

Bankruptcy trends among european football clubs

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Abstract:

This study analyzes bankruptcy patterns and their influence on the on-field success of seven prominent European football clubs traded on their countries' respective stock exchanges. During the period between 2008 and 2020, the current study reveals how these clubs perform financially benchmarked against respective well-established bankruptcy scores. By using Altman's Z score (Altman, 1968), Springate's S score (Springate, 1978), and Zmijewski's X score (Zmijewski, 1984), we are analyzing the financial stability of football clubs and how it impacts the on-field results and success of these football clubs. This paper concludes that most clubs show bankruptcy tendencies, which affect their sporting success.

Keywords: football clubs, financial performance, bankruptcy, Europe, Z score, S score, X score

Introduction

With the increasing importance of football as one of the largest entertainment businesses, there is also an increase in clubs' revenue streams from all activities connected with the game of football. Football clubs generate revenues from three different activities¹:

- a) Matchday revenue - mainly from gate receipts and stadium activities.
- b) TV and broadcasting revenue is connected to TV and broadcasting rights.
- c) Commercial revenue – includes sponsorship deals and brings substantial revenue.

In the past 20 years, football clubs have increased their financial gains, revenues, and market value well above the expectations of concerned stakeholders. Establishing football clubs as international brands and achieving global reach provided various income diversification possibilities for these clubs². With the globalization of sports and increased revenues of the sporting clubs, there is also increased interest in individual football clubs' financial health and performance, mainly from the investors' side.

Historically, we have witnessed football clubs failing financially and even going bankrupt. The list of football clubs that have had financial problems is not a short one. Even in the last 20 years, where football clubs have been synonyms for deep pockets and endless spending, we have seen that these clubs have faced financial issues. The most reputed football clubs, which were on the verge of bankruptcy in the last 15 years, include FC Barcelona and FC Liverpool. While these two specific football clubs ended up restructuring and continuing their competitions, there is also a long list of football clubs that were not so lucky and ended up competing at the lowest national ranks. As a result of historical financial failures, international football organizations, such as *Fédération Internationale de Football Association* (FIFA), the *Union of European Football Associations* (UEFA), and national football federations have been trying to limit these negative occurrences and to bring regulations that are needed to protect the stability of the football clubs.

The widely acknowledged legislation trying to protect the economic stability of European football clubs is the Financial Fair Play Regulations (FFP). Due to excessive spending and clubs being profitless despite the increased revenues, UEFA introduced these regulations to impose financial discipline on football clubs. The purpose of the regulation was to maintain the financial stability and balance of the European football competition. Under these regulations, football clubs needed to align their expenditures with their respective earnings (e.g., during three years, football clubs must reach the break-even point)³

In the last 20 years, in addition to the above-mentioned European-level legislation, we have seen many financial rules introduced by the national governing bodies to improve the stability of football clubs. One of the notable examples is the "fit and proper person" test, introduced in 2004 by the English Football Association⁴. Initially, this test was applied to individuals who intended to become shareholders in certain football clubs, with

more than 30% of shares, as well as to the directors of football clubs. The test focused on protecting English football clubs from fraud and corruption. In general, this test focused on owners and directors involved in the football club activities and assessed whether these important stakeholders fit their roles properly. Additionally, these regulations also managed to prevent people with a criminal record, people who do not have a long-term interest in the clubs, or those who lack any integrity, to stop them from being involved in the club activity (i.e., people with criminal conviction, people who have been declared insolvent, people who have breached FA rules, etc.). In Germany, the Bundesliga had adopted a “financial health check” that increased the financial control⁵.

The first effort by the UEFA to control the spending of football clubs was the UEFA Club Licensing System, which was introduced in season 2004/2005⁶. Initially, the licensing system was introduced as a certification system alongside the UEFA-imposed rules to increase the quality of governance of professional football clubs. Moreover, afterward, it was replaced by the Financial Fair Play Regulations (FFP) in 2014. These rules had a more comprehensive focus and incorporated many aspects of managing a football club, like financial, football, and stadium management activities⁷.

Probably one of the most explored topics in the sense of financial stability of European football clubs is the introduction of the “salary cap”⁸. This aspect functions perfectly well under US sports organizations, and European people have been more vocal about the need to introduce a salary cap in European football as well⁹. Under the United States system, the salary cap rules include collective bargaining, absence of promotion and relegation, and complete league autonomy¹⁰. On the other hand, European sports leagues (including football leagues) are not suitable for this approach entirely since the European sports market lacks heterogeneity. This is mainly because European football clubs compete simultaneously in national and pan-European competitions (such as the Champions League, the Europa League, or the European Conference League).

This paper will utilize a micro perspective and focus on analyzing individual football clubs listed on their respective stock exchanges. From a simple economic perspective, clubs listed on a stock exchange should be financially more stable and exhibit more stable earnings. Additionally, when an organization is listed on a stock exchange, it must adhere to strict financial rules and regulations that protect shareholders’ wealth and promote transparency for current and future investors. The current analysis includes seven football clubs from six different football leagues. The paper will use one representative club per country, with England being the only exception because it has two football clubs listed on different stock exchanges. Manchester United (MANU) is trading on the New York Stock Exchange (NYSE), while Arsenal is on the UK Stock Exchange (Arsenal is listed on the London Stock Exchange, but its shares are not publicly traded).

This article is structured as follows. The first section addresses the theoretical background and literature review, which includes an analysis of bankruptcy research and research on sports finance. The following segments include the methodology and analysis part and empirical evidence, and the paper ends with concluding remarks and recommendations for future research.

Theoretical background and literature review

Numerous models for bankruptcy prediction have been developed in the literature. These models mainly differ in terms of variables that are being used and can be categorized as follows:

- 1) Models based on accounting data, namely Altman (1968), Springate (1978), Ohlson Ohlson (1980), and Zmijewski (1984)¹¹, and
- 2) Models besides company accounting variables use additional market data, like the hazard model by Shumway and the BSM prob model by Hillegeist et al.¹².

Since there are various bankruptcy models, several systemic reviews have analyzed the compatibility or the quality of the data used in these bankruptcy models. The authors analyze the variables and tools used when using bankruptcy prediction models¹³. Alaka *et al.* (2018) show how eight popular and promising tools perform based on 13 critical criteria within the bankruptcy prediction models¹⁴. The authors identified accuracy, result transparency, fully deterministic output, data size capability, data dispersion, variable selection method required, multicollinearity, variable types applicable, variable relationship, assumption-imposed tools, sample specificity/overfitting, adaptability, and integration capability. Overall, it was found that no single tool is predominantly better than the others concerning the 13 identified criteria. The usage of these models has been analyzed in different industries. Yendrawati and Adiwafi¹⁵ aim to find the accuracy level of financial distress prediction for companies in the property, real estate, and construction sectors.

Bankruptcy prediction models were used in the sports literature as well. For example, Ika *et al.*¹⁶ applied the same models proposed in the current paper, but the analysis was done on only two football clubs over three consecutive seasons. The study concluded that the analyzed clubs were financially stable under all three bankruptcy models (The Altman Model, The Zmijewski Model, and the Springate Model). Similarly, Plumley *et al.*¹⁷ used the Z-score methodology on 43 professional football clubs competing in the first two divisions in the UK during the period 2002-2019. The research concluded that, outside the big six English clubs, the financial situation in the English Premier League remained inadequate and suboptimal. Other authors analyzed different leagues using one or more of the same methods. Szymanski and Weimar¹⁸ provided evidence that the perception that German football leagues were more stable than English was totally incorrect. Insolvency occurs in German football clubs at a frequency that is comparable to the ones of English and French leagues. For the French

league, Carin¹⁹ analyzed 39 club bankruptcies that were identified among the clubs in the top four tiers for the seasons between 2009 and 2016. The results showed that a single bankruptcy prediction model could not be extended for all football clubs: the revised Altman model and the author's new prediction model improved the classification rate. Additionally, demand (attendance) shocks can account for insolvency to a significant degree. Insolvency can be explained by club status and ownership structure, with professional status and the association structure being more likely to lead to insolvency²⁰. The same authors also acknowledged that attendance patterns were similar in cases of football clubs that went bankrupt. For example, football clubs' attendance decreased sharply (around 40%) in the period prior to the solvency issues. Moreover, this drop in attendance was much more significant than expected for the modest fall in average position. Also, professional football clubs are usually more likely to become insolvent than amateur clubs. Alaminos and Fernández²¹ determined that the best predictors of distress for football clubs were clubs' low liquidity, high leverage, poor sports performance, and small size of the club market. On the other hand, research by Freitas Neto et al. and Minatto and Borba²² focused on Brazilian football clubs' insolvency and debt ratio analysis. It indicated that variables like immediate liquidity, net working capital, asset turnover, and sports performance in the Brazilian championship were significant for predicting insolvency in at least one of the developed models.

The economic structure of football has been changing and developing in the last 20 years²³. Football has become something more than just a sport for a while. For several years, it has had an essential place in the current overall mechanisms of socio-economic life²⁴. In line with this, football clubs have different goals and different financial behavior than ordinary for-profit organizations²⁵. Galariotis *et al.*²⁶ asserted an evident increase in revenues from professional football clubs, but the authors inferred that higher revenues do not automatically mean good overall financial performance.

In a competitive environment, organizations generate negligible profits and are always close to insolvency. A sequence of negative shocks can drive a football club over the edge, no matter how rational or disciplined the owners are²⁷. Clubs will always try to outperform each other, and as ownership structure and league competitions change, it will also show additional potential threats to future football clubs. If clubs attempt to lower wages and cut costs, this will impact the overall performance of the football clubs. In this situation, clubs that perform worse also generate less income.

Material and methods

The current manuscript analyzes seven football clubs: Celtic, Dortmund, Olympic Lion, Porto, Manchester United, Arsenal, and Juventus. When analyzing Arsenal, there are only 62,217 shares not traded on a public stock exchange but on a specialist market on the NEX exchange. The club is run by a parent company that is owned by Stan Kroenke. Each analyzed club was listed on their country's stock exchange at the time of research. The only exception is Manchester United, which is listed on the New York Stock Exchange (NYSE). All clubs' financial information was taken from their officially published financial statements that were publicly available during the observed period from 2008 to 2020. This period was chosen to show whether FFP regulation impacted the performance of these football clubs. In the current study, the financial performance of the selected football clubs is assessed using three different bankruptcy prediction models developed by Altman (1968), Springate (1978), and Zmijewski (1984)¹¹.

The Altman Model

Organizations with a Z score of 2.90 or more are considered financially healthy within this framework, whereas teams with a Z score of 1.20 or lower are considered potentially bankrupt. Additionally, an organization is considered in the grey area if it receives a score between 1.20 and 2.90²⁸. This is how the equation works:

$$Z' = 0,717X_1 + 0,847X_2 + 3,107X_3 + 0,420X_4 + 0,998X_5 \quad (1)$$

Where

Z' = bankruptcy score

X₁ = working capital to total asset

X₂ = retained earnings to total assets

X₃ = earnings before interest and tax to total assets

X₄ = book value of equity to book value of debt

X₅ = sales to total asset

The Springate Model

Companies in this model are categorized as healthy enterprises if their Z score is more than or equal to 0.862, and they are categorized as potentially insolvent companies if their Z score is less than or equal to 0.862 (Springate, 1978). The formula is as follows:

$$Z = 1.03A + 3.07B + 0.66C + 0.4D \quad (2)$$

Where

Z = bankruptcy score

A = working capital to total asset

B = net profit before interest and taxes to total asset
C = net profit before taxes to current liabilities
D = sales to total asset

The Zmijewski Model

The evaluation criterion for this model states that the likelihood that a company would fail financially increases as X increases. If the Zmijewski X score is negative, there is no risk of bankruptcy for the business (Zmijewski, 1984). The model's equation is as follows:

$$X = -4,3 - 4,5X_1 + 5,7X_2 - 0,004X_3 \quad (3)$$

Where

X = bankruptcy score

X₁ = net income to total assets

X₂ = total debt to total assets

X₃ = current assets to current liabilities

This study first calculates each financial performance metric for the sample clubs before examining the trend in bankruptcy scores. Afterward, financial data on the analyzed football clubs is incorporated into the three above-described bankruptcy prediction models.

Results

As stated above, the cut-off point for Altman's Z score is 2.90. An organization is considered financially sound if its Z score is higher than 2.90. Table 1 shows the Z scores for all seven clubs from 2008 to 2020.

Table 1. Altman's Z score for seven football clubs(2008-2020)

Z' score Altman	Year													Mean
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Celtic	3.19858	3.02334	2.05926	2.01923	1.85898	3.36342	3.46703	2.76713	2.44611	2.93706	2.84916	3.38119	3.49578	2.83587
Dortmund	0.67025	0.56355	0.61227	1.15377	2.02215	2.78909	2.19536	6.40970	7.06733	15.32218	9.98758	8.55008	15.74619	5.62227
Olympic Lion	2.09752	2.48529	1.11966	1.09307	0.67255	0.68784	0.51735	0.31914	0.67235	1.47508	0.95303	1.00013	0.33354	1.03281
Porto	0.64606	0.60292	4.46500	0.69135	-0.56841	0.64388	2.37243	0.70071	-0.45461	-0.24783	-0.05058	0.40511	-1.93795	0.55908
Man Utd		0.92720	1.02272	0.76289	0.80820	1.16366	0.96878	0.62593	0.68779	0.79678	0.57440	0.70377	0.45348	0.7913
Arsenal	0.64118	2.28276	0.48613	0.94823	1.01277	0.92494	0.95842	1.03166	0.93343	1.16624	1.13943	1.01921	0.55837	1.00791
Juventus	0.86250	1.24195	1.10593	-0.92562	0.11829	0.30113	0.56272	0.75475	0.70543	0.95944	0.36727	0.43240	0.34037	0.55589

According to Table 1, most clubs have Z score values less than the threshold of 2.90, which means they are not financially sound. Improvement in financial stability has been noticed only at Celtic and Dortmund in the last several years. Celtic has gradually improved and has surpassed the threshold since 2017, while Dortmund's significant improvement has been since 2015. On the other hand, the Z score of the rest of the clubs has been on the decline. Figure 1 displays the trend of the seven clubs' Altman Z scores.

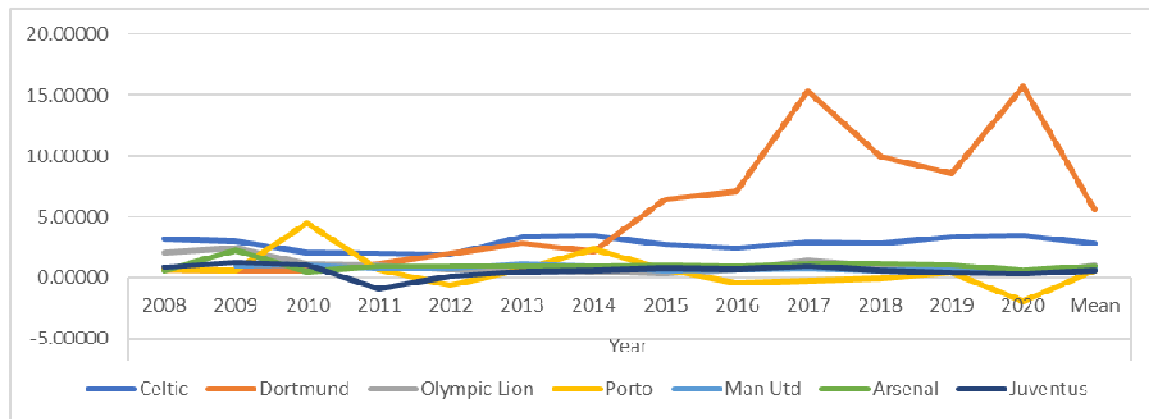


Figure 1. The Altman's Z score trend

When applying Springate's Z score, it is worth noting that organizations with a score above 0.862 are categorized as financially healthy, whereas those with a score lower than 0.862 are categorized as potentially bankrupt companies (Springate, 1978). Table 2 shows the Springate Z scores for all seven observed football clubs from 2008 to 2020.

Table 2. Springate's Z score values for analyzed football clubs (2008-2020)

Z score Springate	Year												Mean	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		2020
Celtic	2.05065	1.05325	-0.76305	0.18118	-3.86466	5.60585	5.16761	-1.33660	0.32790	2.60096	4.38013	3.14370	0.23511	1.44477
Dortmund	0.06436	-0.90405	-0.94347	1.54332	5.50355	7.55478	2.04382	0.95768	3.42074	0.97492	2.85689	1.63929	-2.79304	1.68606
Olympic Lion	3.65097	1.55864	-6.35165	-4.75512	-6.07382	-3.13653	-2.96784	-1.54054	1.14936	0.59558	0.83320	0.64577	-1.84226	-1.40263
Porto	1.89638	0.97603	3.23361	0.59526	-5.97417	3.09085	-2.46426	2.01992	-5.43359	-1.97047	-1.14083	0.91157	-13.43471	-1.36111
Man Utd		1.19462	-1.17499	0.64916	1.03764	4.54762	1.54560	-0.44148	0.19754	1.14158	-0.53047	0.45742	-0.45752	0.68056
Arsenal	1.67199	0.37941	0.59382	1.02944	2.01660	0.60264	0.45719	1.15517	0.35459	2.05932	2.71683	-1.06309	-1.93879	0.77193
Juventus	-0.87669	1.94305	0.43071	-9.83495	-3.82924	-0.96175	-0.13089	0.62024	0.73918	2.47342	-0.37141	-0.94517	-2.36034	-1.00799

The Springate Z score values for all seven clubs in 2020 are less than the cut-off value of 0.862, as shown in Table 2. The two clubs that were in better financial position in the years prior to 2020 were again Celtic and Dortmund. Manchester United was most stable during the period 2011-2013, while for Arsenal, the most financially stable years were 2017 and 2018. In the case of Juventus, the best year in this regard was 2017; for Olympic Lion, it was 2008, while for Porto, it was the period 2008-2010 and again in 2016. The overall trend for all analyzed clubs in terms of Springate's Z scores is shown in Figure 2. The outcomes of Altman's and Springate's models are aligned.

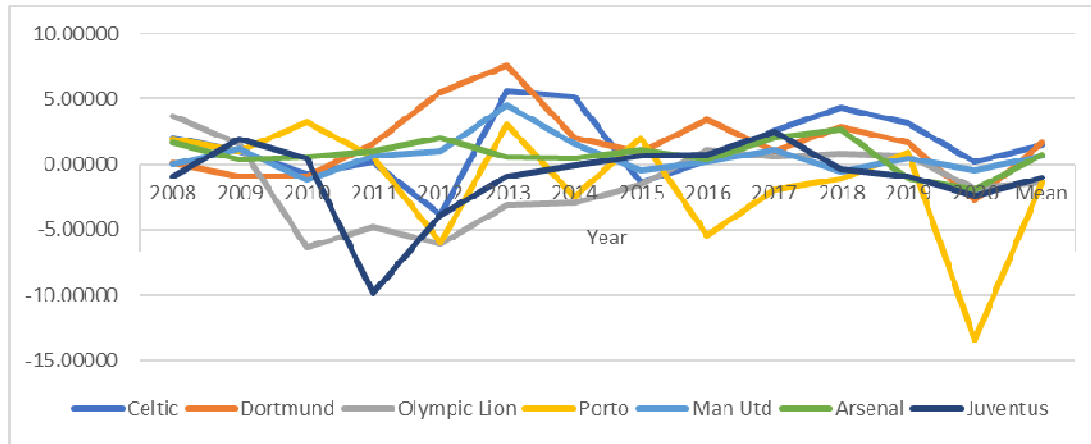


Figure 2. The Springate's Z score trend

Finally, according to the model proposed by Zmijewski (1984), financial performance tends to increase when the calculated X score decreases. As a result, if the X score is negative, there is no risk of bankruptcy for the organization. The Zmijewski X score for all seven clubs from 2008 to 2020 is displayed in Table 3.

Table 3. Zmijewski X score values for analyzed football clubs (2008-2020)

Z score Zmijewski	Year												Mean	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		2020
Celtic	-3.46463	-3.29376	-3.11442	-3.25271	-2.71705	-3.85961	-3.88693	-3.13907	-3.52659	-3.62700	-3.87066	-3.90806	-3.77606	-3.4951
Dortmund	-1.78816	-1.53730	-1.49179	-2.92988	-3.49743	-3.91119	-3.44061	-4.00298	-4.29250	-4.24782	-4.34780	-4.29989	-3.77382	-3.3509
Olympic Lion	-3.34537	-3.49433	-2.89961	-2.91587	-2.38992	-2.70037	-1.96752	-1.35962	-1.24460	-3.35256	-2.07069	-2.12974	-1.70930	-2.4292
Porto	-3.00792	-3.30116	9.79185	-2.75430	-2.09606	-3.05160	-1.85315	-2.21225	-1.70364	-1.65011	-0.80212	-1.38340	1.13750	-0.9913
Man Utd		-1.72740	-1.85196	-1.29447	-1.50982	-2.68008	-2.53353	-2.03008	-1.97640	-2.02837	-1.77931	-1.84396	-1.62018	-1.9063
Arsenal	-2.31553	-4.06599	-4.06410	-2.23497	-2.42176	-2.38801	-2.51353	-2.75436	-2.32347	-2.21722	-2.54174	-2.75263	-2.22274	-2.6782
Juventus	-0.30091	-0.78293	-2.26803	-0.73879	-2.39348	-2.86209	-3.13546	-3.34389	-2.10348	-2.51562	-1.49912	-1.08132	-1.59770	-1.8941

The Zmijewski X score value for the seven clubs is negative in each observational year, as shown in Table 3. The exception is Porto in 2020, with the only positive score, which means the club has experienced financial distress. The negative values of the clubs show that they are in good financial shape. Celtic and Dortmund have the lowest Zmijewski scores, implying neither club's finances are a concern.

The Zmijewski X score trend for both Celtic and Dortmund agrees with the previous two models that out of the seven observed clubs, these two are in the best financial position. Arsenal is next in line for financial stability.

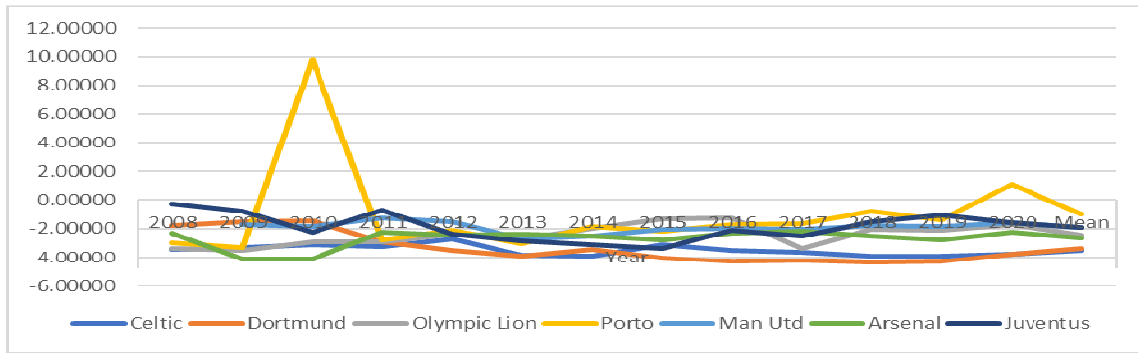


Figure 3. The trend of the Zmijewski X score

Impact of Bankruptcy Scores on Football Success

We analyzed three competitions for football clubs to check the impact of bankruptcy scores on their results. The impact of bankruptcy scores on domestic win percentages does not exist, mainly because we analyze football clubs that are dominant in their respective leagues and sometimes do not have meaningful competition. The changes in spending don't affect how these clubs are performing in the league.

The second analysis is on international competition and European Cup games for all these football clubs. Because the structure of the Champions League and the UEFA (Europa) League changes throughout the year, we conducted two analyses. Model 1, as depicted in equation 1-which, analyses all international games that clubs are playing in European competitions (including qualifications and pre-group stage games), and Model 2, as depicted by equation 2- analyses only the impact of group matches and forward in the competition (to the final of the competition). The two models test the relationship between wages and international wins.

International Wins1 = $\beta_0 + \beta_1 Wages +$ -Equation 1

International Wins2 = $\beta_0 + \beta_1 Wages +$ -Equation 2

Table 4. Hausmann Test, Cross-Sectional Dependence, Heteroskedasticity, and Serial Correlation Tests

	Model 1	Model 2
Hausmann Test (Prob>Chi2)	.70	.54
·		
Cross-Sectional Dependence	0.96	.47
·		
LM test (Pr value)		
·		
Heteroscedasticity	0.00	0.000
·		
Modified Wald (Prob > Chi2)		
·		
Serial Correlation/Autocorrelation	0.28	0.30
·		
Wooldridge (Pr > F)		

Source: Author's Estimation

Panel Data Estimation

The empirical analysis is carried out by estimating fixed effect and random effect models. The results from Table 1 present the results of the Hausman test for equations 1 and 2. Hausman test helps in selecting between a fixed or a random effect model. The test results indicate that the prob> chi-square value is greater than 0.05 in both cases. The Prob> chi is 0.70 for model 1 and 0.54 for model 2. We fail to reject the null hypothesis of the random effect model. The rationale for random effects is evident in this case. A random effect is appropriate if one has reason to believe that differences among the teams influence dependent variables, i.e., wins in games. Hence, a random effect model is appropriate for this case.

After choosing the random effect model, the analysis focuses on obtaining consistent and efficient estimates. Various diagnostic tests of cross-sectional dependence, heteroskedasticity, and serial correlation ensure consistency and efficiency of results. The LM's test for cross-sectional dependence gives a p-value of 0.96 for model 1 and a p-value of .47 for model 2. We accept the null hypothesis that there is no cross-sectional dependence among panels.

The modified Wald test for heteroskedasticity returned a p-value of 0.00 for both models 1 and 2. Since the p-value is less than 0.05, we can reject the null hypothesis of homoskedasticity and accept the alternative of heteroskedasticity. This indicates the presence of heteroskedasticity in both models.

The serial correlation test for panel data returned p values of 0.28 and 0.30 for both models, indicating no serial correlation/autocorrelation in the panel models.

Overall, the models were detected with an issue of heteroskedasticity, which was corrected in the final regression results by using robust standard errors. The regression results of the random effect model are described in detail below.

Table 5. Regression Result of International Wins1 (Dependent Variable) Model 1

Regressors	Coefficient	Stand ard Error	Z statistic	P value
Constant	-0.038	0.116	-0.33	0
Wages	0.0393*	.0225	1.74*	0
R Square	0.03			
Number of Observations	90			
F Statistic	0.08*			

* Indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table 6. Regression Result of International Wins2 (Dependent Variable) Model 2

Regressors	Coefficient	Stand ard Error	Z statistic	P value
Constant	-0.318	.203	-1.57	0.11
Wages	0.0918***	0.038	2.37**	0.01***
R Square	0.13			
Number of Observations	90			
F Statistic	0.01***			

* Indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

The final regression results for both models are presented in Tables 2 and 3. The results for model 1 and model 2 indicate a positive and significant relationship between wages and international wins. Model 1, which measures the relationship between wages and the international win one variable, has an R square value of 3%, with the fit of the model (F Statistic) being significant at a 10% level of significance. A one percent wage increase can be expected to increase the international wins1 by 0.03 percentage points. The coefficient of wage is significant at a 10 percent level of significance with a p-value of 0.08. The fit of model 1 could be improved by adding more independent variables.

On the other hand, the relationship between international wins two and wages is a better fit with a P statistic = 0.01, which is significant at a 1 percent significance level. The coefficient depicts that an increase in wages by 1 percent can be expected to increase the international win2 by 0.09 percentage points. The model has an R square value of 13%, which defines the variation in international wins2, which wages can explain to an extent of 13%. The coefficient of wages is significant at a 1 percent level of significance, with a p-value of 0.01.

Discussion and concluding remarks

The study focuses on major European football clubs' financial performance and bankruptcy tendencies. At the same time, the UEFA Financial Fair Play Regulations (FFP) were expected to improve football clubs' financials, but that has not happened. In general, more and more football clubs can be observed as societies running after sporting success and not caring about financial performance.

Altman's Z score shows that all clubs except Borussia Dortmund and Celtic show negative tendencies. According to Springate's Z score, all clubs, without exception, showed financial troubles in 2020, but Dortmund and Celtic were financially stable in the years before 2020. According to Zmijewski, Z scores all football clubs, with the exception of Porto, showing financial stability. However, this stability is very close to the threshold. Once again, Dortmund and Celtic are better off than the other observed clubs.

This also confirms that UEFA's financial fair play did not serve its original purpose. While big and most supported football clubs were never on the verge of bankruptcy, they are still luxurious assets that will always

find an investor. In the last few years, it has been shown that football clubs are appreciating assets. Maybe they are not the most profitable assets on a year-to-year basis, but definitely, the value of the largest football clubs has been increasing in the past several years.

What clubs do not realize is its impact on their international football wins. Making sure that the clubs are stable generally means that clubs can progress and make more income from competing internationally. In general, all three bankruptcy scores follow the same pattern. They represent the modern reality of football: football clubs are being run more like a sporting association and less as a company. While some of the clubs are more stable than others, none of them are showing actual signs of financial stability.

Table 7. Impact of Wages on Z scores and UEFA ranking

Wages	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Z score Altman	-193.633	3498.901	-0.06	0.956	-7146.964	6759.698
Z score Springate	1011.508	3086.568	0.33	0.744	-5122.398	7145.414
Z score Zmijewski	1723.715	5808.414	0.30	0.767	-9819.286	13266.72
UEFA club ranking	-1674.782	340.7032	-4.92	0.000	-2351.858	-997.7066
UAFA ranking 5 points	1478.125	253.642	5.83	0.000	974.0649	1982.185

Source: author's calculation

As mentioned previously, the bankruptcy scores do not impact domestic competition. However, they do affect the international competition of these football clubs. This shows that clubs must be careful about the wages they give and the income they receive. International football success depends solely on the wages a football club can afford to give. Financial stability impacts international football success. While this generally sounds contradictory, the ability to generate higher wages determines the international success of football clubs. One can also argue that this research has considered only wages as a factor impacting domestic and international wins; further research and exploration can also find other factors that impact international and domestic wins. However, via this research, it can be concluded that the ability to generate higher wages can lead to more tremendous success in international football clubs' games. By finding other factors that impact international and domestic wins, clubs can also focus on those factors. This would help clubs balance their revenues and wages (expenses), considering other win factors as an improvement factor.

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