

**Contribution of Islamic Banking to Economic Growth: Empirical Analysis from A Different Perspective****İslam Bankacılığın Büyümeye Katkıları: Farklı Bir Perspektiften Ampirik Analiz**Selim KAYHAN<sup>a</sup>, Tayfur BAYAT<sup>b</sup><sup>a</sup> Prof. Dr., Necmettin Erbakan University, Faculty of Political Science, Department of Economics, [skayhan@erbakan.edu.tr](mailto:skayhan@erbakan.edu.tr),  
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İslami Bankacılık,  
Nedensellik Analizi**ÖZ**

Farklı şekillerde uygulanan İslami finansın modern finans piyasalarında uygulaması 1980'li yıllarda tanınmaya başlamış ve 21. yüzyılın başlarından itibaren küresel finansal faaliyetin anlamlı bir payını temsil etmeye başlamıştır. Bu bağlamda İslami finansın ekonomik büyüme üzerindeki olası etkileri özellikle Müslüman ekonomilerde ampirik olarak araştırılmıştır. Ancak, İslami bankacılık ve finans kurumlarının finansal sistem içindeki payı hala küçüktür. Bu nedenle, İslami bankaların ekonomik büyümeye katkısının ölçülmesi halen zordur. Bu çalışmada, İslami bankaların verdikleri kredi türleri, işletme ve ticari krediler üzerinden İslami bankaların Türkiye ekonomisinin büyümesi üzerindeki etkileri ölçülmeye çalışılmıştır. Böylece İslami bankaların reel ekonomi üzerindeki etkisinin daha iyi anlaşılması amaçlanmıştır. İkinci adımda, bankaların mülkiyet türlerine göre olası etkileri ölçülmeye çalışılmış ve katılım bankaları özel ve kamu olmak üzere iki gruba ayrılarak katılım bankaları arasında mülkiyetten dolayı bir fark olup olmadığı incelenmiştir. Sonuçlar, İslami bankaların genişleyen dönemlerde sanayi sektörünü kredilendirdiğini göstermektedir. Ancak daralma dönemlerinde sanayi sektörüne verilen kredi hacmi daralmaktadır. Bu, İslami bankaların Türkiye ekonomisinin konjonktürüne paralel hareket ettiği anlamına gelmektedir.

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Islamic finance has been practiced in different forms and its practice in modern financial markets became recognized in 1980s and begun to represent a meaningful share of global financial activity by the beginning of 21st century. In this respect, possible effects of Islamic finance on economic growth have been investigated empirically in especially Muslim economies. However, share of Islamic banking and financial institutions in the financial system is still small. For this reason, measuring contribution of Islamic banks on economic growth is still hard. In this study, we try to measure effects of Islamic banks on the growth of Turkish economy via credit types, business and commercial loans given by Islamic banks. By doing so, we aim to better understand effect of Islamic banks on real economy. In the second step, we try to measure possible effects according to type of ownership of banks and decompose participation banks into two groups, private and public to see if there is a difference between participation banks due to its ownership. Results show that Islamic banks credit industrial sector in expanding periods. But volume of credit to industrial sector contracts in contraction periods. That means Islamic banks behave parallel to conjuncture of the Turkish economy.

**JEL Classifications:** G21, C33, O16.**1. INTRODUCTION**

One of the initial studies investigating the relation between financial development and economic growth belongs to Schumpeter (1912). According to Schumpeter, developing financial system allows to expand production and at the end, gross domestic product increases. In the following years, the link between financial development and economic growth has been a major subject in the field

of development economics (Furqani and Mulyany, 2009: 59).

The empirical studies fall into two categories. First of them is financial sector -led growth (supply leading) and another is growth -led financial sector development (demand – following). In supply leading hypothesis, efficient financial system allocates capital by facilitating the channeling of funds from the surplus unit to deficit

unit (Majid and Kassim, 2015: 295). By doing so number of economic activities increases and vice versa. The global recession in 2008 is another indicator of this strong relation. In global finance crisis, problems in financial system induced a crisis in real sector. On the other hand, according to Murinde and Eng (1994), demand following hypothesis claims that financial service demand growth is related to growth of real output as well as commercialization and monetization of agriculture and other traditional subsistence services. In this case, a crisis in real sector would allow to collapse in financial system.

The Islamic financial system, which is an integral part of the global financial system, has naturally been affected by the global financial crisis (Akin and Kaya, 2011: 46). But, İbrahim (2010) reports that Islamic finance had developed 15 to 20% averagely during global finance crisis. In the light of growth performance, it is discussed whether Islamic financial institutions, which have survived the effects of the global financial crisis with less damage than traditional banks, can be an alternative to the current system (Akin and Kaya, 2011: 46).

In this regard, the global recession presented that, countries those have a significant share of the Islamic finance in their financial sector were able to have resilience to shocks from the crisis and the impact of the recession was not hard felt in those countries (Jobarteh and Ergec, 2017: 32). Because the Islamic financial system was not affected by global financial collapse due its following features. First, Islamic finance provides efficiency of saving – investment process. Secondly, it manages risk efficiently and stimulate innovation (Kouten and Nedra, 2012).

In the Turkish financial system, share of Islamic finance has been increasing since 1990s. There are six participation banks. These are Albaraka Turk, Türkiye Emlak, Kuveyt Turk, Türkiye Finans, Vakıf and Ziraat Participation banks. Three of them, Türkiye Emlak, Vakıf and Ziraat Participation banks, are established by government. Vakıf and Ziraat Participation Bank has been operating since 2015. Equity of Ziraat Participation bank is paid by Treasury of the Turkish Republic. On the other hand, equity of Vakıf Participation Bank is paid by General Directorate of Foundations which serves as a part of government. Türkiye Emlak Participation Bank started to serve as a participation bank in 2019. On the other hand, participation banks belonging to private sector have been serving in the Turkish financial system since 1990s.

Participation banks were not inside of the banking system until 2001 and it was not included into savings deposit insurance fund. This situation changed after crises in 2000 and 2001. They are included into system anymore. This made Islamic finance institutions more compatible with conventional banking system. They are called as participation banks with law.

When it comes to 2010s, ruling government started to establish participation banks which ownerships belong to public institutions. Aims of the government in establishing

public participation banks are to develop Islamic finance in Turkey, to increase the share of Islamic finance in the financial system and to be able to transfer the savings of citizens with Islamic sensitivity to the financial system.

In this study, we take commercial credits to measure effect of participation banks on growth performance of the Turkish economy. while measuring it, we also investigate if participation banks behave cyclical or procyclical by employing fourier causality tests. Moreover, we test if participation banks belonging to private sector and public participation banks behave different in supporting real sector than Islamic vision. In this regard, in the first step we investigate the relation for whole sector. In the second step, we do it for public and private sector participation banks separately.

The importance of this study is twofold. First of all, we employ different dimensions to better understand relation. Secondly, we try to see if Islamic finance moves cyclical or countercyclical. The answer would help us to understand whether Islamic banks behave different from conventional banks in the context of promote real economy in the Turkish case. Moreover, we also will be able to see if there is a difference between public and private sector participation banks.

## 2. LITERATURE REVIEW

There is a vast literature investigating financial system – economic growth relation. On the other hand, there is a limited number of studies analyzing relation between Islamic finance development and economic growth due to lack of sufficient data about Islamic finance.

One of the earlier studies investigating Islamic finance and economic growth belongs to Goaid and Sassi (2010). They employ GMM method to obtain the relation and in sixteen countries in the Middle – East and North Africa region. As a result of their analysis, there is no significant interaction between Islamic finance and economic growth. This might be due to the size of Islamic banking in the related countries.

Another study belongs to Furqani and Mulyany (2009). The authors investigate Malaysian economy between years 1997 and 2005 via co-integration and VECM methods. According to results, there is a bi-directional causality between Islamic banks and fixed investments in the long run.

Abduh and Omar (2012) investigate Indonesian economy between years 2003 and 2010 to find if there is a relation between Islamic financial development and economic growth in such a country where Islamic financial system depth is relatively higher than other Muslim countries. They found that there is a bi-directional causality between variables according to ARDL analysis results.

Tabash and Dhankar (2014) analyze possible relation in United Arab Emirates where Islamic finance system has also significant share in total financial system of the country. According to analysis taking 1990 – 2010 period into

account, there is a positive relation variables and direction of causality is from Islamic finance development to economic growth.

The number of studies taking the Turkish economy into account is also limited. In [Jobarteh and Ergec's \(2017\)](#) study, the Turkish economy is analyzed in 2005 – 2015 period. According to co-integration, causality and VECM analyses results, there is a uni-directional causality running from Islamic finance development to economic growth.

In another study, [Tunay \(2016\)](#) investigates the relation in nineteen Muslim countries between years 2000 and 2013. Results show that although there is no relation between Islamic finance growth and economic growth, there is a uni-directional causality running from Islamic banks' finance to gross fixed capital formation.

In the light of Tunay's study, it is possible to conclude that in order to see the effects of Islamic banks' on economic growth, it is better to employ an indicator belonging to manufacturing sector than an indicator such as gross domestic product. For this reason, in this study, we employ industrial production index to measure effects of participation banks. Moreover, different from existing studies, we employ commercial credits given to business world by participation banks to measure effect of related banks on economic growth. In the light of explanations of [Kouten and Nedra \(2012\)](#), it is expected to stimulate of business world by expanding credit volume even in the contraction periods of business cycle.

As can be seen from the limited literature, there are studies investigating Islamic banks, but there is no unique results to take a conclusion. Also this study might be one of initial studies analyzing Islamic banks from supporting manufacturing sector or not.

### 3. EMPIRICAL FINDINGS

In this study, the causation linkage between participation banks' credit performance given to commercial customers and growth performance of the Turkish economy between years 2010Q1 – 2020Q2. The model built and detailed information about empirical method employed are presented in this section.

First, we measure possible effects of participation banks on the economy by using two commercial credit volume given to commercial activities. First is commercial credits including business loans, vehicle loans and consumer loans. We accept that an increase in commercial credits would allow to expand economic activities, so there is a positive interaction between participation banks and economic development. Second, we take business loans into account. We consider business loans as a kind of working capital and we accept that an increase in business loans would allow to expand economic activities in industrial sector. Although commercial credits include business loans, we take it in a separate analysis due to its direct effect on productive activities. Increasing working

capital would accelerate production in manufacturing sector and at the end, economic growth would accelerate.

To measure economic growth, we employ industrial production index as an economic growth indicator instead of gross domestic product to see direct effect of credits given to productive activities. In this regard, we analyze interaction between credit types and industrial production index in two separate models. In the first model, we take commercial credits and industrial production index. In the second model, we investigate relation between business loans and industrial production index.

The conventional (linear) causality analysis methods allow us to find linear linkages between variables. The non-linear causality analysis methods, different from linear methods, take non-linear relation into account between variables. Moreover, fourier causality analysis methods allow us to see if the causation linkage moves cyclical and/or countercyclical. In this study, by using fourier causality analysis methods, we aim to understand, if possible, causation linkage between commercial credits and economic growth is cyclical or not.

Our hypothesis is to test whether participation banks, unlike conventional banks, act in the opposite direction of fluctuations in the economy by giving loans to commercial enterprises without being affected by cyclical movements during the expansion or contraction periods of the economy. This hypothesis will be supported when it is obtained that the banks do not act in harmony with the conjuncture movements. Also, separate analyses for public and private sector participation banks allow us if there is a different behavior between public and private banks.

The analysis period covers between years 2010Q1 and 2020Q2. Data belonging to credits given by participation banks (Commercial credits, COM hereafter and Business loans, BUS hereafter) are obtained from official website of Participation Banks Association of Turkey. Data belonging to industrial production index (IPI, hereafter) is obtained from International Financial Statistic database published by International Monetary Fund. All variables are included into model with nominal values, and they are realized by de-inflation. We take natural logarithms of all series. In the empirical analysis, we both employ conventional and fourier unit root and causality analysis methods to compare them.

In this step, we apply unit root tests developed by [Kwiatowski et al. \(1992, KPSS hereafter\)](#) and [Becker et al. \(2006, FKPSS, hereafter\)](#) to see if there is a unit root in the series. By doing so we determine stationary of the series.

**Table 1.** Linear and Fourier KPSS Unit Root Test Results

		Frequency(k)	Min KKT	FKPSS	F Stat	KPSS
IPI	Constant	1	0.633	0.374***	26.095	0.808***
	Constant and Trend	2	0.041	0.166**	1.465	0.410***
COM	Constant	1	0.984	0.441***	24.192	0.757***
	Constant and Trend	1	0.116	0.039	39.531	0.182**
BUS	Constant	1	0.669	0.547***	10.938	0.513**
	Constant and Trend	1	0.388	0.046	8.693	0.121*

Notes: In FKPSS test, critical values are 0.131, 0.172 and 0.269 for model with constant and 0.047, 0.054 and 0.071 for model with trend and constant for 1%, 5% and 10% significance levels, respectively. In KPSS test, critical values are 0.739, 0.463 and 0.347 for model with constant and 0.216, 0.146 and 0.119 for model with constant and trend for 1%, 5% and 10% significance levels, respectively.

In KPSS and FKPSS, the null hypothesis claims that variables do not contain unit root and alternative hypothesis claims that variable contains unit root. If the F test statistic is greater than the critical value, the alternative hypothesis is accepted. If the F test statistic is less than the critical value, the null hypothesis is accepted. According to the results in table 1, the variables at alternative meaning levels have unit roots. This is valid the fact that all three variables have unit roots indicates that economic crises have an effect on both economy and credits given by participation banks permanently and do not converge to initial position.

In the second step, we investigate the causation linkage for the whole participation banks sector. To do so, we employ conventional causality analysis methods developed by Granger (1969) and Toda and Yamamoto (1995) and fourier causality analysis methods developed by Enders and Jones (2016) and Nazlioglu, et al. (2016).

In table 2, relation between commercial credits and industrial production index in the whole sector are presented. According to results, it is possible to conclude

that conventional causation linkage exists. Also, fourier causality analysis results imply strong relation between commercial credits and industrial production index. This implies that whole sector behaves parallel to conjuncture while they take decisions about the amount of commercial credits.

In table 3, relation between business loans and industrial production index in the whole sector are presented. Like commercial credits, conventional causality analysis implies that there is a causation linkage between variables. Moreover, fourier causality analysis results imply strong relation between business loans and industrial production index. This implies that whole sector behaves parallel to conjuncture while they take decisions about the amount of business loans.

According to results obtained from table 2 and table 3, participation banks' credits to manufacturing sector influence the Turkish economy. But it is clear that banks move parallel to conjuncture when they take credit decisions. So, they increase the volume of credits when conjuncture enters to expansion period, vice versa.

**Table 2.** Causality Test Results for CIM – IPI Relation

<i>Ho: COM does not Granger cause of IPI</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	0.665	0.882	0.880		3	
TY and Bootstrap TY (Toda and Yamamoto, 1995)	4.004	0.405	0.370		4	1
Fourier Standard GC single Frequency (Enders and Jones, 2016)	20.574	0.057*	0.400	1	2	
Fourier TY single frequency (Nazlioglu et al., 2016)	0.001	0.999	0.999	2	2	1
Fourier Standard GC cumulative frequency (Enders and Jones, 2016)	13.712	0.00***	0.00***	3	1	-
Fourier TY cumulative frequency (Nazlioglu et al., 2016)	22.637	0.00***	0.00***	3	2	1
<i>Ho: IPI does not Granger cause of COM</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	7.474	0.058*	0.070*		3	
TY and Bootstrap TY (Toda and Yamamoto, 1995)	5.730	0.220	0.290		4	1
Fourier Standard GC single Frequency (Enders and Jones, 2015)	17.202	0.142	0.390	1	2	
Fourier TY single frequency (Nazlioglu et al., 2016)	0.001	0.999	0.999	2	2	1
Fourier Standard GC cumulative frequency (Enders and Jones, 2015)	15.935	0.00***	0.00***	3	1	-
Fourier TY cumulative frequency (Nazlioglu et al., 2016)	20.519	0.00***	0.00***	3	2	1

Notes: \*\*\*, \*\* and \* denote that alternative hypothesis is accepted in different significance level, 1%, 5% and 10%, respectively. Number of bootstrap is 1.000. k represents optimal frequency, p represents optimal lag length, GC is Granger causality and TY is Toda-Yamamoto Causality. In order to choose optimal lag length, Akaike information criterion is used.

**Table 3.** Causality Test Results for BUS – IPI Relation

<i>Ho: BUS does not Granger cause of IPI</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	4.490	0.213	0.240		3	
TY and Bootstrap TY (Toda and Yamamoto, 1995)	8.245	0.083*	0.060*		4	1
Fourier Standard GC single Frequency (Enders and Jones, 2016)	10.120	0.605	0.670	1	2	
Fourier TY single frequency (Nazlioglu et al., 2016)	0.001	0.999	0.999	3	2	1
Fourier Standard GC cumulative frequency (Enders and Jones, 2016)	12.590	0.00***	0.00***	3	1	-
Fourier TY cumulative frequency (Nazlioglu et al., 2016)	20.304	0.00***	0.00***	3	2	1
<i>Ho: IPI does not Granger cause of BUS</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	2.923	0.404	0.390		3	
TY and Bootstrap TY (Toda and Yamamoto, 1995)	4.076	0.396	0.390		4	1
Fourier Standard GC single Frequency (Enders and Jones, 2015)	28.928	0.00***	0.240	1	2	
Fourier TY single frequency (Nazlioglu et al., 2016)	0.001	0.999	0.999	3	2	1
Fourier Standard GC cumulative frequency (Enders and Jones, 2015)	14.157	0.00***	0.00***	3	1	-
Fourier TY cumulative frequency (Nazlioglu et al., 2016)	23.960	0.00***	0.00***	3	2	1

Notes: \*\*\*, \*\* and \* denote that alternative hypothesis is accepted in different significance level, 1%, 5% and 10%, respectively. Number of bootstrap is 1.000. k represents optimal frequency, p represents optimal lag length, GC is Granger causality and TY is Toda-Yamamoto Causality. In order to choose optimal lag length, Akaike information criterion is used.

In the second step, we investigate the relation between variables for public and private sectors separately. But results belonging to public sector participation banks are not robust. For this reason, we do not report them in order to save place. Public participation banks started to operate in the system in 2015. So, the time period might be short to see fourier movements.

We employ same unit root tests as we did in the whole sector. Both unit root test results for private sector are presented in the table 4. According to results, both commercial credits and business loans variables contain unit roots in level. When we take first difference of series into account, we imply that series are stationary.

**Table 4.** Linear and Fourier KPSS Test Results for Private Sector

	Frekans (k)	Min SSR	FKPSS	F İstatistiği	KPSS	
<b>COM</b>	Constant	1	0.984	0.441***	24.192	0.757***
	Constant and Trend	1	0.116	0.039	39.531	0.182**
<b>BUS</b>	Constant	2	0.669	0.547***	10.938	0.513**
	Constant and Trend	1	0.388	0.046	8.693	0.121*

Notes: In FKPSS test, critical values are 0.131, 0.172 and 0.269 for model with constant and 0.047, 0.054 and 0.071 for model with trend and constant for 1%, 5% and 10% significance levels, respectively. In KPSS test, critical values are 0.739, 0.463 and 0.347 for model with constant and 0.216, 0.146 and 0.119 for model with constant and trend for 1%, 5% and 10% significance levels, respectively.

In the second step of the analysis, we employ conventional causality analysis methods developed by Granger (1969) and Toda and Yamamoto (1995) and fourier causality analysis methods developed by

Enders and Jones (2016), Nazlioglu, et al. (2016). Results are very similar to analysis results of whole sector. So, also private sector participation banks move parallel to conjuncture.

**Table 5.** Causality Analysis Results for Private Sector Participation Banks

<i>Ho: BUS does not Granger cause of IPI</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	4.490	0.213	0.238	-	3	-
TY and Bootstrap TY (Toda and Yamamoto, 1995)	8.245	0.083	0.131	-	4	1
Fourier Standard GC single Frequency (Enders and Jones, 2016)	7.035	0.00***	0.011**	1	2	-
Fourier TY single frequency (Nazlioglu et al., 2016)	21.053	0.00***	0.00***	3	2	-
<i>Ho: IPI does not Granger cause of BUS</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	2.923	0.404	0.453	-	3	-
TY and Bootstrap TY (Toda and Yamamoto, 1995)	4.076	0.396	0.407	-	4	1
Fourier Standard GC single Frequency (Enders and Jones, 2015)	28.928	0.00***	0.256	1	2	-
Fourier TY single frequency (Nazlioglu et al., 2016)	0.857	0.355	0.36	3	2	1
<i>Ho: COM does not Granger cause of IPI</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	0.665	0.882	0.882	-	3	-
TY and Bootstrap TY (Toda and Yamamoto, 1995)	4.004	0.405	0.386	-	4	1
Fourier Standard GC single Frequency (Enders and Jones, 2016)	20.574	0.057*	0.365	1	2	-
Fourier TY single frequency (Nazlioglu et al., 2016)	21.529	0.00***	0.00***	2	2	1
<i>Ho: IPI does not Granger cause of COM</i>						
	Wald	Asymp. p value	Boots. p value	k	p	d <sub>max</sub>
Standard GC (Granger, 1969)	7.474	0.058*	0.070*	-	3	-
TY and Bootstrap TY (Toda and Yamamoto, 1995)	5.730	0.220	0.255	-	4	1
Fourier Standard GC single Frequency (Enders and Jones, 2015)	17.202	0.142	0.424	1	2	-
Fourier TY single frequency (Nazlioglu et al., 2016)	0.201	0.904	0.908	2	2	1

Notes: \*\*\*, \*\* and \* denote that alternative hypothesis is accepted in different significance level, 1%, 5% and 10%, respectively. Number of bootstrap is 1.000. k represents optimal frequency, p represents optimal lag length, GC is Granger causality and TY is Toda-Yamamoto Causality. In order to choose optimal lag length, Akaike information criterion is used.

#### 4. CONCLUSION

The share of participation banks in the Turkish financial system and the number of participation banks increase in recent years with the support of the Turkish government. In 2015, the Turkish government established two participation banks Ziraat and Vakif Participation Banks and in 2019, another one, Emlak Participation. The main reason of government's decision was to increase share of participation banks. By doing so, finance of investments in the real sector would be easy even in contraction periods thanks to Islamic financial system's features.

In the literature, there are several studies investigating effect of Islamic banks on economic development. Different from existing studies, we aim to test effects of Islamic finance to growth performance of the Turkish economy by employing credits given by participation banks to manufacturing sector and we test sector as a whole and also dividing into private and public sector banks. Also, we try to see effects of sector on the growth in different conjunctures. In this regard, we employ fourier causality tests to better understand behavior of participation banks in different conjuncture of economy.

Results show that participation banks support economic growth via providing credits to manufacturing sectors. Both conventional and fourier test results imply that there is a uni-directional causality running from commercial credits and business loans to industrial production index. But fourier causality analysis shows that expansion and

contraction of credits are parallel to economic conjuncture. In the second step, we divide the sector into two, private and public participation banks. Although we could get robust results for public sector, private participations banks behave as the whole system.

These results imply that participation banks do not behave aggressive to promote economic growth even in the contraction periods and behaviors might be concluded similar to conventional banks. In this regard, it is expected to behave different and promote real economy more aggressively. Different from private sector participation banks, public sector participation banks might be aggressive in the context of the Turkish government's policy and promote economic activities in near future. It will be possible to compare private and public sector participation banks when data will be available for statistical analysis.

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