lnGDP	-4.052 (4)	2016Q4 (0.73)	-5.009 (4)	2008Q3 2016Q4 (0.2;0.76)	-5.272** (4)	2008Q3 2013Q4	0.016	2008Q4 2019Q2 (0.22;0.93)
lnEMP	-3.749 (4)	2016Q2 (0.72)	-4.882 (4)	2010Q1 2017Q2 (0.30;0.79)	-3.404 (4)	2013Q3 2017Q2	0.094***	2010Q1 2018Q3 (0.30;0.88)
lnGCF	-2.733 (3)	2010Q4 (0.35)	-5.439* (3)	2008Q3 2010Q4 (0.20;0.35)	-4.449 (3)	2008Q3 2012Q3	0.012	2008Q4 2011Q4 (0.22;0.42)
lnPB	-2.999 (0)	2008Q4 (0.22)	-3.869 (0)	2008Q3 2014Q3 (0.20;0.61)	-9.314*** (0)	2008Q3 2014Q2	0.037	2007Q3 2014Q3 (0.13;0.61)
First Difference								
lnGDP	-6.043*** (3)	(0.70)	-9.912*** (3)	(0.22;0.72)	-25.116*** (3)	-	0.086**	(0.34;0.86)
lnEMP	-5.206*** (3)	(0.55)	-13.12*** (3)	(0.22;0.36)	-14.848*** (3)	-	0.382***	(0.15;0.20)
lnGCF	-6.186*** (3)	(0.63)	-7.552*** (3)	(0.22;0.39)	-5.735*** (3)	-	0.117**	(0.20;0.24)
lnPB	-7.672*** (0)	(0.20)	-8.912*** (0)	(0.58;0.63)	-9.686*** (0)	-	0.054	(0.12;0.15)

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Schwarz Information Criterion is used to detect the optimal lag length. Maximum lag length is set to five. $\widehat{T_B}$ represents the break date(s).

Under the null hypothesis of a unit root, LM (LS-2003, LS-2013) and NP (2010) test statistics show that the series is mostly nonstationary at their levels. As conventional tests results, all of the series are stationary at their first differences at 1% significance level, meaning that all the variables are integrated of order one, I (1). On the other hand, in KPSS test of CiSS-2007, we cannot reject the null hypothesis of stationary for *lnGDP, lnGCF* and *lnPB* at a 5% significance level. Additionally, in order to obtain more robust results, CiSKP-2009, a GLS-based unit root test with multiple structural breaks, is also employed in the study.

Table 4. CiSKP-2009 unit root test results

Variable	P$_T$	MP$_T$	MZ$_\alpha$	MSB	MZ$_t$	TB
lnGDP	9.198 [7.476]	9.328 [7.476]	-28.683 [-33.865]	0.129 [0.121]	-3.711 [-4.096]	2007Q1 2008Q4 2013Q4
lnGCF	7.734 [6.895]	7.548 [6.895]	-28.993 [-31.159]	0.130 [0.126]	-3.756 [-3.906]	2007Q1 2008Q3 2010Q1
lnEMP	9.009 [7.751]	9.187 [7.751]	-27.331 [-32.734]	0.135 [0.122]	-3.697 [-4.036]	2007Q1 2009Q1 2018Q2
lnPB	25.096 [7.326]	23.009 [7.326]	-10.755 [-33.473]	0.212 [0.122]	-2.278 [-4.086]	2007Q3 2014Q3 2018Q3

Notes: Numbers in brackets are critical values obtained from bootstrapping. TB represents a break date. The model estimated shifts in slope and intercept.

Table 4 presents the estimated $P_T^{GLS}(\lambda^0)$, $MP_T^{GLS}(\lambda^0)$, $MZ_a^{GLS}(\lambda^0)$, $MSB^{GLS}(\lambda^0)$ and $MZ_t^{GLS}(\lambda^0)$ statistics and break dates of CiSKP-2009 unit root test results for *lnGDP, lnGCF, lnEMP* and *lnPB*. Our findings indicate that the null hypothesis of unit root cannot be rejected for all of the variables at their levels because the estimated test statistics are greater than the critical value for all tests. In other words, *M*-class unit root tests provide clear evidence of $I(1)$ under three structural breaks for both variables. These results are consistent with conventional unit root tests and other structural break tests findings. Moreover, this approach has successfully detected structural breaks in the series, such as 2008 the subprime mortgage crisis in the United States. Although this crisis did not break out in Turkey, its effect was strong enough to lead to a break in the series.

After determining that all variables are integrated of order one, we turn to the cointegration analysis to investigate the long-run relationship between Islamic financing, economic growth, capital and labor. Given the importance of structural breaks in the cointegration analysis, we employed the Maki (2012) cointegration test, which allows multiple structural breaks. The results of cointegration tests under multiple structural breaks are presented in Table 5.

Table 5. Maki (2012) cointegration test results

Model	Test statistic	Critical values			Break dates
		1%	5%	10%	
Model 0 (level shift)	-9.21***	−6.555	−6.038	−5.773	2007Q2; 2008Q2; 2010Q1; 2018Q3; 2019Q2
Model 1 (level shift with trend)	-8.73***	−6.784	−6.250	−5.976	2008Q2; 2009Q2; 2010Q1; 2018Q3; 2019Q2
Model 2 (regime shifts)	-11.3***	−8.673	−8.110	−7.796	2008Q2; 2009Q2; 2011Q2; 2018Q3; 2019Q2
Model 3 (regime shifts and trend)	-11.0***	−9.428	−8.800	−8.508	2008Q1; 2009Q2; 2010Q1; 2017Q1; 2018Q3

Notes: *** denotes statistical significance at the 1% level. Critical values are obtained from Table 1 in Maki (2012). Schwarz Info Criterion is used to detect the optimal lag length. The trimming rate is selected as 5%.

Table 5 shows the absolute value of the test statistics greater than the absolute value of the critical values at a 1% significance level for each model. Hence, the null hypothesis of no-cointegration between Islamic finance and economic growth is strongly rejected. These results reveal strong evidence

that Islamic finance, gross capital formation, employment and economic growth in Turkey have long-run relationship under structural breaks. Moreover, the break dates obtained from the cointegration analysis are consistent with our expectations. For example, the structural break dates covering the period 2007Q2 and 2010Q1 refer to the years of the global (subprime mortgage) crisis, which had a profound impact all over the world. Also, the breaking dates from 2017Q1 to 2019Q2 reflect the economic effects of the coup attempt in July 2016.

Table 6. FMOLS estimation of long-term coefficients

Dependent variable: *lnGDP*			
Regressor	Coefficient	Standard Error	*p*-value
lnGCF	0.715***	0.029	0.000
lnEMP	0.422***	0.122	0.001
lnPB	0.021***	0.007	0.006
DU_{2007Q2}	0.076***	0.019	0.000
DU_{2008Q2}	0.154***	0.016	0.000
DU_{2010Q1}	-0.090***	0.015	0.000
DU_{2018Q3}	0.143***	0.015	0.000
DU_{2019Q2}	0.078***	0.018	0.000
Constant	1.793*	0.903	0.052
R-squared	0.995		
Adjusted R-squared	0.994		
S.E. of regression	0.040		
Long-run variance	0.000		

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Break dates were selected based on model 0 in Maki (2012). Long-run covariance estimate: Bartlett kernel, Newey-West fixed bandwidth = 4. DU represents time dummies.

After detecting the cointegration relationship, we proceed with cointegration estimator in order to obtain long-run coefficients of the level shift model. In this sense, we use FMOLS estimation methods, which account for serial correlation and endogeneity problems (Erdem et al., 2016a). Break dates obtained from Maki (2012) test results and that belongs to Model 0 are added to the model as time dummies. According to the estimated level shift model in Table 6, *lnGCF* (0.715, *p*-value ≤ 0.01), *lnEMP* (0.422, *p*-value ≤ 0.01) and *lnPB* (0.021, *p*-value ≤ 0.01) variables show a positive and statistically significant effect on *LnGDP* in line with our expectations. Also, all time dummies and constant variable are found to have significant impact. More specifically, a 1% increase in gross capital formation and employment

will increase Turkey's economic growth by 0.715 and 0.422 respectively. These findings indicate that Turkey's production is capital-intensive. As for participation banks, a 1% increase in the credits given by these banks will accelerate economic growth by 0.021% in Turkey. The importance of this contribution could be better understood considering that participations banks received bank status relatively recently and their share in Turkish banking sector is only around 6% in 2019 in terms of asset volume.

Our results regarding the impact of participation banks on economic is support by the study of Furqani and Mulyany (2009) for Malaysia, Abduh and Azmi Omar (2012) for Indonesia, Tabash and Dhankar (2013) for Bahrain, Koçak (2018) for Turkey. However, our findings is not consistent with the results of Goaied and Sassi (2011) for MENA region.

Table 7. Hatemi-J (2012) asymmetric causality test results

Causalities	Modified Wald statistics	Bootstrap critical values		
		1%	5%	10%
$lnPB^+ => lnGDP^+$	14.921 (6)	54.034	27.632	19.846
$lnPB^+ => lnGDP^-$	21.522* (6)	58.930	24.502	17.290
$lnPB^- => lnGDP^-$	18.835 (6)	56.020	28.306	19.193
$lnPB^- => lnGDP^+$	46.984** (6)	54.625	26.885	19.342
$lnGDP^+ => lnPB^+$	26.087* (6)	55.517	26.524	18.955
$lnGDP^+ => lnPB^-$	7.159 (5)	32.603	18.566	13.929
$lnGDP^- => lnPB^-$	28.426* (6)	85.744	29.302	19.225
$lnGDP^- => lnPB^+$	4.856 (5)	36.400	20.445	15.682

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The numbers in the parentheses indicate lag orders selected based on Hatemi-J Criterion (HJC). Critical values are created with 10,000 bootstrap replications.

The Hatemi-J (2012) asymmetric causality test results between *lnGDP* and *lnPB* are presented in Table 7. According to the results, the null hypothesis of no causality is rejected in four out of eight cases. More specifically, the null hypotheses of $lnPB^+$ does not Granger cause $lnGDP^-$, $lnPB^-$ does not Granger cause $lnGDP^+$, $lnGDP^+$ does not Granger cause $lnPB^+$ and $lnGDP^-$ does not Granger cause $lnPB^-$ are rejected at least at the 10% significance level. According to this result, positive shocks in Islamic financing are the cause of negative economic growth shocks, while negative shocks are the cause of positive economic growth. On the other hand, a positive shock in economic growth is the cause of a positive shock in Islamic financing, and a negative shock is the cause of a negative shock. Hence, the results indicate that the *growth hypothesis* is valid between Islamic finance and economic growth for the Turkish economy over the period 2005Q4–2020Q2. The results of causality test are in line with the studies of Abdul

Manap et al. (2012) for Malaysia, Farahani and Dastan (2013) for selected Islam countries and Kalayci and Tekin (2016) for Turkey. To the contrary, the causality results are not supported by the study of Al-Oqool et al. (2014) for Jordan who did not find a causality in the short run.

The main inference to be drawn from our results is that policies promoting participation banking will lead to economic growth in Turkey. This is not to suggest; however, participation banks should not be seen as a substitute for conventional banks. On the contrary, participation banks should be considered as complementary to conventional banking. In its Financial Stability Report recently published, Central Bank of the Republic of Turkey states that although its value is not known precisely, Turkey's household gold stockpiles total at least 2,200 tones, worth some TRY 400 billion (CBRT, 2018, p. 25). Participation banks might play an essential role in spurring economic growth by channeling a vast amount of idle savings unconverted into an investment due to concerns about interest-bearing accounts into the economy.

Conclusion and policy recommendations

There is a growing body of literature that recognizes the importance of the financial sector in economic growth within the conventional financing framework. In contrast, studies conducted within the scope of Islamic finance are limited. Aiming to contribute to the literature of Islamic finance, we analyzed the relationship among gross domestic product, gross fixed capital formation, number of employed persons and total credits given by participation banks for the case of Turkey. We conducted unit root tests without and with structural breaks, Maki (2012) cointegration test with multiple structural breaks and Hatemi-J (2012) asymmetric causality tests over the period of 2005Q4-2020Q2.

The findings reveal that there is a long-run stable relationship among the variables: participation banks' total funds, economic growth, and gross fixed capital formation. Also, the linear causality test supports strong evidence of one-way causal relations from participation banks' funds to economic growth both in the short-run and long-run but not vice versa.

These findings have a number of important policy implications. Firstly, an increase in the credits given by participation banks leads to economic growth. Therefore, by bringing the idle funds into the participation banking system and/or stimulating participation banks, economic growth may be accelerated. Secondly, participation banks could be used as a stabilator in economic crises as these banks are better to absorb external shocks

compared to conventional banks (i.e., the banks' financing losses are partially absorbed by the depositors). It should also be noted that the funds collected by participation banks depend on the interest-sensitivity of the individuals rather than their income. Finally, participation banks in Turkey have an important potential to embrace a tidy sum of people who are outside of the financial system. Thus, Islamic banks should diversify its current products as well as introducing new financial products and services.

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BIBLIOGRAPHY

Abduh, M., & Azmi Omar, M. (2012). Islamic banking and economic growth: the Indonesian experience. *International Journal of Islamic and Middle Eastern Finance and Management*, *5*(1), 35–47. https://doi.org/10.1108/17538391211216811

Abdul Manap, T. 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.

Aghion, P., Comin, D., Howitt, P., & Tecu, I. (2016). When does domestic savings matter for economic growth? *IMF Economic Review*, *64*(3), 381–407. https://doi.org/10.1057/imfer.2015.41

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.

Bai, J., & Perron, P. (1998). Estimating and testing linear models with multiple structural changes. *Econometrica*, *66*(1), 47-78. https://doi.org/10.2307/2998540

Bai, J., & Perron, P. (2003). Computation and analysis of multiple structural change models. *Journal of Applied Econometrics*, *18*(1), 1–22. https://doi.org/10.1002/jae.659

Carrion-i-Silvestre, J. L., Kim, D., & Perron, P. (2009). GLS-based unit root tests with multiple structural breaks under both the null and the alternative hypotheses. *Econometric Theory*, *25*(6), 1754–1792. https://doi.org/10.1017/S0266466609990326

Carrion-i-Silvestre, J. L., & Sansó, A. (2007). The KPSS test with two structural breaks. *Spanish Economic Review*, *9*(2), 105–127. https://doi.org/10.1007/s10108-006-9017-8

Central Bank of the Republic of Turkey. (2018). Financial stability report (Vol 26), Retrieved May, 14, 2020 from https://www.tcmb.gov.tr/wps/wcm/connect/EN/TCMB+EN/Main+Menu/Publications/Reports/Financial+Stability+Report/2018/Financial+Stability+Report+-+May+2018%2C+Volume+26

Çetin, G., Yıldırım, H. H., Koy, A., & Köksal, C. (2018). Defense expenditures and economic growth relationship: A panel data approach for NATO. In H. Dincer, Ü. Hacioglu, & S. Yüksel (Eds.), *Contributions to Economics* (pp. 131–149). Springer. https://doi.org/10.1007/978-3-319-78494-6_6

Cetin, M., Ecevit, E., & Yucel, A. G. (2018). Structural breaks, urbanization and co2 emissions: Evidence from Turkey. *Journal of Applied Economics and Business Research*, *8*(2), 122–139.

Daly, S., & Frikha, M. (2016). Banks and economic growth in developing countries: What about Islamic banks? *Cogent Economics & Finance*, *4*(1), 1168728. https://doi.org/10.1080/23322039.2016.1168728

Dar, H. (2013). Turkey's potential role as a global leader in Islamic banking and finance, *Afro Eurasian Studies*, *2*(1-2), 315-319.

Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, *49*(4), 1057-1072.

Ecevit, E., Yücel, A. G., & Yücel, Ö. (2016). Are some taxes better than others for economic growth? An ARDL approach for Turkey. *The Empirical Economics Letters*, *15*(11), 1129–1136.

Elliott, G., Rothenberg, T. J., & Stock, J. H. (1996). Efficient tests for an autoregressive unit root. *Econometrica*, *64*(4), 813-836. https://doi.org/10.2307/2171846

Erdem, E., Koseoglu, A., & Yucel, A. G. (2016a). Testing the validity of the Feldstein-Horioka puzzle: New evidence from structural breaks for Turkey. *Theoretical and Applied Economics*, *23*(2), 17–26.

Erdem, E., Yücel, A. G., & Köseoğlu, A. (2016b). Female labour force participation and economic growth: Theoretical and empirical evidence. *The Empirical Economics Letters*, *15*(10), 985–991.

Ernst and Young. (2016). *World Islamic banking competitiveness report 2016*, Retrieved May, 24, 2020 from www.ey.com/Publication/vwLUAssets/ey-world-Islamic-banking-

competitiveness-report-2016/$FILE/ey-world-islamic-banking-competitiveness-report-2016.pdf

Furqani, H., & Mulyany, R. (2009). Islamic banking and economic growth: Empirical evidence from Malaysia. *Journal of Economic Cooperation and Development*, *30*(2), 59–74.

Goaied, M., & Sassi, S. (2011). Financial development and economic growth in the MENA region: What about Islamic banking development. *International Journal of Business and Management Science*, *4*(2), 105–128.

Granger, C. W. J., & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics*, *2*(2), 111–120. https://doi.org/10.1016/0304-4076(74)90034-7

Gregory, A. W., Nason, J. M., & Watt, D. G. (1996). Testing for structural breaks in cointegrated relationships. *Journal of Econometrics*, *71*(1–2), 321–341. https://doi.org/10.1016/0304-4076(96)84508-8

Gudarzi Farahani, Y., & 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. https://doi.org/10.1108/17538391311329842

Hatemi-J, A. (2012). Asymmetric causality tests with an application. *Empirical Economics*, *43*(1), 447–456. https://doi.org/10.1007/s00181-011-0484-x

Islam, N. (1995). Growth empirics: A panel data approach. *The Quarterly Journal of Economics*, *110*(4), 1127–1170.

Jobarteh, M., & Ergec, E. H. (2017). Islamic finance development and economic growth: Empirical evidence from Turkey. *Turkish Journal of Islamic Economics*, *4*(1), 31-47.

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration--with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, *52*(2), 169–210.

Kalayci, S., & Tekin, B. E. (2016). Interactions between economic growth, FDI and Islamic banking development in Turkey. *International Journal of Business and Management*, *11*(8), 230-240.

Kapetanios, G. (2005). Unit-root testing against the alternative hypothesis of up to m structural breaks. *Journal of Time Series Analysis*, *26*(1), 123–133. https://doi.org/10.1111/j.1467-9892.2005.00393.x

Kettell, B. (2011). *Introduction to Islamic banking and finance.* Wiley.

Koçak, E. (2018). İslami finans ve ekonomik büyüme: Türkiye üzerine ekonometrik bir uygulama. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *51*, 67–91. https://doi.org/10.18070/erciyesiibd.440612

Köksal, C., Işik, M., & Katircioglu, S. (2020). The role of shadow economies in ecological footprint quality: empirical evidence from Turkey. *Environmental Science and Pollution Research*, *27*(12), 13457–13466. https://doi.org/10.1007/s11356-020-07956-5

Kwiatkowski, D., Phillips, P. C. B., Schmidt, P., & Shin, Y. (1992). Testing the null hypothesis of stationarity against the alternative of a unit root. How sure are we that economic time series have a unit root? *Journal of Econometrics*, *54*(1–3), 159–178.

Lee, J., & Strazicich, M. C. (2003). Minimum Lagrange multiplier unit root test with two structural breaks. *Review of Economics and Statistics*, *85*(4), 1082–1089. https://doi.org/10.1162/003465303772815961

Lee, J., & Strazicich, M. C. (2013). Minimum LM unit root test with one structural break. *Economics Bulletin*, *33*(4), 2483–2492.

Maki, D. (2012). Tests for cointegration allowing for an unknown number of breaks. *Economic Modelling*, *29*(5), 2011–2015. https://doi.org/10.1016/j.econmod.2012.04.022

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.

Narayan, P. K., & Popp, S. (2010). A new unit root test with two structural breaks in level and slope at unknown time. *Journal of Applied Statistics*, *37*(9), 1425–1438. https://doi.org/10.1080/02664760903039883

Nelson, C. R., & Plosser, C. R. (1982). Trends and random walks in macroeconmic time series. *Journal of Monetary Economics*, *10*(2), 139–162. https://doi.org/10.1016/0304-3932(82)90012-5

Ng, S., & Perron, P. (2001). Lag length selection and the construction of unit root tests with good size and power. *Econometrica*, *69*(6), 1519–1554. https://doi.org/10.1111/1468-0262.00256

Participation Banks Association of Turkey. (2020). Participation banks 2019. Retrieved May, 30, 2020 from https://www.tkbb.org.tr/Documents/Yonetmelikler/Participation-Banks-2019-Sector-Report-.pdf

Perron, P. (1989). The great crash, the oil price shock, and the unit root hypothesis. *Econometrica*, *57*(6), 1361-1401. https://doi.org/10.2307/1913712

Perron, P., & Rodríguez, G. (2003). GLS detrending, efficient unit root tests and structural change. *Journal of Econometrics*, *115*(1), 1–27. https://doi.org/10.1016/S0304-4076(03)00090-3

Stock, J. H. (1999). A class of tests for integration and cointegration. In R. Engle & H. White (Eds.), *Cointegration, causality and forecasting: A festschrift for Clive W.J. Granger.* (pp. 135–167). Oxford University Press.

Tabash, I. M., & Dhankar, S. R. (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.

Westerlund, J., & Edgerton, D. L. (2006). New improved tests for cointegration with structural breaks. *Journal of Time Series Analysis*, *28*(2), 188–224. https://doi.org/10.1111/j.1467-9892.2006.00504.x

Yucel, A. G. (2020). Are shocks to tourist arrivals permanent or transitory? A comprehensive analysis on the top 20 most-visited countries. *Current Issues in Tourism*, 1–18. https://doi.org/10.1080/13683500.2020.1828311.

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KATILIM BANKALARI EKONOMİK BÜYÜMEYE KATKI SAĞLIYOR MU? TÜRKİYE İÇİN ZAMAN SERİSİ ANALİZİ

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Geniş Öz

"Ribâ" kelimesi Arapça mastar olup, sözcüğün kökeninde "mutlak çoğalma" anlamı vardır. İslami terminolojide riba, çaba sarf edilmeden elde edilen kazanç anlamına gelir. Finansal işlemler söz konusu olduğunda Müslümanların temel sorumluluklarından biri, ribadan kaçınmaktır. Hz. Peygamber bir hadisi şerifinde şöyle buyurmuştur: "İnsanlar öyle bir devre ulaşacak ki, o zamanda riba yemeyen kalmayacak". Bu hadisi şerif Müslümanları kişisel veya ticari işlemlerinde hangi finansal yöntemleri kullanacaklarına karar vermeden önce daha dikkatli olmaya çağırmaktadır (Kettell, 2011, s. 51).

İslam'da ribanın haram olduğuna dair pek çok delil vardır. Kuran'da riba ile ilgili on iki ayet vardır ve riba kelimesi sekiz defa geçmektedir. Şu ayet ribayı açık bir şekilde yasaklamaktadır: "… Allah ticareti helal, ribayı ise haram kılmıştır" (Bakara 2/275). İslam alimleri, ribanın yasaklanmasının arkasında beş neden öne sürmüşlerdir (Kettell 2011, s. 53): "Adaletsizdir, toplumu yozlaştırır, diğer insanların mallarına uygunsuz bir şekilde el konulmasına sebep olur, negatif ekonomik büyümeye neden olur ve insan kişiliğine zarar verir.

Türkiye'deki bankacılık sistemi mevduat bankaları (geleneksel bankalar), kalkınma ve yatırım bankaları ve faizsiz bankalar veya İslami bankalar olarak da adlandırılan katılım bankalarından oluşmaktadır. Katılım bankalarının Türk finansal sistemindeki geçmişi, 1983 yılında "Özel Finans Kurumları" kurulmasına dayanır. Türkiye'de faizsiz bankacılığın ilk uygulaması, faiz hassasiyeti nedeniyle geleneksel bankalardan uzak durmayı tercih eden müşterilere kapılarını açan Albaraka Türk'ün ve Faysal Finans'ın 1985 yılında kurulması olmuştur.

Türk sermaye sahipleri, 1991 yılında ilk yerli katılım bankası kurulana kadar

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katılım bankalarına mesafeli durmuştur. Yıllar geçtikçe Türkiye'deki katılım bankaları, müşterilerin faiz ödememe ve İslami öğretilerde haram sayılan mal veya hizmetleri satan firmalara yatırım yapmama tercihlerini karşıladıkları için kayda değer bir büyüme göstermiştir. 2005 yılında 5411 sayılı Bankacılık Kanunu'nda katılım bankalarının "özel finans kurumu" yerine "katılım bankası" adını alarak banka statüsü kazanmaları, Türkiye'de İslami bankacılık için bir dönüm noktası olmuştur. Ayrıca, tüm katılım bankaları, Türkiye'de faaliyet gösteren katılım bankalarının çatı kuruluşu olan Türkiye Katılım Bankaları Birliği'ne (TKKB) üye olmuştur.

Türkiye'de 2020 yılı itibarıyla üç özel ve üç kamu iştiraki banka -Albaraka, Kuveyt Türk, Türkiye Finans, Ziraat Katılım, Vakıf Katılım ve Emlak Katılım faaliyetlerini sürdürmektedir. Katılım bankaları, Türkiye'deki diğer tüm bankalar gibi, BDDK tarafından düzenlenen ve denetlenen Türk Bankacılık Kanunu'na göre faaliyet göstermektedir. Katılım bankalarının işlevselliği geleneksel bankalara benzemekte ancak fon toplama ve ödünç verme yöntemlerinde farklılık göstermektedirler.

Türkiye'nin 2000'li yıllardan itibaren yaşadığı hızlı ekonomik büyümeye paralel olarak katılım bankacılığı sektörü önemli bir gelişme kaydetmiştir. Türkiye'deki katılım bankalarının toplam varlıkları 2001'de 2,3 milyar TL iken 2019'da 284 milyar TL'ye ulaşmıştır. Ayrıca katılım bankalarının şube sayısı 2003'te 188 iken 2019'da 1,179'a yükselmiştir (TKKB, 2020). Katılım bankalarının son dönemde topladıkları toplam fon miktarı 215 milyar TL'yi aşarken, tahsis edilen fonlar yaklaşık 150 milyar TL'ye ulaşmıştır. 2001 yılında katılım bankaları aktif hacmi açısından Türk bankacılık sektörünün sadece %1,08'ini oluştururken, 2019'da paylarını %6,3'e kadar artırmayı başarmışlardır.

Bu başarıların ışığında, Türkiye'nin 30 yılı aşkın katılım bankacılığı deneyimi, ülkenin katılım bankaları konusunda ne kadar iddialı olduğunu ortaya koymaktadır. Ancak, özellikle son on yılda katılım bankacılığında kaydedilen önemli ilerlemeye rağmen, katılım bankalarının pazar payı hala diğer Müslüman ülkelerin oldukça gerisindedir. Ernst & Young'ın Dünya İslami Bankacılık Rekabet Edebilirlik Raporu'na (2016) göre katılım bankacılığının pazar payı Suudi Arabistan'da %48,9, Kuveyt'te %45,2, Bahreyn'de %29,3, Katar'da %25,8, Birleşik Arap Emirlikleri'nde %21,6 ve Malezya'da %21,3 oranındadır.

Gelişmiş bir finans sektörünün ekonomik büyümeyi hızlandıracağı konusunda iktisat literatüründe bir uzlaşı vardır. Ancak Türkiye örneğinde katılım bankaları ile ekonomik büyüme arasındaki ilişkiyi inceleyen az sayıda çalışma vardır. Bu çalışma, Türkiye'deki katılım bankaları ile ekonomik büyüme arasındaki ilişkiyi ileri zaman serileri analizi kullanarak araştırmak suretiyle literatüre katkıda bulunmayı amaçlamaktadır. Araştırma kapsamında Türkiye örnekleminde gayrisafi yurtiçi hasıla (GSYİH), brüt sabit sermaye oluşumu, istihdam edilen kişi sayısı ve katılım bankaları tarafından verilen toplam krediler kullanılarak neo-klasik bir

üretim fonksiyonu oluşturulmuştur. Katılım bankalarının toplam kredileri ve istihdam için aylık veri olmasına rağmen, GSYİH verilerinin üç ayda bir yayımlanması nedeniyle çalışmanın örneklemi üç aylık frekanslarla sınırlanmıştır. Bu nedenle, çalışmada doğal logaritmaları alınmış değişkenlerin 2005Q4-2020Q2 dönemini kapsayacak şekilde üç aylık zaman serileri kullanılmıştır.

Çalışmamızın ekonometrik metodolojisi dört aşamadan oluşmaktadır. Birinci aşamada, serilerin birim kök özellikleri, ADF, DF-GLS, ve KPSS gibi geleneksel birim kök testleri ve Lee & Strazicich (2003, 2013), Carrion-i-Silvestre & Sansó (2007), Narayan & Popp (2010) ve Carrion-i-Silvestre ve diğerleri gibi yapısal kırılmalı birim kök testleri kullanılarak incelenmiştir. İkinci aşamada, seriler arasındaki uzun dönemli ilişkiyi keşfetmek için Maki (2012) tarafından geliştirilen çoklu yapısal kırılmaya izin veren eşbütünleşme testi kullanılmıştır. Üçüncü aşamada seriler arası nedensellik ilişkilerinin varlığı ve yönü Hatemi-J (2012) asimetrik nedensellik testi ile incelenmiştir. Son olarak, uzun dönem katsayıları elde etmek için çoklu bağlantı probleminden kaçınmak amacıyla seriler arasındaki olası korelasyonu düzelten tamamen değiştirilmiş sıradan en küçük kareler (FMOLS) tahmincisi tercih edilmiştir.

Uzun dönem eşbütünleşme katsayılarına göre, sermaye, istihdam ve katılım bankalarının kullandırdığı kredilerde %1'lik bir artış Türkiye'nin ekonomik büyümesi üzerinde sırasıyla %0,715, %0,422 and %0,021'lik bir artışa yol açmaktadır. Bu sonuçlara göre, Türkiye'nin ekonomik büyümesinde emek ve sermayenin yanı sıra, katılım bankalarının kullandırdığı kredilerin de büyüme üzerine anlamlı bir etkisi vardır. Nedensellik testi sonuçlarına göre ise, katılım bankalarının kredilerinden ekonomik büyümeye doğru hem kısa hem uzun dönemde tek yönlü bir nedensellik ilişkisi vardır.

Bu çalışmanın iki önemli politika önerisi vardır. Birincisi, katılım bankaları atıl fonların bankacılık sistemine kazandırılmasında önemli bir rol oynayabilir. Bu nedenle, katılım bankalarının geleneksel bankaların ikamesi olarak değil de tamamlayıcısı olarak görülmesi gerekmektedir. İkincisi, katılım bankaları sahip oldukları potansiyeli açığa çıkarmak için yeni finansal ürünler ve hizmetler sunarak ürünlerini çeşitlendirmelidir.

Anahtar Kelimeler: İslami Ekonomi, katılım bankaları, ekonomik büyüme, birim kök, yapısal kırılma, eşbütünleşme, nedensellik.

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