

On the relationship between sport and financial performances: an empirical investigation

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Abstract

Purpose – Our paper shows an empirical analysis of the European football companies to test the association between sport results, proxied by ranking position and financial performance in panel framework (starting from 59 firms over the 2013–2018 time span).

Design/methodology/approach – We use panel data models for studying the relationship of our interest and we make no *a priori* assumption about the strict exogeneity of the covariates and estimate equation using both Random Effects GLS (RE-GLS) and Fixed Effects OLS (FE-OLS) estimations.

Findings – Our results suggest there is stable and significant relationship between the two types of performance and that when detectable this is linked in a positive way to the profit maximization of the business model, suggesting that it is more useful for investor remuneration and to increase technical-tactical resources and therefore sports results. Not surprisingly, as for many clubs, concentration effect is relevant while the financial fair play regulation is not. In fact, the current regulation of UEFA authority does not seem to have an impact on sport and financial results.

Originality/value – This work complements literature in several ways. First, we offer new empirical evidence for the association between the sport and financial performance for a panel of the European football companies, listed and not. Second, we show that the persistence of the sport results is strongly correlated with financial performance.

Keywords Performance, Efficiency, Agency costs, Panel analysis, Football, Financial fair play

Paper type Research paper

1. Introduction

Motivated by increasing worldwide attention to the “football” industry, the purpose of this work is an empirical investigation of the relationship between sport and financial performance at the corporate level (football clubs). In a specific way, our work attempts to answer a fundamental question: does financial performances affect sport ones or not? Are these two dimensions connected or are they disjoint? The answer is not trivial and evidence might have significant implications both at the individual company level and in aggregate terms. If financial performance positively affects sport results, it is plausible to imagine a significant virtuous pathway to achieve strong sport successes; if financial performance does not be relevant to sport results, the interpretation could be also a structural antithesis between them, which might imply trade-offs and unpopular decisions.

Since the beginning of the new millennium, football industry has received a strong consideration in the wake of several cross-cutting issues. Relevant, but certainly not exhaustive, examples for a strong interest in this topic are linked to the increasing popularity and supporters’ participation, growing TV rights, accounting and financial scandals (frauds in sport competitions) and excessive compensation of players (unrelated to salary bases). A

JEL Classification — C23 (Panel Data), G30 (Corporate Finance)

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successful football company should be able to face and prevent the events or phenomena mentioned above and beyond, avoiding behaviours affected by moral hazard. Despite this, the success of a club is an open concept with many interpretations and context-specific understanding. According to a prevalent perspective, success depends on three interconnected pillars: economic and managerial, technical and social management. This framework is substantially based on the balancing of trade-offs among theoretically equally desirable goals concerning these three dimensions, although uses are different. While the economic and managerial management dimension is related to the “continued productivity and functioning of business” as well as the “protection of the stakeholders’ interests” and the social dimension is related to “continued satisfaction of basic supporters, the technical dimension deals with “the limitations due to financial management”. We can define the success as the result of the systematic efforts managed by the football club, balancing social and technical managements to achieve economic and sport goals, minimizing negative impacts and maximizing the relative benefits. This tripartite framework could be represented graphically with three intersecting circles of economy and management, technical management and social dimension with the “ability to win” being placed at the intersection. Theoretically we can use the three-pillar paradigm just described as a lens to investigate the football industry, although this paradigm is not universal.

However the sport success is a multi-faceted phenomenon, not easy to measure. In literature, different proxies are considered to quantify its various dimensions. However, there might be a wide-ranging consensus on the fact that, anyhow it is measured, it turns out to be positive for profitability, productivity and social purposes. In general, ranking position (in a specific competition) represents the most well-known proxy for success (also for their availability or visibility), both at the macro- (nations) and the micro-level (single clubs). Football companies’ propensity to win generally is associated to long-term or average ranking position.

In this paper, we combine some kinds of literature by investigating the relationship between sport success and financial performance, but also the inverse relationship between them.

Therefore, this work complements literature in several ways. First, we offer new empirical evidence for the association between the sport and financial performance for a panel of the European football companies, listed and not. More precisely, we highlight that there is a virtuous paradigm or a one-way relationship between sports and financial results, so it is possible to imagine that it is not essential to bear important losses to achieve sport successes but that a constant and careful management of financial ones leads to improve sport performance, especially in the professional field. Further, at the microeconomic level, companies are encouraged to follow the profit maximization to improve the sport performance. This result is also interesting at the macroeconomic level: the policies (of the UEFA authority) should be mostly driven by incentives for the profit maximization, also in line with measurable economic sustainability targets. Second, we show that the persistence of sport results, among few clubs, is strongly relevant for the industry and so for the UEFA authority. Again, this last result can be very useful for policy-makers to identify reform priorities depending on the desirable targets. Our last significant results are that the intensity of all the relationships investigated does change in function of the dominance of few clubs and also the main relationship between sport and financial results does not depend on financial fair play regulation.

The paper is organized as follows. [Section 2](#) provides an overview of the main arguments used in prior literature. [Section 3](#) defines our sample, methodology and measures, while [Section 4](#) discusses the main results of our empirical analysis. [Section 5](#) provides concluding remarks.

2. Literature and research hypothesis

In literature, several authors have studied the relationship between financial and sports performance, although there is still no common opinion on the topic. The list of papers

below is far from exhaustive, but offers a look at the contrast between those who believe that there is a positive or negative relationship, or even that it does not exist or tends to be weak.

[Galariotis et al. \(2018\)](#) study this report finding that sports results are influenced by the financial performance of football clubs. The authors define a migration effect between the two types of performance, that is, a virtuous (vicious) circle where increasing (decreasing) revenues offer greater (lesser) support to achieve sports (increasing or decreasing the resources available to adapt the technical staff to goals). On the other hand, [Carmichael et al. \(2011\)](#) indicated how the results “on the field” are conditioned by the technical/tactical resources of the team and how the economic-financial management (more precisely the turnover) of the club can impact on these sports results. In contrast, [Sakinc et al. \(2017\)](#) highlight a weak correlation between the two types of performance; the Spearman’s correlation calculated is just 0.17 and is statistically not significant.

Many of the relationships that emerged in the literature between financial and sport performances could be conditioned by the club’s business model and therefore also by the type of governance (ownership) adopted, with the consequence that the results on the field (and therefore the financial ones) depend substantially on choices high level. It is now widely believed that there are two business models: one oriented to maximizing profits (PM) and the other to maximizing the utility (UM) of the subject or shareholder controlling the club. It is clear that in the first case it is possible to imagine a strong relationship between these results, while in the second case the sports performances could be *a priori* and weakly related to the financial ones (if the controlling shareholder of the club maximizes its utility, he/she highlights a lack of interest in financial performance). In fact, as found by [Ruta et al. \(2019\)](#) the board structure and the CEO features do not strongly influence financial and sport performances, for a high concentrated ownership. [Wilson et al. \(2013\)](#) highlight the ownership model as the determining factor. The authors find that a market model (club listed on some financial market) is more performing in financial terms than a privately owned club; regardless of the listing, another important factor is the nationality of the controlling shareholder that, in the case of a foreigner, seems to offer greater (economic) advantages that positively impact the club’s performance. [Acero et al. \(2017\)](#) highlight how the expropriation and monitoring (agency costs) effects related to equity ownership impact performance. They find an inverted U-shaped relationship between controlling equity and the club’s financial results; for low levels of control the effects of the expropriation of wealth by managers or insiders can undermine profitability, just as for high levels of concentration the parent’s targets may diverge from the maximization of profits.

Another important issue is represented by the concept of business efficiency; [Miragaia et al. \(2019\)](#) study this aspect finding that efficiency is not a primary goal for all football companies. It is clear that efficiency can be framed and defined in various aspects (productivity, solvency, profitability) and therefore must inevitably depend on the business model adopted.

Last, but not least, the institutional context in which football clubs operate; the new Financial Fair Play regulations could impact both financial and sports performances, in specific way the budget constraints imposed by UEFA (the European football control authority). [Dimitropoulos and Scafarto \(2019\)](#) find that FFP has a negative effect on the relationship between wages and sports performance, further they highlight also a positive effect on the relationships, on the one hand, between net transfer fees and sporting results and, on the other hand, between gains on player trading and financial performance. It is clear that this topic is too stringent today to be overlooked by football clubs.

We believe that there is still an empirical gap in the literature focused on the relationship between sport and financial performances; new evidence could offer confirmation (or not) of the results already emerged in the literature and offer new insights. For this reason, we investigate this relationship formulating some hypothesis.

Based on what has been highlighted above, our first hypothesis concerns the relationship between sport and financial performance. Our first question relates to the existence of a one-way or bi-directional relationship or, at least, no correlation between the two types of results. We believe that there is an one-way relationship and specifically that financial results influence sports results according to a virtuous process. In this case, we can imagine a positive paradigm and therefore we can believe that the football business can be profit-maximizing. So:

H1. The financial performance influences the sport results and not vice versa.

Our second hypothesis concerns the concentration effect of sport results in order to verify the effective competitiveness of the national leagues (NLs) and champions league (CL). It is common opinion that national competitions are less competitive. Our goal is to understand if the data corroborates this belief and to try to link this argument to our relationship of interest between sports and financial results. We believe that there is a concentration effect in NLs and that instead CL shows greater competitiveness. This issue takes on significant consistency and should be at the centre of UEFA's actions and policies; the risk of concentration of sports results undermines the credibility and interest of investors, as well as for supporters. So:

H2. The sport results are concentrated on few clubs in national leagues, while in champions league they are dispersed on larger group of clubs.

Our last hypothesis concerns the effectiveness of the financial fair play regulation with respect to financial and sports results. The intent of the legislation issued by UEFA is to mitigate the excessive financial power of some European clubs that tend to monopolize the NLs and consequently the CL. The fear is essentially linked to the greater ability of some big teams, controlled by European or foreign tycoons, to dominate the competitions of the football industry, not only financially. We believe that the measures adopted in the current regulation in terms of FFP are not effective and above all they do not represent what should be the aims of a sports association or federation, which instead should pursue intentions of inclusion and promotion of high human values. Specifically and in terms of how it is constructed, we believe that financial fair play is not effective in mitigating financial excesses and therefore its significance in determining sporting and financial results is evanescent. Therefore:

H3. The Financial Fair Play Regulation is not relevant to determine the sport and financial results.

3. Data and methodology

To study our main relationship of interest, we use a company-level dataset obtained merging several data sources. On one hand, we compose a sample of the most common accounting information from Orbis database (Bureau Van Dijk, Moody's) and, on the other hand, we collected by hand a set of public information of football performances from UEFA website and from the several national federations. In our initial research, there are 59 European football companies over the 2013–2018 time span, although in our regressions the number decreases because of the low availability of accounting data for many clubs. Thus, in some years some of our collected clubs do not show part or all of public accounting information and

the consequence is that in the estimation process such observations (or clubs) are excluded. However, all our tables show that the results of our analysis report the number of companies (named groups) involved in the estimate, which ranges from a minimum of 29 to a maximum of 37.

Our research strategy has two main constraints: (1) the club has participated in CL at least once in the analysis time span and has participated always in the highest national league; (2) club accounting information is available.

We estimate the panel data using the model (1)

$$y_{it} = \alpha + X'_{it}\beta + \mu_i + \tau_t + \varepsilon_{it} \quad i = 1, \dots, N; t = 1, \dots, T \quad (1)$$

where y_{it} is our dependent variable (economic sustainability) for firm i at time t , α is a coefficient, β is a vector of coefficients, x_{it} is a vector of covariates, μ_i denotes an unobservable time-constant firm effect, τ_t indicates an unobservable firm-constant time effect and ε_{it} indicates a zero-mean idiosyncratic stochastic error term. To measure the relationship between financial performance and sport result, we regress the former on the latter. We also study the opposite relationship or that sports performance impacts financial ones. We make *a priori* assumption about the strict exogeneity of the covariates and estimate equation using both Random Effects GLS (RE-GLS) and Fixed Effects OLS (FE-OLS) estimations. We use the Hausman test to distinguish the best model between them and we use the FE or RE estimator with robust standard errors in every panel model (Gujarati and Porter, 2009).

While Table 1 lists each variable used in our analysis and its corresponding definition, Table 2 shows the descriptive statistics. In detail, we associate the sport performance of our companies or clubs, national league (NL) and champions league (CL) ranking positions, with their financial performance or profitability (ROA, ROE) and we investigate also the relationship between sport results and the other factors (cost structure, stadium property, budget constraint as the UEFA Financial Fair Play), over the most common ones (asset turnover, size, financial distress, agency costs).

Variables	Definitions
NL	Seasonal ranking in the National League (National Football Federation)
CL	Seasonal ranking in the Champions League (UEFA)
ROA	Return on assets (ROA). It's an indicator of how profitable a company is relative to its total assets (Orbis. Bureau Van Dijk – Moody's)
ROE	Return on equity (ROE). It's a measure of the profitability of a business in relation to the equity (Orbis. Bureau Van Dijk – Moody's)
RA	Asset turnover (ATO). This financial ratio measures the efficiency of a company's use of its assets in generating sales revenue to the company (Orbis. Bureau Van Dijk – Moody's)
PPR	Intensity of players' purchase on the market by a company. it is defined as the ratio between players' purchase expenses and revenue (Orbis. Bureau Van Dijk – Moody's)
SPR	Market Management – (Players Sold – Players purchase) / Revenue
SS	Wages or salary to Revenue Ratio (Orbis. Bureau Van Dijk – Moody's)
SP	It indicates whether the company has the ownership of the stadium
FFP	It indicates whether the company is compliant to the financial fair play regulation (Orbis. Bureau Van Dijk – Moody's)
LogA	Logarithm of the total asset (Orbis. Bureau Van Dijk – Moody's)
Lev	Ratio between total liabilities and total asset (Orbis. Bureau Van Dijk – Moody's)
IFA*Lev	Product between intangible fixed asset to revenue ratio and leverage (Orbis. Bureau Van Dijk – Moody's)

Table 1.
Definitions (and data sources) for every variables employed in the analyses

Table 2.
General Statistics for
each variables used in
the analysis. Data
sources: Orbis (Bureau
Van Dijk, Moody's)

Variables	Obs	Mean	Std. Dev	Min	Max	Median
Rank CL	354	1.01	1.38	0	6	0
Rank N. League	352	3.64	3.59	1	20	2
SP	294	0.75	0.74	0.025	3.5	0.54
ROA	262	-0.10	8.29	-67.55	37	0.01
ROE	245	12.02	1803.89	-14,596	18779.5	0.1
RA	204	0.80	0.77	0.015	5.05	0.67
PPR	202	0.47	0.82	0.006	5.35	0.23
SPR	203	0.05	0.60	-4.36	2.00	0.03
SS	204	0.94	1.29	0	8.84	0.63
FFP	202	0.13	0.33	0	1	0
LogA	262	5.20	0.58	3.54	6.09	5.25
Lev	262	0.87	0.60	0.34	4.47	0.76
IFA*Lev	238	0.26	0.28	0.001	1.71	0.19

Our measure of NL ranges from 1 to the number of teams included in this competition (e.g. for the Italian championship from 1 to 20), where a lower score indicates a better ranking and therefore in terms of sporting results. Otherwise, the measure of CL sports performance ranges from 0 to 6 where now the highest score indicates a better positioning (0 the club participate in preliminary phase of the CL, 1 for those who reach the qualifying groups for the final phase, 2 for the round of 16, 3 the quarterfinals, 4 for semi-finals, 5 for final match and 6 for the winning club). We use lagged sport and financial variables (for one period for NL, CL, ROA and ROE) to infer on the persistence or concentration effect of the sport and financial results among some clubs.

Turning to the explanatory variables used, in addition to those of financial and sport performances (ROE, ROA, NL, CL) already recalled, we take the ratio between staff costs and sales (SS) and the ratio player purchase on revenue (PPR) in order to capture the cost structure. To measure the ability to manage the football market, we use the ratio between the difference sold and purchased players on revenue (SPR). To consider the ownership of the stadium, we build a dummy (1 if the structure is owned by the club, 0 otherwise). To take into account the effect of financial fair play regulation, we construct a dummy variable (which we call FFP) which assumes one if three conditions are met, zero otherwise: (1) financial leverage (Lev) less than 0.7; (2) staff cost (SS) less than 0.7; (3) equity value greater than zero. If the dummy takes value 1, we define the club compliant to FFP regulation and vice versa.

Our control variables are the asset turnover or revenue on asset value (RA) as an efficiency proxy, the logarithm of club assets value (LogA) as a size proxy, the relationship between debt and assets (Lev) as an indicator of leverage or financial distress. Finally we employ the product between financial leverage and the intangible fixed assets (Lev*IFA) to measure any club's underinvestment effect or as an agency costs proxy. The latter variable captures the company's inability to sustain further investments; in fact, for a given ratio of intangible fixed assets, a high degree of leverage should limit a further expansion of technical-tactical resources.

Unfortunately, the limited number of observations (mostly financial) does not offer sufficiently large time series to perform a causality test (for example a Granger test). Anyway, to follow our research goals, we set up the work by splitting the regressions into two macro sets: one, with a dependent variable, the sport result (divided in turn into two sub-sets: those of the NL and those of the CL) and the other with dependent variable financial results (ROA and ROE). The interaction of these analyses should offer us the possibility of analysing the phenomenon according to the three hypotheses formulated in the previous section.

Dependent variable	NL	NL	NL	NL	NL	NL
Model	1	2	3	4	5	6
FE or RE	RE	RE	RE	RE	FE	RE
Lag1 NL					-0.1961**	0.2701***
					-1.91	2.69
CL					-0.0962	-0.0802
					-0.49	-0.53
Lag1 CL					-0.6647***	-0.4863*
					-2.64	-1.73
ROA		0.2583			0.4128	
		0.22			0.28	
Lag1 ROA	-0.6626				-0.3021	
	-0.64				-0.28	
ROE			0.0521***			0.0329
			2.96			1.38
Lag1 ROE				-0.0787***		-0.0662***
				-4.26		-3.11
PPR					-0.2158	-0.1098
					-0.47	-0.33
SPR	0.0487	-0.237	-0.4841**	-0.2267	-0.2781	-0.2905
	0.22	-1.15	-2.01	-0.65	-0.82	-0.67
SS	0.4603**	0.6656***	0.7712***	0.2127	0.5361	0.0064
	2.15	3.08	3.1	1.31	1.66	0.03
SP	0.1065	0.4083	0.494	0.3682	-0.2588	0.3563
	0.18	0.74	0.82	0.75	-0.27	0.57
FFP	0.223	0.2078	0.0645	-0.161	-0.3034	0.2777
	0.41	0.41	0.12	-0.32	-0.89	0.4
RA	-0.0738	-0.5702	-0.9986	-1.5506**	-0.3408	-2.0011
	-0.14	-0.87	-1.35	-1.97	-0.27	-1.52
LogA	-0.8771	-0.8985	-0.7725	-1.6048*	-1.5614	-0.1325
	-1.21	-1.41	-1.28	-1.96	-0.73	-0.12
LEV	-0.4203	-0.05	-0.1531	-3.2132***	0.3548	-2.3132
	-0.23	-0.03	-0.11	-2.02	0.21	-1.2
IFALEV	-0.7276	-0.5576	-1.8944	-2.1913	-0.7469	-0.5782
	-0.58	-0.54	-0.75	-0.96	-0.59	-0.23
const	7.6266*	7.3685**	8.2727**	13.2727***	13.0847	5.2657
	1.77	1.98	2.05	2.61	1.11	0.8
Group N	35	37	33	30	34	29
Obs N	143	179	142	113	123	92
F					5.99	
Wald χ^2	11.68	15.63	29.86	49.69		408.35
p-value	0.2319	0.0749	0.0005	0	0	0
R-square						
within	0.0257	0.0533	0.1167	0.1104	0.2191	0.0199
between	0.1035	0.0676	0.0884	0.1094	0.0018	0.7145
overall	0.0649	0.0643	0.0972	0.0707	0.0116	0.4618

Table 3. Panel Regression Analysis of National Leagues (NLs) results. Results for two types of panel regressions: fixed and random effects. For every model, the table shows the coefficients and below the relative *t*-stat or *z*-stat (in italics). The *p*-value below is relative to F or Wald χ^2 test. Data sources: Orbis (Bureau Van Dijk, Moody's)

4. Results

Tables 3–5 highlight the results of our panel regression models (all with robust errors) that investigate the relationship between sport and financial performance.

The first two Tables 3–4 study the relationship of our interest by placing the sports performance as the dependent variable, which should be determined by the financial ones as well as by a set of control variables. Table 5 focuses on the inverse relationship where the

Dependent variable	CL	CL	CL	CL	CL	CL
Model	1	2	3	4	5	6
FE or RE	RE	RE	RE	RE	FE	FE
NL					-0.0207	0.0393
Lag1 NL					-0.45	0.72
Lag1 CL					0.0611	0.1295**
ROA			0.0095		1.55	2.28
Lag1 ROA			0.02	0.5359*	-0.1661	-0.1735
ROE	0.0145**				-1.29	-1.06
Lag1 ROE	2.57	0.0046		1.75	0.6217	0.0884
PPR		0.51			1.21	1.31
SPR	0.1452	0.1892	0.2134**	0.223*	0.5252*	0.0857
SS	-0.2368***	-0.1916	-0.2795***	-0.3199***	1.83	1.27
SP	-0.1441	-0.6286	-0.2963	-0.6449	-0.1275	-0.0163
FFP	0.224	0.2153	0.1444	0.1474	-0.82	-0.05
RA	0.9474**	1.517***	0.9497***	1.1093***	0.1845	0.3044
LogA	2.3077***	2.8087***	2.3974***	2.6736***	1.09	1.05
LEV	-1.0814	-1.016*	-0.6623	-0.3509	-0.6796***	-0.695
IFALEV	0.5205	0.6627	0.0722	0.3111	-2.79	-1.41
Const	-11.1437***	-14.0484***	-11.4389***	-12.9751***	-4.6	-0.4287
Group <i>N</i>	33	30	37	35	-0.52	-0.68
Obs <i>N</i>	142	113	179	143	0.207	0.4341
<i>F</i>					0.65	1.22
Wald χ^2	62.09	49.77	63.85	108.98	1.1062*	1.1129
<i>p</i> -value	0	0	0	0	1.94	1.67
<i>R</i> -square					1.2056	1.7203
Within	0.0542	0.1015	0.1192	0.1766	1.19	1.16
Between	0.6439	0.634	0.6097	0.5531	0.1417	-0.8116
Overall	0.495	0.5173	0.4476	0.4362	0.21	-1.14
					0.2662	3.8249*
					0.5	1.8
					-5.1517	-8.5553
					-0.93	-1.04
					34	29
					123	92
					19.22	22.35
					0	0

Table 4. Panel regression analysis of Champions League (CL) results. Results for two types of panel regressions: fixed and random effects. For every model, the table shows the coefficients and below the relative *t*-stat or *z*-stat (in italics). The *p*-value below is relative to *F* or Wald χ^2 test. Data sources: Orbis (Bureau Van Dijk, Moody's)

intent is to study whether sports performances can explain financial ones. For each analysis, we check whether our data fit best in a fixed or random effects panel model, through a Hausman test.

Starting with our first hypothesis, we can certainly infer that there is a one-way relationship between financial performances that impact positively on sports performances; and therefore not vice versa. This observation underlines the fact that it is possible to imagine

Dependent variable	ROA	ROA	ROA	ROE	ROE	ROE
Model	1	2	3	4	5	6
FE or RE	FE	FE	FE	RE	RE	RE
NL	0.0041		0.0022	0.1		0.3717
	0.66		0.3	0.7		0.82
Lag1 NL			-0.0093			-0.4658
			-1.61			-0.85
CL		-0.0014	0.0153		0.2806	-0.061
		-0.14	1.36		1.03	-0.32
Lag1 CL			0.0096			0.4308
			71			0.98
Lag1 ROA			-0.0916			
			-1.37			
Lag1 ROE						-0.0459
						-1.16
PPR			0.0399			1.6177
			1.69			1.12
SPR	0.0314*	0.0304*	0.065***	1.1237	1.0614	0.36
	1.94	1.95	3.23	1.16	1.1	0.17
SS	-0.0369*	-0.0344*	-0.767**	-0.2797	-0.1649	-1.297
	-1.9	-1.75	-2.06	-0.94	-0.64	-1.17
SP	-0.0915**	-0.0904**	-0.0432	-1.7023	-1.6438	-2.3503
	-2.36	-2.16	-0.71	-0.87	-0.87	-0.92
FFP	0.015	0.0159	-0.0248	1.066	1.018	-0.0878
	0.49	0.54	-0.57	1.12	1.07	-0.18
RA	0.3863**	0.3846**	0.2039	1.8519	1.4241	2.2798
	2.53	2.48	1.06	1.28	1.38	0.83
LogA	0.4324**	0.4322**	0.4731**	2.434	1.6664	1.7358
	2.74	2.57	2.12	1.32	1.29	0.85
LEV	0.143	0.1432	0.1885	5.4644	5.9028	5.0272
	1.24	1.22	1.43	0.93	0.95	0.76
IFALEV	-0.4524***	-0.4546***	-0.5177***	-1.5336	-1.8769	-3.4782
	-8.58	-8.92	-8.01	-0.5	-0.57	-0.85
Const	-2.368**	-2.3537**	-2.4188*	-14.6177	-10.4901	-10.0914
	-2.61	-2.49	-1.99	-1.33	-1.38	-0.83
Group N	37	37	34	33	33	29
Obs N	179	179	123	142	142	92
F	26.49	13,624.68	108.41			
Wald χ^2				6.32	7.05	0.2043
<i>p</i> -value	0	0	0	0.7079	0.6324	0.117
R-square						
Wald χ^2 test. Data	Within	0.5123	0.5077	0.0964	0.0841	0.1672
sources: Orbis (Bureau	Between	0.2371	0.0528	0.057	0.0722	0.0814
Van Dijk. Moody's)	Overall	0.2743	0.2745	0.0916	0.056	0.1143

a virtuous paradigm in the football industry; important sporting results can be achieved with efficient financial management and therefore it is not essential to sustain large losses or to have excessively generous investors who support the club's finances with external assets or funds. In detail, Table 3 shows a set of regressions with a dependent variable on sporting results in national leagues (NL), while Table 4 in the champions league (CL). In both, it is evident that our financial performance measures are significant as well as some of the variables related to the cost structure of clubs. As regards the NL, the ROE impacts on sporting results through a simultaneous or time-deferred relationship (see Lag1 ROE); the fact that ROA does not have a specific influence (as opposed to net profitability) allows us to

assume that there may be accounting factors of an extraordinary nature (such as investments and taxation) that must be considered in the management of the club in national competitions. This distinction is also confirmed in the last two models (5 and 6) of the table: the previous net financial performances show a significance also considering the influence of past sporting results (in NL and CL), which evidently capture many of the effects related to the cost structure or related to the control variables (efficiency, size, leverage and agency costs) which are significant even partially in the previous regressions (on the other hand, the more or less positive ranking of a club in a competition could express a greater or less management capacity).

In CL, the gross (lagged) performance measure, ROA, is significant (albeit to a lesser extent than Lag1 ROE in NL). Observing the cost structure and the control factors, we can see that not all variables show an influence on sports results; for example, in NL only staff-to-sales (SS) ratio and rarely the football players' market balance (SPR), efficiency (RA), size (LogA) and financial leverage (Lev) show a relationship which tends to vanish when we consider previous sports results (latest models in Table 3). In CL, this phenomenon is more persistent, especially for SS and some control variables (see RA). It appears singular as the sign of the relationship between SS and sporting results changes between CL and NL; in the first we find a negative relationship (therefore the ranking tends to increase as staff costs increase), while in the national competition we note a positive relationship (increasing costs, ranking improves). This result could be attributable to the fact that in the NL the clubs that excel are all large and therefore with important economic and financial capacities and deriving from external contributions to the management of the club, while in the CL there is greater competition that balances the probability of success between all clubs.

Coming to the impact, we note that in NL a 0.01 increase in past financial performance (Lag1 ROE) pushes up the next year's sports ranking by 0.0662 (remember that the ranking scale in NL is decreasing, so the winner has value 1 while the others tend to increase). Recalling the width of the range of rankings in NL (from 1 to 20), this impact does not appear very relevant; on the contrary, in CL the impact of Lag1 ROA is larger (for 0.01 increase in previous gross profitability, sports results increase in the following year by 0.5252), remembering that the ranking can range from 0 to 6 (therefore an efficient management that improves performance in a consistent way offers significant chances of success; for example a club that is consistently more financially performing today and that is only playing the initial stages of the CL, could reach the quarterfinals or semi-finals in subsequent seasons). The impact of the cost variables, SS, or of the control variables, RA, LogA, Lev and IFA*Lev (agency costs), on sports results (Tables 3 and 4) is more important than the financial performance variables (ROA and ROE). For example, a 0.01 decrease in SS improves the ranking in CL (Table 4, model 5) by 0.6796; therefore a club could go from the initial phase to the following ones (quarter-finals) with a reduction of four percentage points of SS and this highlights its relevance. In NL, the effect has the opposite sign and between 0.4603 and 0.7712 (Table 3, models 1 and 3), therefore a worsening of the ranking for an increase of 0.01 of SS and this is diluted by the larger scale of the dependent variable as explained previously. Greater impact power is expressed by some control variables, when significant. For example in CL, the impact of the size (LogA) ranges between 2.3077 and 2.8087 of the dependent variable for each million of local currency (Euro) of increase, which corresponds to a consistent improvement in competition. This result could be imputable to the fact that most of the clubs are large, also remembering that football is a business that easily destroys the value of investments and this is mainly due to the perishable value of the players (and therefore devaluations) as well as that strongly dominated by uncertainty (risks due to injuries for example). Financial leverage (Lev) is significant only in NL (and only in one model), however it signals a negative and highly significant impact: an increase of 0.01 in leverage decreases the ranking by 3.2132 positions. This suggests how much debt could be counterproductive for

the purposes of achieving sporting results, or in other words how the risk of bankruptcy is a non-negligible and the frequent threat in the football industry. The fact that there is a one-way relationship (financial performance influences sports performance) is corroborated by the results that emerge in the models in [Table 5](#). In fact, we can observe that the financial performance variables (ROA and ROE) are never significant. At most, the variables relating to the cost structure (SS), the football players market balance (SPR), the size (LogA) and the agency costs have a negative impact (first and last) and positive (second and third) on gross financial results (ROA, model 3). An important impact, indeed the strongest, is reported by agency costs that reduce sports results and signalling how inadequate governance can lead to under-investment problems and therefore to a more likely bankruptcy. For all the above considerations, we tend not to reject [hypothesis 1](#) and therefore to assume a one-way relationship, where the financial results impact on the sports ones.

These differences in relationships, of sign and impact, lead us to think about the structural reasons of the clubs in the different two competitions. Considering the second hypothesis, our main result confirms the existence of a concentration effect on the part of some clubs (typically those with larger sizes) regarding sporting results in NLs, while this effect tends to vanish in CL. This finding is highlighted in [Table 3](#), which shows how in the NL the presence of the lagged variables of sports results in the regressions is significant, while the other cost structure and control variables tend to lose influence. Models 5 and 6 show how the Lag1NL variable is constant and highly significant, so the past history in terms of sporting results is persistent also in the future. The fact that past winnings in CL also have a positive impact on current NL results is certainly due to the fact that the clubs participating in the European competition are certainly large and are, by UEFA regulation, among the top clubs in the individual NLs. Otherwise, in CL ([Table 4](#)), the concentration effect tends to vanish, the variable Lag1CL is not significant (but however shows a negative relationship), so the chances of winning are balanced on a large group of clubs. Clearly, better past results in their own NLs support the results in CL, indicating that constantly improving management in national competition not only offers the right to participate in the following season but also tends to improve results in CL. A concentration effect only in NLs places emphasis on low competition issues at least compared to CL, which could alienate investors (as well as supporters) from smaller clubs in NLs, which in turn should accentuate the effect in a vicious circle. For these reasons, our considerations lead us not to reject [hypothesis 2](#) and therefore to confirm the existence of a low competitiveness of NLs compared to CL. In order to remove this bias, UEFA should implement real actions that improve this competitiveness, perhaps also financially supporting the smaller clubs in the NLs that decide to adopt virtuous and inclusive behaviours.

Finally, taking into consideration our third hypothesis, we can note that our FFP proxy relating to financial fair play is never significant in any of our regressions both for sports and financial results, confirming the scarce effectiveness of the measures. UEFA now also perceived as obsolete and useless (see the withdrawal of the penalties imposed on Manchester City, which had violated the rules of financial fair play in an evident way in the eyes of investors and supporters). On the other hand, the rules of the FFP are not effective as they are not incentives for clubs, which try to adopt any legal (or not) strategy to avoid them; without mentioning the low UEFA's strength as a controlling and sanctioning association, due to the lobbying activities of the same clubs and individual national federations. This creates an attitude of dependence (or subjection) on the part of UEFA, which fears the distancing of large investors from the European football business. These investors directly and indirectly support not only the clubs but also the European association itself with high contributions, salaries and compensation that derive mainly from sponsorships and which would inevitably be lost without them. This now public view of UEFA undermines its reputation and discourages investors and supporters. In order to improve the situation, UEFA should abolish the current FFP regulation and take concrete actions that reward virtuous behaviour

especially for smaller clubs in individual national competitions. Such behaviours should support issues related to the inclusion of people, gender equality, the fight against racism and the approach of families not only as supporters but also as consumers of related goods and services.

5. Conclusions

The purpose of this work is an empirical investigation of the relationship between sport and financial performances at the corporate level. On the one hand, the reasons under this work are the strong public and economic consideration of football industry since the beginning of the new millennium and, on the other hand, the wide-ranging consensus on the fact that football turns out to be relevant for economic and social purposes. In general, ranking position in a specific sport competition represents the most well-known proxy for success (also for their availability and visibility), both at the macro- (nations) and the micro-level (single clubs).

The main finding concerns an empirical evidence for the association between the sport and financial performance for a panel of the European football companies, listed and not. More precisely, we show that there is stable and significant relationship between the two types of performance and that when detectable this is linked in a positive way to the profit maximization business model, suggesting that the latter are more useful for investor remuneration and to increase technical-tactical resources and therefore sports results. In specific way, the financial performance influences the sports results. Therefore, at the microeconomic level, companies are encouraged to follow the profit maximization to improve the sport performance. This result is also interesting at the macroeconomic level: the policies (of the UEFA authority) should be mostly driven by incentives for the profit maximization, also in line with measurable economic sustainability targets. Second, we show that the cost efficiency is strongly correlated with sport performance. Again, this last result can be very useful for policy-makers to identify reform priorities depending on the desirable targets. Our last significant result is that the intensity of all the relationships investigated could change across different sizes of clubs and the relationship between sport and financial results could depend on the concentration effect of the sport results and not on the financial fair play regulation.

Given these results, the main policy implications of our study can be summarized as follows. First, policy-maker (Uefa) in charge of football industry sustainable development should become aware of joint relationships among different variables or pillars, since improving certain dimensions may have a positive or negative effect on the others. Second, implementing a well-constructed priority of sustainability pillars is one of the most important steps in building an effective corporate sustainability policy for clubs. In doing so, policy-maker should require the integration of appropriate methodologies to sort out sustainability priorities by the top-down approach, which involves hierarchical decisions. In other words, policy-makers select the most critical pillars to allocate limited resources for reform priorities, also on the basis of the revenues from the sponsorships of the champions' league. The purpose of a reform of the FFP regulation should be centred on encouraging small clubs in national competitions to adopt virtuous behaviours aimed at social inclusion and economic sustainability, without limiting or penalizing the larger clubs but rather by sharing the proceeds of the sponsorships not only among the participants and winners of the champions league but also among the excluded or future aspirants to participate.

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