Journal of
Economic and Social Thought
www.kspjournals.org
Volume 1 December 2014 Issue 1

The Performance Comparison of the Participation Banks Acting in Turkey via Grey Relations Analysis Method *

By İlker SAKINÇ [a †] & Merve GÜLEN [b]

Abstract. "Participation Banks" are the final review process of the banking sector that have become indispensable for the economy of countries worldwide. Although participation banks do not have a long history, they were included in the Bank Law of 2005, and these banks are getting more attention each day. Since participation banks are perceived as alternative for conventional banks, the performance comparisons of participation banks are important for managers and investors. The purpose of this study is to compare the performances of the participation banks operating in Turkey via Grey Relational Analysis Method. In order to do this, 15 ratios which show the capital adequacy, liquidity, asset quality and profitability criteria years have been determined using 4 year-data of the participation banks from the years 2010 – 2013. Participation banks' performances have been compared using the results of the analysis, with the help of determined ratios. The rank obtained from the results of the analysis is; Kuveyt Türk Participation Bank, Türkiye Finans Participation Bank, Albaraka Türk Participation Bank and Asya Participation Bank. At the end of the study, capital adequacy has been determined as the dominant ratio among all the ratios which affect the performances of participation banks.
Keywords. articipation Banks, Grey Relation Analysis, Performance Analysis, Capital Proficiency Ratios, Financial Performance, Islamic Finance.
JEL. G14, C67, G20, G21.

1. Introduction

The importance of Islamic finance has increased significantly in global financial markets. Today, more than 200 Islamic financial institutions are operating in 48 different countries around the world. The value of the assets of these institutions exceeds 250 billion dollars. In addition, the growth rate of the assets is 12 – 15% (El-Hawary & Grais, 2003). Due to the growing importance of Islamic banking, Citibank, Bank of America, Deutsche Bank, ABN, AMRO, USB, HSBC and ANZ Grindlays, which operate in many countries, provide Islamic banking service, too. Thus, many huge global conventional banks have begun to compete by offering interest free banking services. In addition to global conventional banks, new Islamic banks have also entered the market. The increasing number of new Islamic

* This paper extended version of the paper which was presented in ICESBA 2014, Bucharest, Romania and it is published in the proceedings of the conference. I confirm that it is not published in any journal.

[a †] Hitit University FEAS, Banking and Finance, Çorum, Turkey.
☎. +90 3642 257700-1449 ✉. ilkersakinc@hitit.edu.tr
[b] Hitit University Institute of Social Science ☎. +90364 225 77 00 ✉. mgulen@hitit.edu.tr

banks causes competition among themselves. Practice and knowledge of Islamic banking is increasing quickly in global financial markets.

There is scarcely any market affected by terms like "globalization" and "global economy". In the changing and developing world, banking systems have grown into a market where competition has reached its peak and customer satisfaction is prioritized. Intermediaries, the first term that comes to mind regarding banks and where fund-demanding and fund-offering meet, remain quite simple. These intermediaries have involved alternative transactions, have provided loan facilities, and have added values to money in the account day by day. Banks are categorized as public banks, private banks, foreign banks, development banks, and participation banks, among others. Participation banks are the most recent to have been added to this group.

Participation banks are those that collect funds on the basis of participation in the profits and losses as deemed appropriate by Islamic rules. These funds are then distributed on the basis of commercial relationships and partnerships, rather than providing them as credit where other Islamic-approved banking transactions are made (Turkmenoglu 2007). The aim behind the creation of participation banks is to organize the resources of finance production and consumption needs. The main rationale behind this organization is profit and loss sharing (PLS), rather than interest payment (Chammas, 2006). These banks, which are known as interest free banks in the international literature, are referred to as participation banks in Turkey, which means that these institutions are based on the participation in both profit and loss.

Participation banks, which operate differently than conventional banks, are seen as an alternative to conventional banks. Participation banks that are based on Islamic rules allow the entrance of certain idle funds into the system. Considering that these banks pay taxes according to the legal liabilities of this idle fund, they also contribute to the public revenues. Moreover, the system of conventional banks depends on collateral guarantees and non-participation in risk. However, participation banks relay on project assessments, for equity-oriented financing (Mudaraba) (Chammas, 2006).

When examining the existing studies of participation banks, performance and financial ratio comparisons of traditional banks stand out. It is seen that the studies in which participation banks are compared among themselves and effectiveness thereof is evaluated are not sufficient. Responding to the questions about the market share percentage and effectiveness of the participation banks in the same market with the other banks will be effective in the bank preferences of the individuals. Therefore, this study aims to rank 4 participation banks operating in Turkey according to their performances by 15 financial ratios, and to determine the most effective bank. This study, which will show the ranking among participation banks, is a recent study as it has been conducted using data from the last 4 years.

In the first section, the general concept of Islamic finance has been evaluated. The second section consists of the literature review about Islamic finance. The general information of participating banks has been given in the third section. Data, methods and application have been described in the fourth section. The results of the study have been evaluated in the last section.

2. Literature Review

Literature on interest free banking could be divided into two parts. In the first group, the main goal is to provide information about Islamic finance as its importance has been increasing (Chammas, 2006; El-Hawary & Grais, 2003; Khan, 2010; Turkmenoglu, 2007). The second group mostly focused on efficiency comparison of conventional and Islamic banks (Akkas, 1996; Samad, 2004; Aktaş & Avcı, 2013; Er & Uysal, 2012; Beck, Demirgüç-Kunt, & Merrouche, 2013; Abdul-Majid, Saal, & Battisti, 2010).

In his study, Bumin (2009) analysed the profitability of the Turkish banking industry between the years 2002 – 2008. According to the end of the data from 2008, the investment and development banks had the highest profit margin, 53,51%. The conventional banks' and participation banks' profit margin was 36,99 % and 29,21%, respectively.

Aggarwal and Yousef (2000) examined the financial instruments used in Islamic finance. According to this study, long-term financial instruments were less preferred. Financial transactions were used to finance more short-term transactions, such as retail and commercial credits.

El-Gamal and Inanoglu (2005) argued that in terms of credit performance growth, Islamic banks were more effective than conventional banks. According to the authors, Islamic banks may draw clients from conventional banks. However, this situation will not affect the banking industry negatively. The presence of Islamic banks will provide new customers who were not in the financial system before. This positive impact will accelerate financial integration. Khan (2010) asserted that the deposit growth of Islamic banks were higher than conventional banks. In times of crisis, flow to Islamic banks were also higher.

Akkas (1996) compared the effectiveness of conventional and participation banks operating in Bangladesh. He claimed that the participation banks were more effective than conventional banks.

In his study, Samad (2004) compared the profitability, liquidity risk and credit risk of participation and conventional banks operating in Bahrain. In contrast to Akkas (1996) study, Samad (2004) could not find a significant difference in terms of profitability and liquidity between conventional and Islamic banks in Bahrain. However, he argued that the credit performance of these organizations differed significantly from each other.

According to the study conducted by Hussein (2004), the profitability performance of Islamic banks had a better level compared to conventional banks operating in Bahrain.

Islam and Chowdhury (2009) examined the liquidity performance of conventional and Islamic banks operating in Bangladesh. According to the results, the liquidity performance of Islamic banks was better than that of conventional banks.

Arslan and Ergec (2010) analysed the efficiency of 26 conventional and 4 participation banks operating in Turkey via Data Envelopment Analysis (DEA) between the years 2006-2009. In these years, the study indicated that the performance of participation banks was better than conventional banks. As same as Arslan and Ergec (2010) study Er and Uysal, (2012) used DEA method to evaluate the conventional and participation banks between the years 2005 - 2010. They found the same results. According to the total efficiency score, participating banks were more effective than conventional banks.

Aktaş and Avcı (2013) examined the public and private conventional banks and participation banks in the Turkish banking industry via DEA between the years 2009 – 2011. According to the results, in terms of efficiency public banks were the most effective, private banks were second and participation banks were the last. However, according to the total efficiency value factor, it was determined that the increase of efficiency of participation banks was higher than all.

Abdul-Majid et al. (2010) investigated the efficiency performance of conventional and Islamic banks operating in ten different countries which were Malezya, Sudan, Bangladesh, Tunisia, Jordan, Lebanon, Yemen, Indonesia, Bahrain and Iran. He argued that the efficiency performance of these banks varied from country to country.

Çetin and Bıtırak, (2010) evaluated four participating and four conventional banks operating in Turkey separately via AHP (Analytic Hierarchy Process) within their sectors. The results showed that Akbank and Bank Asya were in the first rank among conventional and participating banks, respectively.

In their study, Yayar and Baykara (2012) focused on the effectiveness and efficiency of the participation banks in Turkey. Criteria for the effectiveness and efficiency were determined according to the data between 2005-2011 and effectiveness and efficiency among the banks were measured by TOPSIS Method. According to the results, it was determined that Albaraka Türk was the most effective Participation Bank and Bank Asya was the most efficient bank.

Doğan (2013) compared the financial performances of the participation banks and conventional banks that operated in Turkey between 2005-2011. Doğan (2013) used profitability, liquidity, risk, solvency and capital adequacy rates in the study. According to the analysis results, 4 different rates were determined between both banking types. Liquidity, solvency and capital adequacy rates of these were high and risk rate was lower.

Parlakkaya and Akten (2011) conducted a study to determine whether this difference is observed in the financial ratios of the structurally different conventional and participation banks. 23 financial ratios were determined according to the data obtained between the years 2005-2008, and regression analysis was applied. At the end of the study, differences in profitability and liquidity ratios were observed.

Ecer (2013) ranked the private conventional banks in Turkey by comparing these banks' financial performances. To achieve this ranking, Grey Relational Analysis Method was used. In the study conducted, Garanti Bankası was placed on the top of the performance ranking.

3. Participation Banking

Participation banks, which first entered Turkey in 1983 as private financial institutions, took the title of Participation Bank as of 01.01.2006 with the amendment made in Banking Law No. 5411 in 2005.

Participation banks operate according to Islamic rules. There are 4 participation banks in Turkey, where 95% of the population is Muslim. These banks are Türkiye Finans Participation Bank, Albaraka Türk Participation Bank, Kuveyt Türk Participation Bank and Asya Participation Bank. Basic characteristics of these development banks, which are extending their shares continuously, could be listed as follows (Sayım & Alakel, 2012):

- Participation in profit or loss: Saver-bank relationship in participation banking is completely different from the depositor-bank relationship in conventional banking, and the basic characteristic of the saver is his/her participation.
- Support for the real sector: Due to working principles, participation banks cannot add value to their funds in the fixed income assets as other banks can. Therefore, they have to regain the collected funds to the economy on the basis of participation.
- Risk Sharing Basis: Participation Banks enter into the relation of profit and loss partnership with the saver through a participation account.
- Working Principle Based on Economic and Social Development: According to Islamic rules, participation banks do not provide for every financing facility as they do not directly give money to the fund-using party. These banks provide finances after evaluating the value of a good or service morally and considering the national economy and nation's interests.

4. Data Methods and Application

4.1. Financial ratios used in this study

In this study, 15 ratios which show the capital adequacy, liquidity, asset quality and profitability criteria years have been determined by using 4 year-data from the participation banks during the years 2010 – 2013. This data was obtained from the internet site "Participation Banks Association in Turkey" . Grey Relational Analysis was carried out on the ratios which were calculated by taking the average of 4 years.

The ratios which were used to determine the financial performance are given as follows:

TABLE 1. *Finacial Ratios*

CODE	FINANCIAL RATIOS
s1	Equity Capital/ (Credit + Quotation + Operational Risk Amount)
s2	Equity Capital / Total Assets
s3	(Equity Capital - Fixed Assets) / Total Assets
s4	Net Balance Sheet Position / Equity Capital
a1	Financial Assets / Total Assets
a2	Total Loans And Receivables / Total Assets
a3	Total Loans And Receivables / Total Funds Raised
a4	Non-Performing Loans / Total Loans And Receivables
l1	Liquid Assets / Total Assets
l2	Liquid Assets / Short-term Liabilities
l3	Liquid Assets / Total Assets
k1	Net Profit / Loss / Total Assets
k2	Net Profit / Loss / Equity Capital
k3	Continuing Operations Before Tax Profit (Loss)/ Total Assets

The ratios shown as s1, s2, s3 and s4 codes in the table were used to measure the capital adequacy of the bank. These ratios refer to the ability of capital adequacy to deal with risky situations in terms of the bank. The risk here involves credit risk, market risk, operational risk etc. In the present study, four ratios acquired from the Participation Banks Association were chosen to measure the capital adequacy of the banks.

The a1, a2, a3 and a4 coded ratios are related to active quality of the banks. The active quality is a crucial ratio for the banks. The most salient

item in the bank active quality is the credits. In the current study, the active quality was deemed significant with regards to performance evaluation of a bank, four ratios determined by the Participation Banks Association were preferred.

l1, l2, l3, and l4 ratios demonstrate the liquidity adequacy of the banks. The banks are required to possess liquidity at a certain level in order to realize necessary cash outflow. As the banks which have a sufficient liquidity level portray a controlled approach in the market, they will be affected by abrupt changes at a minimum level. Four ratios considered appropriate on the internet site of Participation Banks Association were chosen for liquidity adequacy.

The last three ratios coded as k1, k2 and k3 are the ones which show the profitability of the banks. Not only banks, but also all other establishments, aim to maximize their profitability. Three profitability ratios, which could also be defined as the result of a performance which lasts for a whole term, were reported in the present study.

While applying the method, the data are firstly organized to form a decision matrix. Later, a normalization table is created by normalizing the values in this matrix. What should be taken into consideration at this point is that three different approaches are followed according to certain cituations, such as the data having a high, low or fixed value. Finding absolute maximum of normalized values forms difference matrixes. After that, a final evaluation is carried out so as to reach Grey Relational values. According to the obtained values, the degree of relation is calculated.

4.2. Method

This study used Grey Relational Analysis. The process of Grey Relational Analysis starts with establishing the comparison matrix. "m" shows the participation banks, while "n" indicates the influence factors in other words financial ratios. After that, a m x n value matrix is established.

$$X = \begin{bmatrix} x_1(1), x_1(2), ...x_1(n) \\ x_2(1), x_2(2), ...x_2(n) \\ .... \\ .... \\ x_m(1), x_m(2), ...x_m(n) \end{bmatrix} \quad (1)$$

where $x_i(k)$ is the value of the number of participation banks and the number k financial ratios.

The second step of Grey Relational Analysis is to calculate the grey relational coefficient. This is calculated from the normalized data to express the relationship between desired and actual data. To calculate the grey relational coefficients, the data has to be classified according to the aim of desire (Hasani, Tabatabaei, & Amiri, 2012).

Due to the aim of analysis, some of the financial ratios are desired to be high. If the aim of financial ratio is the bigger the better, the formula is;

$$x_i(k) = \frac{x_i(k) - \min x_i(k)}{\max x_i(k) - \min x_i(k)} \quad (2)$$

is used.

If the aim of financial ratio is the bigger the better, the formula is;

$$x_i(k) = \frac{\max x_i(k) - x_i(k)}{\max x_i(k) - \min x_i(k)} \quad (3)$$

is used.

A third situation would be an average value being an appropriate result of the operation of normalization, the formula;

$$x_i(k) = \frac{\left|x_i(k) - x_0(k)\right|}{\max x_i(k) - x_0(k)} \quad (4)$$

is used.

where *xi (k)* is the value after the grey relational generation, *min xi (k) is* the smallest value of *xi (k)* and max *xi* (*k*) is the largest value of *xi (k).*

The grey relation degree can be calculated by the following steps:

The absolute difference of the compared series and the referential series should be obtained by using the following formula:

$$\Delta x_i(k) = \left|x_0(k) - x_i(k)\right| \quad (5)$$

and the maximum and the minimum difference should be found.

a) The distinguishing coefficient p is between 0 and 1. Generally, the distinguishing coefficient p is set to 0.5.

b) Calculation of the relational coefficient and relational degree by the following:

In Grey Relational Analysis, Grey relational coefficient ξ can be expressed as follows:

$$\xi_i(k) = \frac{\Delta \min + p\Delta \max}{\Delta x_i(k) + p\Delta \max} \quad (6)$$

and then the relational degree follows as:

$$r_i = \sum\left[w(k)\xi(k)\right] \quad (7)$$

ξ is the Grey relational coefficient, *w (k)* is the proportion of the number *k* influence factor to the total influence indicators. The sum of *w (k)* is 100%.

4.3. Application

As stated in the beginning of the study, there are four participation banks in Turkey. The ratios were determined in accordance with the data acquired from the internet site of Participation Banks Association between the years 2010-2013. Their reference values were identified and their normalization values were prepared by means of determining the distance of other ratios to these reference values. After that, the difference matrix was formed by applying the absolute value procedure. As the last phase of the analysis, the Grey Relational Coefficients Table was acquired by using the values in this matrix. The Grey Relational Coefficients Table is the table that we can use

to comment on the performances of the banks. Comparisons were carried out according to these values.

TABLE 2. *Financial Ratios of Participation Banks*

Participation Banks Financial Ratios

	Capital Adequacy				Asset Quality				Liquidity			Profitabi Lity		
Bank Name	s1	s2	s3	s4	a1	a2	a3	a4	l1	l2	l3	k1	k2	k3
Albaraka	9,95	9,58	6,83	13,76	5,04	139,88	94,00	1,83	21,02	45,69	19,12	1,52	15,88	2,39
Asya	13,63	8,71	2,96	-1,59	3,15	93,75	104,46	3,22	13,60	26,41	10,60	0,92	7,67	1,14
Kuveyt Türk	15,32	10,09	6,91	20,22	2,43	153,12	96,22	1,68	28,09	74,79	18,05	1,35	13,54	2,10
Türkiye Finans	14,72	9,29	7,38	22,92	5,01	138,72	107,54	1,89	22,73	39,30	13,21	1,64	13,84	2,05

TABLE 3. *Comparison Matrix*

COMPARISON MATRIX

Bank Name	s1	s2	s3	s4	a1	a2	a3	a4	l1	l2	l3	k1	k2	k3
References	15,32	10,09	7,38	22,92	5,04	153,12	107,54	3,22	28,09	74,79	19,12	1,64	15,88	2,39
Albaraka	9,95	9,58	6,83	13,76	5,04	139,88	94,00	1,83	21,02	45,69	19,12	1,52	15,88	2,39
Asya	13,63	8,71	2,96	-1,59	3,15	93,75	104,46	3,22	13,60	26,41	10,60	0,92	7,67	1,14
Kuveyt Türk	15,32	10,09	6,91	20,22	2,43	153,12	96,22	1,68	28,09	74,79	18,05	1,35	13,54	2,10
Türkiye Finans	14,72	9,29	7,38	22,92	5,01	138,72	107,54	1,89	22,73	39,30	13,21	1,64	13,84	2,05

TABLE 4. *Normalized Matrix*

NORMALIZED MATRIX

Bank Name	s1	s2	s3	s4	a1	a2	a3	a4	l1	l2	l3	k1	k2	k3
Albaraka	0,00	0,63	0,88	0,63	1,00	0,78	0,00	0,10	0,51	0,40	1,00	0,84	1,00	1,00
Asya	0,68	0,00	0,00	0,00	0,28	0,00	0,77	1,00	0,00	0,00	0,00	0,00	0,00	0,00
Kuveyttürk	1,00	1,00	0,90	0,89	0,00	1,00	0,16	0,00	1,00	1,00	0,87	0,60	0,71	0,77
Türkiye Finans	0,89	0,42	1,00	1,00	0,99	0,76	1,00	0,14	0,63	0,27	0,31	1,00	0,75	0,73

TABLE 5. *Absolute Value Statement*

ABSOLUTE VALUE STATEMENT

Bank Name	s1	s2	s3	s4	a1	a2	a3	a4	l1	l2	l3	k1	k2	k3
Albaraka	1,00	0,37	0,12	0,37	0,00	0,22	1,00	0,90	0,49	0,60	0,00	0,16	0,00	0,00
Asya	0,32	1,00	1,00	1,00	0,72	1,00	0,23	0,00	1,00	1,00	1,00	1,00	1,00	1,00
Kuveyttürk	0,00	0,00	0,10	0,11	1,00	0,00	0,84	1,00	0,00	0,00	0,13	0,40	0,29	0,23
Türkiye Finans	0,11	0,58	0,00	0,00	0,01	0,24	0,00	0,86	0,37	0,73	0,69	0,00	0,25	0,27

TABLE 6: *Grey Relational Coefficient Matrix*

GREY RELATIONAL COEFFICIENT MATRIX

Bank Name	s1	s2	s3	s4	a1	a2	a3	a4	l1	l2	l3	k1	k2	k3
Albaraka	0,33	0,58	0,80	0,06	1,00	0,69	0,33	0,36	0,51	0,45	1,00	0,75	1,00	1,00
Asya	0,61	0,33	0,33	0,33	0,41	0,33	0,69	1,00	0,33	0,33	0,33	0,33	0,33	0,33
Kuveyttürk	1,00	1,00	0,83	0,82	0,33	1,00	0,37	0,33	1,00	1,00	0,80	0,56	0,64	0,68
Türkiye Finans	0,82	0,46	1,00	1,00	0,98	0,67	1,00	0,37	0,57	0,41	0,42	1,00	0,67	0,65

TABLE 7: *Grey Relational Analysis Results*

GREY RELATIONAL ANALYSIS RESULTS

Bank Name	Capıtal Adequacy		Asset Qualıty		Lıquıdıty		Profitabılıty	
	%	RANK	%	RANK	%	RANK	%	RANK
Albaraka	0,44	3	0,60	2	0,65	2	0,92	1
Asya	0,40	4	0,61	3	0,33	4	0,33	4
Kuveyt Türk	0,91	1	0,51	4	0,93	1	0,63	3
Türkiye Finans	0,82	2	0,76	1	0,47	3	0,77	2

TABLE 8: *Participation Banks Overall Ranking*

Bank Name	Overview	
	Percentage	Rank
Albaraka	0,65	3
Asya	0,42	4
Kuveyt Türk	0,75	1
Türkiye Finans	0,70	2

In the current study, the performances of four participation banks in Turkey with regards to their financial ratios were determined. According to the analyses, Kuveyt Türk Participation Bank is the most successful bank in terms of performance. This result is followed by Türkiye Finans Participation Bank, Albaraka Türk Participation Bank and Asya Participation Bank, respectively.

When the factors that determine performance are investigated one by one, Kuveyt Türk Participation Bank takes the first place with regards to capital adequacy and liquidity, while Türkiye Finans Participation Bank takes first for active adequacy, and Albaraka Türk Participation Bank has the best performance concerning profitability.

To comment on general performance evaluation from last to first, we need to start with Asya Participation Bank. Asya Participation Bank brings up the rear concerning capital adequacy, liquidity and profitability ratios, but takes third place in terms of active quality. In other words, there is not a big difference between the sum of money reserved for situations like operational risk, credits etc. and the equity capital, or it could be claimed that this bank incurs debt by keeping equity capital low. Therefore, ratios related to capital remain low. It could also be claimed that this bank is not successful with regard to reward-risk planning. Due to this fact, the bank's active quality and liquidity ratios are low and this condition causes their inability to increase liquidity potential in possession. This performance would manifest itself in the net profit obtained at the end of the term. Consequently, this bank remains in the last place for profitability performance.

Although Albaraka Türk Participation Bank takes the first place in the liquidity ratios rank, it could not sustain this success in its general performance evaluation. The fact that this bank is short of capital adequacy shows that it is not assertive in terms of financial position. Naturally, liquidity ratios have their share of this situation. Although its financial position is not very assertive, Albaraka Türk Participation Bank managed the current situation very well, closed the end of the period successfully, and took the lead in the profitability ratios. However, as stated perviously, its failure in capital adequacy downscaled the general performance and led to third place in the rank.

Türkiye Finans Participation Bank takes first place with regards to active quality while it takes second place when it comes to general performance evaluation. The fact that its active quality is strong led to the formation of a portfolio by planning the reward-risk relationship in a successful manner. Türkiye Finans Participation Bank, which has a higher value in terms of capital adequacy, showed a more successful performance in comparison with the other two banks.

Kuveyt Türk Participation Bank is the most accomplished participation bank with regards to general performance in our performance analysis, which was carried out using four years of data. However, it was not as successful in active quality as it was in capital adequacy and liquidity. Although this bank's financial structure is strong, its failure to opt for the right portfolio choices lead to a decrease in active quality. The bank's outstanding success in the evaluation of capital and liquidity gave it the opportunity to take first place in general performance by balancing the downfall in active quality.

5. Results

Grey Relational Analysis was used in order to compare the performances of participation banks in Turkey. The significance level of 15 ratios used in the application was accepted as equal in terms of banks. As in previous studies, the small sample size and improper distribution (in the case of showing normal distribution or not) have an impact on the choice of the Grey Relational Analysis method. Besides these, the fact that this method

had not yet been used in studies carried out on participation banking is one of the other reasons to choose it for this study. It aimed to present an updated study by using data from the last four years in the calculations.

According to the analyses results, the rank among participation banks is as follows: Kuveyt Türk, Türkiye Finans, Albaraka and Asya Participation Bank. Capital adequacy and liquidity ratios were found to be the most influential in Kuveyt Türk's first place ranking. Active quality and profitability follow capital adequacy and liquidity.

Steady capital adequacy of participation banks, which develop and grow day by day, would keep their financial structures strong. Consequently, they could leap forward to high-income investments by avoiding timid behavior. It could be claimed that the efficiency of the banks is related to profitability, but parallel with liquidity and capital in possession, and the profitability is the result of these performances. As a final word, when the analysis results are concerned, Kuveyt Türk Participation Bank has a strong defence mechanism against the risks which may occur in the future. This mechanism is the largest factor that makes it the most prominent among the other participation banks.

In the present study, we aimed to fill the gap in the field by comparing the performances of participation banks via Grey Relational Analysis. In future studies, the performances of each year could be investigated individually, and the number of studies in the field could increase by comparing the results that appear on a general basis.

References

Abdul-Majid, M., Saal, D. S., & Battisti, G. (2010). Efficiency in Islamic and conventional banking: an international comparison. *Journal of Productivity Analysis*, *34*(1), 25–43.

Aggarwal, R. K., & Yousef, T. (2000). Islamic banks and investment financing. *Journal of Money, Credit and Banking*, 93–120.

Akkas, A. (1996). *Relative Efficiency of the Conventional and Islamic Banking System in Financing Investment*. *Unpublished Ph. d. Dissertation, Dhaka University*.

Aktaş, M., & Avcı, T. (2013). Türkiye'de Katılım Bankacılığı ile Faize Dayalı Bankacılığın Etkinlik Açısından Karşılaştırılması. *Finans Politik & Ekonomik Yorumlar*, *50*(576), 85–97.

Arslan, B. G., & Ergec, E. H. (2010). The efficiency of participation and conventional banks in Turkey: using data envelopment analysis. *International Research Journal of Finance and Economics*, *57*, 156–168.

Beck, T., Demirgüç-Kunt, A., & Merrouche, O. (2013). Islamic vs. conventional banking: Business model, efficiency and stability. *Journal of Banking & Finance*, *37*(2), 433–447.

Bumin, M. (2009). Türk Bankacılık Sektörünün Karlılık Analizi. *Maliye Finans Yazıları*, (84).

Çetin, A. C., & Bıtırak, İ. A. (2010). Banka Karlılık Performansının Analitik Hiyerarşi Süreci ile Değerlendirilmesi: Ticari Bankalar ile Katılım Bankalarında bir Uygulama. *Uluslararası Alanya İşletme Fakültesi Dergisi*, *2*(2).

Chammas, G. (2006). Islamic finance industry in Lebanon: Horizons, enhancements & projections. *Mémoire Professionnel, Ecole Supérieure Des Affaires, Beyrouth, Liban*.

Doğan, M. (2013). Katılım ve Geleneksel Bankaların Finansal Performanslarının Karşılaştırılması: Türkiye Örneği. *Journal of Accounting & Finance*, (58).

Ecer, F. (2013). Türkiye'deki Özel Bankaların Finansal Performanslarının Karşılaştırılması: 2008-2011 Dönemi. *Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*.

El- Gamal, M. A., & Inanoglu, H. (2005). Inefficiency and heterogeneity in Turkish banking: 1990–2000. *Journal of Applied Econometrics*, *20*(5), 641–664.

El-Hawary, D., & Grais, W. (2003). *Regulating Islamic financial institutions: the nature of the regulated* (Vol. 3227). World Bank Publications.

Er, B., & Uysal, M. (2012). Türkiye'deki ticari bankalar ve katılım bankalarının karşılaştırmalı etkinlik analizi: 2005-2010 dönemi değerlendirmesi. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, *26*, 365–387.

Hasani, H., Tabatabaei, S. A., & Amiri, G. (2012). Grey relational analysis to determine the optimum process parameters for open-end spinning yarns. *Journal of Engineered Fibers and Fabrics*, *7*(2).

Hussein, K. A. (2004). *Banking Efficiency in Bahrain: Islamic vs Conventional Banks*.

Islam, M. M., & Chowdhury, H. A. (2009). A Comparative Study of Liquidity Management of an Islamic Bank and a Conventional Bank: The Evidence from Bangladesh. *Journal of Islamic Economics, Banking and Finance*, *5*(1), 89–108.

Khan, A. K. (2010). *God, government and outsiders: The influence of religious beliefs on depositor behavior in an emerging market*. *Harvard, Cambridge.*

Parlakkaya, R.-Ç., & Akten, S. (2011). Finansal rasyoların katılım bankaları ve geleneksel bankalar arasında bir tasnif aracı olarak kullanımı: Türkiye örneği. *Ege Akademik Bakış*, *11*(3), 397–405.

Samad, A. (2004). Performance of Interest-free Islamic banks vis-à-vis Interest-based Conventional Banks of Bahrain. *International Journal of Economics, Management and Accounting*, *12*(2).

Sayım, F., & Alakel, M. (2012). The Participation Banking And Its Comparison With Deposit Banking In The Turkish Finance Market. *European Integration Studies*, (5), 152–164.

Turkmenoglu, R. E. (2007). *Katılım Bankacılığı Ve Türkiye'deki Finansal Yapı,*.U*npublished MA Dissertation* University, Kırıkkale.

Yayar, R., & Baykara, H. V. (2012). TOPSIS Yöntemi ile Katılım Bankalarının Etkinliği ve Verimliliği Üzerine Bir Uygulama. *Business and Economics Research Journal*, *3*(4), 21–42.