Who wins the Championship? Market Value and Team Composition as Predictors of Success in the Top European Football Leagues

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ABSTRACT: Processes of commercialisation and globalisation have changed professional football and the composition of football teams fundamentally. Against the background of these shifting conditions we investigate to what extent the success of football teams in their national leagues is determined by: (a) the monetary value of the team expressed in its market value, (b) the inequality within the team, (c) the cultural diversity of the team, and (d) the degree of fluctuation among the team members. The empirical analysis refers to five football seasons, spanning from 2011/12 until 2015/16, and includes the twelve most important European football leagues. The findings demonstrate that success in national football championships is highly predictable. The market value of a team is by far the most important single predictor, whereas different features of a team's composition – inequality, cultural diversity, and fluctuation - are less decisive. However, the market value of a team does not play the same role in all of the leagues. The lower the degree of financial inequality in a league, the lower the impact of the market value on teams' performance.

1 Introduction

Processes of globalisation and economisation profoundly change the societies of today, and they also affect professional sports like football (Guilianotti and Robertson 2012a). Over the

course of the past 20 years, professional football clubs have increasingly developed from sports clubs into commercial enterprises. Compared to earlier decades, the revenues that leagues and clubs receive from selling media rights and merchandising products, as well as from advertising and sponsorship have dramatically gone up and are soaring today (Frick and Prinz 2006; Lago *et al.* 2006; Deloitte 2011). In addition, European football attracts foreign investors who put millions into particular teams (Nauright and Ramfjord 2010). And the clubs systematically try to enter and expand into new markets in Asia, North America and the Middle East (Guilianotti and Robertson 2012b). Processes of globalisation in professional football are primarily manifested in the global migration of football players (Bale and Maguire 1994; Magee and Sugden 2002; Poli 2010). When recruiting for their team, professional football teams partly draw on their club offspring but mainly sign players from other clubs, especially since the "Bosman ruling" of the European Court of Justice (ECJ) in 1995, according to which professional football players are to be treated as any other regular employees enjoying the European right to freedom of movement (Poli 2010). In the 2015/16 season, 50% of the players from the top five European football leagues had a foreign nationality (1741 out of 3491 players),[1] whereas in 1995/96 the rate of foreign players was at 20%, and at 39% in 2005/06 (Poli 2010).

Hence, commercialisation and globalisation have substantially altered the context conditions of professional football. They have facilitated the establishment of a global player market, where the financially most powerful clubs compete for the most talented young players. As a consequence, the monetary value of players and teams has become a valid indicator for their athletic ability. Moreover, the described developments have led to profound changes in team composition. Today, teams are a lot more multi-national than ever before, player turnover in football squads has become more frequent and the dramatic increase in players' salaries has increased the inequality within teams. This paper investigates the extent to which the *market value of a team* and the different characteristics of *the composition of the team* - inequality, cultural diversity, and fluctuation- are decisive factors in determining success in national football championships.

Our study goes beyond the existing literature in five respects: 1) While prior research has usually focused on only one football league and one particular season, the empirical base of our analysis is much broader as we include the twelve best European football leagues over the course of five different seasons. This allows us to generalize our results, and at the same time to point out some specificities of particular European leagues. 2) Whereas other studies have focused on one or two factors influencing team performance, we consider various factors of team composition simultaneously, namely inequality, cultural diversity and fluctuation. We then estimate the relative impact of each of these factors on team performance in relation to the market value of a team. 3) This study also considers team fluctuation as a possible factor influencing performance, a variable which was hardly taken into consideration in previous research. 4) While other studies have used players' salaries as an indicator to determine the market value of a team, we argue that transfer fees represent an alternative and better-suited measurement. 5) Finally, some of our hypotheses are relevant to more general sociological research questions, such as the impact of inequality on group functionality (Wilkinson and Pickett 2009) or the effects of cultural diversity on the productivity of a group or society (Van Knippenberg and Schippers 2007), and may thus stimulate scientific debates beyond the narrow scope of professional football.

The article proceeds as follows: In section two we further elaborate our hypotheses and link them to existing literature. For each of our hypotheses, relevant empirical studies exist that either directly refer to the analysis of football or other sports, or to research analysing non-sports groups and organisations. In section three we explain the dataset and operationalisation of our theoretical constructs. Section four then presents the results of our analysis, while the last section concludes with a discussion of the most important implications resulting from our empirical findings.

2 Predicting the Champion: Market Value vs. Team Composition

2.1 The market values of players and teams

The commercialisation of football has re-defined football players as globally traded goods (Frick 2007; Kesenne 2007). Transfer expenses for football players are on the rise in the top European leagues (Burdekin and Franklin 2015; Liu *et al.* 2016) and global transfer networks have been established to recruit football talent from almost all world regions (Poli 2010). By engaging the services of scouts, football clubs try to gather relevant information on new players to assess their skills and athletic ability. An independent industry of observers, evaluators, and agents has evolved to gather such information (Cachay *et al.* 2005). For each athlete, match and season, there are statistics on the distances covered, the number of touches, shots on goal, assists, as well as indicators on passing accuracy or tackles.[2] Based on this constant observation, football players' potential is rated, which in turn is reflected in the market values of the players. The market value is defined as the value of a given good at the time of the transaction. Market values are expressed in transfer fees that a buying club pays for a player when acquiring them. If the assumption holds true that the market value of a player reflects his athletic ability, then the most expensive players, i.e. those for whom the highest transfer fees are paid, should be the best players.

Studies on a variety of team sports have demonstrated a close link between players' athletic performance and their payroll (Lucifora and Simmons 2003; Vincent and Eastman 2009; Frick 2011; Torgler and Schmidt 2007; Lee and Harris 2012). Performance and salary are not only correlated at the individual level, but also at the team level (Szymanski 2000; Hall *et al.* 2002; Pedace 2008; Kuper and Szymanski 2009). However, Frick (2011) has shown that players' salaries in football are largely determined by age and experience and may thus primarily reflect the past performance of a player and not their future potential. Other research suggests that an athlete's performance varies throughout a contract period; performance drops after having signed a long-term contract (Stiroh 2007) and increases in the last year before termination (Frick 2011). Hence, salary statistics cannot account for drops or improvements in players' performance that are due to their relative position in a contract period.

We assume that transfer fees represent an alternative and better measurement of a players' ability (than salaries). Although transfer fees only become apparent when football players

switch teams, experts constantly estimate the *potential* market value of individual players. Hence, even without transfers actually happening, the estimated market values of players are well-known. In our study we rely on such expert ratings, as it was empirically shown that estimated market values and real transfer fees are highly correlated (Pearson's *r* > .90; Gerhards *et al.* 2014; Herm *et al.* 2014). Moreover, current research has demonstrated that estimated market values are closely linked to different performance indicators, e.g. passing accuracy, goals scored, assists, or successful tackles (Franck and Nüesch, 2012; Herm *et al.* 2014; Kiefer 2014).

Just as athletic performance of individual football players can be expressed with their individual market value, the strength of a whole team can also be estimated on the basis of the market values of all players. We calculate the market value of a team by taking the mean of the market values of all players on a football team. We assume that team market values predict a team's performance.[3]

Hypothesis 1: Football teams with more expensive players are more successful in the national football championship compared to teams with a lower market value.

2.2 Team composition: inequality, cultural diversity and fluctuation

A variety of studies have assessed team composition and its impact on performance. Much of this research has focussed on inequality and cultural diversity of teams. In addition, we take team fluctuation into account.

(1) *Inequality*. With the commercialisation of football, players' salaries have gone up rapidly, but these salaries are not evenly distributed among the players (Frick 2007; Garcia-del-Barrio and Pujol 2007; Lucifora and Simmons 2003; Kuethe and Motamed 2010). Inequality within the team can influence performance in two ways. On the one hand, with a high level of inequality, a team is highly dependent on particularly strong and high-performing players. Injuries or the weak individual performance of a superstar can hardly be compensated for by

teams that rely on a single key player. Anderson and Sally (2013) have claimed that performance of a team is more strongly determined by the weakest than by the strongest player. Consequently, they conclude that upgrading at the weakest positions can help a club more than improving at the strongest. Moreover, it was claimed that an unequal pay distribution in a team can have detrimental effects on team cohesion, cause perceptions of unfairness and in turn, weaken cooperation and overall team performance (Tao *et al.* 2016). Accordingly, we can assume that over the course of a whole season equal teams are on average more successful than teams showing a high degree of internal inequality.[4]

The majority of empirical studies on team sports, including baseball, ice hockey and associational football, have pointed to a negative relationship between salary dispersion in a team and team performance (Sommers 1998; Bloom 1999; Depken 2000; Lee and Harris 2012; Breunig *et al.* 2014; Bucciol *et al.* 2014; Tao *et al.* 2016). Using baseball as an example, it was shown that large inequalities are detrimental to success, whereas small inequalities may be beneficial (Papps *et al.* 2011). However, other studies have shown that pay dispersion in sports teams can be conducive to good team performance if it reflects the differences in individual performances (Trevor *et al.* 2012; Bucciol *et al.* 2014). Inequalities that do not correspond with individual performances are likely to be perceived as unfair and are thus negatively related to team performance. Based on the overall state of research however, we assume a negative relationship between inequality within a team and team performance.

Hypothesis 2: Football teams with a lower level of inequality are more successful in the national football championship compared to teams with a higher level of inequality.

(2) *Cultural diversity.* Cultural diversity has increased largely in sports teams over the last few decades (Cachay *et al.* 2005; Poli 2010). This might be the reason why the effect of cultural heterogeneity on team performance has been widely studied in recent years. For the American *National Hockey League* (NHL), it was shown that ethnic heterogeneity has a negative effect on the likelihood of a team's success (Kahane *et al.* 2013). The same conclusion was drawn for the German *Bundesliga* where a negative relationship between the degree of heterogeneity

(measured as the degree of multi-nationality) and team performance was detected (Haas and Nüesch 2012). 'Faultlines' based on race and nationality also negatively impact team performance in Baseball (Bezrukova *et al.* 2016; Sakuda 2012). Negative effects are usually explained with higher transaction costs which come along with cultural heterogeneity (Haas and Nüesch 2012). People from different nations and with different cultural backgrounds do not only often speak different languages, they often come from contexts with different rules of everyday social behaviour, which might complicate coordination and increases the likelihood of misunderstandings and conflicts, which ultimately impairs team performance (Lazear 1999).[5]

However, general social psychological research on co-worker diversity has also pointed to possible benefits of diversity, for instance, with regard to creativity and innovation (McLeod *et al.* 1996). In their investigation of the German *Bundesliga,* Andresen and Altmann (2006) demonstrated that cultural diversity and success are positively correlated. Brandes *et al.* (2009) come to a somewhat more complex conclusion, that the cultural heterogeneity of a team – measured as the number of players with different nationalities – does not have a positive effect on success generally. However, when additionally accounting for the position of players on the pitch, more homogeneous defensive formations perform better than heterogeneous ones, while the opposite is true for striker formations. Brandes *et al.* (2009) argue that the need for communication and coordination between the players in the defence is higher compared to strikers. Therefore, difficulties in communication among defensive players can interfere with and outweigh the possible advantages of diversity regarding innovation and creativity.

In view of these inconclusive findings and the mixed evidence from social psychological research (for a review see Van Knippenberg and Schippers 2007), arguments for a negative as well as a positive effect of diversity on team performance exist. We assume that there is a non-linear relationship between the two factors; teams may profit from cultural diversity until a certain threshold is reached. Beyond this threshold transaction costs associated with diversity will balance out the discussed advantages.

Hypothesis 3: Cultural diversity will positively affect success in the football championship to a certain degree. Once a certain threshold is reached, diversity will impact negatively on team performance.

(3) *Fluctuation.* The omission of transfer restrictions in Europe since 1995 has led to more player transfers over time.[6] We assume a dysfunctional downside to the increased mobility of players, which is motivated by the clubs' striving for optimisation of team composition via player transfers. Football is one of the team sports based on the division of labour in so far as each single player takes on a different position. In other sports such as rowing by contrast, the individual members of the group take on very similar tasks and have similar functions. Coordination and cooperation require more effort in sports based on the division of labour. Routines and implicit understanding require a lot of training and very good knowledge of one's teammates. High fluctuation in the squad can hamper the establishment of routines, cause coordination problems, and might have a negative impact on team performance and success.

This hypothesis finds empirical support in studies from organisational psychology and organisational sociology (Edmondson 1999; Huckman *et al.* 2009). Due to high rates of labour turnover, insider knowledge of organisations is lost. New members of the team have to initially acquire such insider knowledge and so their productivity is comparatively low at the beginning. Moreover, coordination of tasks is easier in teams with a high degree of "team familiarity" (Huckman *et al.* 2009), i.e. they have been interacting and cooperating for a while. The more often team members interact, the easier it is to find a solution to a problem and to cooperate effectively". Additionally, mutual trust as well as solidarity is higher in such teams, leading to more open communication, sharing of information and mutual support amongst team members (Edmondson 1999). In turn, these factors positively affect overall team performance like many studies on various industries and business contexts show (Gully *et al.* 1995). We assume this relationship to apply to football teams also.

Hypothesis 4: A higher degree of fluctuation, i.e. more player turnover in the squad, is negatively related to success in the national football championship.

3 Data and Methods

Our analysis includes the twelve best European Leagues according to the UEFA Team Ranking (*www.uefa.com*). These are the first division leagues of England (Premier League), Spain (Primera Division), Germany (1. Bundesliga), Italy (Serie A), Portugal (Primeira Liga), France (Ligue 1), Russia (Premier Liga), Netherlands (Eredivisie), Ukraine (Premier Liga), Greece (Super League), Turkey (Süper Lig), and Belgium (Jupiler Pro League). The analysis includes five football seasons (2011/12, 2012/13, 2013/14, 2014/15, 2015/16) and a total of 1074 football teams.

(a) *Performance* can be measured with the number of points a team has earned in the national football league. The more points a team has earned by the end of a season, the more successful they were. The amount of points earned *in each season* is the dependent variable in our analysis.

(b) The *market value of a team* is measured by taking the mean of all market values of the individual players of a team. In calculating a team's market value, we included the whole squad at the beginning of the season, and not only those players who were selected at some point or another to play in a match. The actual market value of players can be empirically assessed only when players switch teams and a transfer fee is paid, a precondition which is only met for some of the players in our analysis. There is however an alternative approach to measure players' market values. Experts constantly estimate the likely market values that players would have if there was a real transfer. In determining the market values, we draw upon data available at *www.transfermarkt.de*. This website provides market values for all players in their respective leagues. Players' market values are continuously adjusted to the anticipated transfer value by estimating the market value about every three to six months, even if players do not switch teams. Apart from real transfer fees paid in the past, these ratings are mostly based on player performance, age and possible injuries. All potential market values are discussed by many registered users on which basis the administrators of the webpage determine the transfer values. This approach of determining the market value is in line with the principle of "The

Wisdom of the Crowds" as described by Surowiecki (2004). Possible errors by individual participants are counterbalanced by the discussions of the many other active participants. Expert ratings correlate highly with real transfer fees ($r > .90$) and thus can be regarded as a valid measure of market value (Gerhards *et al.* 2014; Herm *et al.* 2014).

(c) *Inequality within the team* is also manifested in the market values of individual players. According to our hypothesising, the more individual player market values diverge within a team, the higher the difference in performance between the players. We use the coefficient of variation to measure inequality in the squad. The higher the coefficient of variation of a team, the higher the inequality within the squad.

(d) We measure *cultural diversity of a team* on the basis of the players' countries of birth. The more nationalities there are within a team, the higher the diversity. This variable can manifest itself in various characteristics such as mother tongue, skin colour, lifestyle habits, but also in sports specific differences such as tactics learned.[7]

(e) For each team we additionally counted the number of newly signed players and the number of those who had left the team in order to measure *team fluctuation.* The indicator for team fluctuation was calculated based on all transfers in the summer and winter transfer windows.

With respect to the analysis it has to be kept in mind that success in football leagues is always to be seen in relation to other teams in the same league. An average English team, for instance, could be de facto a lot better than the best Belgian team. Therefore, all independent variables have to be put in relation to all teams in the same league, and these relationships have to be comparable across all leagues. To this aim all predictors were z-transformed for each league separately. After the z-transformation on the league level, the teams of RSC Anderlecht (Belgium) and Manchester City FC for instance have similar market values of 2.31 and 2.29 respectively (z-values) in the 2013/14 season. Both teams have an above average squad of players, when measured against the other teams in *their* league.

4 Results

Correlations show that all independent variables are significantly associated with team performance (Table 1). A strong positive correlation is shown for the market value ($r = .76$); weaker associations are revealed for inequality ($r = .23$), national diversity ($r = .18$) and team fluctuation ($r = -28$).

TABLE 1: Correlations between team performance, market value, inequality, diversity and fluctuation

	Pearson Correlations				
	(1)	(2)	(3)	(4)	(5)
(1) Team Performance	--				
(2) Market Value of Players	.76**	--			
(3) Inequality in the Team	.23**	.25**	--		
(4) Cultural Diversity	.18**	.20**	.14**	--	
(5) Team Fluctuation	-.28**	-.28**	-.08*	.09**	--

Notes: N = 1,074. Significance: $^+$p<.10; *p<.05; **p<.01.

To test our hypotheses more systematically we employ multiple regression analyses (Table 2). The dependent variable consists of the number of points earned by the end of a season. This score not only varies across teams in the same league, but to a lesser degree also across different leagues. This variation is essentially due to the different numbers of teams and thus different number of fixtures. The more teams there are in a league, the higher the average score of the teams at the end of the season. Therefore, fixed effects for all leagues are included in the models that account for these differences in average scores. However, as our research question focuses on the prediction of success *within* leagues, these effects are irrelevant and will not be discussed any further. The independent variables are gradually added into the models. As we have assumed non-linear effects for some of the variables, squared terms are included in addition to the main explanatory variables.

(a) The models reveal a strong dependency of success on the mean *market value of players* before the season has started. The more valuable a squad is at the beginning of the season,

the higher their points score at the end. By increasing the team market value by one standard deviation, a club can expect almost an additional 12.7 points at the end of the season (model I). How much money a club would have to actually invest in order to improve the squad by one standard deviation is dependent on the absolute level of dispersion within the league. In the Greek league – the one with the lowest market value in our analysis – the average market value per player would have to be raised by €588,000. For a squad with 25 players, €14.7 million would be needed. In the English league – the most expensive one with regards to the market value of the teams – the average market value would have to be raised by €5.4 million per player to increase the team market value by one standard deviation. This amounts to more than €134 million for a club with 25 players. Despite such different sums, they would provide the clubs with the same competitive advantage in their respective national leagues, i.e. about an additional 12.7 points. Of course, this advantage will only be realised if the other clubs in the same league do not invest in their squads as well.

The relationship between the players' market values and performance is not strictly linear though and can be better described as a non-linear relationship, as demonstrated by the significant squared term in model II. Through investments in a squad, a below-average performing team can easily turn into a good one, while it is harder to increase the quality of an already high-performing team by buying more expensive players. [8]

(b) *Inequality within a team* is hardly relevant for team performance. Both the main explanatory variable as well as the squared term do not reach significance (models III and IV); hence, team equality is not a crucial factor for success in the professional leagues we have analysed.

(c) On average, more than ten different nationalities are represented in one squad (M=10.1; SD=3.29). The empirical analyses show that no linear relationship between *cultural diversity* and success exists (model III), but the expected non-linear relationship is only tentatively confirmed by our analysis (model IV). Both the main effect of cultural diversity as well as the squared term yield effects of marginal significance (p<.10). Thus, diversity is neither positively nor negatively related to performance *per se.* Instead, diversity impacts the performance of a

team only to a certain degree. While moderately heterogeneous teams are more successful than homogeneous ones, an above-average degree of diversity has a detrimental effect on team success. However, the impact of cultural diversity on success is only low when compared to the explanatory power of market value.

TABLE 2: Prediction of success in European associational football

	Multiple Regression				
	Model I b (SE)	Model II b (SE)	Model III b (SE)	Model IV b (SE)	Model V b (SE)
Predictors [a]					
Average Market Value of Players	12.68** (0.32)	23.24** (1.31)	22.11** (1.41)	22.04** (1.41)	22.43** (1.39)
Average Market Value of Players (squared)		-10.86** (1.32)	-10.12** (1.38)	-10.07** (1.38)	-10.38** (1.36)
Inequality within the Team			0.31 (0.32)	2.63 (2.64)	
Inequality within the Team (squared)				-2.25 (2.66)	
Cultural Diversity			0.16 (0.31)	3.20[+] (1.76)	3.12[+] (1.76)
Cultural Diversity (squared)				-3.11[+] (1.75)	-2.98[+] (1.74)
Team Fluctuation			-1.11** (0.32)	0.14 (1.61)	-1.10** (0.32)
Team Fluctuation (squared)				-1.25 (1.61)	
Intercept	46.8	46.8	46.8	46.8	46.8
R²	.645	.668	.672	.674	.673
R² (adjusted)	.641	.664	.667	.668	.668

Notes: Linear Regression (ordinary least squares). Unstandardized coefficients (b) with robust standard errors (SE, in brackets) are shown. N = 1,074. Significance: [+]p<.10; *p<.05; **p<.01. [a] All predictors were z-transformed for each league. [b] All models include dummy variables to estimate a fixed effect for each football league. These fixed effects account for minor differences between the 12 leagues in regard to the average of points achieved at the end of the season.

(d) The results support our hypothesis that *team fluctuation* has negative effects on the routine and cohesion of a team and thus is an impediment to success. Controlling for the market values of the teams, the number of player transfers has a negative linear effect on team performance (model III). Compared to the effect of market value, the effect of player volatility is also very

weak, possibly because globalisation of football has led to a homogenisation of styles of play. Today many young players are often trained in professional football academies. Due to such professional and to some degree, quite uniform training, these new players should get along and adapt well in different leagues and teams.

In general, the results indicate that success in European football leagues can be very well predicted by focusing (solely) on the market values of individual players. Model II – which only accounts for the market value of the squad and the fixed league effects - already accounts for a high proportion of explained variance (67%.).[9] The different characteristics of team composition only increase the explained variance by less than 1%. Success in professional football today is – first and foremost – a matter of monetary investment into the squad.

However, the market value of a team does not play the same role in all of the 12 European top leagues. In order to investigate the specificities of the different European leagues, we applied the regression models to each league separately. Table 3 ranks the 12 European leagues according to the variance in team performance that can be explained by the market value. Although the market value is a strong predictor of success in all leagues, the size of the effect varies markedly between 77 per cent in the Spanish league, and 49 per cent in the Russian league. This variation in predictive power is not random, but can be explained systematically with a league's structure, namely the competitive imbalance within a league.

In a league with a high degree of financial equality between competing teams, the small edge a team may have in market value is not a guarantee of their success. In those leagues, genuine athletic factors (e.g. form, tactics) as well as luck and chance may be of greater importance. Only in leagues with low competitive balance, i.e. with a high degree of (financial) inequality, do those teams with more expensive players move into a dominant position. In Table 3 competitive imbalance is measured with the coefficient of variation (COV) in each league. The higher the dispersion of market values between the competing teams, the higher the value of COV. In most leagues with a high degree of imbalance, for instance Spain, Portugal or Ukraine, the market value is also a stronger predictor of success than in more balanced leagues.

TABLE 3: Prediction of success by team market values in 12 European football leagues

	Explained variance by market values[1]	Imbalance of the league (COV)[2]	Imbalance trend[3], 2011/12 to 2015/16
Primera Division, Spain	76.7	129	small increase
Primeira Liga, Portugal	73.1	123	unchanged
Premier League, Ukraine	70.3	121	medium increase
Eredivisie, Netherlands	68.4	88	unchanged
Serie A, Italy	67.0	76	small increase
Bundesliga, Germany	66.8	92	high increase
Superleague, Greece	65.9	91	medium increase
Premier League, England	65.7	77	small decrease
Ligue 1, France	61.1	102	high increase
Jupiler Pro League, Belgium	59.9	73	medium decrease
Süper Lig, Turkey	55.9	77	small decrease
Premier League, Russia	48.8	88	unchanged

Notes: [1] Based on linear regression models (similar to model II in Table 2), calculated separately for each league. [2] Coefficient of variation (mean value, 2011/12 to 2015/16) calculated as the standard deviation between team market values divided by the mean of team market values in each league. [3] 'Small' refers to an increase or decrease of 5% to 10%, 'medium' to an increase or decrease of 11% to 25%, and 'high' to an increase or decrease of more than 25% in COV values from 2011/12 to 2015/16.

Figure 1: League structure and the predictive power of the market value for success
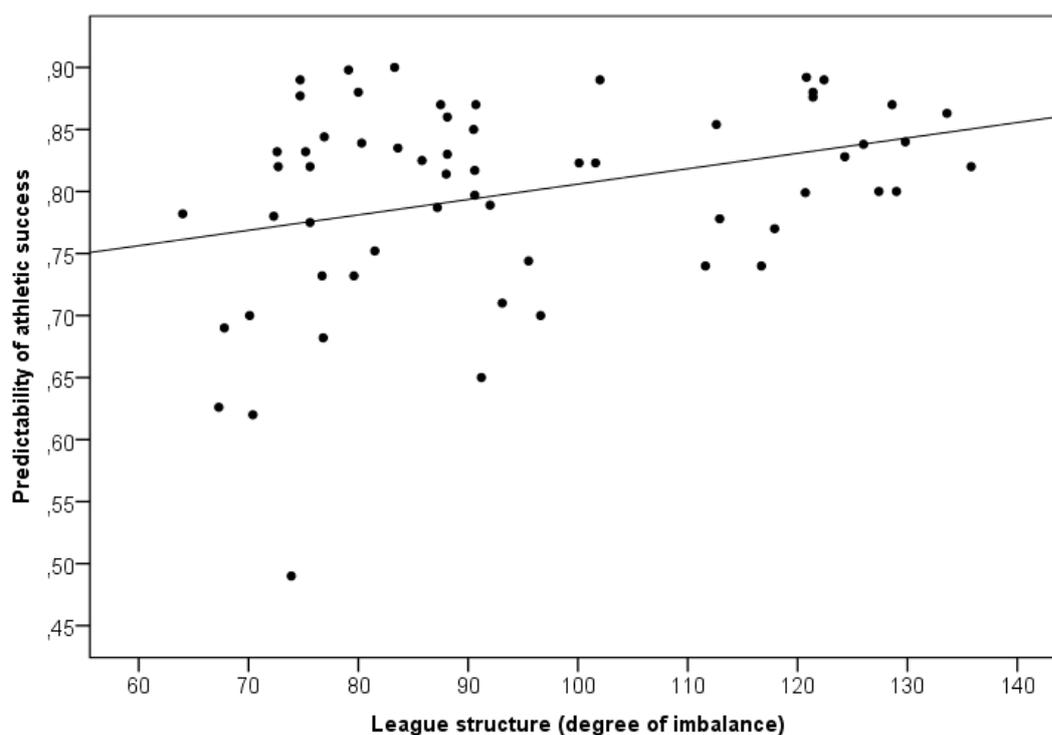
The results of a more systematic test of this assumption are presented in Figure 1. The degree of competitive imbalance within the league is plotted against the power of the market value to predict a team's success. The predictive power of the market value is measured by the Pearson correlation (r) between a team's market value at the beginning of the season and the points gained at the end of the season. It is shown that greater imbalance in a league goes along with increased predictability of the outcome of the respective league ($r=.32$, $p=.01$). A surprising outcome in a championship, which is presumably in the interest of football audiences, is a very unlikely event in imbalanced leagues.

5 Summary and Conclusion

Taking the example of the twelve top-performing European football leagues, we tested whether the market value of a team and different characteristics of the composition of a team, influence team performance. The analyses show that success in professional football is hugely dependent on the market value of players, which accounts for two thirds of the variance in performance. Already at the beginning of a season, subsequent success can be predicted by knowing the market values of the competing teams. In our study of altogether 60 football seasons, 38 times the team with the highest market value won the national championship. Another 15 times, the team with the second highest market value won, and 6 times the team with the third highest value was crowned champion. In only 1 out of 60 cases a real underdog won the championship, namely Leicester City FC in the English Premier League 2015/16. In general, the teams that will be competing for the title can already be predicted before the season starts.

Performance of professional football teams is only to a lesser degree affected by team composition. Whereas the level of inequality within a team has no impact on success, fluctuation of players does. A large number of newly signed players, who need to be integrated and adapt to the team's strategy, has a negative influence on the team's performance. Regarding cultural diversity, findings reveal that up to a certain degree, diversity positively

impacts success. However, if the degree of multi-nationality is too high, team performance is negatively affected.

The fact that cultural diversity and player turnover have only weak effects on team success might be because of the following reasons. Nowadays, the training of players starts at a much earlier age than it did in previous times. Many methods and tactics have been professionalised and standardised globally. Trainers and clubs cannot patent new tactics and formations; if they have proven to be successful they are likely to be copied and adopted by other teams and trainers, around their country and the world. This development might contribute to a very similar socialisation and training of players on different teams, which in turn could enable new players, and players from different cultural backgrounds to integrate into their new teams relatively quickly.

Overall, our analysis shows that the outcome of football championships can be predicted quite accurately. If the explanatory power of a model leads to a large amount of explained variance, this is a satisfying result from a scientific perspective. From the perspective of the sports themselves and their spectators, there is a potential downside to the predictability of success. As shown in research surrounding the uncertainty of outcome hypothesis, the suspense expected from a match has a central impact on fan interest (Borland and MacDonald 2003). Matches are particularly interesting for fans in balanced competitions with no obvious favourites, i.e. when equally strong teams compete and several teams have a real chance to win the league. For different European football leagues it has been shown that balanced competitions attract more viewers, i.e. when more teams are in close competition for the title (García and Rodríguez 2002; Rottmann and Seitz 2008; Szymanski 2001). Likewise, the TV viewing rate depends on the suspense and excitement that viewers expect before the game has started; screenings of balanced competitions are especially attractive to viewers because the outcome is so hard to predict (Alavy *et al.* 2010). In the long run the process of expanding commercialisation, which among other things leads to a reliable predictability of the winner in football leagues based on the market value of a team, can have unintended and undesired consequences: reliable predictions lower suspense and thus fan interest in national leagues.

Even in the short period of only five seasons analysed in this article, it has been shown that competitive imbalance has increased in many European football leagues (Table 3). The most pronounced increase over the course of the last five years has taken place in the French and German leagues where Paris St. Germain and FC Bayern Munich have secured outstanding positions, success-wise as well as financially. Hence, in the long run, league associations may be well advised to introduce redistributive measures that could help to preserve (and generate) competitive balance and viewer interest, even under conditions of marketization and globalization.

Endnotes

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[1] Authors' calculation, based on data available at www.transfermarkt.de (last accessed 24 July 2016). The leagues in England, Spain, Germany, Italy and France are among the top five European football leagues.

[2] In the German Bundesliga, for instance, the Impire AG collects and provides data on every league game and each single player. Bundesliga matches are watched by four trained observers in the stadium. These observers document every incident on the pitch, including passes, tackles, fouls, shots and goals. Moreover, video analyses are used to validate the data after the end of the match (www.bundesliga-datenbank.de).

[3] We do not only assume that market value impacts on success, we also expect that success increases a club's revenue, allowing for the purchase of more expensive and thus probably better players for the next season. The increase of a team's market value should in turn manifest itself in their overall success at the end of the season. In the present work we are not able to analyse the long-term interaction between market value and success due to data restrictions. We can however examine for single football seasons to what extent the measured market value at the start of the season determines the result at the end of the season.

[4] It can also be assumed that inequality within the team serves as motivational incentive for lower paid players. This hypothesis finds support in the functionalist theory of social stratification emphasising that differences in pay and in social status function as necessary incentives to strive for higher positions (Davis and Moore 1999).

[5] Moreover, processes of discrimination might also play a role (Kalter 2003). Existing prejudices against foreigners decrease the willingness to cooperate with them, which negatively affects team performance. Another argument is derived from group identity theory (Tajfel and Turner 1986): Cultural heterogeneity increases the likelihood for the formation of subgroups within larger groups, to the detriment of cooperation between the subgroups and overall identification with the team.

[6] For all 18 teams of the German Bundesliga we calculated the sum of all transfers in the 1980s (season 1980/81 to 1989/90). Over the course of these ten years, each club signed or sold 14 players on average. This number has nearly doubled to 26 players over the course of ten seasons (2003/04 to 2012/13) suggesting a substantial increase of fluctuation in football squads over time.

[7] We are aware that our operationalisation of diversity only comes close to the theoretical construct at best. We also tried to survey several other and better indicators such as mother tongue of the players. However, for too many players this information is not available.

[8] This curvilinear relationship is also plausible due to the fact that the score a team can reach in a season is limited and cannot be increased indefinitely. In the 2012/13 season for example, FC Bayern Munich won the German Bundesliga and scored 91 out of 102 points. FC Barcelona dominated the Spanish championship scoring 100 out of 114 points. Even if both teams were to invest some more millions in their squads, it is doubtful that another substantial increase in the number of points scored would be at all possible.

[9] If each season is analysed separately, the variance of performance explained by market values varies between 68% (2011/12), 70% (2012/13), 71% (2013/14), 70% (2014/15), and 67% (2015/16). A series of five years does not, however allow us to draw any conclusion regarding time trends.

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