

Analyzing the financial performance of Turkish bank groups during the Covid-19 pandemic with the TOPSIS method

Levent SEZAL

Kahramanmaraş Sutcu Imam University, Kahramanmaraş, Türkiye
leventsezal@ksu.edu.tr

Abstract. *This study was conducted to measure and compare the financial performance of public, domestic private and foreign capital deposit bank groups operating in Turkey in 2020-2021 and 2022, covering the Covid-19 pandemic period. For this purpose, TOPSIS method, one of the multi-criteria decision-making techniques, was used. As a result of the analysis, it was determined that domestic deposit banks with private capital performed the best in 2020 and 2021, while deposit banks with foreign capital performed better in 2022. It was concluded that state-owned banks performed worse than domestic private and foreign-owned banks during the pandemic period.*

Keywords: bank groups, financial performance, Covid-19, TOPSIS method, multi-criteria decision making.

JEL Classification: C14, D22, G21.

1. Introduction

Banks, which constitute the financial system and the related structure, are organizations that are intermediaries for the public to use their money. They date back to 3500 BC. Looking at banking in Turkey from a commercial perspective, it is said that the first banks in history were temples and the bankers were clergymen. The reason for this is that the people entrusted their money to the temples to keep their money in a safe place and the clergymen lent this money and turned it into trade. Thus, it led to the formation of commercial banking that progressed over time (Çağiran et al., 2019, p.138).

Turkey's first bank, the Ottoman Bank, started in 1855 as a dream project of two British entrepreneurs, Stephen Sleight and Peter Pasquali, and was launched in 1856 by an edict of Queen Victoria. Only a few years later, however, it was stipulated that the new bank's capital should also include French investors. Thus, the new bank was founded in June 1863 and named Bank-ı Osmanî-i Şahane, and began its operations as a state bank. In 2001, the shares of the Ottoman Bank, which continued its activities until 2001, were completely transferred to Garanti Bank (Özkan and Deliktaş, 2020, p.48). Again on November 20, 1863, Mithat Pasha established the Homeland Funds in the town of Pirot in Serbia, which formed the basis of Ziraat Bank, which still exists today. With the proclamation of the Republic, important breakthroughs were made in the banking sector and in this direction, Türkiye İş Bankası was established in 1924, which still continues its activities today. Apart from İşbank, Sümerbank, Etibank and Halk Bank were also among the banks established at that time.

With the implementation of outward-oriented economic policies in Turkey since the beginning of the 1980s, the concept of globalization started to gain importance and this situation brought profitability and competition to the forefront in the Turkish Banking Sector. The decline in profit margins in the Turkish banking sector due to falling inflation and interest rates increased competition and made banks more vulnerable to the crisis. After the 2001 crisis, the Turkish banking sector was restructured on a more solid foundation and performance analysis became an important issue for the BRSA. This is one of the reasons why the Turkish banking sector was relatively less affected by the 2008 global crisis.

Covid-19, which emerged in China and then spread rapidly all over the world, declared as a pandemic by the World Health Organization, has also seriously affected life in Turkey. The pandemic has negatively affected many sectors in our country as well as in the world. The Turkish banking sector was also negatively affected by this pandemic, which posed serious health risks (Sezal, 2023, p.56).

Covid-19, which has fatal and destructive effects for human life, has become a threat to the economies of countries in addition to these effects. Due to the rapid increase in the number of cases, countries closed their borders and international trade started to be carried out in a limited way (Duran and Acar, 2020, p.55). The financial sector is one of the sectors most affected by the pandemic (Vashti, 2020, p.1). During the pandemic, economic administrations tried to relieve the markets by taking some measures with liquidity support to the markets, postponement of debt maturities, restructuring, low or zero interest loan opportunities for SMEs and individual citizens (Arabacı and Yücel, 2020, p.98). During

this process, serious increases in health and public expenditures negatively affected the economies of countries (Duran and Acar, 2020, p.98).

The banking sector has taken a series of measures to limit the economic and financial impact of the pandemic. These measures were aimed at both employees and customers. In addition to measures to protect their customers, banks created financial resources and created various support packages by postponing loan payments of businesses or individuals whose cash flow balance was disrupted or by providing loan restructuring opportunities. Within the scope of the pandemic, the banking sector increased hygiene measures, introduced flexibility in working hours, switched to working from home and took some measures in favor of employees with flexible dress code regulations.

The aim of this study is to compare the financial performance of bank groups operating within the Turkish banking system during the Covid-19 pandemic. Bank groups operating in Turkey are categorized as publicly owned banks, private banks with domestic capital and banks with foreign capital. In the study, firstly, the previous domestic and foreign studies in the literature on the subject are presented. Then, the purpose, data set and method sections of the study are included. Finally, the findings of the study are presented and the study is concluded with the conclusion section. The study differs from other studies in the literature as it covers the pandemic period and the variables included in the study are categorized according to the capital ownership of banks. In this respect, the study is expected to contribute to the literature.

2. Literature review

Although there have been many studies involving different methods and approaches to measure the financial performance of the banking sector, which has a very important role in national economies and financial markets, it is noteworthy that financial ratios are frequently used in the evaluation of efficiency and effectiveness in most of the studies.

Although a limited number of studies have been conducted on performance analysis in the Turkish Banking Sector, it is seen that multivariate statistical methods and multi-objective decision making methods are generally used in the studies. When we look at the studies on financial performance analysis in the Turkish Banking Sector, it is observed that there are relatively fewer studies using the TOPSIS method. The summary of domestic and foreign studies using the TOPSIS method in the literature is shown in Table 1.

Table 1. Literature Review

Authors	Country	Findings
Abbasi, et al. (2008)	Iran	They used the TOPSIS method to determine the best situation in terms of profitability and as a result of the study, they found that the current account was the best account and the six-month time deposit account was the second most profitable.
Wua et al. (2009)	China	The study concludes that the proposed FMCDM evaluation model for banking performance can be a useful and effective evaluation tool.
Köse and Bülbül (2009)	Türkiye	According to the study, they concluded that foreign-owned banks in the Turkish banking sector were less affected by the crisis than Turkish banks in 2008.
Ustasüleyman (2009)	Türkiye	In the study, the most important service quality dimension in the banking sector was determined as reliability and trust, and it was concluded that bank customers in the sample had expectations from banks in this direction.

Authors	Country	Findings
Demireli (2010)	Türkiye	He concludes that state-owned banks were more affected by local and global financial crises in the 2001-2007 period.
Diñer and Görener (2011)	Türkiye	In the study, they found that foreign-owned banks have a better performance than other banks.
Şamiloğlu (2013)	Türkiye	"In the study, it was concluded that the financial performance of Participation Banks was higher than that of Commercial Banks between the periods 2003-2011."
Çelen (2014)	Türkiye	The study concluded that the best financial performance in the Turkish banking sector between 2002 and 2010 was in 2007.
Yayar and Baykara (2012)	Türkiye	As a result of the study, Albaraka Türk was found to be the most efficient among the participation banks.
Pehlivan (2016)	Türkiye	As a result of the study, it is concluded that participation banks have an increasing importance.
Kandemir and Karataş (2016)	Türkiye	According to the GRI and TOPSIS methods, Vakıfbank has the highest financial performance, while according to the VIKOR method, Denizbank has the highest financial performance.
Özkan (2017)	Türkiye	The study analyzes the financial performance of 7 publicly traded banks in Turkey according to 10 criteria and finds that there are no significant differences between the banks, but Garanti Bank has relatively better financial performance.
Aras et al. (2017)	Türkiye	According to the results obtained from the study, they found that Garanti Bank's sustainability performance increased.
Wanke et al. (2017)	Asian Countries	In this study, they tried to reveal the role of Islamic principles in banking efficiency.
Siew L.W. et al. (2017)	Malaysia	According to the results of the research, CIMB Group Holdings Berhad Bank has been identified as the bank with the best performance between the periods 2011-2015.
Yamaltinova (2017)	Kyrgyzstan	As a result of the study, Demir Kyrgyz International Bank and Optima Bank were identified as the banks with the best performance between 2010-2014.
Wanke, et al. (2018)	BRICS Countries	According to the results, banking sector efficiency is positively related to the country's gross savings and GINI index ratio, but negatively related to relatively high inflation rates.
Shuvashish and Arindam (2018)	Bangladesh	The study concluded that profitability, efficiency, resilience and robustness, size and growth, and asset quality positions of foreign commercial banks are prioritized over other banks."
Anyaeche and Ighravwe (2018)	Nigeria	The TOPSIS results identified Bank A as the best bank. The results also revealed that banks with two ATMs are ranked higher than banks with more than two ATMs.

This study differs from other studies in the literature as it covers the pandemic period and the variables included in the study are categorized according to the capital ownership of banks. In this respect, the study is expected to contribute to the literature.

3. Data and methodology

The data set of the study consists of financial ratios of public, domestic private capital and foreign capital deposit bank groups operating in Turkey. The financial ratios of these bank groups to be used in the study were obtained from the website of the Banks Association of Turkey. The date range of the study covers the years 2020-2021 and 2022 and consists of the annual financial data of these bank groups. The reason for choosing the date range in this way is to compare the financial performance of the bank groups during the Covid-19 pandemic period.

The ratios to be used in the study were selected and weighted by taking into account the studies in the existing literature (Çağlı, 2011, Kendirli et al, 2019, Özkan and Deliktaş, 2020 and Yılmaz, 2020). These ratios and weight values are shown in Table 2.

Table 2. Abbreviations and weight values of financial ratios

Criteria	Abbreviation	Weight
Profitability	Return on Assets ratio	B(1)
	Return on Equity ratio	B(2)
Capital Adequacy	Capital Adequacy Ratio	B(3)
	Shareholders' Equity / Total Assets	B(4)
Asset Quality	Total Loans/Total Assets	B(5)
	Total Deposits/Total Assets	B(6)
	Non-Performing Loans / Total Loans	B(7)
Liquidity	Liquid Assets/Total Assets	B(8)
	Liquid Assets / Short Term Liabilities	B(9)
Income-Expense Structure	Non-Interest Income (Net) / Total Assets	B(10)

The bank groups included in the study and the abbreviations related to their use in the model are given in Table 3.

Table 3. Bank Groups and Abbreviations

Bank group	Code
Publicly Owned Deposit Banks	A.1
Domestic Private Equity Deposit Banks	A.2
Foreign Capitalized Banks	A.3

As of 2023, Turkey has 3 state-owned, 8 domestic private-owned and 16 foreign-owned deposit banks.

3.1. TOPSIS method

TOPSIS method was developed by Hwang and Yoon (1981). This method is frequently preferred due to its simplicity and computational efficiency (Shyjith et al., 2008, p.376). In order to determine the best alternative, being the farthest from the negative ideal solution and being the closest to the positive ideal are accepted as the basic assumptions of the method. In this method, the distance between the positive ideal solution points and the negative ideal solution points is calculated (Kallo, 2015, p.56). This method enables the comparison of the ideal situation between the minimum and maximum values in line with the alternative options by using certain steps (Yurdakul and İç, 2003, p.8). The TOPSIS method identifies the alternative that is most similar to the ideal solution. The only assumption in the TOPSIS method is that all criteria have a unidirectional utility trend with a uniform increase or uniform decrease characteristic. The main objective of the TOPSIS method is to identify the alternative with the minimum distance to the ideal solution and the maximum distance to the negative ideal solution.

In order to obtain efficiency and effectiveness scores according to the TOPSIS method, the following steps were followed (Ustasüleyman, 2009, pp. 37-38):

Step 1: Setting objectives and defining evaluation criteria.

Step 2: Creating the Decision Matrix (A): Decision matrices with alternatives in the rows and evaluation criteria in the columns are created. The decision matrix A a_{ij} shows the actual value of alternative i in the decision matrix A according to criterion j (Rao, 2008, p. 444).

$$A = \begin{Bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{Bmatrix}$$

Step 3: Creating the Normalized Decision Matrix (R): After the decision matrix is created, the normalized decision matrix (R) is obtained using formula (1) (Mahmoodzadeh et al., 2007, p.138).

$$r_{ij} = \frac{a_{ij}}{\sqrt{\sum_{k=1}^m a_{kj}^2}} \quad (1)$$

Step 4: Constructing the Weighted Normalized Decision Matrix (V): First, the relative weight values (ω_j : 1, 2, ...N) of the evaluation criteria are determined according to the objective. Then, the elements in each column of the R matrix are multiplied by the relevant ω_j value to form the V matrix. The weighted normalized decision matrix $V_{ij} = (\omega_j \times R_{ij})$ (Rao, 2008, p. 444).

Step 5: Generation of Ideal (A^*) and Negative Ideal (A^-) Solutions: The ideal solution consists of the best performance values of the weighted normalized decision matrix, while the negative ideal solution consists of the worst values. Ideal solutions can be calculated using equations 2 and 3. In both formulas, benefit J (maximization) and cost J' (minimization) are shown (Yurdakul and İc, 2005, p.4613).

$$A^* = \{(max_i v_{ij} | j \in J), (min_i v_{ij} | j \in J')\} \quad (2)$$

$$A^- = \{(min_i v_{ij} | j \in J), (max_i v_{ij} | j \in J')\} \quad (3)$$

The values obtained from equation 2 can be represented as $A^* = \{v_1^*, v_2^*, \dots, v_n^*\}$ and the values obtained from equation 3 can be represented as $A^- = \{v_1^-, v_2^-, \dots, v_n^-\}$.

Step 6: Calculation of Segregation Measures: The distance of alternative J from the ideal solution is the ideal separation as ideal separation (S_i^*) and the distance of alternative J from the negative ideal solution is calculated as negative ideal separation (S_i^-) by using equations 4 and 5 (Mahmoodzadeh vd., 2007, p.139).

$$S_i^* = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^*)^2} \quad (4)$$

$$S_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2} \quad (5)$$

Step 7: Calculation of Relative Proximity to the Ideal Solution: The relative proximity (C_i^*) to the ideal solution is calculated by using equation (6) (Olson, 2004, p.2).

$$(C_i^*) = \frac{S_i^-}{S_i^- + S_i^*} \quad 0 \leq C_i^* \leq 1 \quad (6)$$

Here, the value (C_i^*) indicates the success of the alternative in the sector and higher values indicate higher success.

Step 8: Alternatives are ranked according to their relative closeness (C_i^*) to the ideal solution.

4. Findings of the research

A decision matrix with a total of $3 \times 10 = 30$ elements was created for each year for 10 different criteria representing the main criteria of profitability, asset quality, liquidity, capital adequacy and income-expense structure of the 3 bank groups analyzed within the scope of the study. In the second stage, this decision matrix was normalized and a normalized decision matrix was obtained.

Table 4. Normalized Decision Matrix (2020)

	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Negative (-)	Positive (+)	Positive (+)	Positive (+)
Weights	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.80	9,70	16,86	7,86	64,17	27,00	3,23	10,88	16,92	0,35
A.2	1,28	10,87	23,05	11,41	60,99	26,68	6,11	14,61	24,62	0,99
A.3	1,20	10,26	19,06	11,31	63,62	26,45	5,73	17,05	29,76	1,53
	1,92832	17,819	34,334	17,8853	109,02	46,265	8,9776	24,951	42,167	1,8557

Table 5. Normalized Decision Matrix (2021)

	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Negative (-)	Positive (+)	Positive (+)	Positive (+)
Weights	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.42	6,38	15,47	5,87	58,24	33,57	2,6	15,89	24,03	0,14
A.2	1,77	17,52	20,19	9,25	53,92	34,39	4,47	21,33	34,32	1,18
A.3	1,69	17,1	18,88	9,01	56,45	35,43	4,48	25,32	41,58	1,75
	2,48302	25,299502	31,6767	14,18448	97,3954	59,7068	6,841878	36,7228	59,0271	2,115301

Table 6. Normalized Decision Matrix (2022)

	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Negative (-)	Positive (+)	Positive (+)	Positive (+)
Weights	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	1,84	26,98	15,67	7,41	56,87	31,06	1,71	16,1	25,09	1,02
A.2	5,68	50,1	23,05	12,72	54,23	29,64	3,02	16,25	27,83	2,35
A.3	4,56	45,07	19,68	10,87	57,1	31,21	3,02	21,15	37,36	2,45
Square Root	7,5128	72,589499	34,119698	18,29927	97,1365	53,0784	4,600533	31,15437	52,913	3,5448

The weighted decision matrix tables for 2020-2021 and 2022 created in the third step of the study are presented below:

Table 7. Weighted Normalized Decision Matrix (2020)

	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Negative (-)	Positive (+)	Positive (+)	Positive (+)
Weights	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.41	0.54	0.49	0.44	0.59	0.58	0.36	0.44	0.40	0.19
A.2	0.66	0.61	0.67	0.64	0.56	0.58	0.68	0.59	0.58	0.53
A.3	0.62	0.58	0.56	0.63	0.58	0.57	0.64	0.68	0.71	0.82

Table 8. *Weighted Normalized Decision Matrix (2021)*

	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Negative (-)	Positive (+)	Positive (+)	Positive (+)
Weights	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.17	0.25	0.49	0.41	0.60	0.56	0.38	0.43	0.41	0.07
A.2	0.71	0.69	0.64	0.65	0.55	0.58	0.65	0.58	0.58	0.56
A.3	0.68	0.68	0.60	0.64	0.58	0.59	0.65	0.69	0.70	0.83

Table 9. *Weighted Normalized Decision Matrix (2022)*

	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Positive (+)	Negative (-)	Positive (+)	Positive (+)	Positive (+)
Weights	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.24	0.37	0.46	0.40	0.59	0.59	0.37	0.52	0.47	0.29
A.2	0.76	0.69	0.68	0.70	0.56	0.56	0.66	0.52	0.53	0.66
A.3	0.61	0.62	0.58	0.59	0.59	0.59	0.66	0.68	0.71	0.69

In the fourth step, the minimum and maximum values of the column values of the weighted standard decision matrices should be found in order to create the ideal solution set. The maximum values in the V matrix were selected for the positive ideal (A+) solution set and the minimum values in the V matrix were selected for the negative ideal (A-) solution set. The calculated values are presented in Table 10, Table 11 and Table 12 below.

Table 10. *Positive ideal (A+) and Negative Ideal (A-) Solution Set (2020)*

Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.04	0.54	0.05	0.04	0.06	0.06	0.04	0.04	0.04	0.02
A.2	0.07	0.61	0.07	0.06	0.06	0.06	0.07	0.06	0.06	0.05
A.3	0.06	0.58	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.08
A+	0.07	0.61	0.07	0.06	0.06	0.06	0.04	0.07	0.07	0.08
A-	0.04	0.54	0.05	0.04	0.06	0.06	0.07	0.04	0.04	0.02

Table 11. *Positive ideal (A+) and Negative Ideal (A-) Solution Set (2021)*

Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.02	0.03	0.05	0.04	0.06	0.06	0.04	0.04	0.04	0.01
A.2	0.07	0.07	0.06	0.07	0.06	0.06	0.07	0.06	0.06	0.06
A.3	0.07	0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.08
A+	0.07	0.07	0.06	0.07	0.06	0.06	0.04	0.07	0.07	0.08
A-	0.02	0.03	0.05	0.04	0.06	0.06	0.07	0.04	0.04	0.01

Table 12. *Positive ideal (A+) and Negative Ideal (A-) Solution Set (2022)*

Bank Groups	B(1)	B(2)	B(3)	B(4)	B(5)	B(6)	B(7)	B(8)	B(9)	B(10)
A.1	0.02	0.37	0.05	0.04	0.06	0.06	0.04	0.05	0.05	0.03
A.2	0.08	0.69	0.07	0.07	0.06	0.06	0.07	0.05	0.05	0.07
A.3	0.06	0.62	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07
A+	0.08	0.69	0.07	0.07	0.06	0.06	0.04	0.07	0.07	0.07
A-	0.02	0.37	0.05	0.04	0.06	0.06	0.07	0.05	0.05	0.03

In the last stage of the study, the closeness of the alternatives to the ideal solution was calculated. In this last stage, the performance of the variables was calculated and the importance ranks of the results in the last three years were determined. The last three-year performance results of the bank groups subject to the study are shown in Table 13, Table 14 and Table 15 below.

Table 13. Positive Ideal $S(+)$ and Negative Ideal $S(-)$ Discrimination Measure (2020)

Bank Groups	S_i+	S_i-	C_i^*	Ranking
A.1	0.11	0.03	-0.44	3
A.2	0.05	0.09	2.16	1
A.3	0.05	0.09	2.13	2

Table 14. Positive Ideal $S(+)$ and Negative Ideal $S(-)$ Discrimination Measure (2021)

Bank Groups	S_i+	S_i-	C_i^*	Ranking
A.1	0.11	0.03	-0.32	3
A.2	0.04	0.09	1.83	1
A.3	0.03	0.11	1.34	2

Table 15. Positive Ideal $S(+)$ and Negative Ideal $S(-)$ Discrimination Measure (2022)

Bank Groups	S_i+	S_i-	C_i^*	Ranking
A.1	0.33	0.03	-0.10	3
A.2	0.04	0.33	1.13	2
A.3	0.08	0.26	1.43	1

The financial data of three bank groups covering the Covid-19 pandemic period for the years 2020-2021 and 2022 were analyzed with the TOPSIS method and bank groups were ranked according to their annual financial performance. In 2020 and 2021, domestic deposit banks with private capital performed the best, while in 2022, it was concluded that deposit banks with foreign capital performed better. Throughout the pandemic period, state-owned banks have shown a worse financial performance than domestic and foreign capitalized banks throughout the periods analyzed.

5. Conclusion

Competition in the banking sector has made it more important for banks to make the right decisions and work efficiently by using their resources effectively. One of the ways for banks to be successful in today's rapidly changing competitive conditions is to have a detailed decision-making process. In the decision-making process, decision makers try to find the best option among alternatives, apply multi-objective decision-making methods when choosing between options that may conflict with each other and have different objectives, and choose the prioritized one among the options.

The study was conducted to measure and compare the financial performance of public, domestic and foreign private capital deposit banks operating in Turkey in 2020, 2021 and 2022 covering the Covid-19 pandemic period. For this purpose, TOPSIS method, one of the multi-criteria decision-making techniques, was used. Ten different financial ratios (criteria) representing profitability, capital adequacy, liquidity, asset quality and income-expense structure indicators, which are the most important indicators of the financial performance of banks, were used in the study and these ratios were equally weighted as 10%. It should be kept in mind that there is no standardized approach to determine the weights of financial ratios in the overall evaluation and therefore, if the weighting coefficients change, different results may be obtained from the analysis.

As a result of the analysis, it was concluded that domestic deposit banks with private capital performed the best in 2020 and 2021, while deposit banks with foreign capital performed better in 2022. Throughout the pandemic period, public banks were found to have a worse financial performance than domestic and foreign capital banks. The main reason for the poor performance of state-owned banks compared to other bank groups in all three periods analyzed is thought to be due to the fact that they took the lead in meeting the liquidity needs of the markets during the pandemic, as well as debt relief, low or interest-free loans. In the future, a different study can be conducted before, during and after the pandemic to reach a clearer conclusion on the financial performance of bank groups.

It should be noted that TOPSIS, the chosen analysis method, allows its practitioner to make subjective decisions at some points. The selected criteria and the weights given to these criteria are the most important ratios for banking based on expert opinions, but they are subjective. Therefore, measurements made with different criteria and different weights may yield different results.

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