



Profits may lead teams to lose matches, but scoring goals does not lead to profit



Luis Carlos Sánchez^a, Ángel Barajas^b, Patricio Sanchez-Fernandez^{c,*}

^a Department of Economics, Department of Economics, Avda del Cristo, sn, 33006 Oviedo, Spain

^b School of Economics and Management, National Research University Higher School of Economics Kantemirovskaya, 3A, St. Petersburg, 194100, Russian Federation

^c GEN (Governance and Economics Research Network), University of Vigo, Campus Universitario, 32004 Ourense, Spain

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ABSTRACT

The purpose of this paper is to examine the relationship between profitability and sporting performance in European football. Profitability has been rarely studied because it has not been considered an aim of European clubs, in contrast with American clubs. However, the emergence of investors who invest on both sides of the Atlantic shows that the objectives of owners can be diverse and that profitability has to be taken into account. The study of the compatibility or incompatibility of sporting performance and profitability has implications for the existence of clubs with owners with different objectives in the same competition, or even owners with different aims in the same club. The paper finds that financial performance has a negative influence on clubs' sporting performance, while sporting performance does not have a negative influence on profitability. Moreover, ownership concentration has a negative influence on both performance variables. These findings show that the pursuit of sport success could undermine the profitability and sustainability of clubs and that investors could focus less on sport results and focus more on maximizing the financial returns on their investments.

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1. Introduction

In its origins, football was a competition among amateur teams, and the objective of clubs was clear: sporting success. However, the professionalization of football and the emergence of investors as club owners have blurred the objectives of clubs. Therefore, profitability has appeared as an alternative aim. The existence of two different objectives has generated questions about whether these objectives are compatible.

Although different options have been discussed in the literature, our starting point is that there is not only one single objective. Moreover, a club's objectives will depend on the preferences of its owners. In any case, this approach does not avoid the debate about compatibility between profitability and sporting success. Actually, this debate is more important because clubs with different objec-

tives could participate in the same competitions, and shareholders with different aims may participate in the same club.

Profitability and success on the football pitch may be connected in many ways. Sports success may lead to profits because victories on the pitch attract fans to the stadiums and increase attention from the media. This means higher attendance and TV rights, and more interest from sponsors. All this implies more revenues. This influence will be positive if the increase in revenues is higher than the costs but will be negative if the increase in revenues is smaller. Szymanski (2017) and Barajas and Rodríguez (2010) found that an increase in revenues led to a larger increase in costs for hiring talented players. Solberg and Haugen (2010) explained this phenomenon with game theory, as a result of the necessity to obtain scarce talent to win on the field. However, the rules of financial fair play could change this situation.

Moreover, financial profitability also can influence sporting performance. Owners can make decisions that sacrifice sporting performance in order to increase profits, as for instance when a talented player is sold. This is the case of North American sports, with revenue-sharing and salary caps. Bigger teams refuse to compete for hiring talented players in this system, but they obtain better

* Corresponding author.

E-mail addresses: sanchezcarlos@uniovi.es (L.C. Sánchez), balonso@hse.ru (Á. Barajas), patricio@uvigo.es (P. Sanchez-Fernandez).

financial performance (Einolf, 2004). In a similar way, Galariotis, Germain, and Zopounidis (2018) found that financial performance, measured as a mix of ratios, affects negatively sport performance in French football.

Some papers have studied the influence of sport performance on profitability, while others have studied the influence of profitability on sport performance separately. However, both types of studies miss the bidirectional simultaneous influence between sport performance and profitability. Moreover, previous studies do not take into account that some variables may affect both performance measures simultaneously. In such a manner, something that may influence financial performance can affect sporting performance at the same time. This paper attempts to fill this gap by considering of all these effects. The methodologies used until now do not allow these effects to be considered despite their importance. Correlations do not take into account relevant variables that explain the behaviour of profitability and sporting-performance variables. Single equations miss the bidirectional effect of both variables and the possible existence of variables affecting them simultaneously. The present paper attempts to fill this gap in the literature by considering these issues when studying the relation between profitability and sporting performance. The present paper aims to know whether profitability and sporting performance are connected or not, and, if they are, whether the relation between them is positive or negative. Moreover, we would detect variables that have a simultaneous influence on financial and sporting performance.

The present work shows the important consequences of the relation between the two objectives. In the case where both objectives are aligned, the objectives of the owners would be irrelevant because maximising one or the other would lead to the same result. On the contrary, if there were no relationship between both variables, there would be a conflict when a team has owners with different objectives. This conflict would be even worse if the relationship between sport and financial results were negative or if only one of the performance measures influences the other. In the first case, we would be in a zero-sum game because improving one measure of performance could have a negative effect on the club's ability to achieve the other one. In the second case, changes in ownership could change the objectives of the club, depending on which variable has influence. In this way, fans should think carefully about selling their club, while the emergence of foreign investors could lead the industry to focus more on profit. Moreover, the industry of football will face competitive problems when investor-owned clubs play (interested in profitability) against fan-owned clubs (interested in sport performance) in the same competitions. The present work will provide evidence about the situation in the European football industry.

2. Literature review

Previous research has studied the links between sport performance and financial variables. Arnold (1991) found that sporting success influenced positively revenues and salaries. Szymanski and Kuypers (1999) confirmed this effect. These authors established two general principles: higher salary expenses lead to better sport results, and better sport results lead to higher revenues. Nevertheless, these principles do not determine *per se* a specific relationship with profits, as higher revenues and higher salary costs may lead to higher or lower net income, depending on which grows more. It is necessary to note that financial performance is measured in most industries by profitability, not by revenues. However, literature about the relationship between revenues and sport results is much more abundant than studies about profits and sporting performance. This is likely a consequence of the debate about the objective of sports clubs. This debate has

two main points of view. Some authors, such as Quirk and Fort (1997); Vrooman (1995) and Feess and Stähler (2009), consider that investment in sport is similar to other industries, where the objective is the maximisation of profits. On the other hand, Sloane (1971); Késenne (1996); Szymanski and Kuypers (1999); Gerrard and Dobson (2000); Morrow (2003) and Ascari and Gagnepain (2006) argue that the objective of sports clubs is the maximisation of utility for the fans by maximising athletic performance. This second view could be precisely the reason why researchers do not take into account the profitability of clubs.

Fort (2000) indicated that USA clubs are oriented toward profit, while European ones are focused more on wins. This would be possible if ownership were homogenous on each continent. It can be in the case of USA, but it is not the case of European football, where ownership structures are diverse. Rohde and Breuer (2017) show the coexistence of teams with dispersed and concentrated ownership in European football. Thus, Sanchez, Barajas, and Sánchez-Fernández (2017) identified an alternative approach. Clubs do not have objectives *per se*; a club's objectives depend on who the team owner is. Club members are not worried about club profits but about the club's triumphs on the field. On the contrary, the Glazer family did not buy Manchester United to enjoy attending the club's matches. They were focused on the profitability of their investment. They own a European football club, Manchester United, and an NFL team, the Tampa Bay Buccaneers. It would not be reasonable to think that they have different objectives in Manchester and in Tampa. Thus, we cannot say that there is a unique aim for football clubs, but it depends on who the owner is. For this reason, it is necessary to study profitability as a key element in club management.

Previous research about the relationship between profits and sports performance is scarcer and inconclusive. Szymanski and Smith (1997) and Szymanski (2017) studied the correlation between profits and sports results. The results were mixed. The first work found a U-shape relationship, while the second found no relation. Göllü (2012), analysing Turkish football, and Lopez-Busto, Garcia-Unanue, Gomez-Gonzalez, Barajas, and Gallardo Guerrero (2016), studying Spanish clubs, used the same methodology. The results of these studies were also mixed. A positive relation between net income and league position was found in the Spanish case, while no relation was detected in the Turkish case.

Pooled regressions have also been used on the study of this topic. Gerrard (2005) considered operating profit as a dependent variable explained by league position at the end of the season for English clubs. These results showed a positive influence when OLS was used and a negative influence when instrumental variables was used. Barajas, Fernández-Jardón, and Crolley (2005) studied the case of Spanish football using net income as the dependent variable. In this case, points won in the league was found to be insignificant. Dimitropoulos (2009) used a relative measure of financial performance: earnings to sales. He found a positive influence of sporting performance on profitability.

Buchholz and Lopatta (2017) used a panel-data regression to study two separate models in a sample of clubs from leagues across Europe. One of their models showed a positive influence of the club's league position on profitability, measured by ROA. The other model found a positive influence of profitability on the club's league position. Ferri, Macchioni, Maffei, and Zampella (2017) also used sporting performance as the dependent variable. They found that profitability influenced positively the sporting performance of Italian clubs. On the other hand, Dimitropoulos and Limperopoulos (2014) found that higher investment in player contracts contributes to sport success but reduces profitability.

In summary, the previous literature is not conclusive, although in several cases, sporting performance seems to influence financial results. Moreover, previous studies have found that financial prof-

itability influences positively sport results. However, no study has taken into account this bidirectional effect. The present work will generate insight into whether profitability and sport performance are aligned and, in this way, whether the ownership of clubs is irrelevant.

3. Data analysis

3.1. Sample

The elite football teams have seen their revenues boosted, much more than the rest of teams. They have become less dependent on the domestic market, with important revenues from continental competitions and international sponsors. These elite teams can be considered more homogeneous between them than with the rest of teams of their corresponding domestic competition. They are homogenous not only in their financial characteristics but also in their sporting performance: all of them are successful in their respective domestic competitions and usually participate in European competitions, occupying the top places in the national leagues. These similarities can eliminate any national effects. For this reason, the sample consists of the 20 European football clubs with the most appearances in the Deloitte Money League list from 2010 until 2017. A problem with measuring sporting performance in a European sample is that clubs participate in different national leagues. However, there are also continental competitions organized by UEFA: the Champions League (UCL) and the Europa League (EL). The participation in these tournaments depends on the results of the team in their national and European competitions in the previous season. The teams in our sample are the most powerful financially and on the field. Since the creation of the Champions League in 1992, the teams from the sample have won all editions of the UCL except on three occasions, and they have participated in all the finals since 2005.

3.2. Description of models and variables

To answer the research question of this study, we will use two equations: one for financial performance, and one for sport performance. In this way, the number of equations is the same as the number of performance variables. These equations involve potentially endogenous variables and a series of exogenous variables that vary from one equation to another. Given that some previous research has found profitability as an endogenous variable and other previous works have found sport performance as endogenous, it could be a situation of reverse causality.

Profitability as a measure of financial performance is measured in this paper through return on assets (ROA). Sporting performance (SP) is measured by a ratio, like financial performance. Since the sample includes teams from different European countries, each one of them playing in its own country competition, we take into consideration the results in continental competitions organized by UEFA (Champions League and Europa League) instead of domestic leagues. UEFA awards a coefficient to each team based on its result in these competitions. Because the Europa League is a minor competition, we have weighted by half the UEFA coefficient of teams participating in the Europa League. Since profitability is a relative measure, sporting performance should be measured in the same way. For that reason, the variable sporting performance (SP) is calculated as the weighted UEFA coefficient of each club divided by total assets. Financial performance will be explained with the following model:

$$\begin{aligned} ROA_{it} = & \beta_0 + \beta_1 \cdot SP_{it} + \beta_2 \cdot CONCEN_{it} + \beta_3 \cdot LEVER_{it} + \beta_4 \cdot PASTSP_{it} \\ & + \beta_5 \cdot MKSIZE_{it} + \beta_6 \cdot ASSET_{it} + \beta_7 \cdot FFP_{it} \\ & + \beta_8 \cdot STADOWNED_{it} + \varepsilon_{it}. \end{aligned}$$

The independent variables are related to characteristics of the clubs. Some of these variables explain both measures of performance, such as ownership concentration (CONCEN), leverage (LEVER) and past sport success (PASTSP). Others are specific to the model of financial performance, such as total assets and Financial Fair Play (FFP).

The separation of ownership in modern firms may affect their profitability. Sanchez, Sanchez-Fernandez, and Barajas (2016) and Acero, Serrano, and Dimitropoulos (2017) found a negative relation between concentration of ownership and profitability in European football clubs. The variable CONCEN represents ownership concentration, measured as the percentage of voting rights held by the two biggest shareholders.

Leverage is measured as total liabilities divided by total assets. Numerous works have found a negative relation between firms' leverage and profitability. The existence of tax shields, bankruptcy costs, asymmetrical information and agency costs can explain that negative relation.

The previous sport success of a team may provide a wider fan base and a more recognisable image in the market. Most teams that dominate the competition and the market at present already did so decades ago. Newcomers have more difficulties in entering a market that has been led by teams for almost a century, and it can affect their profitability. A variable based on the historic coefficient used by UEFA for revenue-sharing in the Champions League has been introduced as proxy of past sport success (PASTSP).

A variable widely used in studies on the sport industry is market size. Although the football market has become globalized in recent years, living in proximity to the location of a team can involve being a fan of that team. This can not only influence attendance in the stadium but also TV rights and merchandising sales. Barajas and Rodríguez (2010) found a positive influence of market size on revenues of Spanish football clubs, and Cocco and Jones (1997) observed the importance of market size in the viability of NHL teams. The population who lived in the area¹ of the club is used as proxy for market size (MKSIZE).

The size of a firm is a variable widely used in the literature for any industry. The most common measure of size is the value of the team's total assets (ASSET). This measure is used in the present work. UEFA introduced "Financial Fair Play" to ensure the sustainability of European football teams. Compliance with these rules is a requirement to participate in competitions organized by UEFA, such as the Champions League and Europa League. These rules were implemented gradually. Dimitropoulos, Leventis, and Dedoulis (2016); Birkhäuser, Kaserer, and Urban (2019) and Mareque, Barajas, and Lopez-Corrales (2018) considered the full implementation in the 2013/2014 season. The variable FFP is a dummy variable that indicates the seasons since the time when it was introduced.

An important decision for a club is whether to rent or to build its stadium. According to the transaction-cost theory of Williamson (1979), such a specific asset as a stadium should be owned by the club. No one else would invest in a football stadium because, except for the club, it would be very difficult to find companies interested in renting the stadium. The possibility of having a public stadium is an important source of cost savings, and indirect state aid could affect the club's profitability. The variable STADOWNED is a dummy variable indicating whether the stadium is owned by the club.

Another model will explain sporting performance. It will include financial performance (measured as it was explained by ROA) and

¹ We mean the province, county or metropolitan area according to the national legal framework.

other variables:

$$SP_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 CONCEN_{it} + \beta_3 LEVER_{it} + \beta_4 PASTSP_{it} + \beta_5 MKSIZE_{it} + \beta_6 INTANG_{it} + \beta_7 PAYROLL_{it} + \varepsilon_{it}$$

Ferri et al. (2017) found a positive relation between sport results and financial leverage. Managers can accumulate debt if they overspend to invest in better players. Moreover, Sanchez et al. (2017) detected that teams with dispersed ownership obtained better combined sport and financial performance. Greater managerial discretion allows for the balancing of different interests, something relevant in industries where relations with stakeholders are very important, such as football, and making more consistent long-term decisions. For these reasons, variables have been introduced to show the level of indebtedness (LEVER) and ownership concentration (CONCE).

The influence of past sporting success on current sporting performance is linked to the idea of corporate culture and the importance of accumulated knowhow. Historic success may also increase the level of demand for present sport success and with it to improve performance. Moreover, the knowhow accumulated by the previous technical staff can be transmitted within the structures of the club. For this, the variable related to past sport success (PASTSP) is used.

Buraimo, Forrest, and Simmons (2007) found that in the Premier League, teams from bigger cities have achieved more success on the field than those from smaller ones. Sanchez Santos, Dopico, and Castellanos (2012) found a similar effect in the case of the Spanish League. Consequently, the variable market size (MKSIZE) has been introduced again in this model.

All assets of the firm contribute to profitability, but not all of them contribute to sporting success. The formation of a squad has two costs for the teams. One is payroll paid to the players. The most-talented players usually are better paid. Therefore, payroll could influence sport success on the field. Hall, Szymanski, and Zimbalist (2002); Forrest and Simmons (2002); Garcia-del-Barrio and Szymanski (2009); Carmichael, McHale, and Thomas (2011) and Frick (2013) found that payroll has an important effect on sporting results. Therefore, spending on salaries (PAYROLL) has been introduced in the model. The other cost is the transfer paid when a player is hired from a different team. The cost of the purchase of the players is reflected in the financial statements in the account 'intangible assets', introduced as one of the variables of the model (INTANG). Players' registration rights represent the main part of the total value of this account, and it is a good proxy of this value. Carmichael, Forrest, and Simmons (1999); Gerrard and Dobson (2000) and Lucifora and Simmons (2003) found a relation between the acquisition cost of players and their ability on the field.

Table 1 shows descriptive statistics of the variables. The clubs in the sample are very successful in the fields, as their UEFA coefficients show. On the other hand, their net income is close to the equilibrium, on average, but with important differences between them. The clubs are leveraged, and their ownership is highly concentrated. The clubs in the sample show important differences in the size of their intangible assets, which indicates the different policies in investments in players between buyers' clubs and clubs focused more on internal promotion. However, the level of salaries paid is more similar.

3.3. Methodology

Some authors have considered that financial results influence sporting performance, and others, that sport results influence financial performance. Both points of view can be justified. Better sport results can increase profitability, and owners can make

decisions that sacrifice sporting performance to increase profitability. This situation of reverse causality and the existence of third variables also affecting both dependent variables simultaneously can lead to correlations between the endogenous variable and the error term. Previous literature has not taken account these implications despite their importance. The present paper attempts to fill this research gap by studying the relationship between profitability and sporting performance using simultaneous equations. This methodology was developed by Zellner and Theil (1962) and combines instrumental variables, random effects and generalized least square models. Greene (2003) asserts that this methodology controls for endogeneity and is asymptotically efficient.

Simple regression will be applied firstly because it will allow for an evaluation of potential simultaneity bias and whether the simultaneous technique is justified. Thus, we will estimate two models of single equations by ordinary least squares (OLS) that tend to be less sensitive to misspecifications errors. One equation will have profitability as the dependent variable, while the other will have sporting performance. The estimation results based on single equations will be comparable to those provided by previous studies, which ignore the interdependence of both performance measures. Furthermore, we will check whether both performance variables are statistically significant as exogenous variables: whether sporting performance influences financial performance, and vice versa. Additionally, we will study if there are variables that affect both performance measures simultaneously.

In the second step, we use a more robust methodology in order to capture the possible reverse causality among the performance variables: simultaneous-equations regressions, and more specifically three-stage least square (3SLS). This methodology does not assume the exogeneity of performance variables that could lead to wrong conclusions as regards the causality of the link between sport and financial performance. This is important because an incorrect attribution of causality could lead to a misinterpretation of the relation of both variables.

Thirdly, and to justify empirically the simultaneous bias, an enhanced test for endogeneity, Hausman test, is applied to compare the previous estimations. This would enable a confirmation or rejection of the theory that sport and financial performance involve reverse causality and that the existence of third variables also affect both simultaneously. If the coefficients from the two regressions are significantly different, it means that OLS was giving biased estimates. In this case, the necessity of a simultaneous-equations model would be statistically justified. In order to identify correctly an equation, two conditions should be fulfilled, the order and rank conditions (Wooldridge, 2008).

3.4. Results

Table 2 shows the results of the two estimations with the different methodologies used. The OLS estimation in column (1) shows that profitability does not influence sporting performance, in contrast with Ferri et al. (2017). The model in column (2) shows that sporting performance influences positively profitability, confirming previous research such as Buchholz and Lopatta (2017). Moreover, leverage influences both measures of performance, in line with expected results. These results show that OLS can be inconsistent because it does not consider the potential simultaneity bias of the relation detected between both measures of performance, sporting and financial, and the simultaneous effect of variables such as leverage. The Hausman test comparing OLS and three-stage least squares (3SLS) shows that these differences are statistically significant, that the simultaneity bias is relevant and that OLS is not an appropriate methodology. In this case, 3SLS can be an appropriate methodology, but we need to validate whether it can be used in our model. The first requirement is the order

Table 1
Descriptive statistics.

Name	Variables	N	Mean	sd	Min	Max
Sporting performance	SP	160	0.307557	0.283064	0	1.56
Profitability	ROA	160	-0.03403	0.10353	-0.38	0.212303
Ownership concentration	CONCEN	160	0.658313	0.400323	0.01	1
Indebtedness	LEVER	160	0.782173	0.290422	0.17116	1.442414
Past sporting performance	PASTSP	160	9.925	11.422	0	50
Intangible assets	INTANG	160	0.147421	0.100728	0.011101	0.581578
Payroll	PAYROLL	160	0.164699	0.07977	0.029543	0.406109
Total assets	ASSETS	160	0.540324	0.343527	0.06	1.86127
Financial fair play	FFP	160	0.5	0.50157	0	1
Stadium ownership	STADOWN	160	0.65	0.478467	0	1

Source: self-elaboration.

Table 2
Results of estimations.

VARIABLES	OLS		3SLS	
	(1) SP	(2) ROA	(3) SP	(4) ROA
SP		0.0658** (0.0255)		-0.0287 (0.0785)
ROA	0.211 (0.224)		-1.878*** (0.580)	
CONCEN	-0.133** (0.0604)	-0.0391 (0.0237)	-0.330*** (0.0818)	-0.0677** (0.0275)
LEVER	0.196** (0.0813)	-0.0620** (0.0262)	0.0313 (0.107)	-0.0471* (0.0274)
PASTSP	-0.00372 (0.00233)	-0.000528 (0.000668)	-0.00583** (0.00267)	-0.000824 (0.000673)
MKSIZE	-6.130 (5.403)	3.051* (1.690)	-1.271 (6.509)	2.723 (1.698)
ASSETS		0.0578** (0.0256)		0.0628*** (0.0230)
FFP		0.0515*** (0.0140)		0.0423*** (0.0125)
STADOWN		0.0643*** (0.0184)		0.0494*** (0.0166)
INTANG	-1.058*** (0.353)		-0.795** (0.374)	
PAYROLL	1.482*** (0.447)		1.739*** (0.533)	
Constant	0.231** (0.0978)	-0.0896** (0.0386)	0.334** (0.120)	-0.0372 (0.0537)
Observations	160	160	160	160
R-squared	0.179	0.377		
Hausmann test	208.69***			
Hansen-Sargan	2.902			

Standard errors in parentheses.

* p < 0.1.

** p < 0.05.

*** p < 0.01.

condition. This condition is clearly satisfied in the current model. Our models pass the rank condition test (Baum, 2007) as well. A final specification test, the Hansen-Sargan test for over-identifying restrictions (Baum, Schaffer, Stillman, & Wiggins, 2006), confirms that our instruments are all valid. Therefore, we have validated our approach, and the results are shown in columns (3) and (4) of Table 2.

The 3SLS models offer different results than the OLS models. Sport performance does not affect profitability, unlike the results with OLS and shown in previous research. On the other hand, a negative influence of profitability on sporting performance is found, with high significance in the 3SLS estimation. This effect is the opposite to Ferri et al. (2017), who found a positive influence, while the previous OLS models did not find any relation. These differences show the importance of bidirectional effects and the need to incorporate these effects. In this way, profitability may lead to worse sport performance, while sport success does not imply more profits. The negative influence of profitability has a relevant quantitative

importance. If an owner would increase their profitability objective by 1% as a percentage of assets, the club would suffer a decrease in its sporting performance of 1.8 basis points. It is worth noting that the average sporting performance of the sample is 30 basis points. This shows the trade-off between sport success and profitability. It explains the need to establish Financial Fair Play, to avoid a situation where the pursuit of sport success leads to economic instability in the clubs.

Concerning the variables that have a potential influence on both measures of performance, the results are mixed. Ownership concentration affects simultaneously and with a negative impact on financial and sporting performance in the 3SLS estimation. This may be due to actions taken by large shareholders at the expense of the rest of the shareholders and the lack of advantages of a better alignment with stakeholders' interests provided by a dispersed ownership. In the case of sporting performance, the acquisition of an additional 1% of the shares by the biggest shareholders implies a decrease in sporting performance of 0.33 basis points. If we take into account this and the effect of profitability, we can see that the decision of fans to sell their shares of a club to a profit-oriented investor is not only a bad decision in financial terms but also a suboptimal decision according to their motivations. Financial leverage influences negatively financial performance. However, indebtedness seems not to have an influence on sporting performance according to the simultaneous-equations estimation. Previous studies found an influence of leverage on sporting performance, as in our OLS estimation, but without considering the importance of the simultaneous effect with financial performance. Past sport success seems not to influence profitability. On the other hand, the simultaneous-equations estimation shows a negative influence of past sporting success. The rise of TV rights, the end of the limitations on hiring foreign players and the appearance of new investors in teams have changed the landscape of European football, and the old dominant teams can have difficulties in competing with newcomers.

Regarding the specific variables of the model of profitability, the implementation of Financial Fair Play by UEFA has had a significant positive influence on clubs' profitability. This result shows that UEFA has succeeded in its goal to improve the economic sustainability of football teams. The size of clubs, measured by total assets, also influences positively profitability. It indicates the existence of economies of scale in the football industry regarding financial performance. The ownership of the stadium also has an influence on financial performance. However, a negative influence was expected, but the observed influence is positive. The decision to own a stadium, even with the costs, seems to show a management style that focuses on the long-term, with positive consequences for the club's profitability.

Concerning the specific variables in the sporting-performance model, payroll has a positive influence on sporting performance, confirming previous literature. This is a signal of the scarcity of tal-

ent in the footballers' market and the importance of having the best players. In this case, payroll shows an opposite influence than the book value of the players, which influences negatively sporting performance. These results can have two possible explanations. First, it shows that the decision of paying better salaries to your players instead of investing money in buying them provides better sporting performance. Secondly, it shows that payroll is a better signal of the quality of the squad.

4. Conclusions

The relationship between the financial and sporting aspects of the management of sport clubs has been extensively studied. The influence of sports results on revenues and payroll is confirmed by numerous works. Therefore, revenue is the financial aspect most studied by previous research in sport economics. Nevertheless, the financial literature on other industries has focused on profitability.

Some authors claim that European clubs pursue only sporting success, while American clubs look for profitability. This argument is extremely weak, since some investors own clubs simultaneously in Europe and in America. It is not plausible that the same investor has two distinct motivations based on the location of their investments. This identifies the relation between sporting success and profits as a key question because if both objectives are interconnected, the debate about the objective of the clubs loses its meaning. On the contrary, if both objectives are independent or opposite, this relation become important and opens a new field of investigation.

Previous works have found that sporting performance influences positively profitability, while profits influence positively sport results. Those papers did not take into account the bidirectional relationship between these variables. This simultaneous influence makes necessary the utilization of statistical tools to detect the real relationship between them. Using the simultaneous-equations technique, sporting performance does not influence profitability, but profitability has a negative influence on sporting performance. In this way, those clubs who decide to give priority to profitability could face worse performance on the fields. At the same time, higher profitability would not necessarily improve sport results. This could give an advantage on the field to clubs that focus only on sport results, even at the expense of long-term economic sustainability. Insomuch as the participation of clubs with different objectives would affect the competition, norms setting regulations to avoid this type of situation would be justified.

These results have important practical effects. The ownership and management of football clubs are regulated in many aspects by national rules and institutions as UEFA. This normative framework should take into account the fact that the dangerous rat race of looking for sport success could undermine the profitability and sustainability of clubs. In this way, the results show that the UEFA rules of Financial Fair Play have improved the profitability of teams and decreased the risks of bankruptcy in European football.

These results also show to fans that the outbreak of profit-oriented investors will not necessarily improve the sporting performance of their clubs. Moreover, when owners with different aims participate in the same clubs, measures of corporate governance are necessary to protect minority shareholders. Some of these measures could be the existence of two-tier boards, shares with more political rights for fans and others with more economical rights for investors or the implementation of supermajorities for some decisions. Stakeholders should also be protected in as much as the interests of big shareholders could be detrimental to the community, to the club itself and even to competition. The implementation of Financial Fair Play is one measure that could help obtain these objectives, but it might not be enough. More trans-

parency in the players' transfer market, rigorous exams to approve new owners of teams and the improvement of club governance or limitations on indebtedness could be some of these measures.

The paper also offers contributions regarding other variables that influence the performance of football clubs. Ownership concentration has a negative influence both on profitability and on sporting performance, confirming previous works. In this way, dispersed ownership, where the distance between owners and managers is bigger, shows an advantage in an industry where various objectives are pursued. The fact that the ownership of the stadium by clubs is related to their profitability shows that corporate culture is important in club management. These factors indicate that clubs that focus on long-term management are more sustainable and that this should be taken into account when establishing the necessary mechanisms explained before. Leverage is not found to have a positive influence on sporting performance, in contrast with previous studies. What is detected is leverage's negative relation with profitability. This difference with other studies may be another example of the advantages of the methodology chosen. High indebtedness worsens profitability, which has a negative relation with the sporting performance. Thus, a similar relation can be seen indirectly.

The present work shows the necessity of changing the point of view to analyse the management of football clubs and their competitions. The present work focusses on the biggest clubs. This focus is a limitation, because we cannot ensure that the results can be extrapolated to the rest of the clubs. Another limitation is the future effect of Financial Fair Play, as only the first years of its full implementation have been studied. Some questions arise to resolve in future research. How will teams with different objectives participate in the same competitions? Will renouncing profitability be an advantage on the football fields? Will clubs that focus on maximising sporting performance be able to raise enough capital to be sustainable?

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