

CAUSALITY RELATIONSHIP BETWEEN INTEREST RATE OF DEPOSIT BANKS AND PROFIT SHARE RATE OF ISLAMIC BANKS IN TURKEY

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Abstract

The popularity of Islamic banking is increasing day by day. On the other hand, some people also criticized this system in some aspect. One of the criticism is that profit sharing rates of Islamic banks are similar to interest rate of deposit banks. While considering this issue, this study aims to identify the causality relationship between profit sharing rate and interest rate in Turkey. Within this scope, monthly, quarterly, 6-months and yearly data for the period between 2000 and 2016 was analyzed separately. In addition to this situation, Toda Yamamoto causality analysis was used in this study so as to achieve this objective. According to the results of the analysis, it was determined that there is a significant causality relationship between these rates. In other words, it was concluded that interest rate of the deposit banks is the main indicator of the profit share rate of Islamic banks in Turkey. The main reason behind this situation is that indicators in the market affect both deposit banks and Islamic banks. Therefore, it is inevitable that deposit rates and profit share rates will be similar when deposit banks and Islamic banks perform in the same market.

Key words: Islamic Banking, Interest Rate, Turkish Banking Sector, Toda Yamamoto Causality Analysis

JEL Codes: C32, E43, G21

Abstrak

Kepopuleran perbankan syariah terus mengalami peningkatan dari hari kehari. Disampingitu, ada beberapa orang yang mengkritisi system ini dari beberapa aspek. Salah satunya yaitu mengkritisi masalah bagi hasil dalam perbankan syariah yang mirip dengan bunga deposito. Dalam permasalahan ini, penelitian ini bertujuan untuk mengidentifikasi hubungan sebab akibat antara system bagi hasil dan tingkat bunga di Turki. Dalam lingkup data bulanan, data kuartal, data semester dan tahunan di periode 2000 – 2016n telah dianalisis secara terpisah. Tambahan dalam permasalahan ini,

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Toda Yamamoto menganalisis sebab akibat permasalahan ini untuk mencapai penelitian secara objektif. Menurut hasil penelitian, hubungan antara bunga dan bagi hasil itu signifikan. Kesimpulan dari penelitian ini bunga dari deposit bank merupakan indikator yang mempengaruhi system bagi hasil di Turki. Alas lain dibalik permasalahan ini bahwa pasar mempengaruhi keduanya bunga deposito dan perbankan syariah. Olehkarena itu keterkaitan deposito dan bagi hasil akan sama ketika bunga deposito dan bagi hasil terjadi berada di pasar yang sama.

Kata Kunci : Perbankan syariaah, Tingkat suku bunga, Sektor perbankan Turki,

Penelitian sebab akibat Toda Yamamoto

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A. INTRODUCTION

The popularity of Islamic banking increased in the world especially in last decades. The main reason behind this situation is that people, who give importance to the religious rules, demand for the banking products that are appropriate for these rules. In other words, these people do not want to gain interest income because it is not suitable for Islamic rules. Because of this situation, they do not prefer to deposit their money in to the traditional banks. On the other side, they want to earn some income by using their savings. Owing to this condition, the demand for Islamic banking was raised (Ersin and Duran, 2017).

Islamic banking is similar to the traditional banking in many ways (Dinçer et. al., 2016). On the other hand, there are lots of differences between these two banking systems. The main difference is that in traditional banking, customers can earn a specific interest income whereas in Islamic banking, customers do not have a guarantee to get income. That is to say, there is a possibility that customers can get loss at the date of the maturity. In addition to this aspect, another difference of Islamic banking sector is that companies in some sectors, such as alcohol beverage cannot get loan from Islamic banks (Kartal and Demir, 2017).

However, Islamic banking system is criticized by many different parties because of its operations. One important criticism related to this issue is that profit sharing rate of Islamic banks is very similar to the interest rate of the deposit banks. These people think that there is not a difference between these two systems. Owing to this issue, it was understood that studies related to this aspect is very important. Parallel to this situation, in this study, we aimed to identify the causality relationship between interest rate of deposit banks and profit share rate of Islamic banks in Turkey by using Toda Yamamoto causality test. This method was used firstly so as to understand this kind of relationship. Therefore, it can be said that his situation increases the originality of this study. As a result this analysis, it will

be possible to see whether there is a difference between two different banking sectors in Turkey or not.

The paper is organized as follows: after introduction part, we give detailed information about the similar studies in the literature. Moreover, the third part explains the significance of Islamic banks in Turkey. In addition to these parts, the fourth part emphasizes the research and application in order to define analyze the relationship between interest rate of the deposit banks and profit share rate of Islamic banks. Finally, the results of the analysis are given in the conclusion part.

B. LITERATURE REVIEW

There are many studies in the literature that aimed to analyze the causality relationship between interest rate of deposit banks and profit share rate of participant banks. Some of these studies were detailed on table I.

Table I
Studies Related to the Relationship between Interest Rate and Profit Share Rate

Authors	Method	Scope	Result
Haron and Ahmad (2000)	Adaptive Expectation Model	Malaysia	It was concluded that there is a negative relationship between interest rate of conventional banks and profit share rate of Islamic banks.
Kaleem and Isa (2003)	Granger Causality Analysis	Malaysia	It was identified that interest rate of conventional banking is the main reason of term deposit return of Islamic banking.
Bacha (2004)	Granger Causality Analysis	Malaysia	It was defined that 3-month deposit return of Islamic banks and conventional banks are closely correlated.
Chong and Liu (2009)	Granger Causality Analysis	Malaysia	It was analyzed that investment rates of Islamic banks do not have any effect on deposit rates of conventional banks.
Kader and Leong (2009)	Granger Causality Analysis	Malaysia	They reached a conclusion that that there is a causality relationship between deposit returns of Islamic banks and conventional banks.
Kasri and Kassim (2009)	Johansen Cointegration Analysis	Indonesia	It was concluded that there is a relationship between interest rate and profit share rate.
Zainol and Kassim (2010)	Granger Causality Analysis	Malaysia	It was found that changes in interest rates of deposit banks do not have any effect on the rate of return of Islamic banks.

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Adebola et. al. (2011)	Granger Causality Analysis	Malaysia	They reached a conclusion that conventional banks' interest rate negatively affects the profit rate of participation banks.
Çevik and Sharap (2011)	Granger Causality Analysis	Malaysia and Turkey	They identified that there is a causality relationship from forward interest rate to the profit rate in both countries.
Ergeç and Arslan (2013)	VAR	Turkey	It was identified that any change in forward interest rate influences participation banks' profit share rate.
Ertürk and Yüksel (2013)	Granger Causality Analysis	Turkey	They reached a conclusion that there is a causality relationship from forward interest rates to profit share rates after 2008 crisis.
Ito (2013)	Granger Causality Analysis	Malaysia	It was determined that there is a causality relationship from profit share rates to forward interest rates.
Zakaria and Sanwari (2013)	Regression	16 different countries	They defined that interest rate affects Islamic banks' profit share.
Saraç and Zeren (2014)	Granger Causality Analysis	Turkey	They identified that interest rates of conventional banks are the main cause of profit rates of participation banks.
Ergeç and Kaytancı (2014)	Granger Causality Analysis	Turkey	They reached a conclusion that interest rates of deposit banks affect profit share rates of Islamic banks.
Anuar et. al. (2014)	Granger Causality Analysis	Malaysia	It was determined that profit rates of Islamic banks are significantly linked with interest rates of conventional banks.
Avcı and Aktaş (2015)	Descriptive Statistics	Turkey	They emphasized that profit share rates and interest rates are almost close in Turkey.
Ata et. al. (2016)	Granger Causality Analysis	Turkey	They defined that there is a causality relationship forward interest rates and profit share rates.
Adewuyi and Naim (2016)	ARDL	Malaysia, Indonesia, Bahrain	It was identified that there is a long run relationship between interest rate of the deposit banks and profit share rate of Islamic banks.
Tariq and Masih (2016)	GMM	28 different countries	They concluded that there is not a significant relationship between interest and profit rates.

There are many studies in the literature supported the idea of a relationship between interest rates of conventional banks and profit rates of participation banks with their results. On the other side, only a few number of studies claimed that there is not a significant relation between interest rates and profit shares of banks. Since the analysis are generally made country specific on this topic, dividing the literature into country based parts would give us a more coherent view.

With using Adaptive Expectations Model in their study, Haron and Ahmad (2000) reached up a conclusion claiming a significant negative relationship between interest rate of conventional banks and profit share of participation banks in Malaysia. This negative impact is lately supported by Adebola et. al. (2011) by using Granger causality analysis. In addition to those studies, Kaleem and Isa (2003), Bacha (2004), Kader and Leong (2009), Çevik and Sharap (2011), Ito (2013) and Anuar et. al. (2014) also concluded that profit share rates of participation banks are significantly related to interest rates of conventional banks in Malaysia. However, Chong and Liu (2009) and Zainol and Kassim (2010), using same method, concluded that there is not a significant relationship between interest rates and profit shares of the banks in Malaysia.

Moreover, Çevik and Sharap (2011), Ertürk and Yüksel (2013), Saraç and Zeren (2014), Ergeç and Kaytancı (2014), and Ata et. al. (2016) used Granger causality analysis to examine the relationship between interest rates of conventional banks and profit share rates of participation banks in Turkey. They determined that there is a significant causality relationship between interest rates and profit share rates. Furthermore, Ergeç and Arslan (2013) also identified that profit share rates of participation banks are affected from interest rates of conventional banks with the help of VAR analysis in Turkey.

Additionally, Avcı and Aktaş (2015) also defined that interest rates and profit share rates are very close to each other in Turkey. Moreover, Kasri and Kassim (2009) found a significant relationship between interest rates and profit shares in Indonesia with using Johansen co-integration Analysis. Similarly, Adewuyi and Naim (2016) also determined that there is a long-term relationship between same variables in their study for Malaysia, Indonesia, and Bahrain. While Zakaria and Sanwari (2013) found that interest rates affect profit share rates in their regression analysis in 16 different countries, Tariq and Masih (2016) claimed that there is not any relationship between these two variables, using GMM for 28 different countries.

As it can be understood from these studies, there are a lot of studies that focused on the relationship between profit share rate of Islamic banks and interest rates of the deposit banks. It was also identified that many different studies tried to

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analyze this relationship in Turkish banking sector. However, it was seen that Granger causality analysis was used in most of these studies. Therefore, it can be said that it would be better to use another causality analysis method in order to analyze this relationship more effectively.

I. Islamic Banking Sector in Turkey

Islamic banking became very popular in Turkey after 1980s. AlbarakaTürk is the first Islamic bank which was founded in 1985. Additionally, there are 5 more Islamic banks which are KuveytTürk, Bank Asya, TürkiyeFinans, ZiraatKatılım and VakıfKatılım. The important factors related to Islamic banks in Turkey were given in table 2.

Table 2
Significant Factors of Islamic Banks in Turkey (December 2015)

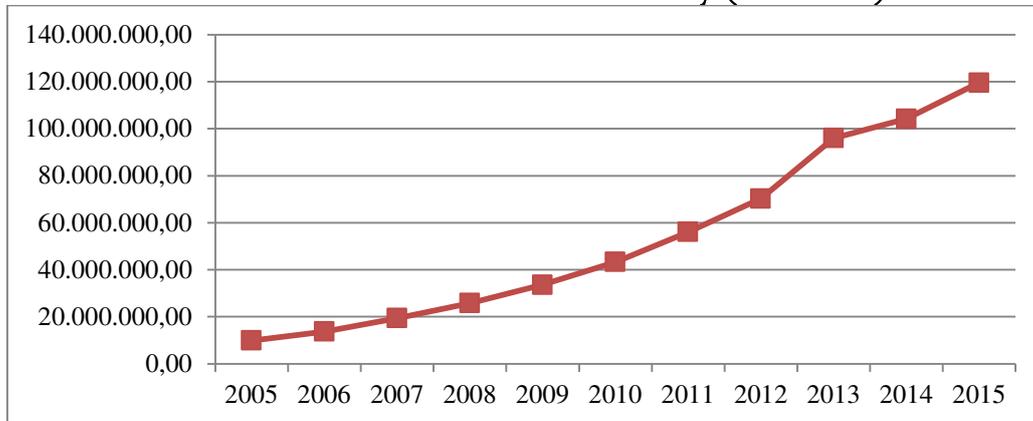
Factors	The Ratio of Islamic Banks in the Sector (%)
Total Deposits	5.95
Nonperforming Loans	14.69
Total Assets	5.10
Total Capital	4.06
Net Profit	1.55
Total Personnel	7.61
The Number of the Branches	8.80

Source: Turkish Participation Banks Union

As it can be seen from table 2, total deposit amount of Turkish Islamic banks constitutes 5.95% of total banking sector in Turkey. On the other side, with respect to total assets, Islamic banks have the 5.10% of the total sector. Furthermore, net profit

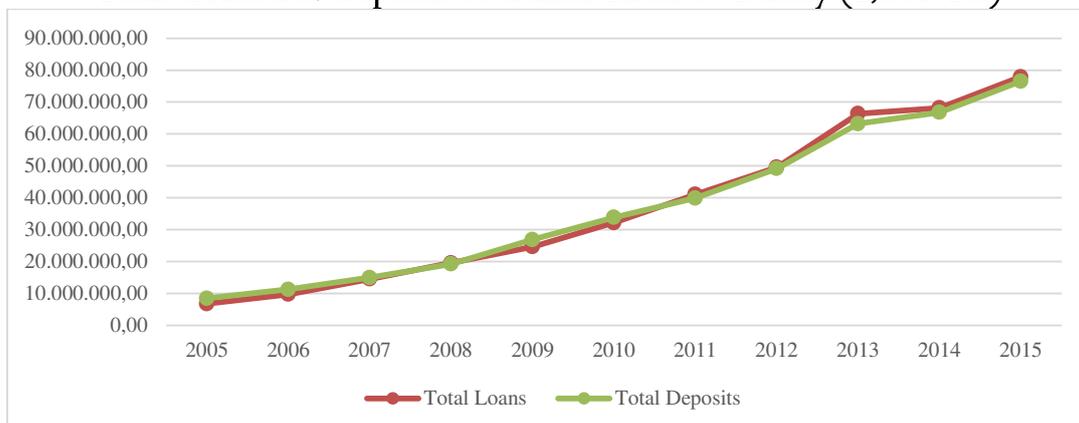
Amount has only 1.55% of total banking sector in Turkey. While considering these numbers, it can be said that Islamic banks have a small portion in Turkey. In addition to this situation, graph I illustrates the changes in total assets of Islamic banks over the years.

Graph I
Total Assets of Islamic Banks in Turkey (I,000 TL)



As it can be seen from graph I, the amount total assets of Islamic banks increases in Turkey. Although it was about 10 billion TL in 2005, this amount went up to nearly 120 billion TL in 2015. By looking at this situation, it can be understood that in spite of the fact that the ratio of Islamic banks is very low, the importance these banks is increasing in Turkey over the years. In addition to this condition, graph 2 gives information about changes in total loans and total deposits of Islamic banks in Turkey over the years.

Graph 2
Total Loans and Deposits of Islamic Banks in Turkey (I,000 TL)



Source: Turkish Participation Banks Union

As it can be understood from graph 2, the changes in the amount of total loans and total deposit of Islamic banks in Turkey are very similar to each other. On the other side, it was also determined that there is a significant increase in the amounts of these variables in last 10 years. Within this context, it was seen that total loans amount was about 6.7

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A million TL in 2005 whereas it increased to 77 million TL in 2015. Similar to this aspect, it was also defined that total deposit amount exceeded to 70 million TL in 2015. While considering this situation, it can be said that Islamic banks in Turkey will be more significant for Turkey in the future.

C. ANALYSIS RESULTS AND FINDINGS

I. Data Set

In order to define the relationship between the interest rate of the deposit banks and profit share rate of Islamic banks in Turkey, monthly, quarterly, 6-months and yearly data for the period between 1998 and 2015 was used in this study. The data of interest rate of the deposit banks was obtained from the website of Central Bank of Turkey. On the other side, profit share data was provided from Turkish Participation Banks Union.

2. Toda Yamamoto Causality Analysis

Toda Yamamoto causality analysis is used so as to determine the relationship between the variables. The main difference of Toda Yamamoto Analysis from other types of methods is that the variables do not have to be stationary in this analysis. On the other side, maximum co-integration level (d) and lag internal in the VAR model (k) should be calculated. Within this context, in Toda Yamamoto analysis, the model is estimated with the lag structure of " $k+d$ ". In other words, the sum of the maximum co-integration level and lag internal in the VAR model is used as the lag structure (Toda and Yamamoto, 1995).

There are lots of studies in the literature in which Toda Yamamoto Analysis was used. Abdul Aziz and others (2000), Narayan and Narayan (2006) and Wolde-Rufael (2008) made a study in order to understand the relationship between taxation and government spending. In addition to those studies, Amiri and Ventelou (2012) and Sghari and Hammami (2013) aimed to determine the relationship between total expenditure on health and GDP in OECD countries by using Toda Yamamoto analysis. Moreover, Tuncer (2002), Guru-Gharana (2012), Yüksel and Zengin (2016) and Bilgin and Şahbaz (2009) analyzed the causality relationship between import, export and economic growth by using this analysis.

3. Analysis Results

In order to understand the relationship between interest rate of deposit banks and profit share rates of Islamic banks in Turkey, we made four different analyses according to the maturity. In other words, we compared interest rates and profit share rates for 1 month, 3 months, 6 months and 1 year periods in order to reach this objective. Additionally, so as to make Toda Yamamoto analysis,

maximum co-integration level and lag internal in the VAR model should be calculated. Within this scope, first of all, we made unit root test in order to understand whether the variables are stationary or not. The results of Phillips Peron unit root tests were given on table 3.

Table 3
Phillips Peron Unit Root Test Results

Variables	Phillips Peron Test	
	Level Value (Probability)	The First Difference Value (Probability)
Interest Rate (1 month)	0.0000	-
Profit Share Rate (1 month)	0.4308	0.0000
Interest Rate (3 months)	0.4624	0.0000
Profit Share Rate (3 months)	0.2452	0.0000
Interest Rate (6 months)	0.5423	0.0000
Profit Share Rate (6 months)	0.0440	-
Interest Rate (1 year)	0.0000	-
Profit Share Rate (1 year)	0.0002	-

As it can be seen from table 3, probability values of 4 variables are less than 0.05. This situation shows that they are stationary at their level values. On the other hand, because probability values of other 4 variables are more than 0.05, it was identified that they are not stationary. Owing to this aspect, the first differences of these variables were calculated to make them stationary. In addition to this issue, appropriate lag lengths should also be calculated in order to make Toda Yamamoto analysis. As a result of the analysis, it was determined that appropriate lag length is “9” for 1-month maturity, “8” for 3-months maturity, “6” for 6-months maturity and “3” for 1-year maturity. This calculation was performed by considering Akaike and Schwarz information criteria. The details of the calculation is given on Appendix. The results of the number of maximum co-integration and appropriate lag lengths for each maturity were demonstrated on table 4.

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Table 4
The Details for Model Estimation

Maturity	The Number of Maximum Co-integration (d)	Appropriate Lag Lengths (k)	The Degree Used in Model Estimation (d+k)
I-month	1	9	10
3-months	1	8	9
6-months	1	6	7
I-year	0	3	3

As it can be understood from table 4, the degree used for model estimation in Toda Yamamoto analysis was calculated as the sum of the number of maximum co-integration and appropriate lag length. Within this context, the number of maximum co-integration was defined from Phillips Peron unit root test. Since the variables of I-month and 3-months profit share rate and 3-months and 6-months interest rate are stationary at their first difference values, the number of maximum co-integration is calculated as "1" for I-month, 3-months and 6-months maturities. On the other side, because both I-year interest rate and profit share rate are stationary at their level values, maximum co-integration number will be "0" for I-year maturity. The results of Toda Yamamoto analysis were given on table 5.

Table 5
Toda Yamamoto Causality Analysis Results

The Way of Causality	Lag Length	P Value	Result
I-month Interest Rate → I-month Profit Share Rate	10	0.0001	There is a causality relationship.
I-month Profit Share Rate → I-month Interest Rate	10	0.0000	There is a causality relationship.
3-months Interest Rate → 3-months Profit Share Rate	9	0.0000	There is a causality relationship.
3-months Profit Share Rate → 3-months Interest Rate	9	0.0000	There is a causality relationship.
6-months Interest Rate → 6-month Profit Share Rate	7	0.0057	There is a causality relationship.
6-months Profit Share Rate → 6-months Interest Rate	7	0.0000	There is a causality relationship.
I-year Interest Rate → I-year Profit Share Rate	3	0.0000	There is a causality relationship.
I-year Profit Share Rate → I-year Interest Rate	3	0.0011	There is a causality relationship.

As it can be seen from table 5, all probability values for each analysis are less than 0.05. This situation refers that these numbers are statistically significant. In other words, it was identified that there is a causality relationship both from interest rate to profit share rate and vice versa for each maturity. This means that interest rate of the deposit banks is the main indicator of the profit share rate of Islamic banks in Turkey. According to the results of this analysis, it was determined that the findings of this study support the views of the parties who criticize Islamic banks in Turkey for being similar to the deposit banks.

The main reason behind this situation is that indicators in the market affect both deposit banks and Islamic banks when they both perform in the same market. Within this context, Central Bank defines the interest rate according to the conditions of the market. Moreover, deposit banks identify their interest rate while considering the decisions of the Central Bank. In addition to this situation, Islamic banks declare a profit sharing rate to the customers with respect to their financial performance. Furthermore, the performance of Islamic banks depends on the repayment power of the customers that took loans from these banks which is also affected by the conditions in the market. That is to say, it can be understood that when deposit banks and Islamic banks perform in the same market, it is inevitable that both of these rates will be similar to each other. Moreover, it was also seen that this result is similar to many different studies in the literature (Kaleem and Isa, 2003), (Bacha, 2004), (Kader and Leong, 2009), (Kasri and Kassim, 2009), (Çevik and Sharap, 2011), (Ergeç and Arslan, 2013), (Ertürk and Yüksel, 2013), (Ito, 2013), (Zakaria and Sanwari, 2013), (Anuar et. al., 2014), (Adewuyi and Naim, 2016).

E. CONCLUSION

People, who give importance to the religious rules, demand for the banking products that are appropriate for these rules. As a result of this issue, the importance of Islamic banking increased very much particularly in last decades. The main motivation of Islamic banks is that they do not give or take interest because it is prohibited in Islam. Therefore, the main difference is that in traditional banking, customers can earn a specific interest income whereas in Islamic banking, customers do not have a guarantee to get income. In other words, Islamic banks share profit with their depositors according to the financial performance that is affected by payment performance of the customers who took loans from these banks.

Nevertheless, Islamic banking system is criticized by many different parties due to its operations. One of these criticisms is that profit sharing rate of Islamic banks appears similar with the interest rate of the deposit banks. Parallel to this issue, we aimed to understand the causality relationship between profit share rates

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and interest rates in Turkey. Within this context, we made 4 different analysis by using monthly, quarterly, 6-months and yearly data for the periods between 2000 and 2016. Furthermore, Toda Yamamoto causality analysis was used in this study in order to reach this objective.

In Toda Yamamoto analysis, maximum co-integration level and lag internal in the VAR model should be calculated. Within this scope, first of all, we made Phillips Peron unit root test so as to define maximum co-integration level. As a result of this analysis, this the number of maximum co-integration was calculated as "1" for 1-month, 3-months and 6-months maturities. However, this number was calculated as "0" for 1-year maturity because both 1-year interest rate and profit share rate are stationary at their level values. Secondly, it was determined that appropriate lag length is "9" for 1-month maturity, "8" for 3-months maturity, "6" for 6-months maturity and "3" for 1-year maturity by considering Akaike and Schwarz information criteria. Also, the sum of the number of maximum co-integration and appropriate lag length was taken into the consideration as the degree in model estimation.

According to the results of Toda Yamamoto analysis, it was seen that all probability values for each analysis are less than 0.05. This condition means that all causality relationships are statistically significant. In other words, it was defined that there is a causality relationship both from interest rate to profit share rate and vice versa for each maturity. This situation refers that interest rate of the deposit banks is the main factor of the profit share rate of Islamic banks in Turkey. The main reason for this issue is that indicators in the market influence both deposit banks and Islamic banks when they both perform in the same market. Central Bank determines the interest rate by looking at the conditions in the market and deposit banks refer this ratio to define their interest rates. Additionally, Islamic banks identify profit sharing rate according to their performance which is affected by the conditions in the market. As a result, interest rates and profit share rates will be indispensably similar to each other.

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Causality Relationship between Interest Rate of Deposit Banks and Profit Share Rate of Islamic Banks in Turkey

(Serhat Yüksel¹ and İsmail Canöz²)

Appendix – Calculation of Appropriate Lag Length

Table A1: Calculation of Appropriate Lag Length for 1-month Analysis

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1186.439	NA	1396.964	12.91781	12.95276	12.93197
1	-416.8485	1514.085	0.339742	4.596180	4.701014	4.638670
2	-345.3680	139.0762	0.163159	3.862696	4.037420	3.933514
3	-339.4624	11.36178	0.159822	3.841983	4.086598	3.941128
4	-314.0813	48.27926	0.126689	3.609580	3.924084	3.737052
5	-308.4819	10.52940	0.124522	3.592194	3.976589	3.747994
6	-291.7492	31.10104	0.108448	3.453795	3.908080*	3.637922*
7	-287.7737	7.302810	0.108504	3.454062	3.978236	3.666516
8	-286.1868	2.880586	0.111425	3.480291	4.074355	3.721073
9	-275.9081	18.43459*	0.104118*	3.412044*	4.075999	3.681153
10	-272.7863	5.530924	0.105171	3.421591	4.155435	3.719027
11	-269.9956	4.883812	0.106630	3.434735	4.238469	3.760498
12	-266.8936	5.361118	0.107757	3.444495	4.318119	3.798586
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						
Maximum lag interval was chosen as 12 for monthly analysis						

Table A2: Calculation of Appropriate Lag Length for 3-months Analysis

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1409.609	NA	11399.89	15.01711	15.05154	15.03106
1	-741.8636	1314.179	9.779091	7.955995	8.059286	7.997845
2	-646.8517	184.9698	3.713800	6.987785	7.159936	7.057534
3	-590.0247	109.4224	2.117231	6.425794	6.666806	6.523443
4	-556.7546	63.35476	1.550849	6.114410	6.424282	6.239959
5	-554.5432	4.163874	1.580833	6.133439	6.512171	6.286887
6	-522.3504	59.93345	1.171404	5.833515	6.281108	6.014863
7	-509.2207	24.16426	1.063235	5.736390	6.252844	5.945638

8	-498.5964	19.32709*	0.991195*	5.665920*	6.251234*	5.903067*
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						
Maximum lag interval was chosen as 8 for quarterly analysis						

Table A3: Calculation of Appropriate Lag Length for 6-months Analysis

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1388.940	NA	7829.993	14.64147	14.67565	14.65532
1	-666.8385	1421.399	4.082712	7.082510	7.185048	7.124047
2	-580.4310	168.2672	1.714864	6.215063	6.385959	6.284291
3	-567.8709	24.19474	1.567167	6.124957	6.364211*	6.221875*
4	-562.2612	10.68797	1.540952	6.108013	6.415625	6.232622
5	-555.1536	13.39223	1.491536	6.075301	6.451272	6.227601
6	-548.1055	13.13163*	1.444684*	6.043216*	6.487546	6.223208
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						
Maximum lag interval was chosen as 6 for 6-months analysis						

Table A4: Calculation of Appropriate Lag Length for 1-year Analysis

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1465.216	NA	14879.57	15.28350	15.31743	15.29724

Causality Relationship between Interest Rate of Deposit Banks and Profit Share Rate of Islamic Banks in Turkey

(Serhat Yüksel¹ and İsmail Canöz²)

1	-893.9570	1124.666	40.39892	9.374552	9.476349	9.415781
2	-843.1993	98.87170	24.82280	8.887493	9.057154	8.956207
3	-823.4129	38.13016*	21.05970	8.723051	8.960577*	8.819251*
4	-819.0701	8.278383	20.98617*	8.719480*	9.024871	8.843166
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						
Maximum lag interval was chosen as 4 for yearly analysis						