COMPARATIVE ANALYSIS OF THE FINANCIAL PERFORMANCE OF 5 MAJOR FOOTBALL CLUBS IN UEFA RANKING*

Assist. Prof. Dr. Mustafa KEVSER**

Assoc. Prof. Dr. Mesut DOĞAN***

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ABSTRACT

With the industrialization of football, not only the sporting success of the clubs, but also their financial performance has become subjects of discussion. The aim of this study is to compare the performance of five major football clubs in the UEFA by comparing their liquidity, leverage and profitability ratios for the 2015-2019 period. The data is obtained from the clubs' websites and annual reports. It is concluded that Manchester City FC has the highest financial performance while Juventus FC has the lowest. It is also determined that liquidity and short-term debt/equity ratios are the most important performance indicators for football clubs.

Keywords: Grey Relational Analysis, Financial Performance, Football Clubs, UEFA

JEL Classification: G10, L25, L83

UEFA SIRALAMASINDA YER ALAN 5 BÜYÜK FUTBOL KULÜBÜNÜN FİNANSAL PERFORMANSININ KARŞILAŞTIRMALI ANALİZİ

ÖZ

Dünyada futbolun sanayileşmesi ile birlikte kulüplerin sadece sportif başarıları değil, finansal performansları da tartışma konusu olmuştur. Bu çalışmanın amacı, UEFA sıralamasında yer alan 5 büyük futbol kulübünün finansal performanslarını gri ilişkisel analiz yöntemi (GRA) ile karşılaştırmaktır. Bu amaçla, kulüplerin likidite, kısa-vadeli finansal yükümlülük ve karlılık oranları kullanılmıştır. Araştırmada kullanılan 2015-2019 verileri kulüplerin internet sitelerinden ve faaliyet

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** Bandırma Onyedi Eylül University, Finance, Banking and Insurance Department, mustafakevser83@gmail.com, https://orcid.org/0000-0003-0586-1662
***Afyon Kocatepe University, Department of Business Administration, mesutdogan07@gmail.com, https://orcid.org/0000-0001-6879-1361
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raporlarından elde edilmiştir. Araştırmada, en yüksek finansal performansı Manchester City FC'nin, en düşük performansı ise Juventus FC'nin gösterdiği sonucuna ulaşılmıştır. Ayrıca likidite ve kısa vadeli yükümlülük/özkaynak oranlarının bir futbol kulübünün finansal performansını ölçmede en önemli göstergeler olduğu bulunmuştur.

Anahtar Kelimeler: Gri İlişki Analizi, Finansal Performans, Futbol Kulüpleri, UEFA

JEL Sınıflandırması: G10, L25, L83

GENİŞLETİLMİŞ ÖZET

AMAÇ VE MOTİVASYON

Dünyada futbolun endüstriyelleşmesi ile birlikte kulüplerin sadece sportif başarıları değil, finansal yapıları ve finansal performansları da tartışma konusu olmuştur. Finansal performans analizi hissedarlar, yatırımcılar ve kreditörler için önemlidir. Bu bağlamda, kulüplerin gelirleri, finansal performansları ve sportif başarılarının birbirleri üzerindeki etkisi değerlendirilmesi gereken önemli bir konudur. Bu araştırmanın amacı, UEFA sıralamasında yer alan 5 büyük futbol kulübünün finansal performansını karşılaştırmaktır. Bu amaçla ilk olarak araştırmada futbol kulüplerin finansal performansı ve yapısı üzerinde etkili olan finansal performans göstergelerinin ağırlıkları belirlenmiş sonrasında ise kulüpler finansal performanslarına göre sıralanmıştır. Araştırmadan elde edilen sonuçlar kulüp yöneticileri ve yatırımcılar için önem taşımaktadır.

STRATEJİ VE YÖNTEM

Literatürde futbol kulüplerinin finansal performansını inceleyen çalışmaların iki temel yaklaşımı benimsediği görülmektedir. Bu yaklaşımlardan ilki, kulüplerin sportif başarısı ile finansal performansı arasındaki ilişkiyi farklı yöntemler kullanarak araştırmak ve sportif başarı ile finansal performans arasındaki ilişkiyi analiz etmektir (Renneboog ve Vanbrabant, 2000; Edmans vd., 2007; Samagaio, 2009; Pereiara, 2018). İkinci yaklaşım, futbol kulüplerinin finansal performansını finansal göstergeler üzerinden analiz etmek ve kulüpler arası karşılaştırmalı finansal performans analizi yapmaktır (Yıldız, 2008; Atmaca, 2012; Göllü, 2012; Pradhan vd., 2016). Bu iki ana yaklaşımda hem piyasa temelli finansal performans göstergelerinin hem de muhasebe temelli finansal performans göstergelerinin kullanıldığı görülmektedir.

Bu araştırmada, UEFA sıralamasında yer alan 5 büyük futbol kulübünün finansal performanslarının GRA yöntemi kullanılarak belirlenmesi amaçlanmaktadır. Araştırmanın bir diğer amacı, performansın ölçülmesinde hangi finansal oranın daha önemli olduğunu belirlemektir. Bu kapsamda örneklem, futbol kulüplerinin 2015-2019 yılları arasındaki finansal verilerinin ortalaması alınarak oluşturulmuştur. Araştırmada İngiltere Premier Ligi'nden Manchester City FC, Manchester United FC, İspanya La

Liga'dan FC Barcelona, Real Madrid FC ve İtalya Seria A'dan Juventus FC'nin verileri kullanılmıştır. Gri ilişkisel analiz yönteminde kullanılan veriler futbol kulüplerinin internet sitelerinden elde edilmiştir. Araştırmada 5 futbol kulübünün finansal performansı literatür ile uyumlu biçimde, likidite, yükümlülük ve karlılık oranları yardımıyla ölçülmüştür. (Pradhan vd., 2016; Galariotis vd., 2018; Erdoğan vd., 2020).

BULGULAR VE TARTIŞMA

Futbol kulüplerinin likidite oranları incelendiğinde, en yüksek kısa vadeli borç ödeme kabiliyetine (A1-A2) Manchester City'nin, Juventus FC'nin ise en düşük orana sahip olduğu görülmektedir. Borç yükümlülüğü en düşük kulüp Manchester City iken, FC Barcelona en yüksek borç yükümlülüğüne sahip kulüptür. Ayrıca, en yüksek karlılık oranına Barcelona FC, en düşük karlılık oranına Juventus FC sahiptir.

Tüm performans kriterleri birlikte değerlendirilip UEFA sıralamasında yer alan 5 büyük futbol kulübü arasında genel bir sıralama yapıldığında, en yüksek performans veya gri ilişki derecesine sahip kulübün Manchester City, en düşük performansa sahip kulübün ise Juventus olduğu görülmektedir. Sonuç olarak, futbol kulüplerinin finansal başarısındaki en önemli göstergenin likidite ve yükümlülük oranları olduğu tespit edilmiştir.

Araştırma sonuçları, Pradhan vd. (2016)'nin İtalya Ligi Seri A üzerine yaptıkları araştırmadan Juventus FC için elde ettiği sonuçlarla uyumludur. Ecer ve Boyukaslan (2014) araştırmasında yükümlülük oranlarının en önemli finansal performans göstergesi olduğunu belirtirken, Nurcan (2016) araştırmasında likidite oranlarının belirleyici finansal performans göstergeleri olduğunu belirtmiştir. Dolayısıyla mevcut araştırmanın bulguları, yükümlülük oranları açısından Ecer ve Boyukaslan (2014), likidite oranları açısından ise Nurcan (2016) ile örtüşmektedir.

SONUÇ VE ÖNERİLER

Günümüzde birçok sektörde olduğu gibi futbol sektöründe de önemli gelişmeler yaşanmaktadır. Futbolun endüstriyelleşmesi ile birlikte, profesyonel futbol kulüpleri sportif başarının yanı sıra yüksek finansal performansı da hedeflemektedir. Bu araştırmada GRA yöntemi kullanılarak 2015-2019 dönemi için UEFA sıralamasında ilk 20'de yer alan 5 büyük futbol kulübünün finansal performansları karşılaştırılmıştır. Bunun yanı sıra, futbol kulüplerinin genel finansal performansı üzerinde en etkili finansal performans göstergeleri belirlenmiştir.

Araştırmada finansal performansın ölçülmesinde en önemli göstergelerin likit aktif oranı (LAR) ve kısa vadeli yükümlülükler/özkaynak (STL/E) oranı olduğu tespit edilmiştir. Finansal performansı artırmanın en temel unsuru ise gelirleri artırmaktır. Bu bağlamda spor kulüpleri, stadyumlarını doğru yöntemlerle sponsorlara pazarlamalı, satılan koltuk sayısını ve maç günü gelirlerini arttırmalıdır. Bunun için statlar yenilenmeli, konfor arttırılmalıdır. Ayrıca statlarda maç günü dışında serbest günler de

bulunmalıdır. Stadyumlarda müzeler kurmak veya boş günlerde gelir elde etmek için sosyal etkinlikler düzenlemek spor kulüplerini finansal olarak güçlendirecektir. Elde edilen sonuçlar, UEFA sıralamasında ilk 20 arasında yer alan Avrupa'nın önde gelen profesyonel futbol kulüplerinin finansal durumlarını ve finansal performanslarını ortaya koyması açısından önemlidir. Araştırma sonuçları, ayrıca, finansal performans göstergelerini önem derecesine göre sıralamaktadır. Bu kapsamda elde edilen sonuçlar, hissedarların, yatırımcıların ve kreditörlerin finansal performans analizinde kullanacakları araçları seçmelerine yardımcı olacaktır.

1. INTRODUCTION

Today, football is an economic, social and social phenomenon that goes far beyond just being a branch of sports. Today, while the United Nations has 193 member countries, the presence of 211 members of the International Football Federations Association (FIFA) shows the influence of football (Erdoğan et al., 2020). The high interest in football has attracted the attention of different groups and football investments have accelerated all over the world. In the 20th century, developments in communication and publishing technologies, especially in Europe, helped shape football as an industry. Today, the football industry is concerned with the financial success of the clubs as well as their sporting success in the field. In this framework, the professional managers of football do not settle for the income of the clubs only from player sales. In addition, they try to increase club revenues and increase the market value of clubs with commercial revenues such as broadcasting rights, brand revenues, match-day revenues and sponsorship agreements, stadium revenues, credit cards offered to the market on behalf of clubs, telephone operators and agreements with restaurant chains. It is possible to say that these efforts of club managers have yielded their fruits in recent years. The European professional football market has grown significantly over the past 13 years and clubs' revenues have increased significantly.

The relationship between the sporting success of football clubs, their revenues and financial performances is important for their competitive power (Szymanski & Kuypers, 1999). In the Deloitte Money League research, it is seen that the leading sports clubs of Europe also get high shares from the football market (Deloitte, 2019). In this context, the impact of clubs' revenues, their financial performance and sporting success on each other is an important factor to be evaluated. In addition, the rapid growth of the industrial football market is also important for investors. The investments made by foreign investors in the leading leagues in the world, especially in the English Premier League, by purchasing clubs, are remarkable.

The results obtained from the current study are important for club managers and investors. In the study, financial performance indicators that are important for the clubs to have a healthy financial structure are presented. After the introduction section, the size and development of the industrial

football market are examined, the relevant literature is included, and the gray relational analysis method is introduced. The study is completed with empirical analysis, results and a conclusion.

2. SIZE AND DEVELOPMENT OF THE INDUSTRIAL FOOTBALL MARKET

In addition to being a game, the transformation of football into industry started in the 1990s. With the beginning of digitalization since the early 1990s, football, which evolved into a different character in terms of structure and quality, entered the financialization process within a symbiotic relationship with television, the internet and social media in the 2000s. During this period, UEFA's focus on income-increasing organizations, especially through the Champions League, and reorganization of the Champions League in this context, encouraged football clubs to make big budgets. It has become possible to get monetary shares from these international competitions for football clubs only if they enter into sports competition with large budgets (http://www.futbolekonomi.com/index.php/videolar/3633-enduestriyel-futbol.html, Accessed: 19.03.2020). The Table 1 below shows the development of the European football market between the seasons of 2006-2007 and 2017/2018. As shown in Figure 1, European football, which had a market size of 13.6 billion Euros in the 2006-2007 season, reached 28.4 billion Euros in the 2017-2018 season.

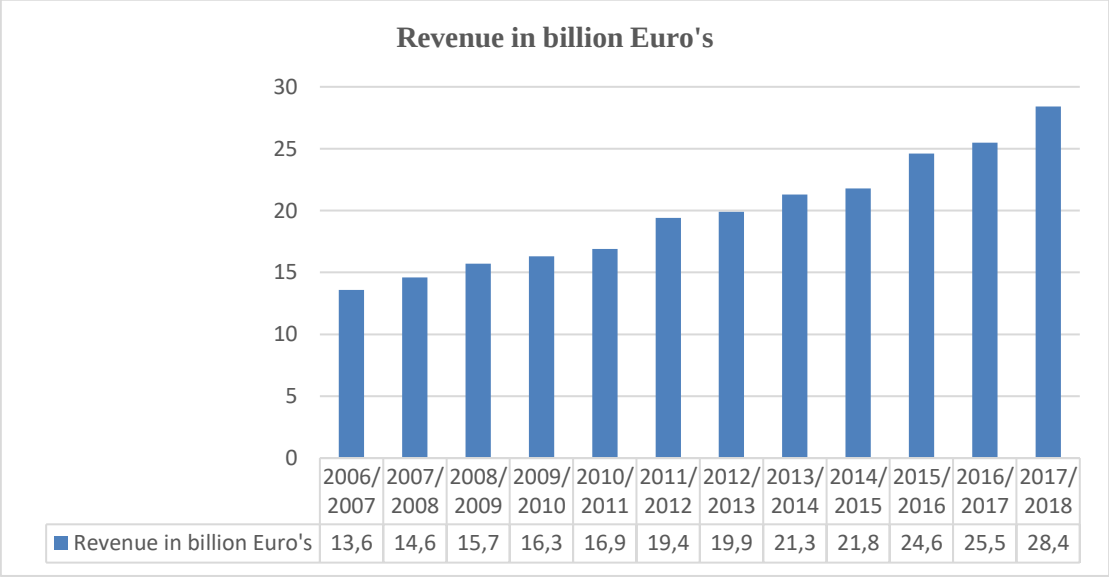

Figure 1. Market Size of the European Professional Football Market from 2006/07 to 2017/18

Source: https://www.statista.com/statistics/261223/european-soccer-market-total-revenue/, Accessed: 09.03.2020

According to the Deloitte Money League (2019) survey, while the consolidated revenues of the world's 20 richest football clubs were 7.9 billion Euros in the 2016-2017 season, this figure rose to 8.3 billion Euros in the 2017-2018 season. Of the total revenues obtained in the 2016-2017 season, 17%

were match-day revenues, 38% were commercial revenues and 45% were broadcasting revenues. In the distribution of revenues obtained in the 2017-2018 season, commercial revenues increased by 2% and broadcasting revenues decreased by 2%, while there was no change in the revenues of the match-day. When we examine the consolidated revenues in a wider time period, it is seen that the consolidated revenues of the 20 richest clubs increased from 1.2 billion Euros in the 1996-1997 season to 8.3 billion Euros in the 2017-2018 season.

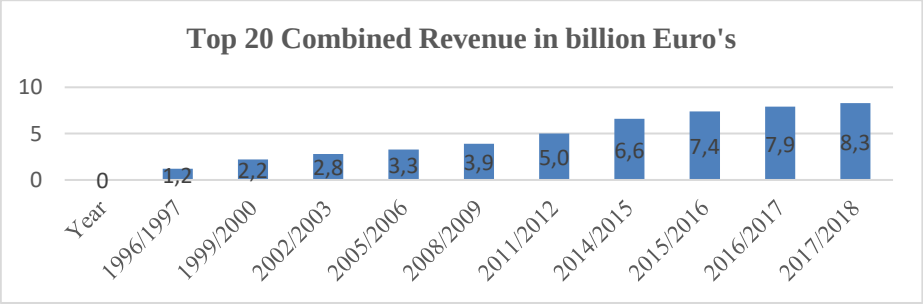

Figure 2. Top 20 Football Teams' Combined Revenue from 1996/1997 to 2017/2018

Source: Deloitte Football Money League, January 2019

Although football clubs increased their revenues over the years, industrial football's always demanding more investment and competition from clubs caused football clubs to need additional financial resources and the football industry gave clubs two options to access more financial resources. The first of these options is that football clubs use loans and borrow from banks so that they can continue their activities; that is, they can compete. The second option is the public offering of football clubs and the trading of their stocks in the capital markets (Soygüden, 2016:22). After the public offering of Tottenham Hotspur F.C. as the first football club in 1983, many football clubs started to operate in financial markets. This situation reveals the importance of financial markets for football clubs (Akyüz, 2005:7).

Another important factor in the analysis of the relationship between football clubs' sporting success and financial performances is the increase in revenues from international tournaments over the years. Football clubs participate in international tournaments and make investments to increase their sporting success in order to get more shares from both broadcasting rights and tournament revenues.

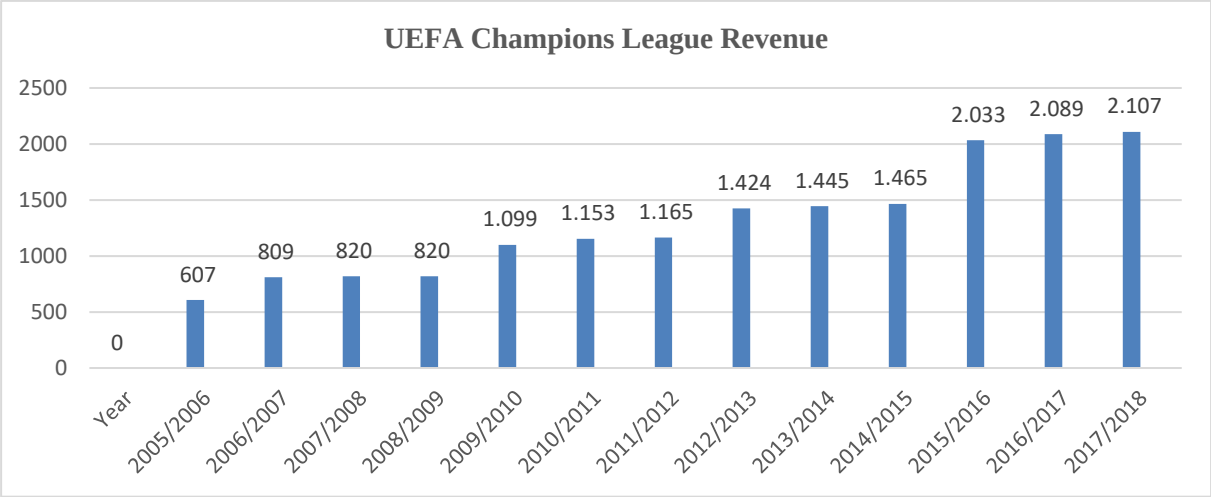

Figure 3. UEFA Champions League Total Revenue from 2005/2006 to 2017/18

Source: https://www.statista.com/statistics/261223/european-soccer-market-total-revenue/, Accessed; 11.03.2020

In this context, the relationship between sporting success and financial activities is important in terms of competitiveness (Szymanski & Kuypers 1999, 22). When the top 20 teams in the Deloitte Money League (2019) list are examined, it is seen that the same clubs are among the top 20 teams in the ranking of the clubs, which is the ranking of UEFA's sporting success. In this regard, the effect of sporting success and financial performance on each other is an issue that should be evaluated in terms of football clubs.

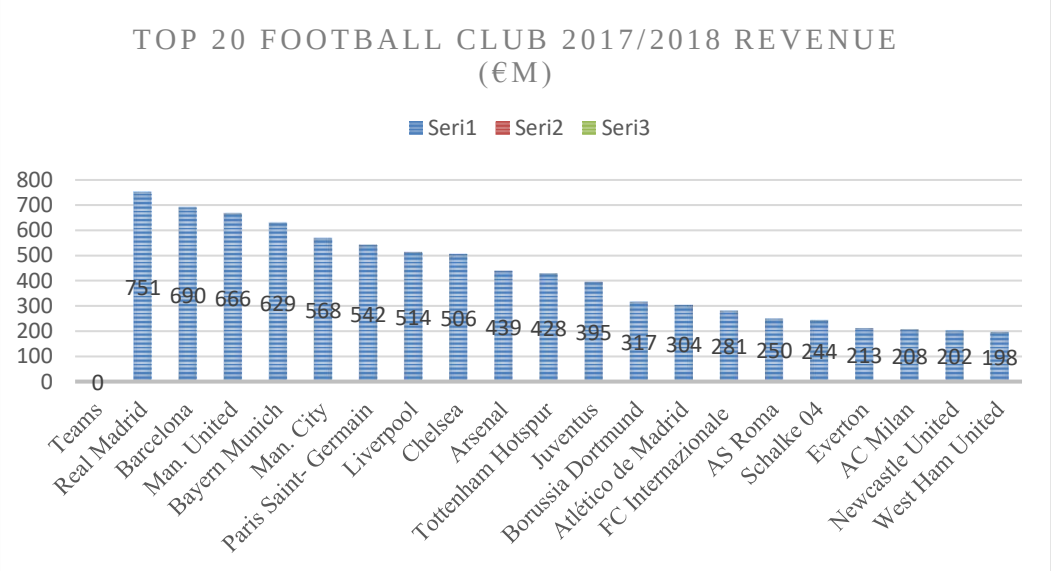

Figure 4. TOP 20 Football Club 2017 /2018 Revenue (€M)

Source: Deloitte Football Money League, January 2019

Szymanski (1998) and Szymanski and Kuypers (1999) have defined two basic principles in football in this framework. Accordingly, a) better league performance increases total income, b) increasing wage expenses increase league performance. When we examine the leading football clubs of Europe, it is seen that participation in international tournaments is very important. From among these tournaments, participation in the Champions League is of a special importance. Since 1992, when it was first held, the revenues of the Champions League have increased rapidly, so have the revenues of the clubs that have succeeded in participating in the tournament. Accordingly, the fact that many of the top 20 teams in the UEFA ranking are also among the teams with the highest revenues reveals the importance of participation in international tournaments and the income earned as a result of the outcomes obtained here (Figure 3 and Figure 4). Real Madrid FC and FC Barcelona exhibit a remarkable performance in this regard. While Real Madrid FC is the team with the highest number of championships in the Spanish league La Liga and the Champions League with 33 titles and 13 titles, respectively and it is followed by FC Barcelona with 25 titles in La Liga and 5 titles in the Champions League. Both clubs share the first two places with their revenues and are also among the top four teams in the UEFA ranking. These indicators support the basic principles put forward by Szmanski and Kuypers (1999).

Table 1. UEFA Club Ranking 2019

Position	Club
1	Real Madrid CF
2	FC Barcelona
3	FC Bayern München
4	Club Atlético de Madrid
5	Juventus
6	Manchester City FC
7	Sevilla
8	Paris Saint-Germain
9	Arsenal FC
10	FC Porto
11	Liverpool
12	Chelsea FC
13	Borussia Dortmund
14	AS Roma
15	SSC Napoli
16	FC Shakhtar Donetsk
17	Totenham Hotspur
18	Manchester United FC
19	FC Zenit
20	AFC Ajax

Source: https://www.uefa.com/memberassociations/uefarankings/club/#/yr/2018
Accessed: 11.03.2020

The purpose of the current study is to conduct a comparative analysis of the financial performances of 5 major football clubs of Europe, which are among the top 20 teams in the UEFA ranking and to reveal which indicator is more important among the financial performance indicators. The clubs subject to our research are Real Madrid FC, FC Barcelona, Juventus FC, Manchester City FC and Manchester United FC. The clubs subject to our research are among the oldest and most successful clubs in the football world. These clubs were selected for the sample of the current study because of their sportive organizations, their number of fans, and their success in national and international leagues and tournaments. In addition, these clubs lead the world football market and take a large share of the revenues in the football market.

3. LITERATURE REVIEW

In the literature, it is seen that the studies examining the financial performance of football clubs adopt two basic approaches. The first of these approaches is to investigate the relationship between sporting success and financial performance of clubs by using different methods and to analyze the relationship between sporting success and financial performance (Renneboog & Vanbrabant, 2000; Edmans et al., 2007; Samagaio, 2009; Pereiara, 2018). The second approach is to analyze the financial performance of football clubs through financial indicators and to make comparative financial performance analysis between the clubs (Yıldız, 2008; Atmaca, 2012; Göllü, 2012; Pradhan et al., 2016). In these two main approaches, it is seen that both market-based financial performance indicators and accounting-based financial performance indicators are used. In studies, stock value has come to the fore as a market-based financial performance indicator (Renneboog & Vanbrabant, 2000; Berument et al., 2006; Aygören et al., 2008; Samagaio, 2009; Putra & Wasistha, 2018) while liquidity, profitability and liabilities have come to the fore as accounting-based performance indicators (Atmaca, 2012; Karadeniz et al., 2014; Nurcan et al., 2016; Pradhan et al., 2016; Sakınç et al., 2017). In addition, research that analyzes the financial performance of football clubs often focuses on a particular league (Guzman & Morrow, 2007; Baroncelli & Caruso, 2011; Ecer & Boyukaslan, 2014; Galariotis et al., 2018). The leagues of England, Spain and Italy stand out as the most focused leagues in financial performance research (Pinnuck & Potter, 2006; Guzman & Morrow, 2007; Göllü, 2012; Kounetas, 2014; Pradhan et al. 2016). In studies investigating the effect of match scores on stock prices (Berument et al., 2006; Aygören et al., 2008) and revenues (Barajas et al., 2005; Szymanski & Kuypers, 1999) found that sporting success increased the stock prices and revenues of the clubs. Renneboog and Vanbrabant (2000) investigated the relationship between the sporting success of the clubs listed on the London Stock Exchange and their stock prices. In the study using Bayesian method, a positive correlation was found between sporting outcomes and stock prices. Edmans et al., (2007) investigated the relationship between sporting success and financial performance of football clubs using the TOPSIS method within the framework of the

effective market hypothesis. In the study, it was concluded that sporting success was effective on financial performance and that the stock prices of the clubs decreased after sporting failure.

Guzman and Morrow (2007) analyzed the activities of football clubs in the English Premier League in two stages using data envelopment analysis. The information obtained from the financial statements of the clubs was used as a corporate performance criterion. According to the results of study, although the clubs operate within the framework of their activity limits, excessive spending during the season and coach changes negatively affect financial performance. Sanchez (2007) analyzed the performance activities of the Spanish La Liga teams participating in the Champions League and UEFA Europa League in the seasons of 1999/2000-2005/2006 using the data envelopment analysis. According to the results of the research, participation in the European cups has a positive effect on the performance of Real Madrid FC, FC Barcelona and Club Atlético de Madrid. Yıldız (2008) compared the financial performance of Manchester United Football Club with that of Fenerbahçe Sports Club by using the financial ratio analysis for 2004/2005 season. In the study using liquidity, profitability and liability ratios, it was stated that Manchester United has a healthier financial structure compared to Fenerbahçe, and it was concluded that financial power is in compliance with sporting success. Samagaio et al. (2009), using the structural equation model, explored the relationships between British clubs' sportive performance, financial performance and stock performance in the period 1995-2007. In the study, it was concluded that there is a statistically significant and positive relationship between sporting success and stock returns.

Atmaca (2012) conducted the financial analysis of four major football clubs in the Super League of Turkey listed on the Istanbul stock exchange (BIST) (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) by using the TOPSIS method. In the study, ratio analysis was used and besides liquidity, financial structure and profitability ratios, asset structure and capital structure ratios were also examined. According to the results of the study, it was concluded that the financial performance of Fenerbahçe football club was higher than the other three big clubs in the period of 2003-2010. Göllü (2012) analyzed the effect of sportive performance of four major football clubs (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) in the Super League of Turkey listed on BIST on their financial performance for the 2002-2009 period. According to the results of the study, there is no correlation between the sportive performance of the clubs and their financial performance. Karadeniz et al., (2014) analyzed the financial performance of four major football clubs (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) in the Super League of Turkey listed on BIST for the period of 2011-2013 by using the ratio analysis method and determined their risk of going bankrupt by calculating their Altman Z scores. According to the results of the study, the liquidity ratios of the clubs are below accepted standards and their net processing capitals are negative. It is seen that clubs that are heavily financed by foreign resources and cannot use their assets effectively may experience problems in fulfilling their short-term liabilities. Sakınç (2014)

analyzed the financial performance of four major football clubs (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) in the Super League of Turkey listed on BIST for the periods of 2009-2010/2012-2013. In the study, the grey relationship analysis (GRA) was used as a method and financial ratio analysis was performed. According to the results of the study, while Fenerbahçe ranked first in terms of financial performance indicators, Trabzonspor ranked second, Galatasaray third and Beşiktaş fourth. Dimitropoulos and Alexopoulos (2014) investigated the factors affecting the financial performance of the Greek Super League teams for the period 2007-2013. According to the results of the study, participation in matches and the profitability of the clubs are positively correlated with their short- and long-term success. The clubs' size of assets is a significant factor that positively affects their financial performance. In addition, according to the research results, effective management of cash flows has a significant positive impact on profitability. Uluyol (2014) analyzed the financial performance of four major football clubs (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) in the Super League of Turkey listed on BIST for the period of 2002-2011 by using ratio analysis. The results of the study revealed that the football clubs have excessive borrowing, liquidity, and profitability problems. Accordingly, the profits of the clubs have decreased in recent years, and their indebtedness has increased. Debt totals exceeded total assets and their equities remained negative.

Ecer and Boyukaslan (2014) analyzed the financial performance of four major football clubs (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) in the Super League of Turkey listed on BIST by using grey relational analysis (GRA). In the study, ratio analysis was performed, and the significance levels of financial performance indicators were evaluated. In the study, the best financial performance was found to belong to Fenerbahçe. It was also concluded that the net working capital/total assets, total liabilities/total assets, total liabilities/equities, short term liabilities/equities, fixed assets/equities, tangible assets/total assets ratios are the most important financial performance indicators. Pradhan et al. (2016) analyzed the financial performance of three major Italian Series A league teams (Juventus FC, A.S. Roma, S.S. Lazio) listed on the Italian Stock Exchange by using the GRA method. In the study, financial data of 2011/2012-2015/2016 seasons were used, and ratio analysis was performed. S.S. Lazio was found to have the best financial performance compared to the other clubs. Nurcan et al., (2016) investigated the financial indicators determining the financial performance of four major football clubs (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) in the Super League of Turkey listed on BIST by using discriminant analysis for the period of. According to the results of the study, current rate, acid-test ratio, asset turnover rate and return on equity are effective in determining financial success or failure, but receivable turnover rate is not effective in determining financial performance. Özevin (2016) conducted a comparative analysis of the effect of the financial fair play (FFP) regulations put into effect in 2011 by UEFA on the European Football and four major teams in the Super League of Turkey (Galatasaray, Beşiktaş, Fenerbahce, Trabzonspor). The study concluded that while the FFP regulations

have a positive effect on the financial structure of the European football clubs, they have a negative effect on the Turkish Super League teams. Sakınç et al. (2017) analyzed the relationship between UEFA club rankings and financial performance of 22 football clubs listed on various stock exchanges with the TOPSIS method. Ten financial ratios were used to determine the ranking of the clubs with the TOPSIS method. According to the results of the study, there is no statistically significant correlation between sporting success and financial performance. Ergül (2017) investigated the relationship between the sporting success and financial performance of four major football clubs (Galatasaray, Beşiktaş, Fenerbahçe, Trabzonspor) in the Super League of Turkey listed on BIST by using the TOPSİS method. In the study, market-based and accounting-based financial indicators were used and financial data of the clubs for the period of 2005-2015 were analyzed. According to the results of the study, the sporting success of the clubs has a positive effect on their financial performance. Pereira (2018) examined the financial performance of 36 leading clubs in Europe and evaluated its relationship with their sporting success. In the study, the market-based and accounting-based financial performance indicators of the clubs were analyzed for the period of 2010-2017. In the study, it was concluded that the sporting success of the clubs depends on the wages paid to players. In addition, it was determined that an increase in revenues leads to increasing sporting success while an increase in total liabilities leads to decreasing sporting success. Galariotis et al. (2018) examined the relationship between the financial performance of 12 teams in the French League 1 and their business and sporting success. In the study, the data of the clubs for the 2010/2011, 2011/2012 and 2012/2013 seasons were analyzed. According to the results of the study, there is a positive relationship between business performance and sporting success. The increase in the revenues of the clubs has a positive effect on the sporting success. Pudra and Vasistha (2018) investigated the relationship between the player value, sporting success and financial performance of 17 football clubs listed on the stock exchange. The study employed the GSCA (Generalized Structural Component Analysis) method. According to the results of the study, player values have a positive effect on financial performance. In addition, sportive performance and financial performance have a statistically significant effect on each other. However, according to the study, sportive performance and financial performance do not have an effect on the stock performance of the club. Miragaia et al., (2019) investigated the relationship between the sporting success of 15 football clubs (Chelsea, Manchester United FC, Manchester City FC, Bayern Munich, Borussia Dortmund, FC Barcelona, Real Madrid FC, Club Atlético de Madrid, Internazionale, AC Milan, Juventus FC, Olympique Marseille, LOSC Lille, Montpellier HSC, Paris Saint-Germain FC) which won the championship in their own leagues and their financial efficiency. In the study, the data of the 15 clubs for the period of 2009-2014 were analyzed by using the data envelopment method. In the study, it was concluded that only 10 of the 15 clubs have stable financial efficiency. In addition, a positive relationship

was determined between sportive performance and financial efficiency, but it was also determined that clubs need more control over their financial resources.

4. METHODOLOGY AND DATA

Gray relational analysis method was used in the research. Therefore, the GRA method is first introduced in the following section.

4.1. Grey relational analysis

Grey theory was first developed by Julong Deng in 1982 (Deng, 1989). The term "grey" here refers to the information missing or not known at all. Grey system theory has become an important analysis method used in different fields in the last two decades. Grey system theory is an alternative method for digitizing uncertainty. This theory is basically a method that is frequently used in analyzing the relationship between systems, model building, prediction and decision problems (Üstünışık, 2007). Grey Relational Analysis is one of the methods used to analyze uncertainties in multi-criteria decision problems, and it provides easier solutions than mathematical analysis methods in cases of uncertainty (Peker & Baki, 2011). GRA is a method for determining the degree of relationship between each factor in a grey system and the factor (referential series) series compared. Each factor is defined as a series (row or column) (Üstünışık, 2007).

The computational steps of the gray relational analysis method are as follows (Wen, 2004).

1st step: Generation of decision matrix $\left(X_i\right)$

$$\mathbf{X}_i = \begin{bmatrix} x_1(1) & x_1(2) & \dots & x_1(n) \\ x_2(1) & x_2(2) & \dots & x_2(n) \\ \vdots & \vdots & \ddots & \vdots \\ x_n(1) & x_n(2) & \dots & x_n(n) \end{bmatrix} \quad (1)$$

2nd step: Generation of referential series

The referential series is expressed as $x_0 = (x_0(1), x_0(2), \dots, x_0(j), \dots, x_0(n))$ where $x_0(j)$ denotes the highest value of j. criterion among its normalized values.

3rd step: Normalization operation

In this step, data are normalized. It can be confused with 3 states.

If obtaining a greater value after the normalization operation of the criterion value is desirable, then the following formula is used;

$$x_i^*(j) = \frac{x_i(j) - \min_j x_i(j)}{\max_j x_i(j) - \min_j x_i(j)} \quad (2)$$

If obtaining a smaller value after the normalization operation of the criterion value is desirable, then the following formula is used;

$$x_i^*(j) = \frac{\max_j x_i(j) - x_i(j)}{\max_j x_i(j) - \min_j x_i(j)}. \quad (3)$$

If obtaining an average value after the normalization operation of the criterion value is desirable, then the following formula is used;

$$x_i^*(j) = \frac{|x_i(j) - x_{0b}(j)|}{\max_j x_i(j) - x_{0b}(j)}. \quad (4)$$

In the (4) formula, $x_{0b}(j)$ is the target value for $j.$ criterion and takes a value in the range of

$$\max_j x_i(j) \geq x_{0b}(j) \geq \min_j x_i(j)$$

After this operation, the decision matrix in (1) turns into the following state:

$$\mathbf{X}_i^* = \begin{bmatrix} x_1^*(1) & x_1^*(2) & \dots & x_1^*(n) \\ x_2^*(1) & x_2^*(2) & \dots & x_2^*(n) \\ \vdots & \vdots & \ddots & \vdots \\ x_n^*(1) & x_n^*(2) & \dots & x_n^*(n) \end{bmatrix} \quad (5)$$

4th stage: Generation of absolute value table

The absolute value $\Delta_{oi}(j)$ between x_0^* and x_i^* is found as follows;

$$\Delta_{0i}(j) = |x_0^*(j) - x_i^*(j)| \quad (6)$$

$$= \begin{bmatrix} \Delta_{01}(1) & \Delta_{01}(2) & \dots & \Delta_{01}(n) \\ \Delta_{02}(1) & \Delta_{02}(2) & \dots & \Delta_{02}(n) \\ \vdots & \vdots & \ddots & \vdots \\ \Delta_{0m}(1) & \Delta_{0m}(2) & \dots & \Delta_{0m}(n) \end{bmatrix}$$

5th step: Generation of grey relational coefficient matrix

It is calculated by using the following formula;

$$\gamma_{0i}(j) = \frac{\Delta\min + \zeta\Delta\max}{\Delta_{0i}(j) + \zeta\Delta\max} \tag{7}$$

In the formula (7), ζ is the distinguish coefficient and takes a value in the range of [0,1]. Yet, it is suggested to be taken as 0.5 in operations. Moreover, it is calculated as $\Delta\max = \max_i \max_j \Delta_{oi}(j)$ and $\Delta\min = \min_i \min_j \Delta_{oi}(j)$.

6th step: Calculation of the degree of relationship

$$\Gamma_{oi} = \frac{1}{n}\sum_{j=1}^{n}\gamma_{oi}(j) \tag{8}$$

In the formula (8), Γ_{oi} shows the degree of grey relationship for the element $i.$ and it is used when the criteria are assumed to be at the equal importance level. If the criteria have different weights, then the following formula is used;

$$\Gamma_{oi} = \sum_{j=1}^{n}[W_i(j)x\gamma_{oi}(j)] \tag{9}$$

4.2. Data

In the current study, it is aimed to determine the financial performances of 5 major football clubs in the UEFA ranking by using the GRA method. Another aim of the study is to decrease the number of financial ratios that determine the performance of football clubs and thus to determine which financial ratio is more important in measuring performance. In this context, the sample was constructed by taking the means of the financial data of football clubs between 2015 and 2019.

The data of Manchester City FC, Manchester United FC from English Premier League; FC Barcelona, Real Madrid FC from Spanish La Liga and Juventus FC from Italian Seria A were used. Only 5 football clubs were included in the study in order to maximize the generalizability of the findings, to ensure the uniformity in financial tables to be used and to make a healthy comparison. The data used in the grey relational analysis method were obtained from the websites of the football clubs. In the study, the performance of the 5 football clubs was measured with the help of liquidity, liability, and profitability ratios in accordance with the literature (Pradhan et al., 2016; Galariotis et al., 2018; Erdoğan et al., 2020).

In the study, the financial performances of the football clubs were analyzed by using accounting-based ratios. In previous studies on the subject, accounting-based financial ratios have been used as an indicator of financial performance (Göllü 2012; Ecer & Boyukaslan, 2014; Pradhan et al., 2016; Ergül,

2017; Sakınç et al., 2017; Erdoğan et al., 2020). In this context, liquidity, liability, and profitability ratios were calculated for each club. The liquidity ratios used in the study are the current (CA) and liquid asset ratio (LAR). Liability ratios are represented by net working capital/total assets (NWC/TA), total liabilities/total assets (TL/TA), total liabilities/equity (TL/E), short-term liability/equity (STL/E), fixed assets/equity (FA/E), and tangible assets/total assets (TA/TA). The ratios used as the profitability indicators of the clubs are net profitability/equity (NP/E) and net profitability/total assets (NP/TA) (Pradhan et al., 2016). High current and liquid asset ratios indicate that short-term liabilities can be fulfilled on time. The biggest share of the short-term liabilities of the clubs belongs to the salaries and wages of football players. In this context, high current ratio and liquid asset ratio mean that the salaries and wages of the players can be paid on time, and the players whose salaries and wages are regularly paid are expected to have high motivation and therefore perform well in the field. Szymanski and Smith (1997) stated that player wages and rights are indicative of the value given to players. He stated that player values have a positive effect on sporting success, and sporting success increases the financial performance of the club in the long term. Clubs want to show their financial potential by targeting high liquidity and profitability ratios. However, high liability rates cause clubs to pose a greater risk for investors. The 5-year data of the clubs for the 2015-2019 period were used in the ratio analysis. The ratios used in the analysis are given in detail in Table 2.

Table 2. Financial Ratios Used in Research

Financial Indicator	Ratio	Goal
Liquidity	Current Ratio (CR)	Higher
	Liquid Asset Ratio (LAR)	Higher
Liability	Net Working Capital (NWC)/Total Assets (TA)	Lower
	Total Liabilities (TA)/Total Assets (TA)	Lower
	Total Liabilities (TL)/Equity (E)	Lower
	Short Term Liabilities (STL)/Equity (E)	Lower
	Fixed Assets (FA)/Equity (E)	Lower
	Tangible Assets (TA)/Total Assets (TA)	Lower
Profitability	Net Profit (NP)/Equity (E)	Higher
	Net Profit (NP)/Total Assets (TA)	Higher

5. APPLICATION

In the current study, it is aimed to determine the financial performances of the 5 major football clubs in the UEFA ranking by using the GRA method. In this context, the sample was constructed by taking the means of the financial data of football clubs between 2015 and 2019.

5.1. Generation of decision matrix

The means of 5-year financial ratios were calculated with the data obtained from the financial tables of football clubs and a decision matrix was generated in Table 3.

Table 3. Decision Matrix of the Football Clubs

	Liquidity		Liability						Profitability	
Football Clubs	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**
Real Madrid	0,754	0,402	-0,09	0,574	1,358	0,938	1,652	0,372	0,071	0,032
Barcelona	0,408	0,137	-0,41	0,864	6,87	5,255	5,706	0,353	0,162	0,023
Juventus	0,489	0,11	-0,23	0,76	10,27	6,239	10,92	0,234	-0,192	-0,001
Manchester City	2,992	1,573	0,184	0,322	0,485	0,145	1,062	0,393	0,015	0,01
Manchester United	0,884	0,6	-0,03	0,69	2,262	0,905	2,455	0,262	0,024	0,008

As can be seen from Table 3, when the liquidity ratios of the football clubs were analyzed, Manchester City was found to have the highest short-term debt solvency (A1-A2) while that of Juventus FC was found to be the lowest. While the club with the least debt liability is Manchester City, FC Barcelona is the club with the highest debt liability. In addition, Barcelona FC has the highest profitability ratio while Juventus FC has the lowest.

5.2 Generation of referential series

The values of an imaginary referential football club are added in Table 4. The referential series specified in this step was generated by taking the largest values in each criterion.

Table 4. Decision Matrix in which Referential Series for the Football Clubs is Generated

	Liquidity		Liability						Profitability	
Football Clubs	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**
X Football Club	2,99	1,57	-0,41	0,32	0,48	0,14	1,06	0,23	0,16	0,00
Real Madrid	0,754	0,402	-0,09	0,574	1,358	0,938	1,652	0,372	0,071	0,032
Barcelona	0,408	0,137	-0,41	0,864	6,87	5,255	5,706	0,353	0,162	0,023
Juventus	0,489	0,11	-0,23	0,76	10,27	6,239	10,92	0,234	-0,192	-0,001
Manchester City	2,992	1,573	0,184	0,322	0,485	0,145	1,062	0,393	0,015	0,01
Manchester United	0,884	0,6	-0,03	0,69	2,262	0,905	2,455	0,262	0,024	0,008

5.3. Generation of comparison series

Company executives and shareholders always want high profitability and short-term solvency. Therefore, formula (2) has been used in liquidity and profitability ratios. Since the leverage ratios indicate the debt burden of the company, it is desired to be low especially for the lenders.

Table 5. Comparison Series Table for the Football Clubs

	Liquidity		Liability						Profitability	
Football Clubs	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**
X Football Club	1	1	1	1	1	1	1	1	1	0
Real Madrid	0,13	0,20	0,47	0,54	0,91	0,87	0,94	0,13	0,74	1,00
Barcelona	0,00	0,02	1,00	0,00	0,35	0,16	0,53	0,25	1,00	0,74
Juventus	0,03	0,00	0,71	0,19	0,00	0,00	0,00	1,00	0,00	0,00
Manchester City	1,00	1,00	0,00	1,00	1,00	1,00	1,00	0,00	0,59	0,35
Manchester United	0,18	0,33	0,36	0,32	0,82	0,88	0,86	0,82	0,61	0,27

5.4. Generation of absolute value tables

In this step, by using the formula (6), the absolute value table was generated by finding the distances between the largest values and the values in other criteria. In other words, in this step, the distances between normalized values and referential series are calculated.

Table 6. Absolute Value Table for the Football Clubs

	Liquidity		Liability						Profitability	
Football Clubs	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**
X Football Club	1	1	1	1	1	1	1	1	1	0
Real Madrid	0,87	0,80	0,53	0,46	0,09	0,13	0,06	0,87	0,26	1,00
Barcelona	1,00	0,98	0,00	1,00	0,65	0,84	0,47	0,75	0,00	0,74
Juventus	0,97	1,00	0,29	0,81	1,00	1,00	1,00	0,00	1,00	0,00
Manchester City	0,00	0,00	1,00	0,00	0,00	0,00	0,00	1,00	0,41	0,35
Manchester United	0,82	0,67	0,64	0,68	0,18	0,12	0,14	0,18	0,39	0,27

5.5. Generation of grey relational coefficient matrix

By converting all financial ratios into grey relational coefficient and by taking $\delta = 0.5$ in the formula (7), the grey relational coefficient matrix table presented in Table 7 was generated.

The grey relational coefficient matrix table contains the weights of the factors that determine the performance of the football clubs. The criteria are assumed to be of equal importance and the weight of each criterion is taken as 0.10. In Table 7, by using the formula (8), these factors are ranked according to the degree of relationship and the performance of the football clubs in Table 8.

Table 7. Grey Relational Coefficient Matrix

	Liquidity		Liability						Profitability	
Football Clubs	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**
X Football Club	0,100	0,100	0,100	0,100	0,100	0,100	0,100	0,100	0,100	0,100
Real Madrid	0,536	0,555	0,654	0,683	0,918	0,885	0,944	0,534	0,797	0,500
Barcelona	0,500	0,505	1,000	0,500	0,605	0,544	0,680	0,572	1,000	0,575
Juventus	0,508	0,500	0,774	0,553	0,500	0,500	0,500	1,000	0,500	1,000
Manchester City	1,000	1,000	0,500	1,000	1,000	1,000	1,000	0,500	0,707	0,741
Manchester United	0,551	0,600	0,611	0,596	0,846	0,889	0,876	0,847	0,719	0,790

As can be seen in Table 8, liquidity ratios of the five major clubs in the UEFA ranking are shown *(A1 and A2)*, Manchester City has the highest ratios. Manchester City has the lowest liabilities while FC Barcelona has the highest profitability ratios.

Table 8. Grey Relational Coefficient Matrix Evaluation

	Liquidity		Liability						Profitability	
Football Clubs	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**
Real Madrid	**0,536 (3)**	**0,555 (3)**	0,654 (3)	0,683 (2)	0,918 (2)	**0,885 (3)**	0,944 (2)	0,534 (4)	0,797 (2)	0,500 (5)
Barcelona	0,500 (5)	**0,505 (4)**	1,000 (1)	0,500 (5)	0,605 (4)	**0,544 (4)**	0,680 (4)	0,572 (3)	1,000 (1)	0,575 (4)
Juventus	0,508 (4)	**0,500 (5)**	0,774 (2)	0,553 (4)	0,500 (5)	**0,500 (5)**	0,500 (5)	1,000 (1)	0,500 (5)	1,000 (1)
Manchester City	**1,000 (1)**	**1,000 (1)**	0,500 (5)	1,000 (1)	1,000 (1)	**1,000 (1)**	1,000 (1)	0,500 (5)	0,707 (4)	0,741 (3)
Manchester United	**0,551 (2)**	**0,600 (2)**	0,611 (4)	0,596 (3)	0,846 (3)	**0,889 (2)**	0,876 (3)	0,847 (2)	0,719 (3)	0,790 (2)

* The numbers in parentheses show the rankings for each financial ratio.

Table 9. Performance Measurement Results and Their Ranking

Football Clubs	***DEGREE OF RELATIONSHIP***	***RANKING***
Real Madrid	0,700	**3**
Barcelona	0,648	***4***
Juventus	0,634	***5***
Manchester City	0,845	**1**
Manchester United	0,733	**2**

When all the performance criteria are evaluated together and a general ranking is made among the 5 major football clubs in the UEFA ranking, Manchester City has the highest performance or grey relationship degree while Juventus has the lowest. When we examine the Manchester City football club with the highest performance, it differs from the other sports clubs in terms of Liquid Asset Ratio (A2) and Short-Term Liabilities/Equity ratio. In other words, Manchester City football club's liquid asset ratio (A2) is higher than those of the other sports clubs and its short-term liability ratio in equity is lower. In addition, Juventus football club, which has the lowest performance, is also ranked the lowest in terms of A2 and A6. However, the current ratio of Manchester City football club is higher than those of the other sports clubs. As a result, it has been concluded that a football club with a high Liquid Asset Ratio and a Short-Term Liabilities/Equity ratio may have a high financial performance. In other words, it has been determined that the most important indicator in the financial success of football clubs is liquidity and liability ratios.

6. CONCLUSION

Along with the industrialization of football, professional football clubs aim for successful financial performance as well as sporting success. As in many industries, the football industry demonstrates significant developments. When the development and size of revenues from international organizations such as Champions League and broadcasting rights revenues in the football market are considered, it can be said that the clubs subject to our research are an interesting and powerful group for the football industry and football market. The clubs that are the subject of our research and are among the top 20 teams in the UEFA clubs list are important representatives of the developing football industry and within this framework, they represent a group that directs the football market and has a significant share in the football market revenues.

The interest of foreign investors in the teams of countries with strong football economies such as England, Spain and Italy have increased significantly in recent years. Financial performance naturally becomes important for increasing foreign investment, which manifests itself in the form of club purchasing. The interesting question at this point is what tools shareholders, investors and creditors will use in financial performance analysis and how they will interpret the results. There are two main approaches to financial performance analysis. The first of these approaches is to analyze the relationship between the sporting success of football clubs and market-based and accounting-based financial performance indicators. In this approach, liquidity, liabilities, and profitability ratios are analyzed as market-based financial performance indicators and stock value as accounting-based financial performance indicator. The second approach is to analyze the financial performance of football clubs through financial indicators and to make comparative financial performance analyses between the clubs and to determine which financial indicator is more important. In the current study, the second method

was adopted, and we made a comparative analysis of football clubs through accounting-based financial performance indicators and the financial performance indicators that came to the fore in the financial performance analysis were determined.

Using the GRA method, the current study compared the financial performances of the 5 major football clubs in the top 20 in the UEFA ranking for the 2015-2019 period. In addition, the number of financial ratios that determine the financial performance of football clubs was reduced, and thus which ratio is more important in performance measurement was determined. In the study, it was determined that the most important indicators in the measurement of financial performance are liquid asset ratio and short-term liabilities/equity ratio. While Ecer and Boyukaslan (2014) stated that liability ratios are the most important financial performance indicator, Nurcan (2016) stated that liquidity ratios are the determining financial performance indicators. Thus, the findings of the current study concur with Ecer and Boyukaslan (2014) in terms of liability ratios and with Nurcan (2016) in terms of liquidity ratios. In the current study, Manchester City was found to have the highest financial performance and to differ from the other sports clubs in terms of liquid asset ratio and short-term liabilities/equity ratio. In this case, high liquidity ratio and short-term liabilities/equity ratio indicate that the financial performance of football clubs can be high. Juventus FC was found to have the lowest short-term solvency and profitability ratio. Pradhan et al., (2016) reached the same results for Juventus FC in their study on the Italian League Series A. In this context, the results obtained for Juventus FC in the current study are compatible with Pradhan et al., (2016). According to the results of the current study, FC Barcelona has the highest profitability ratio.

The most basic element of increasing financial performance is to increase revenues. In this context, sports clubs should market their stadiums to sponsors with the right methods, increase the number of seats sold and matchday revenues. For this, the stadiums should be renewed, and comfort should be increased. In addition, there are also free days in the stadiums apart from the match day. Establishing museums in stadiums or holding social events in stadiums to generate income on free days will strengthen sports clubs financially.

The results obtained are important in terms of revealing the financial status and financial performances of Europe's leading professional football clubs, which are among the top 20 in the UEFA ranking. Research results also rank financial performance indicators according to their importance. The results obtained in this regard help shareholders, investors and creditors select the tools they will use in financial performance analysis. Similar future studies can be carried out with more football clubs and different multi-criteria decision-making models. In today's world, where football investments are increasing gradually, new investments by investors, new regulations brought by FIFA and UEFA, and

gains from international tournaments may increase the revenues of the clubs or decrease their liabilities. In this way, it will be possible to see changes and improvements in the current status of clubs.

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