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Analysis of Financial Performance of Public Sports Clubs in Türkiye via CRITIC-Based SAW Method

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Abstract
Sports activities have been performed as a spectacle since ancient times. With the start of the Olympics, sports competitions were organized for the entertainment of the masses in Ancient Greece and later in the Roman Empire. Since the end of the nineteenth century, clubs have been established in many sports branches, especially football, and they have had large fan bases. The establishment of different clubs by different socioeconomic, political and religious strata has also caused these clubs to be positioned in a different place than the purpose of sports. The financial aid of their supporters to these structures, which have the status of association, has enabled the formation of a local and global economy. Sports economy, which was previously non-profit, has turned into for-profit service companies in recent years, especially with the purchase of sports clubs by business people, and they have become public by incorporation. Although many sports clubs are joint stock companies in Türkiye, four of them are traded on Borsa İstanbul. In the study, the financial performance of sports clubs has been examined based on the data of these publicly traded companies. Within the scope of the study, the criteria used in the study have been weighted with the CRITIC method, and the performances of the alternatives have been evaluated with the SAW method. As a result, it has been determined that there is a relationship between working financial performance and sportive success.

Keywords: Sports Clubs, financial performance, CRITIC method, SAW method

Türkiye'de Halka Açık Spor Kulüplerinin Finansal Performansının CRITIC Tabanlı SAW Yöntemi ile Analizi

Öz
Spor faaliyetleri antik çağlardan beri seyirlik şekilde de yapılmıştır. Olimpiyatların başlaması ile Antik Yunan'da ve daha sonra Roma İmparatorluğu'nda kitlelerin eğlenmesi amacıyla spor müsabakaları düzenlenmiştir. Ondokuzuncu yüzyılın sonlarından itibaren başta futbol olmak üzere birçok spor dalında kulüpler kurulmuş büyük taraftar kitlelerine sahip olmuşlardır. Değişik sosyoekonomik, politik ve dini tabakaların farklı kulüpler kurması, bu kulüplerin spor amacından daha farklı bir yere konumlanmasına da neden olmuştur. Dernek statüsünde olan bu yapılara taraftarlarının maddi yardımlarda bulunması burada bir ekonominin oluşmasını sağlamıştır. Önceleri kâr amacı olmayan spor ekonomisi son yıllarda özellikle iş insanlarının spor kulüplerini satın almaları ile kâr amacı güden hizmet firmalarına dönüşmüşler, şirketleşerek halka açık hale gelmişlerdir. Türkiye'de birçok spor kulübü anonim şirket olmakla birlikte bunlardan dört tanesi Borsa İstanbul'da işlem görmektedir. Çalışmada bu halka açık firmaların verilerinden hareketle spor kulüplerinin finansal performansı incelenmiştir. Çalışma kapsamında CRITIC metodu ile çalışmada kullanılan kriterler ağırlıklandırılmış, SAW metodu ile alternatiflerin performansları değerlendirilmiştir. Çalışma sonucunda finansal performans ile sportif başarı arasında bir ilişki olduğu saptanmıştır.

Anahtar Kelimeler: Spor kulüpleri, finansal performans, CRITIC metodu, SAW metodu

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Introduction

Sports activities have been a part of human existence since ancient times. Historically, it is possible to point to certain competitions organized for the entertainment of aristocrats, especially in the civilizations of Greece and Rome. It is also known that various sports competitions, such as the Olympics, began during the Greek civilization. Although recreational sports activities faced interruptions during various wartime periods, they have continued to exist consistently.

The concept of leisure time emerged with the industrial revolution; especially as western societies transitioned from agrarian to industrial societies. As people began to work in large industrial facilities and concepts like annual paid leave and weekend breaks emerged, the idea of leisure time has arisen. The development of the concept of leisure time, along with other recreational activities, has also contributed to the development of individual sports activities. This situation has facilitated the incorporation of physical education, consisting of games, gymnastics, and sports activities that enhance physical, mental, and intellectual development, foster maturity, and ensure the achievement of maximum efficiency with minimal fatigue, into the education system (Uluışık, Beyleroğlu, Suna, & Yalçın, 2016). This has led to the institutionalization of sports activities in the modern times. Participation in sports competitions as a leisure activity is particularly high in countries with a high standard of living. According to Statista data from 2022, in the United States, roughly 26% of individuals consider themselves fanatically devoted to any sports club, which amounts to around 60 million people. In many countries, sports clubs represent religious, ethnic, socio-economic, and sometimes political divisions. For instance, in Scotland, the rivalry between Celtic (Catholic) and Glasgow Rangers (Protestant) clubs represents sectarian divisions (Davies, 2006). In Spain, the rivalry between Barcelona (Catalan nationalism) and R.C.D. Espanyol (Spanish nationalism) represents ethnic divisions (Barcelo, 2014). In Türkiye, the rivalry between Ankaragücü, Gençlerbirliği, (Bora, 2012) and in Argentina, between River Plate and Boca Juniors, (Bulut & Dever, 2019) represents socio-economic divisions. Likewise in Egypt, the rivalry between Al Ahly and Zamalek, (Giibril, 2018) and in Italy, between Roma and Lazio, (Demir & Rigoni, 2017) represents political divisions. In that manner the allegiance to sports clubs goes beyond simple fandom and provides a significant sense of belonging, motivating supporters to provide both financial and moral support to their clubs.

Attachment to sports clubs' performance is not only watching matches but also generating significant economic activity through the sale of club-produced or club-endorsed products and other economic activities. Competition permeates not only sports events but also all aspects of life, leading fans to support their clubs with higher motivation. This phenomenon has contributed to the significant market size of the sports sector on a global scale, which reached approximately $500 billion in 2022 (The Business Research Company, 2022). The industry's growth has also led sports clubs to transform into companies with a strong focus on generating substantial revenue, beyond just sporting success.

In Türkiye, sports clubs began to be established in the early 1900s, with a focus on football. Some of these clubs were founded by foreign educational institutions in İstanbul and İzmir, while others were established by government institutions during this period. With the development of capital markets and the enactment of necessary legal regulations, sports clubs became corporate entities and started trading on stock exchanges. Licensed product sales, competition-based revenues, and tournament earnings play a significant role in the income of sports clubs. Sports clubs have high brand values, and their sporting success affects their income, thereby influencing the financial performance of companies.

In this study, the financial performance of four sports clubs traded on Borsa İstanbul (İstanbul Stock Exchange) will be examined. The study will use multi-criteria decision-making methods to measure the financial performance of these four football clubs that are active and publicly traded in Türkiye. Multi-criteria decision-making methods are generally applied in two stages. In the first stage, the weights of the specified criteria are determined in the decision-making process. In the subsequent stage, these determined weights are included in the process, and the performance of alternatives is evaluated. The CRITIC method will be used for weighting the criteria, and the SAW method will be used for evaluating the alternatives within the scope of this study.

Literature Review

In their study in 2016, Pradhan, Boyukaslan, and Ecer measured the financial performance of Italian football clubs using the Grey Relational Analysis method and concluded that there is a relationship between financial performance and sporting performance. Çatı, Eş, and Özevin (2017) examined the financial and

sporting performance of football teams in Europe using the Entropy-based TOPSIS method. They found that high transfer expenses have a negative impact on sporting success, while the average number of spectators per match has a positive impact on financial and sporting performance. In their study in 2017, Sakınc, Acıkalın, and Soygüden examined the relationship between financial performance and sporting performance in European football. They found a weak positive relationship between sporting success and financial performance, but suggested that further studies incorporating other data should be conducted to confirm the results. Ergül (2017) investigated the relationship between the financial and sporting success of publicly traded football clubs in Türkiye. His study found that success in sports competitions has a positive impact on financial statements, thus indicating that sporting success positively affects financial success. Güngör and Uzun Kocamış (2018) examined the financial performance of publicly traded football clubs in the UK using the TOPSIS method. They concluded that football clubs without sufficient equity negatively affect their financial performance. Aslan (2018) analyzed the financial performance of publicly traded football clubs in Türkiye using ratio analysis. His study found that companies are operating with negative working capital and have high debt ratios. In their study in 2019, Özdağaoğlu and Keleş examined the financial performance of publicly traded football clubs in Türkiye using the Entropy-based ROV method from a sports management perspective. They concluded that despite sporting success, poor management prevents firms from demonstrating the same level of success in terms of financial performance.

Gonçalves et al. (2020) studied the impact of the sporting performance of Brazilian football clubs on their financial performance. They found that sporting success has a positive effect on the financial performance of football clubs in Brazil and also contributes to significant export revenue through player exports. Alaminos et al. (2020) examined the financial performance of European football clubs and found that the variables that have the highest impact on financial performance are liquidity, leverage ratio, and sporting success. In their study in 2020, Aytekin and Orakçı analyzed the performance of sports clubs using multi-criteria decision-making and aggregation methods. They found a relationship between sporting success and financial success and concluded that sports clubs need to improve their financial performance for sustainable financial success. Güngör and Sarı (2021) examined the relationship between the sporting success and financial performance of publicly traded sports clubs in Türkiye. They found relationships between sporting success and various financial performance indicators, but also identified some negative relationships. Aktaş and Avşar (2021) concluded in their study where they examined the relationship between sports clubs' images and stock performance that financially positive results were associated with sporting success, and making correct moves in sports led to high financial performance by increasing revenues. Elden Ürgüp and Demir (2021) found in their study investigating the relationship between financial performance and sporting success that increasing financial success is related to improved financial performance. Karadeniz and İskenderoğlu (2022), in their study examining the impact of COVID-19 on the financial performance of football clubs through five national leagues affiliated with UEFA, concluded that all the clubs studied were at risk of liquidity. During the COVID-19 period, there was a decrease in cash reserves, but there was no significant change in leverage ratios. Activity ratios were affected by the pandemic, while profitability ratios did not undergo significant changes. Cash flow ratios exhibited movements in different directions depending on the countries. Aslantaş Ateş and Derer (2022) found in their study where they analyzed sports clubs' stock returns from the perspective of behavioral finance that sporting success positively impacts a sports club's stock, whereas in the case of sporting failure, the stock performance of all clubs examined in the study was negatively affected. In his study conducted in 2022, Abbas examined the impact of the financial and sporting achievements of football clubs on their stock prices. He concluded that the influence of sporting success on financial performance varies in terms of both degree and magnitude for each club. It was found that while some clubs' sporting success had a positive effect on their stock prices, for others, this impact remained statistically insignificant.

Method

In this section of the study, the methods to be used will be examined. The criteria most commonly utilized in the literature will be applied in the study. Within the scope of the research, Beşiktaş Jimnastik Kulübü A.Ş.[2], Fenerbahçe Spor Kulübü A.Ş., Galatasaray Spor Kulübü A.Ş., and Trabzonspor A.Ş. clubs will be analyzed.

[2] A.Ş. stands for Anonim Şirket in Turkish and states Joint Stock Company.

Table 1 *Criteria*

Criteria	Ratio	References
ROA	Net income/total assets	(Dimitropoulos & Limperopoulos, 2014)
receivables turnover	Credit sales/average trade receivables	(Aslan, 2018)
Current liabilities/Total liabilities	Short-term liabilities/total liabilities	(Say & Doğan, 2022)
Financial Leverage	Total liabilities/total assets	(Güngör & Uzun Kocamış, 2018)
Tobins q	Market value of assets/replacement cost	(Alagöz & Güler, 2020)
Points per match[3]	Points collected by the team in the season/total number of matches	(Keskin & Öndeş, 2020)

CRITIC Method

The weights of criteria are influenced not only by the subjective perspectives of decision-makers but also by the characteristics of the criteria (Yiğit Gökpınar, 2012, p. 111). Since the CRITIC method focuses on the standard deviation in the data and the interrelatedness of the data, when examining the financial data of companies, it generally assigns higher weights to data with higher volatility in income statement items such as profitability, sales, and costs that tend to fluctuate over periods. This is an important consideration when conducting the analysis. Selecting criteria with similar levels of volatility is crucial for more accurate results in weighting.

To eliminate the subjective perspective of the decision-maker, some methods based on objective weighting have been developed. One of the most commonly used methods is the CRITIC method. The objective calculation of weights is carried out in the following 5 steps (Diakoulaki, Mavrotas, & Papayannakis, 1995).

Step 1: Creation of the Decision Matrix. The matrix represents the performance of alternatives based on different criteria.

$$X = [x_{ij}] = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ x_{m1} & x_{m2} & \ldots & x_{mn} \end{bmatrix} \quad (1)$$

Equation (1) represents n criteria and m alternatives.

Step 2: The decision matrix is normalized using equation (2).

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

Here, x_j^{min} j represents the minimum value of criterion j, while x_j^{max} represents the maximum value according to criterion j.

Step 3: The criterion weights are calculated taking into account the standard deviation of the criterion and the correlation between criteria.

$$\rho_{jk} = \frac{\sum_{i=1}^{m}(r_{ij} - \bar{r}_j)(r_{ik} - \bar{r}_k)}{\sqrt{\sum_{i=1}^{m}(r_{ij} - \bar{r}_j)^2 \sum_{i=1}^{m}(r_{ik} - \bar{r}_k)^2}} \quad (3)$$

In equation (3), the Pearson correlation coefficient is used. In cases where the number of alternatives is low, the non-parametric Spearman correlation coefficient can also be used.

Step 4: Calculation of the information amount (cj)

This method encompasses the intensity of contradiction and conflict in decision-making methods. For this purpose, the standard deviation of the column values of the normalized decision matrix is used.

$$c_j = \sigma_j \sum_{k=1}^{n}(1 - \rho_{jk}) \quad (4)$$

In this method, it can be said that criteria with high standard deviation and low correlation with other criteria gain more weight. In other words, a higher value of cj indicates that more information is obtained

[3] The scoring at the end of the regular season has been taken into account.

from the given criterion, thus indicating a higher relative importance of the criterion for the decision-making problem.

Step 5: Obtaining criterion weights.

In the final step, equation (5) is used to obtain the criterion weights.

$$w_j = \frac{c_j}{\sum_{k=1}^{n} c_k} \quad (5)$$

SAW Method

The SAW (Simple Additive Weighting) method is a technique used in multi-criteria decision-making problems. This method determines the weights of criteria used to evaluate alternatives and calculates the overall performance score for each alternative by weighting their performance on each criterion.

Step 1: The first stage of the Simple Additive Weighting (SAW) method, as in many other multi-criteria decision-making methods, is to determine the decision matrix. The decision matrix is given in equation (6).

$$X = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1m} \\ x_{21} & x_{22} & \dots & x_{2m} \\ \vdots & \vdots & \vdots & \vdots \\ \vdots & \vdots & \vdots & \vdots \\ \vdots & \vdots & \vdots & \vdots \\ x_{n1} & x_{n2} & \dots & x_{nm} \end{bmatrix} \quad (6)$$

Step 2: In this stage, the decision matrix is normalized. In the normalization process, depending on whether the criteria are benefit or cost-oriented, equation (7) or equation (8) is used for normalization, respectively.

$$r_{ij} = \frac{x_{ij}}{x_j^{max}}, i = 1,2,\dots,n; j = 1,2,\dots,m \quad (7)$$

$$r_{ij} = \frac{x_j^{min}}{x_{ij}} \quad (8)$$

$$S_j = \sum_{j=1}^{m} w_j r_{ij} \text{ i=1, …, m} \quad (9)$$

Step 3: In the final stage, the performance value of each alternative is calculated using equation (9), taking into account the previously calculated criterion weights using the CRITIC method. The alternative with the highest r_{ij} value is considered the highest-performing alternative.

Data Collection Tools

The financial data used in the study was obtained from stock data sharing websites and the investor relations section of the websites of the companies analyzed in the study. The data indicating the sports performance was obtained from the archives of the Turkish Football Federation.

Data Analysis

Multi-criteria decision-making methods were used for the analysis of the data. Multi-criteria decision-making methods are generally applied in two stages. The first stage involves determining the weights of the criteria to be used, and the second stage involves ranking the alternatives based on these criterion weights.

Findings

This section of the study presents the interpretation of the findings obtained after analyzing the data using the CRITIC and SAW methods. This section is generally divided into two parts: the first part includes the findings related to the determination of criterion weights using the CRITIC method, and the second part presents the findings related to the SAW method.

CRITIC Application

The CRITIC method is an objective criterion weighting method. The information contained in the data is revealed through various statistical methods, and the criteria are weighted accordingly.

Table 1 *CRITIC Method Decision Matrix (2011)*

CRITERIA	ROA	RT	CL/TL	FL	TOBINS Q	PPM
ALTERNATIVES	+	-	-	-	+	+
BJK	-11,879	13,11	72,04	377,37	5,11	1,588235
FB	0,68	34,65	56,81	67,69	3,66	2,411765
GS	-6,17	7,28	29	143,17	2,18	1,352941
TS	2,35	26,84	82,76	72,92	1,77	2,411765

In the first step of implementing the CRITIC method, a decision matrix is created. The decision matrix is formed by calculating the ratios representing each criterion. Table 2 shows the decision matrix for the year 2011.

Table 2 *CRITIC Method Normalized Decision Matrix (2011)*

CRITERIA	ROA	RT	CL/TL	FL	TOBINS Q	PPM
ALTER	+	-	-	-	+	+
BJK	0	0,786993	0,199405	0	1	0,222222
FB	0,986214	0	0,482701	1	0,565868	1
GS	0,929668	1	1	0,756265	0,122754	0
TS	1	0,285349	0	0,983112	0	1

In the second step of the CRITIC method, normalization is performed to ensure the processing of data with each other. The purpose of the normalization process is to correct anomalies in the data. In addition to the normalization process, the amount of information contained in the criteria is also calculated using standard deviation values. The normalized decision matrix for the year 2011 is given in Table 3.

Table 3 *CRITIC Correlation Coefficient Matrix (2011)*

CRITERIA	ROA	RT	CL/TL	FL	TOBINS Q	PPM
ROA	1	-0,44267	0,283062	0,984059	-0,83977	0,481121
RT	-0,44267	1	0,479385	-0,59336	0,055855	-0,96674
CL/TL	0,283062	0,479385	1	0,142138	-0,19353	-0,60036
FL	0,984059	-0,59336	0,142138	1	-0,77518	0,627818
TOBINS Q	-0,83977	0,055855	-0,19353	-0,77518	1	-0,21068
PPM	0,481121	-0,96674	-0,60036	0,627818	-0,21068	1

In the third step of the CRITIC method, correlations between criteria are calculated. The correlation values are used in the final calculation of the amount of information contained in the criteria. The table 4 shows the Correlation Coefficient Matrix for the 2011 period.

Table 4 *(1-ρjk) Matrix*

CRITERIA	ROA	RT	CL/TL	FL	TOBINS Q	PPM
ROA	0	1,442673	0,716938	0,015941	1,839775	0,518879
RT	1,442673	0	0,520615	1,593363	0,944145	1,966741
CL/TL	0,716938	0,520615	0	0,857862	1,193531	1,600361
FL	0,015941	1,593363	0,857862	0	1,775181	0,372182
TOBINS Q	1,839775	0,944145	1,193531	1,775181	0	1,210678
PPM	0,518879	1,966741	1,600361	0,372182	1,210678	0

In the fourth step of the method, the value of 1-ρjk is obtained by subtracting the correlation coefficient from 1. The sum of the obtained 1-ρjk values is multiplied by the standard deviation of the corresponding criterion to find the value of σj. The obtained value is multiplied by the 1-ρjk value of the corresponding criterion to find the value of cj. The value of cj for each criterion is divided by the sum of cj values for all criteria to find the criterion weights, wj.

Table 5 *Weight of Criteria (2011)*

Σj, cj, wj	ROA	RT	CL/TL	FL	TOBINS Q	PPM
σj	0,486932	0,457213	0,434125	0,469893	0,45549	0,521157
cj	2,207851	2,957043	2,122568	2,168336	3,171719	2,954358
wj	0,141694	0,189775	0,13622	0,139158	0,203552	0,189602

The values of σj, cj, and wj for the year 2011 are given in Table 5. Here, σj represents the standard deviation of the criterion, cj coefficient represents the value obtained by dividing the standard deviation by the total 1-ρjk value of the corresponding criterion in Table 6. Finally, wj represents the weight of the criterion. The wj value is obtained by dividing the cj value of each criterion by the sum of cj values for all criteria.

Table 6 *Weight of Criteria*

Period/Criteria	ROA	RT	CL/TL	FL	TOBINS Q	PPM
2011	0,141694	0,189775	0,13622	0,139158	**0,203552**	0,189602
2012	0,150695	0,124639	0,155578	0,174326	**0,272585**	0,122177
2013	0,141421	0,199366	0,142443	0,145217	**0,240976**	0,130576
2014	0,130641	0,178812	0,191997	0,165161	**0,207511**	0,125878
2015	0,116939	**0,259044**	0,115371	0,178374	0,21206	0,118213
2016	0,15254	**0,203765**	0,193967	0,162459	0,13647	0,1508
2017	0,148859	0,195254	0,170393	0,15214	**0,198612**	0,134742
2018	0,115656	0,122655	0,192805	0,122925	**0,291053**	0,154905
2019	0,165302	0,11918	0,13862	**0,24102**	0,152914	0,182964

When examining the weights of the criteria for all the years, it can be observed that Tobin's Q value has the highest weight for many periods. Receivable turnover has the highest weight in 2019, while leverage ratio has the highest weight in 1 period. Overall, there is a relatively balanced weighting of the criteria when looking at the criterion weights.

SAW Application

Table 7 *SAW Weighted Normalized Decision Matrix (2011)*

Alternative/Criteria	ROA	RT	CL/TL	FL	TOBINS Q	PPM
BJK	-5,0548936	0,555301	0,402554	0,179373	1	0,658512
FB	0,289362	0,210101	0,510474	1	0,716243	1
GS	-2,625532	1	1	0,472795	0,426614	0,560950
TS	1	0,271237	0,350411	0,928278	0,346380	1

In Table 8, the weighted normalized decision matrix for the 2011 period is given using the SAW (Simple Additive Weighting) method. The normalization process is performed to eliminate anomalies in the criteria. In the SAW method, the criterion weights are also included during the criterion normalization process.

Table 8 *SAW Decision of 2011 Period*

Alternatives	Sj	Alternatives	Sj	Titleholder
BJK	-6,64887033	GS	0,212962808	Fenerbahçe
FB	0,624961927	TS	**0,630186002**	

According to the results of the SAW (Simple Additive Weighting) method for the year 2011, Trabzonspor club has shown the highest financial performance. Fenerbahçe Sports Club has shown a high performance at the second level. It can be interpreted that there is a relationship between sporting success and financial performance, as the club with the highest performance and the club with a high performance at the second level have similar performance coefficients.

Table 9 SAW Decisions of all Periods

Period/Alternative		BJK	FB	GS	TS	Titleholder
2011	Sj	-6,64887	0,624962	0,212963	**0,630186**	Fenerbahçe
2012	Sj	-3,72329	**0,520368**	-0,40506	-1,70668	Galatasaray
2013	Sj	-7,59077	**0,55367**	-0,54572	-1,35015	Galatasaray
2014	Sj	-3,76745	**0,621156**	-0,02189	-1,52112	Fenerbahçe
2015	Sj	-0,38534	**0,579983**	0,18166	-1,67393	Galatasaray
2016	Sj	**0,63893**	0,531202	-2,20951	-1,24523	Beşiktaş
2017	Sj	**0,640312**	0,55726	-0,9356	-3,96041	Beşiktaş
2018	Sj	-0,79686	0,596986	**0,698498**	-0,04463	Galatasaray
2019	Sj	-1,90578	**0,499772**	0,405309	0,333167	Galatasaray

When examining the results for all years, it can be observed that there is a connection between sporting success and financial success in some years, while in other years, there is no such connection. In the years 2014, 2016, 2017, and 2018, the teams that finished first in the league and won the trophy also showed the highest performance. Overall, Fenerbahçe Sports Club has shown the highest performance in many periods. Fenerbahçe Sports Club has achieved the highest level of success in five periods. In 2014, they not only finished first in the league but also demonstrated the highest financial performance. Beşiktaş Gymnastics Club, unlike other clubs, has been the most successful club both in terms of finishing first in the league and achieving high financial performance. Galatasaray Sports Club, except for the year 2018, did not show high financial performance in the years they finished first in the league. In terms of financial performance, Fenerbahçe Sports Club has the highest performance, while in terms of sporting success, Galatasaray Sports Club has shown the highest performance. In terms of the relationship between sporting success and financial performance, in four out of nine periods where a club became the champion, it was also the club

with the highest performance. In the year 2011, there is a very small difference between the club that finished first in the league and the club with the highest performance. In other years, the club with the highest sporting performance has come in second place in terms of financial performance. Based on these results, it can be concluded that there is a positive relationship between sporting success and financial performance.

Discussion, Conclusion, and Recommendations

Sports activities have been institutionalized and sports clubs have been established for over a century. Sports activities have been carried out as spectator events since ancient times. With the start of the Olympics, sports competitions were organized in Ancient Greece and later in the Roman Empire for the entertainment of the masses. Since the late 19th century, clubs have been established in various sports disciplines, especially football, and have gained large fan bases. The establishment of different clubs by different socio-economic, political, and religious groups has also led these clubs to be positioned differently from their sports goals. The financial contributions of the fans to these structures, which are in the form of associations, have led to the formation of an economy. Initially non-profit, the sports economy has recently transformed into profit-oriented service companies, especially with the acquisition of sports clubs by business people, and has become publicly traded by becoming corporate. Although many sports clubs in Türkiye are joint-stock companies, four of them are listed on the Borsa İstanbul. In this study, the financial performance of sports clubs was examined based on the data of these publicly traded companies. In the study, the criteria used in the study were weighted using the CRITIC method, and the performances of the alternatives were evaluated using the SAW method. In this context, the evaluation was made using the variables of working capital and capital structure.

According to the results of the weighting of criteria using the CRITIC method, the Tobin's Q ratio emerged as the ratio with the highest weight. In two of the examined periods, the accounts receivable turnover ratio emerged as the ratio with the highest weight, while in one period, the financial leverage ratio had the highest weight. It is considered positive that the Tobin's Q ratio has the highest weight as it encompasses more data related to the company.

According to the results of the SAW method, in four out of the nine periods examined, the teams that finished first in the league showed the highest performance. In the other five periods, the clubs with the highest sporting performance ranked second in terms of financial performance. Based on these results, it can be concluded that there is a positive relationship between financial performance and sporting performance. In the analysis, Fenerbahçe Sports Club A.Ş. showed the highest financial performance in most periods, while Galatasaray Sports Club A.Ş. had the highest sporting performance during those periods. At the conclusion of the study, it can be argued that there is a relationship between athletic success and financial success. Studies applying econometric models should be conducted to determine the direction and strength of this relationship.

This study is consistent with the findings of Pinnuck & Potter (2004), Sakınç (2014), Güngör A. (2014), Pradhan, Boyukaslan, & Ecer (2016), and Ergül (2017) in terms of the relationship between financial performance and athletic performance, but it is not consistent with the findings of the study conducted by Özdağaoğlu & Keleş (2019).

One of the major limitations of the study is the limited number of publicly traded sports clubs in Turkey and the difficulty in accessing data. Additionally, the lag in institutionalization among sports clubs in Turkey compared to clubs in other countries poses a significant obstacle to obtaining accurate results in the study. Examining all teams in the top-tier league in Turkey in the study could lead to better results in terms of the richness of the research. In future studies, including clubs from other parts of the world can allow for an examination of the relationship between financial success and athletic success on a international scale.

Ethical Declaration

During the writing process of the study "*Analysis of Financial Performance of Public Sports Clubs in Türkiye via CRITIC-Based SAW Method*" scientific rules, ethical and citation rules were followed. No falsification was made on the collected data and this study was not sent to any other academic publication medium for evaluation.

Declaration of Conflict

There is no potential conflict of interest in the study.

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GENİŞ ÖZET

Spor müsabakalarına boş zaman aktivitesi olarak katılım özellikle yaşam standardının yüksek olduğu ülkelerde çok yüksektir. Statista (2022) verilerine göre Amerika Birleşik Devletleri'nde (ABD) kendisini herhangi bir spor kulübüne fanatik düzeyde bağlı hisseden bireylerin oranı %26 olarak verilmiştir. Bu veri ışığında bu ülkede yaklaşık olarak 60 milyon kişinin bir spor kulübüne fanatik düzeyde bağlı olduğu sonucuna varılabilir. Ülkelerde dini, etnik, sosyoekonomik ve bazen politik ayrışmanın spor kulüplerinde temsil edilmesi durumu söz konusudur. İskoçya'da Celtic (Katolik) ve Glasgow Rangers (Protestan) kulüpleri arasındaki rekabet mezhepsel ayrışmaya (Davies, 2006), İspanya'da Barcelona (Katalan milliyetçiliği), Real Madrid (İspanyol milliyetçiliği) rekabeti etnik ayrışmaya (Ortega, 2016) ve Türkiye'de Ankaragücü, Gençlerbirliği (Bora, 2012) ve Arjantin'de River Plate, Boca Juniors rekabetleri sosyoekonomik ayrışmaya (Bulut & Dever, 2019), Mısır'da Al Ahly, Zamalek (Giibril, 2018) ve İtalya'da Roma, Lazio (Demir & Rigoni, 2017) rekabetleri ise politik ayrışmaya örnek olarak verilebilir. Bu durum başta futbol olmak üzere bu kulüplerin temsiliyetinin bir spor kulübünü aşması anlamına gelmektedir. Bu tip bağlılıklar, bazen sağladığı aidiyet duygusundan hareketle normal bir spor kulübü taraftarlığından öte bu aidiyet duygusu ile taraftarın kulübe maddi ve manevi her türlü desteği sağlaması açısından ciddi bir motivasyon kaynağıdır. Burada gerek müsabakaların izlenmesi, kulüplerin ürettikleri veya ürettirdikleri ürünlerin satışları ve diğer ekonomik faaliyetlerle birlikte büyük bir ekonomik aktivitenin ortaya çıkması söz konusudur. Çünkü rekabet sadece spor müsabakasının yanında hayatın her alanına sirayet ettiğinden taraftarların kulüplerini daha yüksek motivasyonla desteklemeleri sonucu doğmaktadır. Bu durum spor sektörünün ciddi bir pazar büyüklüğüne ulaşmasını sağlamaktadır. Global ölçekte spor sektörünün ulaştığı market büyüklüğü 2022 yılında yaklaşık olarak 500 milyar Dolar olarak gerçekleşmiştir (The Business Research Company, 2022). Sektörün bu kadar büyümesi son zamanlarda spor kulüplerinin salt sportif başarı yanında ciddi gelirler elde etme amacına sahip olan firmalar şekline dönüşmesine de sebep olmuştur. Spor faaliyetleri kurumsallaşmış ve spor kulüpleri 150 yıldan uzun bir süredir kurulmuştur. Spor faaliyetleri antik çağlardan beri seyirci etkinlikleri olarak gerçekleştirilmektedir. Olimpiyatların başlamasıyla birlikte antik Yunanistan'da ve sonrasında Roma İmparatorluğu'nda halkın eğlencesi için spor müsabakaları düzenlenmiştir. 19. yüzyılın sonlarından itibaren özellikle futbol olmak üzere çeşitli spor branşlarında kulüpler kurulmuş ve geniş bir taraftar kitlesi elde etmiştir. Farklı sosyo-ekonomik, siyasi ve dini grupların farklı kulüpleri kurması, bu kulüplerin spor amaçlarından farklı bir konumda yer almalarına da neden olmuştur. Dernek şeklinde olan bu yapıların taraftarların finansal katkıları, bir ekonominin oluşmasına yol açmıştır. Başlangıçta kar amacı gütmeyen spor ekonomisi, özellikle iş insanlarının spor kulüplerini satın almasıyla ve şirketleşerek halka açılarak kar amaçlı hizmet şirketlerine dönüşmüştür. Türkiye'de birçok spor kulübü anonim şirketler olmasına rağmen, bunlardan dördü Borsa İstanbul'da işlem görmektedir. Çalışmada çok kriterli karar verme yöntemleri kullanılmıştır. Çok kriterli karar verme yöntemleri genel olarak iki şekilde uygulanır. İlk aşamada kriter ağırlıkları hesaplanır, ikinci aşamada ise alternatifler değerlendirilir. Bu çalışmada kriter ağırlıklandırma aşaması için CRITIC yöntemi, alternatiflerin değerlendirilmesi aşamasında SAW yöntemi kullanılmıştır.

Kriterlerin ağırlıkları, karar vericilerin subjektif bakış açısından etkilendiği gibi kriterlerin özelliklerinden de etkilenir (Yiğit Gökpınar, 2012, s. 111). CRITIC yöntemi verilerde yer alan standart sapma ve verilerin birbirileri ile ilişkili olmasına odaklandığından firmalara ait finansal veriler incelenirken genel olarak dalgalı seyir izleyen kârlılık, satışlar ve maliyetler gibi gelir tablosu kalemleri ile ilgili olan dönemlere göre yüksek volatiliteye sahip olan verilere daha yüksek ağırlık yüklemektedir. Bu durum analiz yapılırken göz önüne alınması gereken bir husustur. Volatilite düzeyi birbirine yakın kriterlerin seçilmesi ağırlıklandırmanın daha doğru sonuçlar vermesi açısından önemlidir. Karar vericinin subjektif bakış açısını ortadan kaldırmak için objektif ağırlıklandırmaya dayalı bazı yöntemler geliştirilmiştir. En çok kullanılan yöntemlerden birisi CRITIC yöntemidir. Ağırlıkların objektif olarak hesaplanması 5 aşamada yapılmaktadır (Diakoulaki, Mavrotas ve Papayannakis, 1995). Bu aşamalar karar matrisinin düzenlenmesi, veriler arasındaki anomalilerin giderilmesi amacıyla verilerin normalize edilmesi, standart sapma ve kriterler arası korelasyonun hesaplanması, bilgi miktarının hesaplanması ve kriter ağırlıklarının hesaplanmasıdır. SAW (Simple Additive Weighting) yöntemi, çok kriterli karar verme problemlerinde kullanılan bir yöntemdir. Bu yöntem, alternatiflerin değerlendirilmesi için kullanılan kriterlerin ağırlıklarını belirler ve her bir alternatifin her kriter üzerindeki performansını ağırlıklandırarak toplam performans puanını hesaplar. Bu çalışmada, spor kulüplerinin finansal performansı, bu halka açık olan şirketlerin verileri temel alınarak incelenmiştir. Çalışmada kullanılan kriterler CRITIC yöntemi kullanılarak ağırlıklandırılmış ve alternatiflerin performansı ise SAW yöntemi kullanılarak değerlendirilmiştir. Bu bağlamda değerlendirme, işletme sermayesi ve sermaye yapısı değişkenleri kullanılarak yapılmıştır. CRITIC yöntemi kullanılarak kriterlerin ağırlıklandırılması sonuçlarına göre, Tobin's Q oranı en yüksek ağırlığa sahip oran olarak ortaya çıkmıştır. İncelenen dönemlerin ikisinde ticari alacak devir hızı en yüksek ağırlığa sahip oran olarak ortaya çıkarken, bir dönemde ise finansal kaldıraç oranı en yüksek ağırlığa sahip olmuştur. Tobin's Q oranının en yüksek ağırlığa sahip olması, şirketle ilgili daha fazla veriyi kapsadığı için olumlu bir durum olarak değerlendirilmektedir. SAW yöntemi sonuçlarına göre, incelenen dokuz dönemin dördünde ligi birinci sırada bitiren takımlar en yüksek performansı sergilemiştir. Diğer beş dönemde ise en yüksek spor performansına sahip olan kulüpler, finansal performans açısından ikinci sıralamaya yerleşmiştir. Bu sonuçlara dayanarak, finansal performans ile spor performansı arasında pozitif bir ilişki olduğu sonucuna varılabilir. Analizde, Fenerbahçe Spor Kulübü A.Ş. çoğu dönemde en yüksek finansal performansı sergilerken, Galatasaray Spor Kulübü A.Ş. bu dönemlerde en yüksek spor performansını sergilemiştir.