# Multi-Criteria Financial Performance Analysis of Turkish Participation Banks

**(Research Article)**

*Türk Katılım Bankalarının Çok Kriterli Finansal Performans Analizi*

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**ABSTRACT**

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*The current study aims to compare the performance of state participation banks with the performance of private participation banks. This comparison is quite significant since both state participation banks have a very short history and Turkey is a model for the world in interest-free banking. The integrated approach is adopted in the study. In the first stage, performance indicators are determined with the help of the CAMELS rating system. In the second stage, Turkish participation banks are ranked according to their relative performance by using the TOPSIS method. The results show that state participation banks outperform private participation banks. These results are valid even when different weights are used for CAMELS dimensions.*

## 1. INTRODUCTION

As in many other emerging economies, the banking sector has a significant share in the Turkish financial system. Despite this large share a few banks had dominated the sector for a long time. Initially, the sector was largely under the state control and the competition in the sector was very low. This imperfect market allowed inefficient banks to survive (Isik and Hassan, 2002: 257). However, the Turkish financial system has undergone several structural changes over the last four decades. Firstly, the implementation of the liberalization program in 1980 has decreased the dominance of the public sector. Furthermore, Banking Sector Restructuring Program launched by Banking Regulation and Supervision Agency (BRSA) lead up both foreign and investment banks to enter into the sector. More recently, Special Financial Institutions (Houses) which was established in 1983 to operate on interest-free banking got involved in BRSA with the new regulation adopted in 2005 and were renamed as participation banks. This amendment made participation banks subjected to similar legislation as conventional banks.

The main objectives of the establishment of participation banks, also known as Islamic banks, are as follows (Aras and Öztürk, 2011: 170):

- Bring the idle funds of the savers who do not establish relations with conventional banks due to interest concerns into the use of the real sector
- Improve relations between Turkey and the other Islamic countries
- Attract funds from oil-rich Arab countries to Turkey

The main reason for the need of Islamic banking is the prohibition against the interest return in the Islamic jurisprudence. Islam has forbidden the interest on borrowing regardless of its structure and reason. From this point of view, the most distinctive property of Islamic banks is that they do not charge or pay interest (Erol et al., 2014: 115). However, focussing only interest oversimplifies the description of Islamic banking. Therefore, to refer to a bank as an Islamic bank, the bank also adopts the fundamental Islamic principles such as social justice, equality, faithfulness, and honesty (Presley, 2012: 3).

Different from conventional banks, participation banks operate based on profit-loss sharing (PLS). PLS refers to a concept where two or more parties pool their resources to invest in a project to share profit or loss (Dar and Presley, 2000: 4). Participation banks raise funds with financial products including profit-loss sharing accounts, investment agency accounts, gold accounts and sukuk (TKKB, 2018: 46). In participation banking, depositors receive profit which is determined by the bank's profit rates instead of interest at the end of a certain period. Likewise, participation banks may grant funds with financial transactions such as sale by profit declaration, unprofitable sale, sale through bargainig, forward financing transaction, open account sales and commodity sales for liquidity (TKKB, 2018: 46). In brief, participation banks offer all banking products and services provided by conventional banks but with different methods that are not based on interest.

Currently, 6 participation banks are operating in the Turkish banking sector. These banks are as follows (the years of establishment and sort of the banks are shown inside the parentheses):

- Albaraka Türk Participation Bank (Private, 1984)
- Kuveyt Türk Participation Bank (Private, 1989)
- Türkiye Finans Participation Bank (Private, 2005)
- Vakıf Participation Bank (State, 2015)
- Ziraat Participation Bank (State, 2015)
- Türkiye Emlak Participation Bank (Private, 2018)

Three of these participation banks have started operating in the last five years. The introduction of three banks, two of which are state banks, increased the share of participation banking in the Turkish banking sector. Graph 1 depicts the development in total assets of participation banks from 2014 to 2018. As seen from the graph, the assets of participation banks almost doubled in the four years.
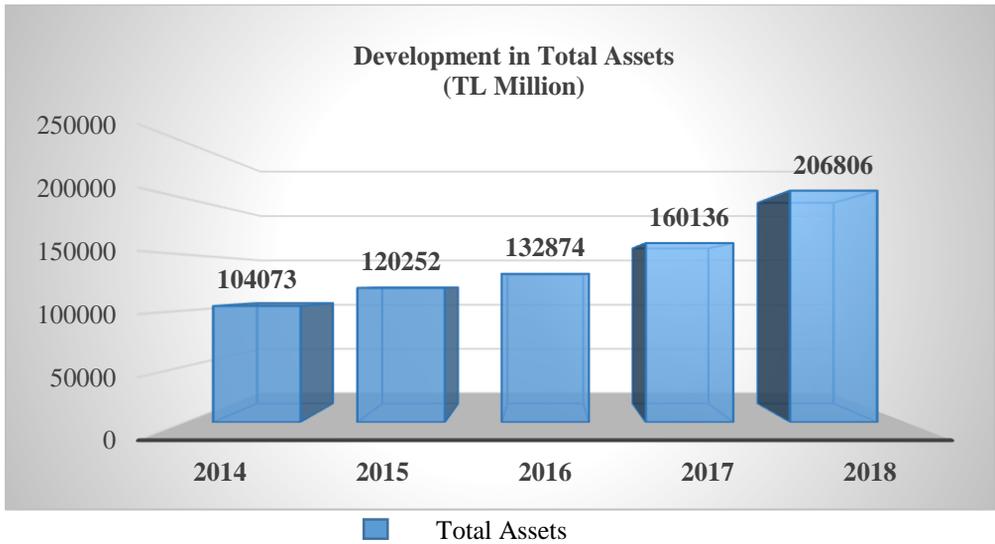
**Graph 1. Development in Participation Banks' Total Assets**
*Source: TKBB (2018: 48)*

Table 1 also compares the Turkish participation banks and the overall banking sector in terms of key financial indicators for 2017 and 2018. According to the table, participation banks outperformed the banking sector in most of the indicators. For instance, participation banks increased their assets by 29.1% while the assets of the banking sector are increased only 18.7%. Similarly, the profit of participation banks increased much more than the banking sector. Last but not least, although there was a decrease both in the number of branches and the number of employees in the banking sector, participation banks increased the number of branches by 8.7% and the number of staff by 4.2%.

**Table 1. The Comparison of Participation Banks and Banking Sector Based on Key Financial Indicators***

| Financial Topics | | Participation Banks | | | Banking Sector | | |
|---|---|---|---|---|---|---|---|
| | | Dec. 2018 | Dec. 2017 | Change (%) | Dec. 2018 | Dec. 2017 | Change (%) |
| Deposits** | TL | 60,626 | 57,494 | 5.4 | 1,054,572 | 961,112 | 9.7 |
| | FC | 67,790 | 43,180 | 57.0 | 954,893 | 733,817 | 30.1 |
| | FC-Metal | 8,804 | 4,636 | 89.9 | 41,701 | 24,220 | 72.2 |
| | Total | 137,220 | 105,310 | 30.3 | 2,051,166 | 1,719,149 | 19.3 |
| Loans*** | | 124,562 | 106,733 | 16.7 | 2,465,582 | 2,145,479 | 14.9 |
| Non-Performing Loans (Net) | | 5,050 | 3,392 | 48.9 | 96,611 | 63,990 | 51.0 |
| Total Assets | | 206,806 | 160,136 | 29.1 | 3,867,135 | 3,257,819 | 18.7 |
| Shareholders Equity | | 16,780 | 13,645 | 23.0 | 421,185 | 359,091 | 17.3 |
| Net Profit | | 2,123 | 1,583 | 34.1 | 53,522 | 48,648 | 10,0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Number of Employees | | 15,654 | 15,029 | **4.2** | 207,716 | 208,280 | **-0.3** |
| Number of Branches | Domestic | 1,120 | 1,029 | **8.8** | 11,493 | 11,508 | **-0.1** |
| | Overseas | 2 | 3 | **-33.3** | 72 | 77 | **-6.5** |
| | Total | 1,222 | 1,032 | **8.7** | 11,565 | 11,585 | **-0.2** |

**Source:** TKBB (2018:91)

*Bank deposits are excluded. Rediscounts are included, **Loans under follow-up are excluded. Rediscounts are included,

***Net profit figures compared to the same period of last year.

The rapid growth in the assets of participation banks and increasing number of banks made sector more competitive. In this competitive structure, a bank must continuously monitor its performance to survive and to determine how successful it is compared to its' competitors. To this end, this study analyzes the performance of Turkish participation banks for the years 2016, 2017 and 2018. The study contributes to the literature on two fronts. First, even though there are a great number of studies that analyze the financial performance of banks, these studies concentrate on conventional banks. In recent studies, the performance of conventional banks is compared with those of participation banks. However, none of these studies compare state participation banks and private participation banks. Second, multi-criteria decision making methods (MCDM) are frequently used for financial performance evaluation in newly conducted studies. In parallel with these developments in the literature, this study integrates the CAMELS rating system to the TOPSIS method to rank Turkish participation banks according to their financial performance.

The remainder of the paper is organized as follows. Next section contains thw review of the emprical studies on the topic. In section 3, the data and methodology used in the study are explained. Section 4 presents the findings, and section 5 concludes the study.

## 2. LITERATURE REVIEW

There are several methods used in the evaluation of bank financial performance. Financial ratio analysis is one of them (Ariff, 1989; Iqbal, 2001; Samad, 2004; Samad and Hassan, 2006; Kartal, 2012; Kakakhel, Raheem and Tariq, 2013; among others). The most commonly used measures in the ratio analysis are profitability, borrowing, and capital structure ratios. For instance, Samad (2004: 1) compared the performance of Islamic banks and conventional banks in Bahrain in the post-Gulf War period (1991-2001) according to profitability, liquidity and credit risk. The results revealed that there is no difference according to profitability and liquidity, while there is a significant difference in credit performance between two types of banks. In another study, Samad and Hassan (2006) evaluated the performance of the Malaysian Islamic Bank (Bank Islam Malaysia Berhad-BIMB) by using financial ratios determined under the four categories (profitability, liquidity, risk and solvency, commitment to economy and Muslim community). The study includes inter-temporal performance of BIMB as well as the performance comparison of BIMB and conventional banks. The findings demonstrated that BIMB makes significant progress in profitability during the analysis period. It was also seen that BIMB is more liquid and less risky than conventional banks. Similarly, Ika and Abdullah (2011) conducted a comparative study for the Indonesian banking sector for the period between 2000-2007. In the study, financial ratios determined under the four categories (profitability, liquidity, risk and solvency, and efficiency) were employed to compare the financial performance of Islamic banks and conventional banks.

The results showed that Islamic banks and conventional banks have similar characteristics except for liquidity.

CAMELS is another ratio-based analysis method used to investigate the performance of banks (Sangmi and Nazir, 2010; Dincer et al., 2011; Kouser and Saba, 2012; Kamaruddin and Mohd, 2013, Erol et al., 2014; Ege, Topaloglu and Karakozak, 2015; Karapinar and Dogan, 2015; among others). Dincer et al. (2011), for example, used CAMELS to evaluate the performance of the Turkish banking sector from 2002 to 2009. The results revealed that there have been developments in the performance of state, private and foreign banks after 2001 and 2008 crises. Dash and Das (2013) also employed CAMELS to compare the performance of the Indian public sector banks and private/foreign banks. The study covers 58 Indian banks for the period 2003-2008. The results demonstrated that private/foreign banks were better than public sector banks on most of the CAMELS dimensions. Rozzan and Rahman (2013) applied CAMELS to the Malaysian banking sector to examine the performance of conventional and Islamic banks. Their results elicited that conventional banks and Islamic banks have similar performance levels. Erol et al. (2014) utilized CAMELS to compare the performance of conventional and participation banks in Turkey from 2001 to 2009. The results revealed that Islamic banks operating in Turkey have better profitability and asset management ratios than conventional banks, but they lag behind the conventional banks in terms of sensitivity to market risk. However, in another study conducted in the Turkish banking sector, Karapinar and Dogan (2015) found that participation banks outperform in the sensitivity to the market risk, while conventional banks are better off in terms of liquidity and management.

In addition to these two aforementioned methods, Data Envelopment Analysis (DEA) is also used to evaluate the performance of banks (Yudistira, 2004; Kamaruddin et al., 2008; Staub et al., 2010; Yahya et al. 2012; Ismail, Majid and Rahim, 2013; Kaya and Cinar, 2016; Yuksel, Mukhtarov and Mammadov, 2016; Batir, Volkman and Gungor, 2017; among others). DEA is a method used in efficiency analysis and investigates the effectiveness of banks by linking identified inputs and outputs. Kamaruddin et al. (2008) applied DEA to investigate the cost and profit efficiency of Islamic banks and Islamic division of conventional banks operating in Malaysia. It is ascertained that Islamic banks are better at controlling costs than generating profits. Similarly, Yahya et al. (2012) evaluated the efficiency level of Islamic and conventional banks in Malaysia from 2006 to 2008. DEA results showed that (except 2006) there is no statistical difference between two banking systems. Staub et al. (2010) used DEA to analyze the cost, technical and allocative efficiencies in the Brazilian banking sector for the period 2000-2007. The results indicated that Brazilian banks have lower levels of cost efficiency than both European and US banks. Besides, the results revealed that public banks are more efficient than foreign, private domestic and private with foreign participation banks. It is also found that the type of activity and bank size do not influence economic efficiency. Batir, Volkman and Gungor (2017) employed DEA to examine the technical, allocative, and cost efficiency of conventional and participation banks in Turkey for the period 2005-2013. The findings showed that average participation bank efficiency is higher than the average conventional bank efficiency.

Recently, MCDM methods are used to analyze the financial performance of banks (Secme, Bayrakdaroglu and Kahraman, 2009; Demireli, 2010; Dogan, 2013; Akkoc and Vatansever, 2013; Onder et al., 2013; Gokalp, 2015; Dincer, Hacioglu and Yuksel, 2016; Wanke et al.,

2016; Dincer and Yuksel, 2019; among others). Demireli (2010), for example, used TOPSIS to examine the performance of state banks in Turkey from 2001 to 2007. The results demonstrated that the performance of state banks is fluctuated and there are no improvements in the banking sector during the analysis period. Akkoc and Vatansever (2013) evaluated twelve commercial banks according to the seventeen financial indicators by employing Fuzzy-AHP and Fuzzy-TOPSIS methods. As a result of the study, it was observed that these two methods rank banks similarly. Dogan (2013) applied Gray Relational Analysis (GRA) to measure the financial performance of 10 banks operating in Turkey. The findings showed that return on assets has an important role in the financial performance of banks. In another study focusing on the performance of Turkish banks, Gökalp (2015) compared the performance of state, private and foreign banks in Turkey for pre-crisis and post-crisis period by using the PROMETHEE. Results revealed that the 2008 financial crisis significantly affect state banks. Such that, while they were the best alternative for the pre-crisis period, they were ranked at last position in the post-crisis period. Wanke et al. (2016) employed an integrated fuzzy MCDM to assess the performance of ASEAN banks. In the study, the relative weights of components were determined with the help of a Fuzzy-AHP based on the opinion of 88 Association of Southeast Asian Nations experts. Then, the TOPSIS method was used to assess bank performance in the light of determined weights. The results demonstrated that contextual variables make an outstanding impact on efficiency. Dincer, Hacioglu and Yuksel (2016) also combined CAMELS with Fuzzy-ANP and MOORA methods to compare the Turkish deposit banks. The findings indicated that capital adequacy is the most significant component of CAMELS, while sensitivity to market risk is the least important dimension. It was also revealed that asset size has a positive impact on bank performance.

## 3. METHODOLOGY

The study evaluates the performance of Turkish participation banks from 2016 to 2018. The analyzes start in 2016 since the data of state participation banks are first available in this year. An integrated method is applied in financial performance analysis. In the first stage, performance indicators are determined with the help of the CAMELS rating system. The CAMELS is an off-site monitoring tool that analyzes the bank overall condition. In the CAMELS framework, a bank's overall condition is evaluated by considering the following six dimensions; Capital adequacy (C), Asset quality (A), Management efficiency (M), Earnings power (E), Liquidity (L) and Sensitivity to market risk (S), respectively. Dimension C assesses the bank's capital structure regarding both quality and quantity to ensure that the bank can absorb present and anticipated losses. Under this dimension, capital level, risk-based capital requirements, the composition of capital and, etc. are investigated. The second dimension evaluates the bank's financial condition and credit risk management by considering loan concentration, liquidity, and investments. The third dimension assesses the management effectiveness considering issues such as business strategy, market penetration, cost-benefit structure, and internal control mechanisms. The fourth dimension investigates the bank's ability to generate appropriate returns. In this investigation, future performances, as well as past and present performance, are reviewed. The fifth dimension examines the ability to meet present and future liquidity needs without adversely affecting daily operations. Several issues covered in this dimension are as follows: the structure of balance sheet, cash flow management, and liquidity management. Last dimension, S, evaluates the bank's sensitivity to several risks including interest rate risk, exchange rate risk and market risk.

Table 2 shows the performance indicators determined based on CAMELS and their potential impact on the performance of participation banks. (The data for the relevant performance indicators of banks are reported in the Appendix 1). The required data to calculate these performance indicators are obtained from banks' annual reports and the official website of the Participation Banks Association of Turkey.

**Table 2. Performance Criteria and Their Potential Effect on Bank Performance**

| Main Dimension/Criteria | Sub-Criteria | |
|---|---|---|
| **Capital Adequacy (C)** | **C1:** Capital Adequacy Ratio | + |
| | **C2:** Equity / Loans | + |
| | **C3:** Equity-Fixed Assets / Total Liabilities | + |
| **Asset Quality (A)** | **A1:** Nonperforming Loans / Total Loans | - |
| | **A2:** Fixed Assets / Total Assets | - |
| **Management Efficiency (M)** | **M1:** Profit Share Income Per Employee | + |
| | **M2:** Loans and Receivables Per Employee | + |
| | **M3:** Funds Collected Per Employee | + |
| **Earnings Quality (E)** | **E1:** Return on Assets | + |
| | **E2:** Return on Equity | + |
| | **E3:** Profit Share Income / Profit Share Expense | + |
| **Liquidity (L)** | **L1:** Liquid Assets / Total Assets | + |
| | **L2:** Liquid Assets / Total Deposits | + |
| **Sentivity (S)** | **S1:** Net Balance Sheet Position / Equity | - |
| | **S2:** Loans and Receivables/Total Sector Loans and Receivables | - |

**Source:** Dincer et. al, 2011; Dash and Das, 2013; Erol, 2014; Rostami, 2015; Yuksel et. al, 2015

In the second stage, the performance of banks is analyzed by the TOPSIS method. The TOPSIS method is originally generated by Hwang and Yoon (1981). The method comprises of 7 sequential steps, and these steps are as follows:

**Step 1.** A decision matrix is established

**Step 2.** The decision matrix is normalized by using the following equation:

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{j=1}^{n} x_{ij}^2}} \tag{1}$$

**Step 3.** A weighted normalized decision matrix is calculated by multiplying the normalized matrix with the weights of the criteria:

$$v_{ij} = w_j * r_{ij}, \ i = 1, 2, \ldots, m; \ j = 1, 2, \ldots, n \tag{2}$$

**Step 4.** Positive Ideal Solution (PIS) and Negative Ideal Solution (NIS) are determined:

$$A^* = \left\{ v_1^*, v_2^*, \ldots, v_n^* \right\} \tag{3}$$

$$A^- = \left\{ v_1^-, v_2^-, \ldots, v_n^- \right\} \tag{4}$$

**Step 5.** The distance of each alternative from PIS and NIS are calculated:

$$d_i^* = \sqrt{\sum_{j=1}^{n}(v_{ij} - v_j^*)^2}, \quad i = 1, 2, \ldots, m \tag{5}$$

$$d_i^- = \sqrt{\sum_{j=1}^{n}(v_{ij} - v_j^-)^2}, \quad i = 1, 2, \ldots, m \tag{6}$$

**Step 6.** The Closeness Coefficient ($CC_i$) of each alternative is calculated:

$$CC_i = \frac{d_i^-}{d_i^* + d_i^-} \qquad i = 1, 2, \ldots, m \tag{7}$$

**Step 7.** The alternatives are ranked in decreasing order according to their $CC_i$ values.

## 4. RESULTS AND DISCUSSION

The study aims to compare the financial performance of two sorts of participation banks, state participation banks and private participation banks, respectively. In the study, the financial performance of 5 participation banks, 3 of them are privately-owned (PR) and 2 of them are publicly-owned (PB), is analyzed by considering the 15 indicators determined based on CAMELS. For the evaluation of bank performance, the TOPSIS method is utilized. In the application of TOPSIS, the methodology developed by Hwang and Yoon (1981) is applied. The weights of both main criteria and sub-criteria are calculated by employing mean weight objective weighting methodology which gives equal weights to each criterion. The following table shows the $CC_i$ scores of Turkish participation banks in sub-dimensions and their relative performance rankings from 2016 to 2018. The $CC_i$ score is between 0 and 1, and $CC_i = 1$ indicates the absolute closeness of the alternative to the ideal solution, while $CC_i = 0$ indicates the absolute closeness of the alternative to the negative ideal solution.

**Table 3. Closeness Coefficient of the Main Criteria of Banks**

| Banks | C | Rank | A | Rank | M | Rank | E | Rank | L | Rank | S | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2016** | | | | | | | | | | | | |
| PR_1 | 0.134 | **3** | 0.572 | **3** | 0.003 | **5** | 0.775 | **1** | 0.984 | **1** | 0.000 | **5** |
| PR_2 | 0.038 | **5** | 0.113 | **4** | 0.008 | **4** | 0.480 | **2** | 0.106 | **4** | 0.644 | **2** |
| PR_3 | 0.106 | **4** | 0.000 | **5** | 0.029 | **3** | 0.465 | **3** | 0.330 | **3** | 0.596 | **3** |
| PB_1 | 1.000 | **1** | 0.844 | **2** | 1.000 | **1** | 0.270 | **4** | 0.980 | **2** | 0.482 | **4** |
| PB_2 | 0.139 | **2** | 0.989 | **1** | 0.032 | **2** | 0.134 | **5** | 0.105 | **5** | 0.940 | **1** |
| **2017** | | | | | | | | | | | | |
| PR_1 | 0.381 | **4** | 0.713 | **3** | 0.091 | **4** | 1.000 | **1** | 0.902 | **1** | 0.645 | **3** |
| PR_2 | 0.228 | **5** | 0.216 | **4** | 0.056 | **5** | 0.190 | **5** | 0.671 | **3** | 0.741 | **2** |
| PR_3 | 0.393 | **3** | 0.000 | **5** | 0.099 | **3** | 0.410 | **4** | 0.805 | **2** | 0.550 | **4** |
| PB_1 | 0.737 | **1** | 1.000 | **1** | 0.882 | **1** | 0.539 | **3** | 0.540 | **4** | 0.355 | **5** |
| PB_2 | 0.457 | **2** | 0.944 | **2** | 0.778 | **2** | 0.574 | **2** | 0.000 | **5** | 0.955 | **1** |
| **2018** | | | | | | | | | | | | |
| Banks | C | Rank | A | Rank | M | Rank | E | Rank | L | Rank | S | Rank |

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PR_1 | 0.483 | **2** | 0.740 | **2** | 0.199 | **3** | 0.701 | **2** | 0.824 | **3** | 0.592 | **3** |
| PR_2 | 0.299 | **4** | 0.178 | **5** | 0.000 | **5** | 0.000 | **5** | 0.913 | **1** | 0.545 | **4** |
| PR_3 | 0.312 | **3** | 0.182 | **4** | 0.185 | **4** | 0.429 | **4** | 0.767 | **4** | 0.720 | **2** |
| PB_1 | 0.138 | **5** | 0.681 | **3** | 0.675 | **2** | 0.833 | **1** | 0.906 | **2** | 0.365 | **5** |
| PB_2 | 0.708 | **1** | 1.000 | **1** | 1.000 | **1** | 0.682 | **3** | 0.000 | **5** | 0.947 | **1** |

The results reveal that the performance of banks varies in CAMELS dimensions. For instance, PB_2 is ranked first in capital adequacy, asset quality, management efficiency and sensitivity in 2018, while it is ranked third and fifth in earnings quality and liquidity, respectively. Similarly, PR_1 is the best alternative for the earnings management and liquidity in 2018, whereas it is ranked last position in the management efficiency and sensitivity to market risk. It is also ascertained that the performance of banks in sub-criteria changes over the years. For instance, PR_1 is ranked last position in management efficiency in 2016, while it is ranked for the following two years fourth and third position, respectively. In a similar manner, PB_1 is the best alternative for the first two years in capital adequacy, however it is ranked last in 2018.

Table 4 reports the overall performance scores of Turkish participation banks. According to the table, state participation banks outperform the private participation banks for the years covered in the study. One of the two state participation banks is on the first rank for three years. Moreover, state participation banks are ranked the top three for all years. Conversely, two of three private participation banks have the lowest ranking in all three years. The better performance of state participation banks may be due to the greater reliance of depositors on state participation banks. Compared to conventional banks, participation banks are still new and operate in ways that depositors are unfamilar. This may cause depositors to approach participation banks with suspicion, and public ownership at this point may be a property that helps depositors feel safe. In addition to that, two state participation banks have also conventional banks that have been operating for many years. The experience of state banks in conventional banking may have contributed to these results.

**Table 4. The Overall Performance Rank**

| Banks | 2016 | | 2017 | | 2018 | |
|---|---|---|---|---|---|---|
| | **TOPSIS** | **Rank** | **TOPSIS** | **Rank** | **TOPSIS** | **Rank** |
| PR_1 | 0.411 | **2** | 0.622 | **2** | 0.590 | **3** |
| PR_2 | 0.232 | **5** | 0.350 | **5** | 0.323 | **5** |
| PR_3 | 0.255 | **4** | 0.376 | **4** | 0.432 | **4** |
| PB_1 | 0.763 | **1** | 0.676 | **1** | 0.599 | **2** |
| PB_2 | 0.390 | **3** | 0.618 | **3** | 0.723 | **1** |

Weighting is an important stage in the MCDM analysis. In other words, changing weights may differentiate the rankings. At this point, repeating the analysis using different weights increase the reliability of the results. Pekkaya and Demir (2018) prioritize the CAMELS dimensions. In the sensitivity analysis, the weights determined in the study of Pekkaya and Demir (2018) are used. Accordingly, the weights of CAMELS components are taken as 10.03%, 24.75%, 17.68%, 19.16%, 18.54%, 11.11%, respectively. The study of Dincer et al. (2016) in which capital adequacy is found the most important component of CAMELS, whereas sentivity to market risk is the least important, also supports this weighting.

Table 5 reports the findings when different wegihts are used for the main criteria. The result demonstrates that changing the weight of the main criteria does not alter the rankings.

**Table 5. The Overall Performance Rank According to the New Weighting**

| Banks | 2016 | | 2017 | | 2018 | |
|---|---|---|---|---|---|---|
| | TOPSIS | Rank | TOPSIS | Rank | TOPSIS | Rank |
| PR_1 | 0.486 | 2 | 0.661 | 2 | 0.620 | 3 |
| PR_2 | 0.216 | 5 | 0.329 | 5 | 0.304 | 5 |
| PR_3 | 0.232 | 4 | 0.346 | 4 | 0.413 | 4 |
| PB_1 | 0.773 | 1 | 0.720 | 1 | 0.670 | 2 |
| PB_2 | 0.414 | 3 | 0.633 | 3 | 0.731 | 1 |

## 5. CONCLUSION

Performance of financial institutions is important for creditors and shareholders, as well as regulatory and supervisory authorities since any problem in these institutions affects not only the financial sector but also others through their activities. Therefore, analyzing the performance of the banking sector has always been important, and many empirical studies have conducted to evaluate the performance of banks. In the beginning, studies analyze the performance of conventional banks, while recent studies compare the financial performance of conventional banks against those of participation banks. However, there is no study comparing the performance of state participation banks and private participation banks.

Different from others, this study aims to compare the financial performance of state participation banks and private participation banks. In the study, CAMELS rating system is integrated to the well-known MCDM method, the TOPSIS method, to compare the financial performance of Turkish participation banks. The results show that state participation banks have better performance than private participation banks. The competence of state participation banks in asset quality and management efficiency contributed to this result. It is also found that participation banks have different performance rankings in CAMELS dimensions and the performance of banks differ during the analyzed period. These findings indicate that banks should focus on sustainability as well as high performance.

In conclusion, the current study concentrates on participation banking and compares the financial performance of state participation banks against the those of private participation banks. The results elicit that state participation banks outperform private participation banks and banks have different performances in CAMELS dimensions. These results will help to bank managers, potential entrants to Turkish participation banking and regulatory authorities.

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