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THE RELATIONSHIP BETWEEN CURRENCY-PROTECTED DEPOSITS AND BANK PERFORMANCE: CASE OF PARTICIPATION BANKS*

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Mustafa Yurttadur[1], Mehmet Zafer Tasci[2]
[1]Bandırma Onyedi Eylul University, Gonen Vocational School, Department of Accounting and Tax, Balikesir, Turkiye.
myurttadur@bandirma.edu.tr , ORCID: 0000-0001-7416-222X
[2]Sivas Cumhuriyet University, Zara Veysel Dursun School of Applied Sciences, Department of Insurance, Sivas, Turkiye.
mztasci@cumhuriyet.edu.tr , ORCID: 0000-0001-5848-259X

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ABSTRACT

Purpose- This study aims to investigate in which way the foreign Currency Protected Deposit (CPD) system that was put on effect from the 21st of December 2021 affected the performance of the participation banks in Turkey. For this purpose, the financial performance of the participation banks during the 12 months preceding and the 9 months following the carrying into action of CPD has been measured by the means of CRITIC and WAPAS that are methods of the Multi-Criteria Decision Making (MCDM) model.

Methodology: The data used within the scope of this study covers the 12 months of the year 2021 and the 9 months of the year 2022 in reason of the fact that 9 months data was available for 2021. The financial performance of the participation banks was assessed based on 5 criteria that are the total dividend revenues, return on assets, return on equity, operating cost/total assets, foreign assets/total shareholder's equity

Findings- It has been established that the most significant criterion in determining the financial performance of the participation banks is the operating cost/total assets while the least significant criterion is the return on equity. Furthermore, within the period that is investigated; the participation banks showed the worst performance in May 2021 and the best in September 2022.

Conclusion- Consequently the performance of the participation banks showed a fluctuation and got down through 2021. Following the carrying into effect of the foreign Currency Protected Deposit (CPD) system, there has been a bettering in the financial performance of the participation banks in 2022; within a couple of months their performance kept raising.

Keywords: Participation banks, financial analysis, financial performance, MCDM, banking sector
JEL Codes: D81, G21, L25

1. INTRODUCTION

Measuring financial performance in the banking sector increases its importance day by day. In addition to performance measurement, determining the factors affecting performance also has importance. We can say that many factors from inside or outside the banks have an impact on financial performance. Some factors affect financial performances positively while some factors affect them negatively. This study determined how the Currency Protected Deposit (CPD) application, which entered into force on December 21, 2021; it affects the financial performances of participating banks in Turkey. In accordance with this purpose, the financial performances of participation banks were measured with CRITIC and WASPAS, which are among the Multi-Criteria Decision Making (MCDM) models, in the 12 months before the implementation and the following 9-month period.

First of all, the weight of each criterion in the performance measurement of the 5 criteria in the measurement financial performance of the participation banks was determined by utilizing the CRITIC method WASPAS method helped to learn how the course of the financial performance of the participation banks in which period.

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*This study was derived from the paper titled "The Effect of Currency Protected Deposits on Financial Performance of Participation Banks" presented at the 11th Istanbul Finance Congress (IFC-2022).

The criteria with the highest weight and the criteria with the lowest criteria were investigated based on the results of the CRITIC method. Moreover, it also tried to investigate in which periods the participation banks achieved the best financial performance and the worst financial performance based on the results of the WASPAS method.

The results of the study also gave us the chance to evaluate the financial performance of participation banks before the implementation of the Currency Protected Deposit application and how their financial performance was after the implementation of the application. The effect of the application on financial performance was also determined by research.

In the part that follows in the study, point has been made on the papers that were made in the literature. In the subsequent part the application procedures and the data set related to the MCDM methods that are used for achieving the goal of the study. In the fourth part of the study are reported the findings of the integrated model that is suggested for performance assessment. While the last section of the study, the fifth part includes the conclusion, the limitations and the suggestions.

2. LITERATURE REVIEW

This part of the study gave some case studies in which ÇKKV techniques are used in measuring the financial performance of participation banks.

Sufian (2007) aimed to measure the efficiency of the Islamic banking sector in Malaysia. The data of the 2001-2005 period in the Malaysian Islamic banking sector were evaluated using the Data Envelopment Analysis method. According to the results, the technical adequacy of foreign banks is higher compared to domestic banks.

Bader et al., (2008) aimed to analyze the efficiency of 80 banks (37 conventional and 43 commercial banks) in their study with 21 countries in the period 1990-2015. The data regarding the relative banks were analyzed with the Data Envelopment Analysis Method. For the results of the analysis, the efficiency of Islamic banks and conventional banks is close to each other.

Ertuğrul and Karakaşoğlu (2011) conducted a study to evaluate the financial performance of 18 branches of a commercial bank using the VIKOR method. According to the results, there is an increase in the performance of 5 branches.

Mandic et al., (2014) used a fuzzy ÇKKV model to measure the financial performance of banks. They evaluated the performances of 35 banks operating in Serbia for the years 2005-2010 using AHP and TOPSIS methods. For the analysis results, banks in Serbia showed a stable performance in the period of 2005-2010.

Wanke et al., (2016) surveyed to analyze the activities of 88 banks belonging to ASEAN countries from 2010 to 2013 using AHP, Artificial Neural Network, and TOPSIS methods. It can be said based on the results that the efficiency of 88 banks was at a low level in the relevant period.

Ural et al., (2018) endeavored to review the performance of 3 public banks operating in Turkey with ENTROPI and WASPAS methods in their study. The data of the banks for the period of 2012-2016 were included in the scope of the analysis. According to the results, Vakıflar Bank showed the best performance in 2012 and 2013 and Ziraat Bank in other years.

Laha and Bisvas (2019) measured the financial performance of 10 banks operating in India for 5 years between 2012-2017. ENTROPY and COPRAS methods were used in the analysis part of the study. The study found consistent results and it was observed that private-sector banks showed better performance compared to the public sector.

Sarı (2020) compared TOPSIS and PROMEETHE methods in evaluating bank performance. He evaluated 11 Turkish banks over 13 financial ratios. It is observed based on the analysis results that both methods are effective in determining the bank's performance.

Aydın (2020) measured the 2019 performance of state-owned banks operating in Turkey. The performance evaluation of the banks was performed using CRITIC and MAIRCA methods. They determined at the end of the survey that Ziraat Participation Bank showed the best performance in the participation banking sector, Türk Exim Bank in the development and investment banking sector, and Vakıflar Bank in the deposit banking sector.

Akbulut (2020) aimed to measure the performance of the 10 banks with the largest asset size operating in Turkey for the year 2018. The analysis of the data related to the banks in question was made using Gray Entropy, PSI, and ARAS methods. For the results of the Gray Entropy method. Performance ranking made with PSI and ARAS methods showed that Ziraat Bank is the bank with the best performance in the relevant period.

Özkan (2020) measured to review the financial performances of 5 participation banks operating in Turkey for the period 2016-2018 with the TOPSIS method. He concluded that Türkiye Finans Participation Bank showed the best performance.

Yazdi et al. (2020) endeavored to reveal how the performances of banks can be evaluated with a balanced scorecard and MCDM methods. SWARA and WASPAS methods helped to review 6 banks operating in Colombia. For the results, the International Bank of Colombia shows better performance compared to other Colombian banks.

Bayram (2021) conducted research by using CRITIC and EDAS methods from MCDM techniques to evaluate the performance of participation banks operating in Turkey. The alternatives were listed with the EDAS method after the weights of the criteria were determined with the CRITIC method. According to findings, Ziraat Participation showed the best performance in 2019.

Yılmaz and Yakut (2021) analyzed the financial performance of 22 banks traded in BIST in their study. ENTROPY, TOPSIS, and VIKOR methods helped to evaluate the performance of relevant banks over 26 criteria for the period 2009-2018. It was concluded based on ENTROPI method that the criterion with the highest weight is the Liquid Assets / Short-Term Liabilities criterion while the same banks take place in the first three ranks according to both techniques based on TOPSIS and VİKOR methods.

Kendirli and Ergenoğlu (2022) measured the financial performance of 10 banks traded in the BIST with the TOPSIS method. They reviewed the performance via 13 criteria consisting of the data of the banks between the years 2017 and 2019; for the results, the bank with the best performance in the relevant period is the Industrial Development Bank of Turkey.

3. DATA AND METHODOLOGY

This paper uses a hybrid MCDM method consisting of CRITIC and WASPAS methods to measure the effect of Currency Protected Deposit on the financial performance of participation banks. The data regarding the relevant banks were received from the website of the Banking Regulation and Supervision Agency (BRSA). Since it was possible to reach 12-month data for 2021 and 9 months for 2022 at the time of the study, 9 months of data were included in the analysis. 5 criteria helped to evaluate the financial performance of participation banks: Total Dividend Income, Return on Assets, Return on Equity, Operating Expenses/Total Assets, and Foreign Resources/Total Equity. The target direction of the first three criteria was maximum while the last two criteria as minimum, respectively. The criteria were respectively coded as K1, K2, K3, K4, and K5 in the analysis part of the study.

3.1. Critic Method

One of the objective weighting methods introduced in the literature by Diakoulaki et al., in 1995 is the CRITIC method. There can be made an objective weighting by using the standard deviations of the criteria and the correlation between the criteria. The application procedures of the CRITIC method can be seen below (Diakoulaki et al., 1995:764-765; Akbulut, 2020: 475-476):

Step 1: A decision matrix is established with m alternatives and n criteria in the first step of the CRITIC method, with the help of Equation (1).

$$X = \left[x_{ij}\right]_{m*n} = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ x_{m1} & x_{m2} & \cdots & x_{mn} \end{bmatrix} \quad (1)$$

Step 2: The normalization process, in the second step of the method, is applied to convert the criteria with different measurement units into common values. Here, Equation (2) is used for useful criteria while Equation (3) is used for useless criteria.

$$r_{ij} = \frac{x_{ij} - x_j^{min}}{x_j^{max} - x_j^{min}} \quad (2)$$

$$r_{ij} = \frac{x_j^{max} - x_{ij}}{x_j^{max} - x_j^{min}} \quad (3)$$

Step 3: In the third step of the CRITIC method, the correlation between criteria is calculated with the help of Equation (4) and the correlation coefficient matrix is established.

$$\rho_{jk} = \frac{\sum_{i=1}^{m} (r_{ij} - \overline{r_j})(r_{ik} - \overline{r_k})}{\sqrt{\sum_{i=1}^{m} (r_{ij} - \overline{r_j})^2 \sum_{i=1}^{m} (r_{ik} - \overline{r_k})^2}} \quad (4)$$

Step 4: Calculating C_j value. The knowledge level of each criterion (C_j) is calculated with the help of Equation (5). the standard deviation value (σ_j) of the column elements of the normalized decision matrix is utilized here.

$$C_j = \sigma_j \sum_{k=1}^{n} (1 - t_{jk}),\ j = 1,2,\ldots,n \quad (5)$$

Step 5: Criterion weights are obtained by using Equation (6) in the last step of the method

$$w_j = \frac{C_j}{\sum_{k=1}^{n} C_k};\ \sum_{j=1}^{n} w_j = 1 \text{ ve } j \text{ ve } k = 1,2,\ldots,n \quad (6)$$

3.2. Waspas Method

WASPAS method that is suggested by Zavadskas et al. (2012) is a MCDM method that integrates weighted sum (WSM) and weighted product (WPM) models. The application steps of the WASPAS method can be seen below (Zavadskas et al., 2012: 3-4; Ghorabaee et al.,. 2016: 217; Karabasevic et al.,. 2016: 5-6).

In the first step of the method, the decision matrix is established as in the CRITIC method.

$$X = \left[x_{ij}\right]_{m*n} = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ x_{m1} & x_{m2} & \cdots & x_{mn} \end{bmatrix} \quad (7)$$

The decision matrix elements are normalized in the second application step of the WASPAS method. Here, Equation (8) is used for useful criteria while Equation (9) is utilized for useless criteria.

$$X_{ij}^{+} = \frac{x_{ij}}{max_{ixij}} \quad (8)$$

$$X_{ij}^{-} = \frac{min_{ixij}}{x_{ij}} \quad (9)$$

Equation (10), in the third step, helped to calculate the total relative importance value for each alternative based on the WSM model.

$$Q_i^1 = \sum_{j=1}^{n} X_{ij}^{*} W_j \quad (10)$$

W_j= The criterion weight calculated by the SD method.

In the fourth step, the total relative importance value for each alternative is computed via Equation (11) based on the WPM model.

$$Q_i^2 = \prod_{j=1}^{n} (X_{ij}^{*})^{W_j} \quad (11)$$

The combined optimality value for each alternative is found with the help of Equation (12) in the fifth application step of the WASPAS method.

$$Q_i = 0.5Q_i^1 + 0.5Q_i^2 \quad (12)$$

In the last step of the method, the alternatives are aligned based on the combined optimality value with the help of Equation (13). The alternative with the highest $Q_i$value is considered the best alternative. WASPAS model turns into WPM if X coefficient is accepted as 0 while the same model turns into WSM if X coefficient is accepted as 1.

$$Q_i = \lambda Q_i^{(1)} + (1-\lambda) Q_i^{(2)}, \quad (13)$$

λ=0,0.1,0.2,0.3,0.4,…….1

Right of option is left to the decision maker about which value the λ coefficient will take in the range of 0-1. Moreover, for Zavadskas et al., (2012), the optimal value should be calculated when λ coefficient is determined. Optimal λ değeri Eşitlik (14) yardımı ile hesaplanmaktadır. Optimal λ value is calculated with the help of Equation (14).

$$\lambda = \frac{\sigma^2 Q_i^{(2)}}{\sigma^2 Q_i^{(1)} + \sigma^2 Q_i^{(2)}} \quad (14)$$

4. FINDINGS AND DISCUSSIONS

This part of the study shows the stages of the analysis methods and the findings related to the analysis results. In the first place the application of the analysis steps of the CRITIC method shall be shown then the CRITIC methods shall be displayed. After determining the importance weight of the criteria with the CRITIC method, the WASPAS method analysis steps then shall be given and finally the results obtained according to the WASPAS method shall be identified.

4.1. Results of Critic Method

Table 1 shows the decision matrix established by using the period range data included in the scope of the study on participation banks. By using the data from the banking sector for the period January 2021- September 2022 it has been made use of the Equivalence (1) in the creation of the decision matrix.

Table 1: Initial Decision Matrix

Year/Month	K1	K2	K3	K4	K5
2022/9th Month	70.390,43	2,29	44,55	1,13	1.388,47
2022/8th Month	61.092,41	2,17	41,70	0,97	1.374,74
2022/7th Month	51.046,08	1,89	35,99	0,84	1.428,87
2022/6th Month	42.266,77	1,62	30,41	0,73	1.394,13
2022/5th Month	33.015,72	1,28	23,78	0,61	1.419,68
2022/4th Month	24.551,54	0,91	16,92	0,52	1.414,74
2022/3rd Month	18.177,01	0,64	12,18	0,40	1.599,07
2022/2nd Month	10.881,41	0,50	9,45	0,27	1.548,60
2022/1st Month	4.701,23	0,19	3,78	0,15	1.801,93
2021/12th Month	37.075,63	1,04	18,31	1,44	1.855,78
2021/11th Month	32.661,54	0,81	13,83	1,30	1.848,85
2021/10th Month	28.686,70	0,71	11,73	1,22	1.544,63
2021/9th Month	25.378,68	0,64	10,46	1,11	1.492,89
2021/8th Month	22.170,79	0,61	9,80	1,00	1.439,29
2021/7th Month	19.015,03	0,48	7,77	0,88	1.447,52
2021/6th Month	16.128,34	0,42	6,74	0,77	1.464,99
2021/5th Month	13.218,00	0,34	5,32	0,65	1.465,74
2021/4th Month	10.349,75	0,28	4,29	0,54	1.418,24
2021/3rd Month	7.746,23	0,21	3,29	0,42	1.414,51
2021/2nd Month	4.890,97	0,14	2,08	0,28	1.331,97
2021/1st Month	2.589,13	0,08	1,34	0,22	1.461,65

Decision matrix elements were normalized using equations (2) and (3). Table 2 shows the normalized decision matrix.

Table 2: Normalized Decision Matrix

Year/Month	K1	K2	K3	K4	K5
2022/9th Month	1,00	1,00	1,00	0,24	0,89
2022/8th Month	0,86	0,95	0,93	0,36	0,92
2022/7th Month	0,71	0,82	0,80	0,46	0,82
2022/6th Month	0,59	0,70	0,67	0,55	0,88
2022/5th Month	0,45	0,54	0,52	0,64	0,83
2022/4th Month	0,32	0,37	0,36	0,72	0,84
2022/3rd Month	0,23	0,25	0,25	0,81	0,49
2022/2nd Month	0,12	0,19	0,19	0,91	0,59
2022/1st Month	0,03	0,05	0,06	1,00	0,10
2021/12th Month	0,51	0,43	0,39	0,00	0,00
2021/11th Month	0,44	0,33	0,29	0,11	0,01
2021/10th Month	0,38	0,28	0,24	0,17	0,59
2021/9th Month	0,34	0,25	0,21	0,26	0,69
2021/8th Month	0,29	0,24	0,20	0,35	0,80
2021/7th Month	0,24	0,18	0,15	0,43	0,78
2021/6th Month	0,20	0,15	0,13	0,52	0,75
2021/5th Month	0,16	0,11	0,09	0,61	0,74

2021/4th Month	0,11	0,09	0,07	0,70	0,84
2021/3rd Month	0,08	0,06	0,05	0,79	0,84
2021/2nd Month	0,03	0,02	0,02	0,90	1,00
2021/1st Month	0,00	0,00	0,00	0,95	0,75

Table 3 shows correlation coefficient matrix showing the degree of relationship between criteria created by using normalized decision matrix elements with the help of Equation (4)

Table 3: Correlation Matrix

	K1	K2	K3	K4	K5
K1	**1,00**	**0,98**	**0,97**	**-0,65**	**0,11**
K2	**0,98**	**1,00**	**1,00**	**-0,49**	**0,19**
K3	**0,97**	**1,00**	**1,00**	**-0,45**	**0,20**
K4	**-0,65**	**-0,49**	**-0,45**	**1,00**	**0,26**
K5	**0,11**	**0,19**	**0,20**	**0,26**	**1,00**

Table 4 shows the C_j ve W_j (criteria weights) values for each criterion, obtained by using the standard deviation values of the criteria with the help of Equations (5) and (6)

Table 4: C_j Values Related to Criteria and Importance Weights of Criteria (W_j)

	K1	K2	K3	K4	K5
C_j	0,715610136	0,699138292	0,687701507	1,56649609	0,940867036
$\mathbf{W_j}$	0,155236259	0,151663046	0,149182081	**0,339817704**	0,204100909

Results of CRITIC method show that the criterion with the highest weight in determining the financial performance of participation banks (K4) is the Operating Expense/Total Assets criterion. Regarding Table 4, the criterion with the lowest effect in determining the financial performance of participation banks (K3) is the Return on Equity criterion.

4.2. Results of Waspas Method

The success ranking of the participation banks in the analysis period is evaluated by the WASPAS method at this stage of the application. The initial decision matrix in Table 1 was established within the WASPAS method. Table 5 shows the normalized decision matrix created using equations (8) and (9).

Table 5: WASPAS Method-Normalized Decision Matrix

Year/Month	K1	K2	K3	K4	K5
2022/9th Month	1	1	1	0,13625179	0,959309852
2022/8th Month	0,867907915	0,947033587	0,935896307	0,158574101	0,968888578
2022/7th Month	0,725184952	0,826164089	0,807731475	0,182959698	0,932182535
2022/6th Month	0,600461909	0,708997562	0,68252175	0,21161538	0,955411214
2022/5th Month	0,469037074	0,558122082	0,533769992	0,251226567	0,938219198
2022/4th Month	0,348790933	0,396880725	0,379647132	0,298738002	0,941493071
2022/3rd Month	0,258231343	0,279735142	0,273448159	0,383394156	0,832966827
2022/2nd Month	0,154586465	0,217604888	0,211998931	0,569961285	0,86011347
2022/1st Month	0,066787919	0,082645162	0,084780464	1	0,739191829
2021/12th Month	0,526714166	0,452803146	0,410916672	0,107304427	0,717739775
2021/11th Month	0,464005452	0,352518365	0,310318495	0,118507451	0,720429674
2021/10th Month	0,407537005	0,308801746	0,263340838	0,126400402	0,862324501
2021/9th Month	0,360541679	0,278871682	0,234693938	0,139103562	0,892209912
2021/8th Month	0,314968762	0,26403798	0,21988779	0,155188908	0,925436287

2021/7th Month	0,270136599	0,211044079	0,174472841	0,175229682	0,920172525
2021/6th Month	0,229126831	0,184442632	0,151343446	0,200401231	0,909199825
2021/5th Month	0,187781179	0,147089609	0,119375755	0,236256188	0,908736073
2021/4th Month	0,147033421	0,120348543	0,096383944	0,284093104	0,939168673
2021/3rd Month	0,110046686	0,092918105	0,073809553	0,365385662	0,941643352
2021/2nd Month	0,069483399	0,059474428	0,046766164	0,550411468	1
2021/1st Month	0,036782403	0,036585988	0,030042262	0,714612929	0,911275912

Table 6 shows the total relative importance value calculated with the help of Equation (10) for each alternative based on the WSM model after the normalization process

Table 6: Q_i^1 Values of Alternatives

Year/Month	K1	K2	K3	K4	K5	Q_i^1
2022/9th Month	0,155236	0,151663	0,149182	0,046301	0,195796	0,698178
2022/8th Month	0,134731	0,143630	0,139619	0,053886	0,197751	0,669617
2022/7th Month	0,112575	0,125299	0,120499	0,062173	0,190259	0,610805
2022/6th Month	0,093213	0,107529	0,101820	0,071911	0,195000	0,569473
2022/5th Month	0,072812	0,084646	0,079629	0,085371	0,191491	0,513950
2022/4th Month	0,054145	0,060192	0,056637	0,101516	0,192160	0,464650
2022/3rd Month	0,040087	0,042425	0,040794	0,130284	0,170009	0,423599
2022/2nd Month	0,023997	0,033003	0,031626	0,193683	0,175550	0,457859
2022/1st Month	0,010368	0,012534	0,012648	0,339818	0,150870	0,526237
2021/12th Month	0,081765	0,068674	0,061301	0,036464	0,146491	0,394695
2021/11th Month	0,072030	0,053464	0,046294	0,040271	0,147040	0,359100
2021/10th Month	0,063265	0,046834	0,039286	0,042953	0,176001	0,368338
2021/9th Month	0,055969	0,042295	0,035012	0,047270	0,182101	0,362647
2021/8th Month	0,048895	0,040045	0,032803	0,052736	0,188882	0,363361
2021/7th Month	0,041935	0,032008	0,026028	0,059546	0,187808	0,347325
2021/6th Month	0,035569	0,027973	0,022578	0,068100	0,185569	0,339788
2021/5th Month	0,029150	0,022308	0,017809	0,080284	0,185474	0,335025
2021/4th Month	0,022825	0,018252	0,014379	0,096540	0,191685	0,343681
2021/3rd Month	0,017083	0,014092	0,011011	0,124165	0,192190	0,358541
2021/2nd Month	0,010786	0,009020	0,006977	0,187040	0,204101	0,417924
2021/1st Month	0,005710	0,005549	0,004482	0,242838	0,185992	0,444571

Table 7 shows the total relative importance value for each alternative calculated with the help of Equation (11) based on the WPM model.

Table 7: Q_i^2 Values of Alternatives

Year/Month	K1	K2	K3	K4	K5	Q_i^2
2022/9th Month	1,000000	1,000000	1,000000	0,507965	0,991557	0,503677
2022/8th Month	0,978248	0,991780	0,990165	0,534841	0,993570	0,510499
2022/7th Month	0,951342	0,971454	0,968648	0,561481	0,985769	0,495490
2022/6th Month	0,923874	0,949179	0,944611	0,589942	0,990733	0,484150
2022/5th Month	0,889118	0,915352	0,910597	0,625362	0,987068	0,457460
2022/4th Month	0,849160	0,869224	0,865468	0,663276	0,987771	0,418526

2022/3rd Month	0,810443	0,824313	0,824123	0,721964	0,963385	0,382932
2022/2nd Month	0,748394	0,793503	0,793416	0,826099	0,969712	0,377446
2022/1st Month	0,656978	0,685144	0,692024	1,000000	0,940185	0,292864
2021/12th Month	0,905270	0,886777	0,875748	0,468367	0,934550	0,307724
2021/11th Month	0,887631	0,853737	0,839821	0,484443	0,935264	0,288350
2021/10th Month	0,869929	0,836765	0,819505	0,495174	0,970220	0,286594
2021/9th Month	0,853539	0,823926	0,805546	0,511554	0,976990	0,283128
2021/8th Month	0,835820	0,817124	0,797753	0,530934	0,984309	0,284735
2021/7th Month	0,816133	0,789828	0,770689	0,553305	0,983163	0,270248
2021/6th Month	0,795537	0,773853	0,754510	0,579126	0,980759	0,263827
2021/5th Month	0,771338	0,747744	0,728270	0,612441	0,980657	0,252273
2021/4th Month	0,742596	0,725332	0,705394	0,652043	0,987272	0,244588
2021/3rd Month	0,709934	0,697427	0,677864	0,710257	0,987803	0,235475
2021/2nd Month	0,661025	0,651795	0,633254	0,816359	1,000000	0,222735
2021/1st Month	0,598874	0,605491	0,592796	0,892094	0,981216	0,188158

The alternatives are aligned with the help of Equation (13) by using the WSM and WPM values. It is accepted as λ= 0.50 while calculating the composite optimality value. Table 8 shows the monthly total relative importance values and performance rankings of participation banks for the period of January 2021 and September 2022.

Table 8: WASPAS Method-Performance Ranking of Participation Banks for the Period of January 2021–September 2022

Year/Month	Q_i	Rank
2022/9th Month	0,60092749	**1**
2022/8th Month	0,590058277	2
2022/7th Month	0,553147468	3
2022/6th Month	0,526811741	4
2022/5th Month	0,485704565	5
2022/4th Month	0,441587948	6
2022/3rd Month	0,403265675	9
2022/2nd Month	0,417652572	7
2022/1st Month	0,409550827	8
2021/12th Month	0,351209518	10
2021/11th Month	0,323724873	13
2021/10th Month	0,327466265	11
2021/9th Month	0,322887436	14
2021/8th Month	0,324047962	12
2021/7th Month	0,308786683	17
2021/6th Month	0,301807716	18
2021/5th Month	0,293649263	**21**
2021/4th Month	0,294134408	20
2021/3rd Month	0,297008226	19
2021/2nd Month	0,320329111	15
2021/1st Month	0,316364589	16

We can say when Table 8 is reviewed that participation banks showed the worst performance in May 2021, based on the results of the WASPAS method. The period with the best performance is September 2022.

5. CONCLUSION AND IMPLICATIONS

Since this paper scrutinizes the 12 months before the Currency Protected Deposit application and the 9 months after the application, it is possible to make a comparison between before and after the application. 5 different criteria to be used in measuring financial performances were determined to make this comparison. According to the results obtained with the CRITIC method, the criterion with the highest weight is Operating Costs/Total Assets, and the criterion with the lowest weight is Return on Equity. Moreover, for the WASPAS method, the worst performance occurred in May 2021.

We can say based on the analysis results that the performance of participation banks followed a fluctuating course in 2021 and decreases were observed in the performances during the year. The financial performance of participation banks has increased with the Currency Protected Deposit (KKM) application and the performance increased continuously in 2022; the best performance was in September 2022.

With reference to the findings, the Currency Protected Deposit application affects the financial performance of participation banks positively. It is thought that the study will be a guide for future studies. The effect of Currency Protected Deposits on the performance of the banking sector can be determined from a broader profile after adding up-to-date data and including the entire banking sector in the scope of the study.

REFERENCES

Akbulut, O. Y. (2020). Finansal performans ile pay senedi getirisi arasındaki ilişkinin bütünleşik CRITIC ve MABAC ÇKKV teknikleriyle ölçülmesi: Borsa İstanbul çimento sektörü firmaları üzerine ampirik bir uygulama. Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, (40), 471-488.

Akbulut, O. Y. (2020). Gri Entropi Temelli PSI ve ARAS ÇKKV yöntemleriyle Türk mevduat bankalarının performans analizi. Finans Ekonomi ve Sosyal Araştırmalar Dergisi, 5 (2), 171-187.

Aydın, Y. (2020). Bütünleşik CRITIC ve MAIRCA yöntemleri ile kamu sermayeli bankalarının performans analizi. Finans Ekonomi ve Sosyal Araştırmalar Dergisi, 5 (4), 829-841.

BADER, S. M., ARIFF, M. and TAUFIG, H. S. (2008). Cost, revenue and profit efficiency of Islamic Versus Conventional Banks: International evidence using data envelopment analysis. Islamic Economic Studies, 5(12), 23-76.

Bayram, E. (2021). Türkiye'deki katılım bankalarının CRITIC temelli EDAS yöntemiyle performans değerlendirmesi. Finansal Araştırmalar ve Çalışmalar Dergisi, 13 (24), 55-72.

Diakoulaki, D., Mavrotas, G., & Papayannakis, L. (1995). Determining objective weights in multiple criteria problems: The CRITIC Method. Computers & Operations Research, 22(7), 763-770.

Ertuğrul, İ., Karakaşoğlu, N. (2011). Banka şube performanslarının VIKOR yöntemi ile değerlendirilmesi. Endüstri Mühendisliği Dergisi, 20(1), 19-28.

Ghorabaee, M. K., Zavadskas, E. K., Amiri, M., & Esmaeili, A. (2016). Multi-criteria evaluation of green suppliers using an extended WASPAS method with interval type-2 fuzzy sets. Journal of Cleaner Production, 137, 213-229.

Karabašević, D., Stanujkić, D., Urošević, S., & Maksimović, M. (2016). An approach to personnel selection based on SWARA and WASPAS methods. Bizinfo (Blace) Journal of Economics, Management and Informatics, *7*(1), 1-11.

Kendirli, S. & Ergenoğlu, S. (2022). Borsa İstanbul Banka Endeksi'nde (BİST Banka) yer alan bankaların performanslarının TOPSIS yöntemi ile analizi. MANAS Sosyal Araştırmalar Dergisi, 11 (2), 612-619.

Laha, S & Biswas, S. (2019). A hybrid unsupervised learning and multi-criteria decision making approach for performance evaluation of Indian banks. Accounting, 5(4), 169-184.

Mandic, K., Delibasic, B., Knezevic, S., & Benkovic, S. (2014). Analysis of the financial parameters of Serbian banks through the application of the fuzzy AHP and TOPSIS methods. Economic Modelling, 43, 30-37.

Özkan, T. (2020). Türk bankacılık sektöründe finansal performans ölçmede TOPSIS yönteminin kullanımı: Katılım bankaları üzerine bir uygulama. Maliye ve Finans Yazıları, 113, 47-64.

Sarı, T., (2020), Banka performans ölçümünde TOPSIS ve PROMETHEE yöntemlerinin karşılaştırılması, Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi, 34(1), 103-122.

SUFIAN, F. (2007). The efficiency of Islamic Banking Industry: A non-parametric analysis with non discretionary input variable. Islamic Economic Studies, 14(1-2), 53-78.

Ural, M., Demireli, E. & Güler Özçalık, S. (2018). Kamu bankalarında performans analizi: ENTROPİ ve WASPAS yöntemleri ile bir uygulama. Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, (31), 129-141.

Wanke, P., Kalam Azad M. A., Barros, C. P. And Hadı-Vencheh, A. (2016). Predicting Performance in ASEAN Banks: An Intagrated Fuzzy MCDM-Neural Network Approach. Expert Systems, 33(3), 213-229.

Yazdi, Amir Karbassi., Hanne, Thomas. & Osorıo Gomez, Juan Carlos. (2020). Evaluating the performance of Colombian Banks by hybrid multicriteria decision making methods. Journal of Business Economics and Management, 21(6), 1707-1730.

Yılmaz, Ö. & Yakut, E. (2021). Entropi temelli TOPSIS ve VIKOR yöntemleri ile bankacılık sektöründe finansal performans değerlendirmesi. Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi, 35 (4), 1297-1321.

Zavadskas, E. K., Turskis, Z., Antucheviciene, J., & Zakarevicius, A. (2012). Optimization of weighted aggregated sum product assessment. Elektronikair Elektrotechnika, 122(6), 3-6.