



Risk Premium of Islam: Is there an additional charge of Islamic banking services

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Received 18 May 2020, Accepted 20 Nov. 2020, Published 1 Dec. 2020

Abstract: In this study, a comparative analysis of participation (Islamic) banks and liberal (conventional) banks within the banking system in Turkey in terms of distributing profit share rate applied by liberal banks and deposit interest rates applied by liberal banks is conducted. The data used for the analyses include annualized deposit interest rates implemented by liberal banks and annualized profit share rates implemented by participation banks within the frequency of monthly, quarterly, semi-annually and annually for the period 2002-2019. These rates are examined separately for Turkish Lira, EU Euro and US Dollar. Basic statistical inferences, correlation analysis, nonparametric difference tests, and VAR Granger causality analysis were applied in the study. It is found that profit share rates implemented by participation banks are less competitive than those of equivalent deposit rates implemented by liberal banks in Turkey. The results implied that Islam society has a disadvantage of using Islamic Banking System in Turkey. In this paper, this situation is defined as risk premium of Islam implying that there is an opportunity cost for Muslim in Islamic banking system.

Keywords: Islamic (participation) banks, Conventional (liberal) banks, Interest rates, profit and loss rate.

JEL Classifications: G1, G2, G3

1. Introduction

Islamic finance banking and liberal banking differ mainly in the concept of interest. The main role of banking in the liberal system is to transfer the capital from the fund surplus to the segment in need of funds for a certain fee. This fee is called interest by definition. Banks in the liberal system impose a cost on the parties in return for these services they provide. In free market economies, the market itself determines what this cost should be. This pricing mechanism determined in free market economies is also subject to supervision by market regulators. As a result of this audit, some charges can be limited or removed completely. The Turkish banking system is a highly regulated system. In this system, both liberal banks and Islamic banks continue their activities. The Banking Supervision and Regulation Authority (BDDK - Bankacılık Denetleme ve Düzenleme Kurumu) operates as a regulatory body of the Turkish banking system. Interest rates determined in the Turkish banking system are generally determined by the free market mechanism. On the other hand, the BDDK sometimes makes decisions that limit or eliminate the fee for some services that banks charge.

Banks operating in the Turkish banking system operate in a highly competitive free market mechanism. In this respect, the interest rate paid to the collected funds is determined in a competitive market. Deposit interest rates determined in the liberal system have a meaning equivalent to the profit rates distributed by Islamic banks. What the general tendencies of these two ratios are is an interesting research topic. Especially, in the participation banking system where all kinds of interest are prohibited,



how the distributed profit rates progress in terms of deposit interest rates paid by banks in the liberal system is important. This importance should be evaluated in terms of the position and competitiveness of participation banking against liberal banks.

The subject of costing of banking services is generally determined in liberal economies as a result of market conditions and the guidance of regulatory institutions. In this study, among the mentioned services, interest rates applied to deposits for liberal banks and profit distribution rates for participation banks are examined. It was discussed that there is a relationship between the interest rates applied on deposits by liberal banks operating in the liberal system and the profit distribution rates offered by participation banks operating within the framework of Islamic finance. The existence of a relationship between deposit interest rates and profit distribution rates in the Turkish banking system, where both the liberal system and Islamic finance banking practices exist, will be examined in terms of Turkish Lira, EU Euro and US dollar.

The main purpose of this study is to compare the profit distribution rates of participation banks and the deposit interest rates of commercial banks. For this purpose, a comparative analysis was made in Turkish Lira, EU Euro and US Dollar. This analysis includes all commercial banking system located in Turkey and participation banks. Annualized interest and profit distribution rates calculated for monthly, quarterly, semi-annual and annual periods covering the years 2002 and 2019 were used in the research. The main contribution of this research to the literature is to examine the level and causality of the relationship between the interest rates applied to deposits by the commercial banks operating in the liberal system and the dividend rates distributed by the participation banks operating in the Islamic banking system with the widest data set. On the other hand, it is a different perspective to discuss the reasons for the low profit margins seen in Islamic finance banking in terms of interpreting the findings of the research results.

2. Literature Review

There are many studies in the financial literature that include comparisons between Islamic banks and liberal banks. These studies generally include evaluations of Islamic banks and liberal banks in terms of performance (Çelik & Ay, 2017). The findings obtained revealed different results. Studies generally reveal three different results: outperformance, underperformance and mix result. The first result is the situation that shows that Islamic banks are better than liberal banks in terms of performance. One of the arguments put forward as the justification for this situation is the view that Islamic banks have a lower asset structure compared to relatively liberal banks and therefore work more effectively and efficiently (Akram & Rahman, 2018; Baber, 2018; Chazi & Syed, 2010). In addition to this view, it is the case that liberal banks do not have sufficient success in protecting financial risk. In addition, the fact that people who use the services of Islamic banks make a more voluntary demand for Islamic banks is one of the arguments made in explaining the performance of Islamic banks (Abbas et al., 2016; Abid et al., 2018; Zarrouk et al., 2016). There are studies reporting that Islamic banks perform worse than liberal banks. The most important argument raised in these studies is that the Islamic banking practices of the said banks are applied incorrectly and there is no certain standard.

Table 1. Review of Studies that Compare the Islamic Finance and Conventional Finance

Author (date)	Country	Outperformance	Underperformance	Mixed
(Zarrouk, Ben Jedidia, & Moualhi, 2016)	MENA	X		
(Chazi & Syed, 2010)	Mixed	X		



Author (date)	Country	Outperformance	Underperformance	Mixed
(Abdullah, Hassan, & Mohamad, 2007)	Malaysia	X		
(Baber, 2018)	N/A (Systematic Review)	X		
(Doumpos, Hasan, & Pasiouras, 2017)	Asia, GCC, MENA	X		
(Akram & Rahman, 2018)	Pakistan	X		
(Alam, Arshad, & Rizvi, 2016)	Islamic Indices	X		
(Miah & Sharmeen, 2015)	Bangladesh		X	
(Abdul-Wahab & Haron, 2017)	Qatar		X	
(Abbas, Hammad, Elshahat, & Azid, 2015)	Pakistan		X	
(Daly & Frikha, 2017)	Bahrain			X
(Erol, Baklaci, Aydođan, & Tunç, 2014)	Turkey			X
(Chowdhury, Haque, & Masih, 2017)	GCC			X
(Mobarek & Kalonov, 2014)	OIC			X
(Mokni & Rachdi, 2014)	MENA			X
(Shawtari, Saiti, Shaikh Abdul Razak, & Abdul Kareem, 2017)	Yemen			X
(Abid, Goaid, & Ammar, 2018)	GCC			X
(Abbas, Azid, & Hj Besar, 2016)	Pakistan			X

Source: Çelik & Öncü (2019:61)

There are also a few studies in the related literature that include the comparison of Islamic banks with liberal banks on the axis of deposit interest and profit distribution ratio. In these studies, it was reported that participation banks generally distribute lower dividends than liberal banks (Gudil, 2007; Bulut & Er, 2012; Bađcı, 2013; Avcı & Aktaş, 2015). In these studies, deposit rates applied by commercial banks and profit distribution rates applied by participation banks are taken as basis. Participation banks continue their activities within the framework of systems such as *mudaraba*, *musharaka*, *murabaha* and *icare*. Among these transactions, the system with the highest transaction volume is *Murabaha*. *Murabaha* transaction is a transaction based on buy cash and sell term basis. However, transactions based on profit / loss sharing principle, which is the *mudaraba* system, are relatively limited. Participation banks use their funds on the basis of production around 70% - 80% and profit and loss around 5% - 10% in Turkey.

Two main views are put forward to explain the difference between participation banks' profit distribution rates and the deposit interest rate of liberal banks over Turkish Lira. According to the first view, the reason for the lower dividend distribution of participation banks is that participation banks set the deposit interest rates of liberal banks as the reference rate (Bulut & Er, 2012). On the other hand, a better argument is needed to base a lower dividend distribution, since most of the transaction volume of participation banks is the *Murabaha* system, which is based on buy now-and-sell later. In other words, it is not understood that participation banks determine the deposit interest rates determined by liberal banks as the reference interest rate and distribute a lower dividend accordingly. The second



view that participation banks distribute lower dividends compared to liberal banks is transaction costs. Accordingly, liberal banks may incur a lower cost due to transaction volume and asset size compared to participation banks (Bağcı, 2013). Therefore, participation banks with a relatively low market share can afford higher transaction costs by paying lower dividends.

In the researches about participation banks distributing lower dividends from liberal banks in TL-based transactions, the difference was reported to be approximately 1% (Avcı & Aktaş, 2015). Although this difference is made for a short period analysis and only for TL-based transactions, it is clear that the reasons for this difference should be examined in more detail. Therefore, in this research, the relationship between the profit share distribution rates of participation banks and the deposit rates of liberal banks in Turkish Lira, EU Euro and US Dollar-based transactions for the period between 2002 and 2019 was examined.

Ata, Buğan & Çiğdem (2016) analyzed the deposit interest rates in liberal banks and the participation profit share rates of participation banks with the Hacker & Hatemi (2006) causality test. As a result of the analysis made with the data covering the years 2004-2014, they concluded that there is a two-way causality relationship at 12-month maturity rates and a one-way causality relationship from deposit interest rates to profit share rates for other rates. In addition, as a result of the causality test applied in sliding windows, they concluded that there is a bidirectional causality relationship between the ratios. Ergeç & Kaytancı (2014), with their Granger causality tests, reached the conclusion that participation banking profit shares were caused by the deposit interest rates in liberal banks, and they pointed out that this situation has been more pronounced since 2006. Ertürk & Yüksel (2013) showed that the deposit rates of liberal banks affect the participation banks' profit shares unilaterally with a causality relationship. They revealed that this effect was observed on interest rates with 1 and 3 months maturity before 2008 and 1, 3, 6 and 12 months maturities after 2008. Saraç & Zeren (2015) examined the long-term relationship between the deposit rates of liberal banks and the participation profit share rates of Islamic participation banks in Turkey. They concluded that there is a correlation between these rates. According to the results obtained by using Maki cointegration multiple structural break tests and "frequency domain" causality tests, the dividend rates of the three participation banks are co-integrated with the deposit rates of liberal banks, no cointegration has been found for a participation bank (Kuveyt Türk). In addition, one-way causality has been determined from the deposit rates of liberal banks to the profit shares of participation banks.

Çevik & Charap (2011), studied banks in Turkey and Malaysia. They found that for both countries, the volatility of participation share rates in participation banks and the volatility of deposit rates in liberal banks are related and in terms of causality, liberal bank deposit rates affect profit shares in participation banks. In their research on banks in Malaysia, Chong & Liu (2009), using Granger causality tests, concluded that there is one-way causality from the deposit rates of liberal banks to the profit shares of participation banks in all maturities. Ito (2003) examined the banks in Malaysia in their study. As a result of the Granger causality tests, bidirectional causality was found between the participation share rates and the deposit rates. However, it is concluded that the causality from participation banks (profit share rates to liberal banks) interest rates is significantly higher, except for a one-month maturity. When the rates in one-month maturities are examined, it is understood that the relationship reverses in terms of the size of the causality relationship. Kader & Leong (2009) benefited from Granger causality tests in their research on banks in Malaysia. According to the results of the research examined, it is seen that there is a two-way relationship between the profit share rates of participation banks and the deposit rates of liberal banks. According to Zainol & Kassim's (2010) conclusion about Malaysian banks, there is a two-way Granger causality relationship between deposit interest rates and participation share rates.



3. Research Methodology

In this part of the study, the structure of the data set and variables used in the research and the general characteristics of the research method used are explained. As the data set, the deposit interest rates and profit distribution rates applied by liberal and participation banks operating in the Turkish banking system between 2002 and 2019 within the structure of annualized rates calculated on a monthly, quarterly, semi-annual and annual basis are used. These rates are examined separately for Turkish Lira, EU Euro and US Dollar. Basic statistical inferences, correlation analysis, nonparametric difference tests, and VAR Granger causality analysis were applied in the study.

In this study, the interest rates of liberal banks operating in the Turkish banking system were examined on a monthly, quarterly, semi-annual and annual basis. Similarly, the profit distribution rates of participation banks were calculated and analyzed for the same periodicity. The analysis period covers the years between 2002 and 2019.

4. Research Findings

4.1. General Consequences based on Descriptive Statistics

Within the scope of the research, deposit rates and profit distribution rates of liberal banks and participation banks operating in the Turkish banking system were analyzed on the basis of Turkish Lira, EU Euro and US Dollars (Table 2). This analysis was conducted for monthly, quarterly, semi-annually and annually. The analysis is conducted for the period between 2002 and 2019 in which 216 observations are examined (18 years x 12 months). Accordingly, based on the period examined in terms of Turkish Lira, it is seen that the profit distribution rates paid by participation banks are lower than the deposit rates applied by liberal banks. This situation also manifests itself in monthly, quarterly, semi-annual and annual maturity structures. The results obtained can be summarized as follows:

- While the average annualized profit distribution rate of participation banks on a monthly basis between 2002 and 2019 was 14.10%, the deposit interest rate applied by liberal banks for the same period and the same term was 16.45%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 9.17%, while the standard deviation of the deposit interest rates applied by liberal banks is 12.06%.
- While the average annualized profit distribution rate of participation banks on a quarterly basis between 2002 and 2019 was 14.31%, the deposit interest rate applied by liberal banks for the same period and the same term was 17.49%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 8.73%, while the standard deviation of the deposit interest rates applied by liberal banks is 11.57%.
- While the average annualized profit distribution rate of participation banks on a six-month basis between 2002 and 2019 was 15.09%, the deposit interest rate applied by liberal banks for the same period and the same maturity was 17.66%. While the standard deviation of the profit distribution rates paid by participation banks for the same period and term is 9.62%, the standard deviation of the deposit interest rates applied by liberal banks is 11.63%.
- While the annual average annualized profit distribution rate of participation banks between 2002 and 2019 was 15.39%, the deposit interest rate applied by liberal banks for the same period and the same term was 17.93%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 9.10%, while the standard deviation of the deposit interest rates applied by liberal banks is 11.98%.



When these results are evaluated, it is possible to make two inferences in terms of basic statistics. First, the profit distribution rates paid by participation banks are lower than the deposit rates applied by liberal banks. Participation banks pay less than 2.35% on a monthly basis, 3.18% on a quarterly basis, 2.57% on a six-month basis and 2.54% on an annual basis. The average of these four different maturity structures is 2.66%. Hence, it is seen that participation banks distribute approximately 2.66% lower dividends. The second of these results is that the level of volatility of the profit share rates applied by participation banks in all maturity structures is lower than the volatility of the deposit rates applied by liberal banks.

Table 2. Comparison of participation banks' profit rate and liberal banks' deposit rate (2002-2019)

	TL 1 Month		TL 3 Month		TL 6 Month		TL 1 Year	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Participation banks	14,10	9,17	14,31	8,73	15,09	9,62	15,39	9,10
Liberal Banks	16,45	12,06	17,49	11,57	17,66	11,63	17,93	11,98
	EURO 1 Month		EURO 3 Month		EURO 6 Month		EURO 1 Year	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Participation banks	2,98	,99	2,96	,96	3,13	1,00	3,25	,97
Liberal Banks	2,03	,94	2,65	,95	2,68	,97	2,93	1,11
	USD 1 Month		USD 3 Month		USD 6 Month		USD 1 Year	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Participation banks	3,25	1,04	3,33	1,05	3,40	1,05	3,52	1,04
Liberal Banks	2,44	,84	3,28	,85	3,33	,80	3,41	,87

Note: TL: Turkish Lira, EURO: EU Euro, USD: US Dollar.

When these results are taken as basis for the period examined in terms of EU Euro, it is seen that the profit distribution rates paid by participation banks are higher than the deposit rates applied by liberal banks. This situation also manifests itself in monthly, quarterly, semi-annual and annual maturity structures. The results obtained can be summarized as follows:

While the average annualized profit distribution rate of participation banks between 2002 and 2019 was 2.98%, the deposit interest rate applied by liberal banks for the same period and the same term was 2.03%. While the standard deviation of the profit distribution rates paid by participation banks for the same period and term is 0.99%, the standard deviation of the deposit interest rates applied by liberal banks is 0.94%.

While the average annualized profit distribution rate of participation banks on a quarterly basis between 2002 and 2019 was 2.96%, the deposit interest rate applied by liberal banks for the same period and the same term was 2.65%. While the standard deviation of the profit distribution rates paid by participation banks for the same period and term is 0.96%, the standard deviation of the deposit interest rates applied by liberal banks is 0.95%.



While the average annualized profit distribution rate of participation banks on a six-month basis between 2002 and 2019 was 3.13%, the deposit interest rate applied by liberal banks for the same period and the same term was 2.68%. While the standard deviation of the profit distribution rates paid by participation banks for the same period and term is 1.00%, the standard deviation of the deposit interest rates applied by liberal banks is 0.97%.

While the average annualized profit distribution rate of participation banks between 2002 and 2019 was 3.25%, the deposit interest rate applied by liberal banks for the same period and the same term was 2.93%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 0.97%, while the standard deviation of the deposit interest rates applied by liberal banks is 1.11%.

When these results are evaluated, it is possible to make two inferences in terms of basic statistics. First, the profit distribution rates paid by participation banks are higher than the deposit rates applied by liberal banks. Participation banks pay higher dividends than 0.95% on a monthly basis, 0.31% on a quarterly basis, 0.45% on a six-month basis and 0.32% on an annual basis. The average of these four different maturity structures is 0.51%. Based on this, it is seen that participation banks distribute approximately 0.51% higher dividends. The second of these results is that the volatility of the profit share rates applied by participation banks in all maturity structures is close to the volatility of the deposit rates applied by liberal banks.

When these results are analyzed in terms of USD, it is seen that the profit distribution rates paid by participation banks are higher than the deposit rates applied by liberal banks. This situation also manifests itself in monthly, quarterly, semi-annual and annual maturity structures. The results obtained can be summarized as follows:

- While the average annualized profit distribution rate of participation banks between 2002 and 2019 was 3.25%, the deposit interest rate applied by liberal banks for the same period and the same term was 2.44%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 1.04%, while the standard deviation of the deposit interest rates applied by liberal banks is 0.84%.
- While the average annualized profit distribution rate of participation banks on a quarterly basis between 2002 and 2019 was 3.33%, the deposit interest rate applied by liberal banks for the same period and the same term was 3.28%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 1.05%, while the standard deviation of the deposit interest rates applied by liberal banks is 0.85%.
- While the average annualized profit distribution rate of participation banks on a six-month basis between 2002 and 2019 was 3.40%, the deposit interest rate applied by liberal banks for the same period and the same term was 3.33%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 1.05%, while the standard deviation of the deposit interest rates applied by liberal banks is 0.80%.
- While the annual average annualized profit distribution ratio of participation banks between 2002 and 2019 was 3.52%, the deposit interest rate applied by liberal banks for the same period and the same term was 3.41%. The standard deviation of the profit distribution rates paid by participation banks for the same period and maturity is 1.04%, while the standard deviation of the deposit interest rates applied by liberal banks is 0.87%.



When these results are evaluated, it is possible to make two inferences in terms of basic statistics. First, the profit distribution rates paid by participation banks are higher than the deposit rates applied by liberal banks. Participation banks pay higher dividends than 0.81% on a monthly basis, 0.05% on a quarterly basis, 0.07% on a six-month basis and 0.11% on an annual basis. The average of these four different maturity structures is 0.26%. Hence, it is seen that participation banks distribute higher dividends by approximately 0.26% on dollar basis. The second of these results is that the volatility level of the profit share rates applied by participation banks in all maturity structures is close to the volatility of the deposit rates applied by the liberal banks.

These results show that participation banks pay lower dividends in Turkish Lira and higher in EU Euros and US Dollars. The volatility level of the profit share paid in Turkish Lira and the deposit interest rate is also higher than the volatility level of the profit share and deposit interest rate that pays in EU Euros and US dollars.

Table 3. Descriptive statistics of participation banks' profit rate and liberal banks' deposit rate (TL)

participation		liberal		participation		liberal		participation		liberal		participation		liberal	
1 Month TL		1 Month TL		3 Month TL		3 Month TL		6 Month TL		6 Month TL		1 Year TL		1 Year TL	
Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
14,75	2,07	17,88	4,36	15,47	1,48	18,81	4,27	16,14	1,00	18,97	4,09	15,84	1,33	20,90	2,82
11,32	2,08	16,27	4,57	11,01	1,74	18,13	4,74	10,92	1,43	17,20	4,61	10,72	1,14	16,15	3,09
8,22	,38	10,57	,93	8,32	,35	12,44	1,01	8,51	,29	12,52	1,17	8,71	,14	12,23	1,29
7,66	,10	9,39	,55	7,83	,09	11,25	,58	8,06	,17	11,53	,72	8,31	,25	11,02	,57
7,09	,18	9,47	,49	7,16	,16	10,65	,69	7,29	,17	10,39	,59	7,66	,16	9,86	,56
7,23	,35	8,87	,68	7,24	,37	9,92	,79	7,22	,38	9,91	,64	7,05	,34	9,86	,43
6,44	,31	6,39	,63	6,58	,41	7,79	,82	6,88	,57	8,01	,74	7,74	,72	8,11	,52
8,49	,52	7,96	,85	8,68	,42	9,89	1,03	8,88	,30	10,26	,98	9,08	,25	10,07	,50
7,50	,43	7,30	,64	7,65	,33	9,05	,77	7,93	,22	9,42	,69	8,52	,13	9,22	,66
8,54	,40	8,01	,22	8,76	,39	9,00	,24	9,21	,46	8,91	,09	10,20	,67	9,27	,33
11,94	1,91	10,57	2,10	12,25	1,84	11,76	2,30	12,75	1,70	12,48	2,85	13,79	1,51	14,38	2,84
14,68	,38	17,25	,98	14,96	,32	18,34	1,29	15,26	,29	17,65	,78	16,21	,28	17,84	,98
15,89	,37	17,57	,47	16,22	,22	18,41	,52	16,43	,20	18,56	,43	16,89	,32	18,00	,33
14,14	,99	16,37	1,38	14,70	,68	17,17	1,41	15,25	,71	16,99	1,14	16,47	,95	16,39	,28
16,65	1,53	16,97	,85	18,18	1,39	17,67	1,10	19,39	1,52	18,50	1,30	20,74	1,77	18,47	1,30
20,51	1,74	22,39	1,54	21,70	2,40	22,41	1,28	24,79	3,27	23,23	1,51	27,14	2,41	24,38	1,68
30,89	2,13	39,58	6,82	32,60	1,62	38,64	7,25	36,44	1,17	39,93	7,12	33,13	,52	42,46	4,84
41,86	5,89	53,30	5,31	38,20	2,12	53,44	5,85	40,32	,82	53,46	4,43	38,84	3,29	54,22	3,68

For Turkish Lira, the dividend rates distributed by participation banks in monthly, quarterly, semi-annual and annual maturity structures and the average and standard deviation values of the deposit interest rates applied by liberal banks were analyzed annually (Table 3). According to these results, the profit shares distributed by participation banks are lower than the deposit interest rates applied by liberal banks during 2002-2019. This result is consistent with the findings obtained in the previous analysis. The volatility level of the dividends distributed by participation banks is also lower than the interest rates applied by liberal banks. This result is also consistent with the previous analysis results. However, an important result is that as the dividends distributed and deposit interest rates increase in



the period from 2002 to 2019, the difference between the profit shares distributed by participation banks and the deposit interest rate applied by liberal banks also increases.

Table 4. Descriptive statistics of participation banks' profit rate and liberal banks' deposit rate (EURO)

	liberal		participation		liberal		participation		liberal		participation		liberal		participation	
	1 Month Euro		1 Month Euro		3 Month Euro		3 Month Euro		6 Month Euro		6 Month Euro		1 Year Euro		1 Year Euro	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
2019	,63	,33	1,44	,51	,92	,42	1,51	,49	1,09	,53	1,81	,45	1,28	,38	2,01	,20
2018	1,15	,21	1,89	,17	1,81	,39	1,88	,14	1,60	,21	1,93	,08	1,60	,10	1,98	,09
2017	,98	,05	1,65	,14	1,48	,09	1,62	,11	1,47	,05	1,66	,10	1,47	,09	1,75	,04
2016	,90	,07	1,50	,04	1,35	,09	1,50	,03	1,32	,08	1,58	,02	1,24	,08	1,73	,06
2015	1,05	,08	1,79	,24	1,58	,14	1,77	,20	1,57	,14	1,91	,22	1,74	,19	2,13	,29
2014	1,28	,18	2,66	,38	2,08	,33	2,57	,34	2,24	,30	2,81	,25	2,51	,28	2,89	,09
2013	1,44	,10	2,92	,18	2,49	,23	2,85	,13	2,55	,14	3,07	,22	2,73	,21	3,37	,26
2012	1,81	,25	3,77	,30	3,30	,46	3,70	,31	3,23	,36	3,96	,21	3,65	,20	4,06	,09
2011	2,14	,14	3,58	,32	3,40	,38	3,53	,30	2,95	,25	3,61	,24	3,14	,38	3,64	,24
2010	1,90	,16	3,15	,13	2,51	,27	2,99	,13	2,51	,18	3,22	,10	2,58	,09	3,31	,06
2009	2,30	,47	3,64	,59	3,03	,69	3,52	,61	2,95	,57	3,84	,56	3,93	,66	3,99	,48
2008	3,56	,34	4,41	,22	4,14	,51	4,39	,23	3,95	,37	4,56	,16	4,08	,41	4,71	,13
2007	3,11	,13	4,49	,14	3,31	,14	4,32	,15	3,39	,10	4,71	,19	3,62	,05	4,74	,22
2006	2,61	,23	4,08	,39	3,07	,14	3,87	,31	3,14	,09	4,15	,35	3,31	,21	4,13	,33
2005	2,39	,09	3,32	,12	2,85	,11	3,29	,09	2,85	,14	3,50	,09	3,07	,13	3,47	,08
2004	2,72	,09	3,18	,13	3,16	,13	3,26	,07	3,36	,21	3,31	,12	3,72	,18	3,31	,07
2003	3,16	,38	2,93	,16	3,53	,27	3,17	,18	3,83	,28	3,10	,20	4,19	,25	3,38	,15
2002	3,44	,07	3,18	,27	3,75	,10	3,51	,27	4,24	,16	3,70	,49	4,87	,38	3,94	,40

For the EU Euro, the dividend rates distributed by participation banks in monthly, quarterly, semi-annual and annual maturity structures and the average and standard deviation values of the deposit interest rates applied by liberal banks were analyzed (Table 4). According to these results, the profit shares distributed by participation banks are generally higher than the deposit interest rates applied by liberal banks during 2002-2019. This generalization is disrupted by the data for the years 2002-2003-2004. During these years, the deposit interest rate applied by liberal banks to the EU euro is higher than the dividends distributed by participation banks. However, the results here are consistent with the findings from the previous analysis, taking into account the entire analysis period. The volatility level



of the dividends distributed by participation banks is generally higher than the interest rates applied by liberal banks. This result is also consistent with the previous analysis results.

Table 5. Descriptive statistics of participation banks' profit rate and liberal banks' deposit rate (USD)

	participation		liberal		participation		liberal		participation		liberal		participation		liberal	
	1 Month USD		1 Month USD		3 Month USD		3 Month USD		6 Month USD		6 Month USD		1 Year USD		1 Year USD	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
2019	2,32	,29	2,36	,45	2,45	,27	2,98	,60	2,58	,20	3,14	,59	2,67	,07	3,52	,61
2018	2,32	,22	2,81	,53	2,31	,17	4,05	,74	2,33	,16	3,57	,57	2,37	,13	3,61	,49
2017	2,01	,08	2,00	,16	2,00	,09	3,18	,17	2,01	,11	3,22	,23	2,05	,11	2,90	,19
2016	1,60	,14	1,49	,09	1,60	,10	2,45	,23	1,62	,06	2,38	,20	1,78	,07	2,21	,07
2015	1,87	,33	1,34	,08	1,93	,31	2,04	,08	2,02	,29	2,06	,08	2,27	,28	2,08	,03
2014	2,75	,32	1,43	,11	2,82	,30	2,28	,31	2,90	,23	2,35	,28	2,97	,08	2,41	,20
2013	2,95	,15	1,61	,16	2,99	,16	2,69	,24	3,10	,23	2,57	,20	3,45	,32	2,66	,17
2012	3,96	,31	2,27	,27	4,02	,23	3,59	,52	4,12	,14	3,36	,50	4,17	,10	3,52	,18
2011	3,65	,24	2,29	,25	3,63	,22	3,75	,44	3,67	,18	3,72	,45	3,73	,14	3,11	,37
2010	3,67	,16	2,04	,22	3,68	,12	2,79	,31	3,75	,11	2,87	,38	3,83	,10	2,46	,18
2009	4,04	,56	2,34	,50	4,07	,57	3,25	,68	4,21	,56	3,52	,64	4,39	,47	4,26	,45
2008	4,85	,19	3,52	,48	4,92	,15	4,35	,72	5,00	,13	4,29	,29	5,18	,12	4,45	,21
2007	5,19	,13	4,31	,10	5,34	,11	4,77	,07	5,36	,10	4,75	,07	5,38	,21	4,74	,17
2006	4,61	,44	3,82	,51	4,67	,38	4,58	,37	4,65	,34	4,60	,34	4,65	,28	4,34	,45
2005	3,53	,21	2,63	,22	3,67	,23	3,19	,35	3,70	,21	3,40	,30	3,67	,20	3,37	,12
2004	3,16	,12	2,39	,07	3,28	,10	2,88	,11	3,29	,12	3,13	,09	3,30	,06	3,46	,18
2003	2,95	,14	2,57	,18	3,07	,24	3,07	,20	3,12	,18	3,41	,13	3,38	,13	3,68	,12
2002	3,11	,39	2,62	,13	3,41	,40	3,16	,21	3,68	,54	3,62	,32	4,16	,49	4,56	,59

For the US dollar, the dividend rates distributed by participation banks in monthly, quarterly, semi-annual and annual maturity structures and the average and standard deviation values of the deposit interest rates applied by liberal banks were analyzed (Table 5).

According to these results, the profit shares distributed by participation banks are generally higher than the deposit interest rates applied by liberal banks during 2002-2019. This generalization is disrupted by the data for 2018-2019. In these years, the deposit interest rate applied by liberal banks to USD is higher than the dividends distributed by participation banks. However, the results here are consistent with the findings from the previous analysis, taking into account the entire analysis period. The volatility level of the dividends distributed by participation banks is generally higher than the interest rates applied by liberal banks. This result is also consistent with the previous analysis results.



4.2. Comparison between Participation Banks' Profit Rate and Liberal Banks' Interest Rate: Univariate Analysis

In this part of the research, the relationship between the dividends distributed by participation banks and the interest rates applied by liberal banks will be examined. This examination will be done in the form of difference tests, correlation analysis and trend analysis.

Table 6. Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Liberal 1 Month Euro	,098	216	,000	,957	216	,000
Participation 1 Month Euro	,109	216	,000	,956	216	,000
Liberal 3 Month Euro	,091	216	,000	,967	216	,000
Participation 3 Month Euro	,102	216	,000	,952	216	,000
Liberal 6 Month Euro	,095	216	,000	,968	216	,000
Participation 6 Month Euro	,094	216	,000	,951	216	,000
Liberal 1 Year Euro	,097	216	,000	,965	216	,000
Participation 1 Year Euro	,121	216	,000	,937	216	,000
Liberal 1 Month TL	,208	216	,000	,730	216	,000
Participation 1 Month TL	,201	216	,000	,751	216	,000
Liberal 3 Month TL	,207	216	,000	,727	216	,000
Participation 3 Month TL	,178	216	,000	,784	216	,000
Liberal 6 Month TL	,215	216	,000	,723	216	,000
Participation 6 Month TL	,199	216	,000	,771	216	,000
Liberal 1 Year TL	,227	216	,000	,721	216	,000
Participation 1 Year TL	,180	216	,000	,811	216	,000
Liberal 1 Month USD	,107	216	,000	,921	216	,000
Participation 1 Month USD	,054	216	,200*	,969	216	,000
Liberal 3 Month USD	,093	216	,000	,957	216	,000
Participation 3 Month USD	,055	216	,200*	,971	216	,000
Liberal 6 Month USD	,055	216	,200*	,969	216	,000
Participation 6 Month USD	,051	216	,200*	,972	216	,000
Liberal 1 Year USD	,083	216	,001	,961	216	,000
Participation 1 Year USD	,059	216	,062	,973	216	,000
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

It was determined in previous analyzes that the differences between the dividends distributed by participation banks and the interest rates applied by liberal banks differ in terms of different maturities in the period 2002-2019. The statistical significance of these differences will be discussed in this section.



Which of the parametric or non-parametric tests can be applied to the difference tests is made on the basis of the normality distribution of the relevant variables. For this purpose, the variables in Table 6 do not show normal distribution according to the Kolmogorov-Smirnov and Shapiro-Wilk normality test results. Although Participation 1 Month USD, Participation 3 Month USD, Liberal 6 Month USD, Participation 6 Month USD, Participation 1 Year USD variables show normal distribution according to Kolmogorov-Smirnov test, they do not show normal distribution according to Shapiro-Wilk test. Since the Shapiro Wilk test is a more sensitive test, the analysis will continue with the assumption that these variables are not distributed normally.

Table 7. Non-Parametric Test of Mean Difference

		N	Mean	Std. Deviation	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
1 Month EURO	liberal	216	2,0318	,93550	4,571	,000
	participation	216	2,9773	,98891		
3 Month EURO	liberal	216	2,6531	,95045	1,636	,000
	participation	216	2,9578	,95725		
6 Month EURO	liberal	216	2,6785	,96654	2,406	,000
	participation	216	3,1336	1,00240		
1 Year EURO	liberal	216	2,9303	1,11054	2,213	,000
	participation	216	3,2518	,97198		
1 Month TL	liberal	216	16,4512	12,05511	2,069	,000
	participation	216	14,0998	9,17428		
3 Month TL	liberal	216	17,4881	11,56640	3,031	,000
	participation	216	14,3064	8,72562		
6 Month TL	liberal	216	17,6613	11,63463	3,031	,000
	participation	216	15,0941	9,62262		
1 Year TL	liberal	216	17,9331	11,98427	2,839	,000
	participation	216	15,3917	9,09507		
1 Month USD	liberal	216	2,4354	,83661	4,474	,000
	participation	216	3,2519	1,03978		
3 Month USD	liberal	216	3,2811	,84834	1,251	,087
	participation	216	3,3257	1,05130		
6 Month USD	liberal	216	3,3321	,79624	1,107	,173
	participation	216	3,3952	1,05187		
1 Year USD	liberal	216	3,4063	,87099	1,203	,111
	participation	216	3,5217	1,03691		

According to the difference test results, the differences between the profit share rates paid by participation banks and the deposit rates applied by liberal banks show statistically significant differences in terms of Turkish Lira and EU Euro in all maturities (Table 7). In addition, the profit structure and interest rate applied by participation banks and liberal banks reveal a statistically significant difference



for the monthly maturity annualized USD. However, the differences for the US Dollar in quarterly, semi-annual and annual terms were not statistically significant.

According to the results of the correlation analysis, the direction and severity of the relationships between the dividend rates paid by participation banks and the deposit rates applied by liberal banks are shown in Table 8. Correlation analysis was carried out for 1-month and annual maturity structures. The correlation analysis of the rates in the quarterly and six-month maturity structure is consistent with the results given here. Accordingly, the following results were obtained:

For the EU Euro, there is a positive and statistically significant relationship between the dividends paid by participation banks and the deposit rates applied by liberal banks (monthly maturity correlation 0.799, $p < 0.01$; annual maturity correlation 0.861, $p < 0.01$).

For the USD, there is a positive and statistically significant relationship between the profit shares paid by participation banks and the deposit interest rates applied by liberal banks (monthly maturity correlation 0.761, $p < 0.01$; annual maturity correlation 0.729, $p < 0.01$).

For Turkish Lira, there is a positive and statistically significant relationship between the dividends paid by participation banks and the deposit rates applied by liberal banks (monthly maturity correlation 0.976, $p < 0.01$; annual maturity correlation 0.944, $p < 0.01$).

The results obtained from this clearly show that the dividend rates distributed by participation banks have a very high positive and statistically significant relationship with the deposit rates applied by liberal banks. Moreover, the Turkish Lira-based correlation reveals that participation banks act almost the same as liberal banks. These results are also consistent with previous studies (Saraç and Zeren (2015)).

Table 8. Correlation Coefficient

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
participation 1 Month EURO (1)												
liberal 1 Month EURO (2)	,799**											
liberal 1 Year EURO (3)	,809**	,912**										
participation 1 Year EURO (4)	,969**	,823**	,861**									
liberal 1 Month TL (5)	,116	,602**	,564**	,222**								
participation 1 Month TL (6)	,207**	,652**	,637**	,320**	,976**							
liberal 1 Year TL (7)	,105	,591**	,573**	,217**	,991**	,983**						
participation 1 Year TL (8)	,235**	,684**	,650**	,340**	,927**	,970**	,944**					
liberal 1 Month USD (9)	,671**	,675**	,488**	,634**	,326**	,345**	,288**	,348**				



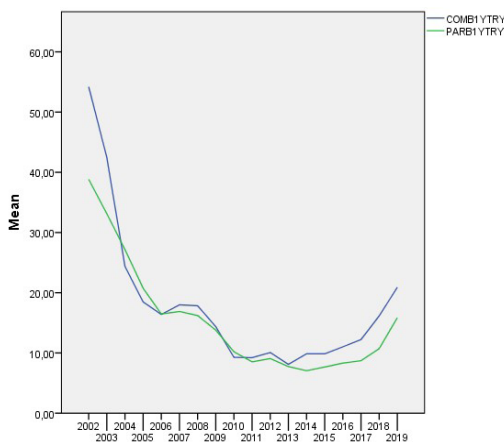
participation 1 Month USD (10)	,960**	,724**	,698**	,931**	,051	,142*	,037	,169*	,761**			
liberal 1 Year USD (11)	,650**	,713**	,677**	,682**	,532**	,576**	,523**	,549**	,836**	,696**		
participation 1 Year USD (12)	,942**	,781**	,784**	,976**	,194**	,290**	,187**	,305**	,710**	,959**	,729**	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

According to the results of the trend analysis, the graphical representation of the dividend distribution rates paid by the participation banks and the deposit interest rates applied by the liberal banks are shown in Figure 1, Figure 2 and Figure 3. Accordingly, in Turkish Lira based graphical representation, the profit share rates (green line) paid by participation banks on an annual basis for the period between 2002 and 2019 are higher than the deposit rates applied by liberal banks. This result is consistent with the numerical results obtained in the previous sections. Another result revealed by this trend analysis is that the dividend rates paid by participation banks move in line with the deposit rates applied by liberal banks. In addition, it can be seen graphically that as the profit share rate and the interest rate increase, the differences between these two variables also increase.

Figure 1. Participation banks' profit rate and liberal banks' deposit rate (TL)



According to the results of the trend analysis for the EU Euro, the annual profit share rates paid by participation banks are higher than the interest rates applied by liberal banks in other years, except for the years 2002-2003. However, it is seen that both variables move in the same direction. These results also confirm the results obtained in the previous sections graphically.

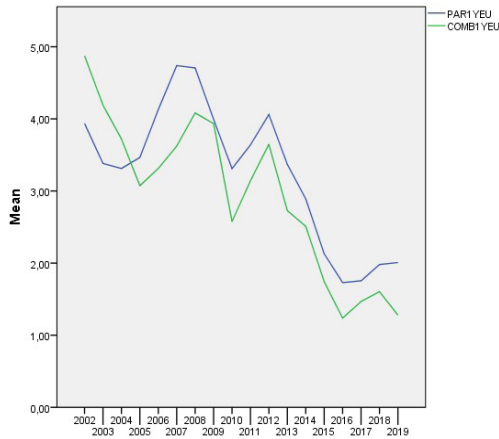


Figure 2. Participation banks' profit rate and liberal banks' deposit rate (EURO)

When the results of the trend analysis for the US dollar are examined, the annual profit share rates paid by participation banks are higher than the interest rates applied by liberal banks in the years 2002-2003-2004 and 2016-2017-2018-2019. However, it is seen that both variables move in the same direction. These results also confirm the results obtained in the previous sections graphically.

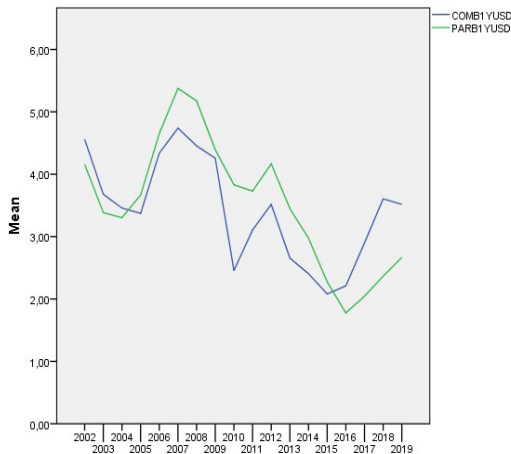


Figure 3. Participation banks' profit rate and liberal banks' deposit rate (USD)



4.3. Comparison between Participation Banks' Profit Rate and Liberal Banks' Interest Rate: Causality Analysis

In this part of the study, the causality analysis of the relationship between the dividends distributed by participation banks and the interest rates applied by liberal banks in terms of 1-month maturity in the period 2002-2019 is included. According to the results of the VAR Granger causality analysis, in terms of Turkish Lira, the causality uni-directionally occurs from the deposit interest rate applied by liberal banks to the profit share rate distributed by participation banks ($X^2: 106.93, p < 0.01$). In other words, the profit distribution rates determined by participation banks are affected by the deposit rates applied by liberal banks. On the other hand, the profit distribution rates distributed by participation banks have no effect on the deposit rates applied by liberal banks ($X^2: 18.50, p > 0.01$). The results here are also compatible with previous studies (Ata, Buğan & Çiğdem, 2016; Ergeç & Kaytancı, 2014; Çevik & Charap, 2011).

This one-way, causality from liberal banks to participation banks is also valid in terms of both the EU Euro and the US dollar. Accordingly, in terms of the EU Euro, the causality uniquely occurs from the deposit interest rate applied by liberal banks to the profit share rate distributed by participation banks ($X^2: 42.94, p < 0.01$). In other words, the profit distribution rates determined by participation banks are affected by the deposit rates applied by liberal banks. On the other hand, the profit distribution rates distributed by the participation banks do not have an effect on the deposit rates applied by liberal banks ($X^2: 9.02, p > 0.01$). When the situation is evaluated in terms of USD, the causality unilaterally occurs from the deposit interest rate applied by liberal banks to the profit share rate distributed by the participation banks ($X^2: 28.47, p < 0.01$). In other words, the profit distribution rates determined by participation banks are affected by the deposit rates applied by liberal banks. On the other hand, the profit distribution rates distributed by the participation banks do not have an effect on the deposit rates applied by liberal banks ($X^2: 19.24, p > 0.01$).

Table 9. VAR Granger Causality Test 1

Dependent variable: D(liberal 1 month TL)			
Excluded	Chi-sq	df	Prob.
D(participation 1 month TL)	18.50277	12	0.1013
All	18.50277	12	0.1013
Dependent variable: D(participation 1 month TL)			



Excluded	Chi-sq	df	Prob.
D(liberal 1 month TL)	106.9324	12	0.0000
All	106.9324	12	0.0000

Note: Sample: 2002M01 2019M12; Unit Root Tests are conducted. First difference of series is used. LM test detected no autocorrelation. Optimal lag is 12 months.

Table 10. VAR Granger Causality Test 2

Dependent variable: D(liberal 1 month EURO)			
Excluded	Chi-sq	df	Prob.
D(participation 1 month EURO)	9.022039	12	0.7010
All	9.022039	12	0.7010
Dependent variable: D(participation 1 month EURO)			
Excluded	Chi-sq	df	Prob.



D(liberal 1 month EURO)	42.94633	12	0.0000
All	42.94633	12	0.0000

Note: Sample: 2002M01 2019M12; Unit Root Tests are conducted. First difference of series is used. LM test detected no autocorrelation. Optimal lag is 12 months.

Table 11. VAR Granger Causality Test 3

Dependent variable: D(liberal 1 month USD)			
Excluded	Chi-sq	df	Prob.
D(participation 1 month USD)	19.24836	12	0.0827
All	19.24836	12	0.0827
Dependent variable: D(participation 1 month USD)			
Excluded	Chi-sq	df	Prob.
D(liberal 1 month USD)	28.47565	12	0.0047
All	28.47565	12	0.0047

Note: Sample: 2002M01 2019M12; Unit Root Tests are conducted. First difference of series is used. LM test detected no autocorrelation. Optimal lag is 12 months.



5. Conclusions

In this study, the comparative analysis of the profit distribution rates distributed by the participation banks operating in the Turkish banking system and the deposit interest rates applied by the liberal banks were made. The results obtained can be summarized as follows:

The profit distribution rates distributed by participation banks are statistically lower than the deposit rates applied by liberal banks in Turkish Lira. This low rate is an annual average of 2.66% for the period 2002-2019. This result has also been detected in previous studies. In previous studies, this low rate has been attributed to participation banks making transactions with the murabaha system, unlike liberal banks, or to the high transaction costs of participation banks. However, it does not seem very rational to explain the rate of 2.66% on an annual basis in the 18-year analysis period with such reasons. This ratio, as defined for the first time in this study, can be defined as the Islamic Risk Premium. What is meant by the Islamic Risk Premium, should be seen as an additional cost taken due to the participation banking customers performing their banking transactions with Islamic sensitivities. Although this issue is open to debate, it should be evaluated together with the transaction cost argument previously introduced in the literature. The lower transaction volumes of participation banks than liberal banks may increase some transaction costs. However, the fact that these costs are at a rate of 2.66% on an annual basis can be interpreted as a sign of the existence of the Islamic Risk Premium.

The profit distribution rates distributed by participation banks are statistically higher than the deposit rates applied by liberal banks in terms of EU Euros and US Dollars. This decrease is 0.51% for the annual average EU Euro and 0.26% for the US Dollar in the period between 2002-2019. As it can be understood here, participation banks apply a higher profit distribution rate over the foreign currency they collect. This weakens the argument that low dividend payments in Turkish Lira are made due to the high transaction costs. If this argument were valid, a similar situation would be expected to apply to the EU Euro or the US Dollar.

The results of correlation and causality analysis show that participation banks are highly associated with the practices of liberal banks and that causality occurs from liberal banks to participation banks. The very high correlation between the profit distribution rates that participation banks pay especially for Turkish Lira with the deposit rates applied by liberal banks clearly shows that participation banks imitate liberal banks. The causality result also confirmed the statistical significance of the effect.

In a nutshell, it is found that profit share rates implemented by participation banks are less competitive than those of equivalent deposit rates implemented by liberal banks in Turkey. The results implied that Islam society has a disadvantage of using Islamic Banking System in Turkey. In this paper, this situation is defined as risk premium of Islam implying that there is an opportunity cost for Muslim in Islamic banking system.



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