

Too big to fail? Accounting for Predictions of Financial Distress in English Professional Football Clubs

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Too big to fail? Accounting for Predictions of Financial Distress in English Professional Football Clubs

Abstract

Purpose

This paper analyses English Premier League (EPL) and English Football League (EFL) Championship clubs during the period 2002-2019 to anticipate financial distress with specific reference to footballs' Financial Fair Play (FFP) regulations.

Design/Methodology/Approach

Data was collected for 43 professional football clubs competing in the EPL and Championship for the financial year ends 2002-2019. Analysis was conducted using the Z-score methodology and additional statistical tests were conducted to measure differences between groups. Data was split into two distinct periods to analyse club finances pre and post-FFP.

Findings

The results show significant cases of financial distress amongst clubs in both divisions and that Championship clubs are in significantly poorer financial health than EPL clubs. In some cases, financial sustainability has worsened post-FFP. The 'big 6' clubs - due to their size - seem to be more financially sound than the rest of the EPL, thus preventing a "too big to fail" effect. Overall, the financial situation in English football remains poor, a position that could be exacerbated by the economic crisis, caused by COVID-19.

Originality

The paper extends the evidence base of measuring financial distress in professional team sports and is also the first paper of its kind to examine this in relation to Championship clubs.

Research limitations/implications

The findings are not generalisable outside of the English football industry and the data is susceptible to usual accounting techniques and treatments.

Practical implications

The paper recommends a re-distribution of broadcasting rights, on a more equal basis and incentivised with cost-reduction targets. The implementation of a hard salary cap at league level is also recommended to control costs. Furthermore, FFP regulations should be re-visited to deliver the original objectives of bringing about financial sustainability in European football.

Keywords: financial crisis, Z-score, English professional football, English Premier League, Financial Fair Play.

Introduction

Financial distress in business is not a new phenomenon. However, it has become an increasingly important issue during the last decade since the global recession in 2008. Indeed, in 2014 the European Commission introduced a new policy designed to give early warning of the signs of financial distress in businesses that will help prevent bankruptcy (European Commission, 2014). Such a policy is designed to provide a quick response to the early stages of a financial crisis and potentially save a business before collapse. A similar scenario has occurred in European football over the last decade with an introduction of Financial Fair Play (FFP) regulations, put forward by European football's governing body the Union of European Football Associations (UEFA). FFP was implemented in European football in 2011 and was designed with two primary objectives in mind. First, to provide a means through which to introduce discipline and rationality to club finances to help safeguard the stability of European football (UEFA, 2015). Clubs were being told to spend within their means (hence the fundamental concept of 'break-even'). The second was a narrative that these regulations would enable the industry (and individual leagues) to become more competitively balanced (Plumley *et al.*, 2018) although it must be noted that this was more of a stakeholder ideal than a hard regulation.

The decision behind the implementation of FFP was set against a backdrop of financial crisis at individual club level. In 2010, net losses among the 734 European member clubs had increased by 760% over the five-year period between 2006-2011 (Franck and Lang, 2013) and European club football had a substantial problem with servicing debt. Paradoxically, this financial crisis in European football coincided with a period of substantial increases in revenue (Storm and Nielsen, 2012). The origin of this problem was the imbalance between income and expenditure (mostly in the form of player wages) and, consequently, rising level of debts (Barajas and Rodriguez, 2013). Moreover, despite problems at club level, the leagues themselves had never been healthier in a financial sense, especially in the context of revenue generation.

Against wider economic pressures, the European football market has grown exponentially over the course of the last two decades (Plumley *et al.*, 2018). A significant proportion of this growth is attributed to what is collectively known as the 'big five' leagues in European football, namely the English Premier League (England), Bundesliga (Germany), La Liga (Spain), Serie A (Italy) and Ligue 1 (France). At the time of writing, the English Premier League (EPL) is the highest revenue generating league in European football, grossing €5.85 billion in 2018/19. Spain's La Liga is the second highest revenue generating league (€3.38 billion) followed by Germany (€3.35 billion), Italy (€2.50 billion) and France (€1.90 billion) (Deloitte, 2020).

In respect of FFP, there have been numerous criticisms in academic literature; for a variety of reasons including: the legality of FFP (e.g. Long, 2012; Peeters and Szymanski, 2014; Szymanski, 2014a); the impact of FFP on the quality of all teams (e.g. Drut and Raballand, 2012; Madden, 2012); the impact that FFP could have on player wages (negative impact) (e.g. Dietl, Franck and Lang, 2009; Peeters and Szymanski, 2012; Preuss *et al.*, 2014); and the fact that FFP actually prevents the industry (and clubs) from benefitting from substantial injections of external financing (e.g. Madden, 2012; Franck, 2014).

Notwithstanding such comment, early evidence indicates that financial performance is improving, in some leagues, linked to the first objective of FFP and the break-even concept. By way of an example, in 2018/19 only Ligue 1 and Serie A of the 'big five' leagues recorded aggregate operating losses (Deloitte, 2020). However, whilst the financial performance of clubs in the top divisions in Europe may be improving, there is less empirical evidence on the situation in lower leagues in respective countries (those that fall outside of UEFA's FFP regulations).

To that end, it is pertinent to explore further the financial situation of European football and examine any wider financial performance issues and financial distress. The aim of this paper is to analyse the current financial situation in English football under the context of anticipating financial distress. The paper is focused on English football as it is the largest revenue generating

league in Europe and owing to the size of the broadcasting contract (which primarily benefits EPL clubs) has a considerable financial gap between leagues (Wilson *et al.*, 2018). In an attempt to measure the effectiveness of FFP by determining its impact on the EPL compared to the English Football League Championship the paper focuses on clubs that competed across the top two divisions in English football from 2002-2019 to cover a period both pre and post-FFP.

Finally, in the light of the current economic crisis (caused by the COVID-19 global pandemic), it is relevant to draw a comparison with the great recession of 2008/2009 and consider whether the too big to fail effect can be expected (Demirgüç-Kunt and Huizinga, 2013; Mishkin, 2006). In the case of professional football federations, the big clubs, even in danger of bankruptcy, would be guaranteed to be saved by public funds. The study of the excessive risk-taking behaviour of big clubs can be explained by softer budgetary constraints (Storm and Nielsen, 2012) and by the observation of the "too big to fail" effect incentives. These risk incentives may also explain the reason for the implementation of FFP regulations (Franck, 2014). Therefore, in this paper, the determination of whether FFP has had a mitigating effect on the risk-taking behaviour of the big clubs, as measured by their financial strength, is crucial to assess its effectiveness and to prevent more public spending.

The rest of the paper is structured into the remaining sections. Next, the theoretical background of anticipating financial distress is discussed followed by some additional context on the English professional football industry. The paper then details the methods and analysis undertaken. Following this, the paper presents the empirical evidence before discussing the implications and providing some concluding thoughts and recommendations for future research direction.

Anticipating financial distress

Throughout the course of the last sixty years, there have been several models that have been developed that have sought to predict bankruptcy in companies. As time has progressed, these models have ranged from univariate to multi-variate methods and increasing degrees of complexity. One of the first models was proposed by Beaver (1966) who analysed various financial ratios of companies five years before the bankruptcy occurred, and then compared them with the ratios of solvent companies. Within this model, he was trying to isolate several factors that could differentiate between various samples of firms that had gone bankrupt and others that had not. Financial ratio analysis is still considered one of the principal ways to measure financial performance in a company. It has been used extensively in academic articles across a variety of sectors and industries including the airline industry (Feng and Wang, 2000), the American power/energy industry (Sueyoshi, 2005), the Slovenian manufacturing industry (Ponikvar, Tajnikar and Pusnik, 2009) and the European football industry (Dimitropoulos, 2010; Plumley *et al.*, 2017; Wilson *et al.*, 2013).

However, with reference to Beaver's original model, financial distress and economic failure in companies is very complex and often a function of several different factors. To that end, other models that have since been developed have attempted to evaluate financial distress by using multi-discriminant analysis to analyse the assessment of business entities as going concerns (see for example Altman, 1968; Altman and McGough, 1974; Deakin, 1972; Koh and Killough, 1990; Mutchler, 1985; Ohlson, 1980; Zmijewski, 1984; Martens *et al.*, 2008) and more recently data mining techniques (applying neural networks and decision tree analysis) to predict going concern (see for example Koh and Low, 2004; Martens *et al.*, 2008). These models attempt to examine and quantify the variables that predict whether a company has the risk of falling into financial difficulty.

Additionally, there has been further debate around the importance of non-financial based analysis in classifying a company at risk of failure (Fadhil Abidali and Harris, 1995) and in the

importance of sporting performance variables for professional sport teams (Plumley *et al.*, 2017). Conceptually, this approach is based on the belief that if a company is in financial difficulty the reason generally relates to inadequate management ability and errors perpetrated earlier. The outcome was the designing of an A-score which is used to address this aspect of failure prediction. This A-score is used against the Z-score for comparative purposes (Fadhil Abidali and Harris, 1995). The non-financial measures raised in this paper are highly qualitative and difficult to measure, as previous authors have also discovered (see Romero Castro and Pineiro Chousa, 2006). However, this does not mean that qualitative information should be ignored, rather that the author must find a way of justifying their inclusion based on sound methodological principles. Qualitative data can provide richer information to offer new insights for researchers in this regard. Fadhil Abidali and Harris (1995) address this by assigning weighting measures that calibrated the results of a questionnaire that was distributed to management level employees in companies in the construction industry to ascertain their views on the most important factors. Interviews could also have been conducted with the directors of the companies following a similar process.

Ittner *et al.* (2003) also consider this issue in detail. Again, the context in which the study is set, focusing on bonus payments to employees and the use of subjective quantitative and non-quantitative factors in determining this, is less relevant although the general discussion around weighting performance measures offers some interesting insights. Firstly, Ittner *et al.* (2003) note that the potential difficulties with 'weighting' factors include determining the appropriate weights to place on each measure. Attempting to analyse this further the paper considers the balanced scorecard approach put forward by Kaplan and Norton (1996). Since improved financial results are the goal of balanced scorecard systems, outcome-effect studies also suggest that financial results will be weighted more heavily than non-financial results. In relation to the paper by Ittner *et al.* (2003) and the literature that the paper covers, the authors provide no theoretical explanation in the way in which they have weighted certain factors higher than others. This could be partly

because studies into direct experiments on the use of financial and non-financial measures on employee performance are inconclusive (Ittner *et al.*, 2003). In the field of organisational psychology, the literature has long held the argument that greater weight should be placed on performance measures that are more reliable. According to this literature, subjective, qualitative performance assessments are often less accurate and reliable than more objective, quantitative measures (Ittner *et al.*, 2003).

In view of the extant literature, this paper will utilise a recognised model of predicting financial distress devised by Altman (1968, 2000) and Altman *et al.* (1977) which is the Z-score and Z-models. The rationale behind using this model is that it is one of the most used and has the advantage of simplicity (Barajas and Rodriguez, 2013). Furthermore, it has been used persistently by researchers, practitioners, banks and rating agencies in finance and accounting research (Cantoni, 2004; Charitou, 2004; Grice and Ingram, 2001). More recent literature cites Altman's model as one of the most effective multi-discriminant analysis models for the past 40 years (Anjum, 2012) and Pitrova (2012) maintains that the model ranks the group of healthy companies well and accurately detects the financial issues of companies one year prior to bankruptcy.

For these reasons above, this paper will utilise Altman's model to analyse the financial situation of English professional football clubs. A more detailed explanation of the financial ratios is provided by Altman (2000) but the model itself is outlined below. The first model, Altman's Z-score, is computed as follows:

$Z=0.012X_1+0.014X_2+0.033X_3+0.006X_4+0.999X_5$ where:

X_1 = Working Capital/Total Assets

X_2 = Retained Earnings/Total Assets

X_3 = EBIT/Total Assets

X_4 = Market Value of Equity/Book Value of Total Liabilities

$X_5 = \text{Sales/Total Assets}$

$Z = \text{Z-score}$

Altman found that for a Z-score value:

- over 3, the business is free of bankruptcy risk;
- between 2.7 and 3, a monitoring process is recommended;
- between 1.8 and 2.7, a detailed analysis of financial problems is recommended;
- below 1.8, bankruptcy risk is high.

However, this initial model is only applicable to public companies since X_4 is estimated from market values. For this reason, Altman modified the model to make it suitable for analysing private companies. The new model was therefore as follows:

$Z_1 = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5$ where:

$X_4 = \text{Book Value of Equity/Book Value of Total Liabilities}$

In this model, the book value of equity is the difference between total assets and total liabilities. There is also a third version of the model that is more appropriate for non-manufacturing companies. In the third model, the X_5 ratio (sales/total assets) is excluded. This was done to minimise the potential effect related to the specific manufacturing industry because this industry is highly sensitive to the criteria of the size of the business. The third version of the model is as follows:

$Z_2 = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$ where:

$X_4 = \text{Book Value of Equity/Book Value of Total Liabilities}$

X_5 is excluded.

In relation to the models above, this paper has chosen to conduct the analysis using Z_1 and Z_2 for the following reasons. The original Z-score is only applicable to public companies. The

football clubs included in this paper are all private companies. Furthermore, there is significant subjectivity involved when attempting to determine the market value of a football club when considering factors that would not be covered in club accounts relating to goodwill values such as club history, heritage and strength of fan base.

It is acknowledged that there is also some subjectivity in the use of total asset valuation for football clubs owing to how player valuation in annual accounts work. A football player is recorded as an intangible asset in the accounts and their value each year is calculated by taking the transfer fee and dividing by the number of years of the contract to provide an annual amortisation charge against the player which generates a current net book value for the player (for example, a player signed for £50m on a 5-year contract would have an annual amortisation charge of £10m per year). However, the total book value of all assets of a football club (in the accounts) is likely to be undervalued owing to the value of 'homegrown' academy players and Bosman players being excluded from having any value in the accounts. A good example to illustrate this is Lionel Messi of Barcelona. Messi came through Barcelona's youth system and as such will have never had an accounting 'value' in Barcelona's annual reports even though he would command a significant transfer fee in the current market. Notwithstanding this, there are no bulletproof alternatives when attempting to find player valuations in an external football transfer market. Statistic websites such as Transfermarkt house player valuations based on performance metrics, but a club would always look to inflate any values slightly when selling a player to drive up the price. As such, the authors argue that the variables used in the Z-score formula are still robust enough to use from an accounting perspective to measure the assets of a club. The variables used here are also comparable with industry publications that analyse club finances such as the Deloitte Annual Review of Football Finance.

Additionally, the Z2 model is suitable to an industry where there are no listed companies and where the size of companies varies significantly. For these reasons, the Z1 and Z2 models appear to constitute an appropriate framework of analysis for the professional football industry in England. Finally, the examination of correlation between the Z2¹ scores of EPL clubs and their relative size as measured by their revenues will allow this paper to highlight a reduction in the “too big to fail” effect for the “big 6” EPL clubs.

The financial situation in English professional football

During the last thirty years the domestic landscape of football in England has altered considerably. In 1991/92 the collective revenue of the 92 Football League clubs was £263m, with the average club in the old Football League Division One generating less than £8m. In 2011/12 the 92 Premier and Football League clubs combined revenues exceeded £4.5 billion, with average Premier League club revenues having risen to £228m, nearly 30 times their level 30 years previously (Deloitte, 2018).

This remarkable rate of growth reflects the game's omnipresent domestic and global profile with the exposure and interest having relentlessly driven revenues. There is little doubt that the league (the EPL) is an incredible success in revenue terms and this success has continued in recent years through one of the most challenging economic environments in decades as the economy continues to struggle to regain ground lost during the 2008/09 recession. The directors of the Premier League are happy with the present state of the business model given that broadcasting rights have been sold up until the 2021/22 season although there is a note of caution in the accounts relating to risk areas such as the credit risk of broadcasters, fluctuation of foreign exchange rates and illegal broadcasting of Premier League games. Notwithstanding this, football, at the top end,

¹ Since the calculation of Z2 excludes the value of sales (X5), its selection rather than Z1 avoids a collinearity effect when measuring correlation.

continues to thrive with capacity utilisation at EPL games standing at 95% (Deloitte, 2018). One of the main factors in this remarkable rise in revenue terms has been the broadcasting deals negotiated by the EPL, on behalf of its member clubs since the inception of the new venture in 1992.

Morrow (2003) proposed that football's relationship with TV is a paradox. On the one hand, television has been responsible for substantially increasing the revenues available in the game. At the same time it is those very revenues, or rather the manner in which they are shared out, that has most undermined competitive league balance and has led to the emergence of financially dominant leagues and financially dominant super clubs. For example, in English football, the average EPL team earns a minimum of £100m from the latest TV deal that has just ended (2016-2019). The EPL distributes some of this money down to the EFL but the financial difference is vast. Each Championship club receives roughly £6.5m from the same deal, meaning that the absolute financial gap between clubs in these two leagues is roughly £93.5m before a ball has even been kicked in the season. Noll (2007) offers a similar argument, stating that television has vastly increased the revenues of the most popular sports and that most likely, increased television exposure has spurred growth in live attendance at matches and other sources of revenue as well (see Allan, 2004; Baimbridge *et al.*, 1995, 1996; Forrest *et al.*, 2004; Forrest *et al.*, 2005; Forrest and Simmons, 2006; Garcia and Rodriguez, 2002; Kuypers, 1996).

Major football broadcasting rights contracts have escalated substantially in recent years in English football. The first television contract signed in 1983 for just £5.2m (Gratton and Taylor, 2000) seems remarkably nondescript in relation to the more recent deals. In the years 2001-2004 domestic TV rights in the EPL were worth £450m which by the end of the 2007-2009 deal had escalated to £1.7 billion. Despite commentators stating that it would be dangerous to assume that such increases could continue unabated (Beech, 2010) the value rose again in 2012 to £3 billion only for the record to be broken once again with a new deal in place for 2016-2019 worth £5.1

billion in UK rights alone which equated to a 70% increase on the previous deal (Swiss Ramble, 2015). The most recent deal signed (2019-2022) has seen a slight dip in the UK rights (£4.4bn) but the overseas pot is expected to grow so the overall total may once again beat the previous record. The continual increase in broadcasting rights appears to have expanded the gap between the EPL and the rest of the football leagues in the UK, particularly because clubs receive parachute payments (a financial payment from the league that attempts to soften the blow of relegation) if they are relegated from the EPL.

However, despite all the positive signs, there have been financial issues at individual club level, specifically relating to cost control linked to player wages. Revenue growth has been accompanied by corresponding increases in costs, particularly in player wages. The control of players' wages, to deliver robust and sustainable businesses, remains football's greatest commercial challenge and in recent years there has been an increasing trend for any additional revenue generated to disappear as additional costs. Indeed, the average wages to turnover in the Football League Championship (tier 2) is currently 107% for the 2018/19 figures (Deloitte, 2020) indicating that many clubs are spending more on player wages than they earn in revenue. Furthermore, there is a clear financial disparity between the EPL and the rest of the Football League (EFL). The average revenue of Championship (tier 2) clubs in 2018/19 was £57m (clubs with parachute payments) and £23m (clubs without parachute payment) (Deloitte, 2020). These clubs are also the ones pushing hardest to achieve promotion to the EPL and are the ones most at risk from overstretching themselves financially as a result. The financial gap to League 1 and League 2 (tiers 3 and 4) is considerably wider. Average revenue for clubs in these leagues was £8m and £4m respectively in 2018/19 (Deloitte, 2020). Consequently, it can also be argued that FFP is not having the desired impact outside of the elite clubs (that qualify for UEFA competitions) in English football. In fact, it is plausible that the overall financial health of clubs could be worse now than before FFP as some clubs may risk financial stability in an attempt to bridge the gap to the elite

clubs whilst under the constraints of FFP that limit owner injection and external financing (e.g. Madden, 2012; Franck, 2014) and impact the quality of all teams (e.g. Drut and Raballand, 2012; Madden, 2012). We explore this possibility as part of our analysis in this paper.

A more pertinent issue at governance level recently has been the threat of break-away leagues at both EPL and EFL level. The EFL Championship clubs feel aggrieved at the most recent broadcast deal signed for their leagues which totals around £595m over five years, considerably less than the most recent EPL deal. Consequently, some owners of Championship clubs have threatened to form a break-away league dubbed 'EPL 2' in an attempt to extract more money from broadcasters which they believe are willing to pay far more than the current deal to show Championship football matches to a wider global audience (Fisher and James, 2018).

Against this backdrop, this paper analyses the financial situation at current EPL and Championship clubs in respect of financial distress. The research has three main aims. First, to examine whether clubs in the EPL and Championship are in financial distress. Second, to examine the financial gap between the EPL and Championship clubs in relation to financial distress. Third, to attempt to test the efficacy of FFP regulations by considering financial distress before and after its implementation.

The paper also presents five hypotheses that will be tested as part of the study:

H1: EPL clubs will not be in a position of financial distress

H2: EFL Championship clubs will be in a position of financial distress

H3: There will be a significant difference between the EFL Championship clubs and the EPL clubs in respect of financial distress.

H4: There will be a significant difference between financial distress scores pre- and post-FFP regulations for all clubs

H5: The FFP regulations did not have a positive impact on financial soundness of EPL clubs

H6: The ‘big 6’ EPL clubs exhibit increasing “too big to fail” incentives to risk-taking

Methods

Data was collected for 43 professional football clubs competing in the EPL and Championship for the financial year ends 2002-2019. To qualify for the study a club must have spent a minimum of 9 years (seasons) (50% of the total time) competing in either league. This period was chosen as it provides two distinct time periods both pre- and post-FFP (2002-2010 and 2011-2019). Data was collected from the annual reports of the clubs and Z1 and Z2 scores were calculated using this data against the method outlined by Altman's Z-score models detailed earlier in the paper. The data was split into 21 EPL and 22 EFL Championship clubs. This was done in relation to the total number of years (seasons) that the clubs had spent in those respective leagues linked to the period of the study. For example, each club had eighteen years' worth of financial data available and if a club had spent nine or more years in one league during the period then they were assigned to that league. This is because their financial performance would have been affected by divisional status particularly in relation to broadcasting income. Table 1 outlines the clubs analysed for this study and the leagues in which they were placed for analysis purposes.

<Table 1 about here>

Full figures have been collected for all clubs except for some exceptional circumstances where data wasn't available due to clubs being in administration and/or not filing accounts on time (e.g. Bolton Wanderers for 2018 and 2019, Crystal Palace for 2009 and 2010, Derby County for 2019, Ipswich Town for 2019, Leeds United for 2007, Leicester City for 2002 and 2003, Middlesbrough for 2010, Sheffield Wednesday for 2019 and Sunderland for 2019). Analysis was conducted using the Z-score methodology to produce Z1 and Z2 scores for each club. Additional

statistical tests were conducted including independent sample t-tests to measure differences between groups.

Results

Tables 2 and 3 present the descriptive data from the analysis. These tables show the seasonal averages for the EPL and Championship respectively for all variables included in the dataset. There is a significant financial gap between the EPL and the Championship in absolute terms. Average revenue has increased from £46.1m in 2002 to £220.8m in 2019 whilst average revenue in the Championship has increased from £15.3m to £70.9m for the same period. This financial gap is primarily due to the broadcasting deals and the value of distribution payments to clubs in the EPL versus Championship. A further alarming figure in respect of financial management is that average wage costs in the Championship are very close to average revenue figures which mean that these clubs are spending a significantly high proportion of their revenue on player wages. This over-investment in player wages is symptomatic of the strategic approach taken by some Championship clubs that are attempting to reach the EPL and the riches on offer from the EPL broadcasting fees. When considering the impact of FFP on club finances, a similar trend is found. Average EPL revenue from 2002-2010 was around £70m and this figure has increased to £153.8m for the period 2011-2019. In the Championship, average revenue was £16.3m pre-FFP and has increased to £39.8m post-FFP.

Additionally, it is worth noting the Working Capital is negative for several clubs and this occurs more in the Championship. When the working capital is negative, Altman's X1 ratio is negative as well (Barajas and Rodriguez, 2013). Indeed, regarding the X1 scores, only 9.5% (2/21) of the EPL clubs returned a positive X1 score and only 9.1% (2/22) of Championship clubs returned a positive X1 score. This means that a significant number of clubs are experiencing serious financial problems because they cannot cover their debt related payments in the short term (Barajas and Rodriguez, 2013).

The same comparisons can be made in respect of shareholders' equity. In the EPL, the average figures are positive, but the figure is negative for all seasons for Championship clubs. In fact, 16 out of the 22 Championship clubs in the study returned negative equity scores on average. This in turn implies that all Championship clubs should issue shares or raise funds from the members/owners, yet this is restricted to some extent under FFP regulations. This is also reflected in the X2 scores that outline Retained Earnings. Average retained earnings were positive for 7/21 (33.3%) and 5/22 (22.7%) for EPL and Championship clubs, respectively.

<Table 2 about here>

<Table 3 about here>

With reference to the overall Z-scores for all clubs analysed, the picture is austere. Table 4 presents the descriptive statistics, and Tables 5 and 6 show the average results for all clubs for the EPL and Championship, respectively.

<Table 4 about here>

<Table 5 about here>

<Table 6 about here>

Analysis shows that there are a significant number of clubs at risk of bankruptcy based on Altman's Z1 and Z2 scores. Based on the descriptive statistics this appears to be more of a problem for Championship clubs but only due to the slightly higher number of observations. Indeed, there are still many EPL clubs that are at high risk despite these clubs having access to the increased broadcasting rights payments compared to their Championship counterparts. These clubs are mostly those situated in the bottom half of the table that have smaller resources than the bigger clubs in the league or clubs that have tended to 'yo-yo' between the EPL and Championship (e.g. Norwich, West Bromwich Albion). Of further significance, focusing on the clubs that returned low or no business risk, they are already the established elite (e.g. Arsenal, Manchester United,

Tottenham Hotspur). With this in mind, and in relation to FFP regulations, how can other clubs begin to close the gap to these clubs given that they are high risk of bankruptcy themselves? This has certainly been a bone of contention in the academic literature linked to critiques of FFP in recent years (e.g. Madden 2012; Franck, 2014) and the analysis in this paper appears to support such a rhetoric that FFP has actually created a metaphorical ‘glass ceiling’ for clubs outside the elite five or six clubs in the top domestic leagues. Additionally, we offer some descriptive insight into the European wide picture here to provide further context. Table 7 states the collective profitability of clubs in the ‘Big Five’ leagues in Europe since 2009/10. This shows that the clubs in England, Spain and Germany have been collectively generating profit since the inception of FFP. However, this is not the case for clubs in Italy and France. Indeed, French clubs have reported aggregate operating losses for the last 12 seasons (Deloitte, 2020). Despite both these leagues seeing revenue growth, they have both reported significant increases in wage spending leading to collective losses. However, to bridge the gap and break the metaphorical ‘glass ceiling’ created by FFP, spending is seen as the only way to compete for many clubs even if this puts them at financial risk. With regards to the hypotheses presented, descriptively at least, H1 should be rejected and H2 should be accepted.

<Table 7 about here>

Further statistical tests were conducted to attempt to highlight the difference between the Z1 and Z2 scores for the EPL and Championship clubs. An independent samples T-test for both the Z1 and Z2 scores was significant at the 0.01 level for both Z1 ($t(760) = 4.428, P < .01$) and Z2 scores ($t(760) = 4.202, P < .01$). In respect of the direction of the mean scores, this outlines that the Championship clubs are significantly worse with reference to financial health as measured by Altman's Z1 and Z2 scores. Thus, H3 should be accepted.

When considering the impact of FFP, there were no significant differences in scores in the EPL but an independent samples T-test was significant at the 0.05 level for both Z1 ($t(386) =$

2.044, $P < .05$) and $Z2$ ($t(386) = 2.129$, $P < .05$) scores in the Championship. Again, the direction of the mean scores here point to significantly worse financial health for Championship clubs post the introduction of FFP which is interesting given that FFP was designed to improve financial sustainability. It is acknowledged that the EFL apply their own version of FFP which is different to UEFA's, but it still does not appear to be leading to financial sustainability for clubs that compete in this league. As a result, H4 is partially accepted. Not all clubs showed a significant difference in financial distress scores pre and post-FFP but those primarily competing in the Championship did.

We now refine the analysis to the larger clubs of the EPL. Tables 8,9 show the comparison between the big 6 clubs and the rest of the clubs in the study and tests the assumption made in H5. As noted previously, only $Z2$ scores are considered here to avoid collinearity with revenue variables. It can be observed that the $Z2$ scores have improved over time – since the inception of the FFP regulations – but that differences exist between the big 6 clubs and the rest of the EPL. Indeed, the former has seen their $Z2$ scores reach levels consistent with financial soundness after the implementation of the FFP ($M1 = -0.53$, $M2 = 1.49$; $V1 = 0.20$, $V2 = 3.09$) with a difference significant at the 0.01 level as measured by a t-test ($t(16) = 3.347$, $p < 0.01$). On average, for the rest of the league, $Z2$ scores remain negative ($M1 = -7.76$, $M2 = 5.70$; $V1 = 1.16$, $V2 = 4.37$) while the differences between periods is not significant. Therefore, H5 can be rejected for the big 6 clubs which have seen an increase in their financial soundness (independent of their relative size/revenue as measured by $Z2$) while H5 cannot be rejected for the rest of the EPL.

<Tables 8,9 about here>

Regarding the “too big to fail” effect, it appears that the correlation between size (as measured with revenues) and $Z2$ score is moderate to strong for the big 6 clubs over the entire period, which rejects the observation of this effect. However, this correlation is weak for the rest of the league and the difference between the two samples ($M1 = 0.54$, $M2 = 0.14$) is significant at the 0.01 level

as measured by a t-test ($t(34)=4.08$, $p<0.01$). Although the correlation between size and financial soundness has increased post FFP (Pre 2011: $M1=0.47$, $M2=0.04$; $t(16)=2.88$, $p<0.01$; Post 2011: $M1: 0.62$; $M2: 0.24$ $t(16)=3.04$, $p<0.01$) for the big 6 and the rest of the league, the difference between periods is not significant.

With reference to the hypotheses of this study, H1 and H6 must be rejected and H2 and H3 are accepted. H4 is partially accepted. Despite clubs in the EPL having record levels of turnover, there are still significant cases of possible financial distress. This is magnified in respect of Championship clubs and there is a significant difference between the levels of financial distress in the Championship versus the EPL. Furthermore, since the introduction of FFP, financial distress scores have worsened for clubs in the Championship compared to the EPL. Finally, H5 can be rejected for the 'big 6' clubs which have improved their financial soundness post-FFP thus demonstrating a positive effect of the regulation on the one hand. On the other hand, H5 cannot be rejected for the rest of the EPL league thus demonstrating differences in the impact of the regulation on the financial soundness of clubs.

Discussion

The findings of this paper point towards financial instability for most clubs in the EPL and the EFL. In this regard, the findings are in line with previous work directly related to anticipating financial distress in Spanish football (e.g. Barajas and Rodriguez, 2013). However, Barajas and Rodriguez found that the phenomenon in Spain was worse in La Liga (tier 1) than in Liga Adelante (tier 2). This paper finds the opposite in the sense that the phenomenon of financial distress in English football was worse in the Championship (tier 2) than in the EPL (tier 1). Furthermore, the findings echo previous research that has analysed insolvency events in English (e.g. Szymanski, 2014b) and French (e.g. Scelles *et al.*, 2018) football, respectively. Whilst overspending and financial mismanagement in European professional football is not necessarily a new phenomenon, it should outline cause for concern with regards to the regulations set by UEFA and individual

league organisers to ensure financial sustainability. This is specifically aimed at FFP regulations implemented at local level and the inconsistencies between these and UEFA directive. The EPL has its own version of FFP, of course, but all clubs state that they aim to conform with UEFA's directive should they qualify for European competition. The dataset analysed for this study also considers two distinct time periods both pre and post-FFP regulations. Whilst there have been positive signs in the UEFA benchmarking report in respect of break-even and profit, there remains significant financial problems at club level in the EPL, and the Championship when considering broader financial health and anticipating financial distress. In relation to Altman's Z-score, many English football clubs are at risk financially, despite some of them competing in a league where the revenues on offer have never been higher.

Additionally, the situation in the Championship has actually become worse in the post-FFP time period and whilst this is not the case in the EPL there does appear to be a scenario in this league where the "big 6" remain dominant and the surrounding factors of FFP and poor financial performance are making it difficult for other clubs to break into the higher league positions. This supports the point of Madden (2012) and Franck (2014) who state that FFP limits owner investment and progression on the pitch in some instances and also the findings of Plumley *et al.* (2018) who stated that post-FFP various European leagues have been dominated by a select number of clubs.

A further important consideration, subsequently, is how are these clubs surviving financially if the reporting figures suggest that they are at risk? It appears some are largely reliant on owner injections (in a variety of formats) to manage levels of debt and equity. Though the focus may have shifted towards foreign ownership of English football clubs in recent years (e.g. Wilson *et al.*, 2013), it appears as though these owners are still taking on the role of major benefactors (much like wealthy owners have always propped up football clubs throughout the course of history).

Of greater concern is the austere financial picture in the Championship. In this league, there is clear evidence of clubs risking financial stability to get promoted to the EPL. They must also contend with a more stringent version of FFP - devised by the EFL themselves. This means that if they miss out on promotion to the EPL within a three-year period then they are effectively playing Russian roulette with their finances for the following three years with the potential overspend incurred putting them at risk of breaking the financial regulations of the EFL. This is further complicated by the fact that the clubs coming down from the EPL are receiving substantial parachute payments (c.£90m over three years) which is designed to help soften the blow of relegation.

Even though revenues in the English game have never been higher, the situation considering overall financial health measured against the Z-scores is perhaps not surprising. It is widely accepted that the majority of a clubs' income is subsequently spent on player wages as clubs battle with the twin objectives present in professional sport and trying to balance financial and sporting success (see for example, Carlsson-Wall *et al.*, 2016; Plumley *et al.*, 2017). Notwithstanding this fact, there is also a clear argument that clubs should be looking at a longer term plan to financial sustainability, one which doesn't over-rely on broadcasting contracts which may not always be so lucrative and are effectively a stream of 'unearned' income. This is even more pertinent for Championship clubs who do not have access to the broadcasting money that EPL clubs do which already puts them at a distinct financial disadvantage in that league.

Can the EPL and the EFL Do More?

Previous research into Z-scores in Spanish football (Barajas and Rodriguez, 2013) called on Spanish football to cut expenses and inject capital to solve problems relating to financial distress. The recommendations of this paper call for a redistribution of EPL broadcasting money to make

the payments more equitable not just in the EPL but across the football league in England as a whole. Whilst the EPL broadcasting distribution model remains relatively equal between its member clubs, it is not equitable across the wider football league structure. Indeed, the guaranteed income from broadcasting for the club that finishes bottom of the EPL (for the most recent contract 2016-2019) is c.£100m. Each club in the Championship is only guaranteed c.£5-6m. Here, the financial gap between the two leagues is laid bare and it is easy to see why Championship clubs are over-stretching themselves financially to reach the EPL. Much like Wilson *et al.* (2018) called for a redistribution of broadcasting revenues across the league system in their paper on the impact of parachute payments on competitive balance in the Championship, this paper calls for the same action, in order to redress the financial balance between the EPL and the Championship. This may also go some way to curbing the over investment in players and the perceived 'rat race' culture present in European football (e.g. Bachmaier *et al.*, 2018) and bring about more competitive balance which has been declining across Europe and in English football over the last twenty years (e.g. Ramchandani *et al.*, 2018; Plumley *et al.*, 2017).

The on-going issue here, however, is the continuing power struggle between the EPL and the EFL as previously cited by Wilson *et al.* (2018). Both the EPL and EFL are competition organisers under the wider jurisdiction of The Football Association (FA) which is the main governing body of the sport in the UK. However, both the EPL and EFL have been allowed, over time, to implement their own rulebooks and regulations that participants must adhere to. Furthermore, certain rules and regulations are not consistent which means that the clubs are not playing on a level playing field in terms of off-pitch performance. This in turn creates a power struggle because the EPL has essentially created a self-regulating league through the collective selling of its own broadcasting rights and commercial deals which has also led to self-sustaining powerful 'super clubs' that monopolise the market to some extent. Under this current structure, and under current regulations such as FFP, it is difficult to imagine a point at which the financial

balance between clubs would begin to be redressed and levels of financial distress would abate somewhat.

The COVID-19 pandemic must also serve as a call to action for football and its clubs to consider a financial reset for the benefit of the game. The EFL has attempted to support its clubs during this pandemic, committing a further £50m in solidarity payments to all clubs in the system to run daily operations (English Football League, 2020). However, there have been recent calls for member clubs in both leagues to recognise the value they create collectively or risk failure (Wilson *et al.*, 2020). It is widely acknowledged that professional football clubs act as economic partners to deliver the product to its audience (see Bond *et al.*, 2019). In short, the clubs need each other to survive both on and off the pitch.

As part of a financial reset in football, broadcasting and solidarity payments could be shared more equally to boost revenues throughout the leagues and more equitable cost control measures such as salary caps should be implemented in all leagues. In this regard, a salary cap could replace the current version of FFP as it would naturally serve as a form of cost control. It is not just about sharing wealth nor purely controlling costs and balancing the books. It is a combination of these factors that will drive the collective value of football clubs and help to maintain competitive balance within league structures. As Wilson *et al.* (2020) note, now is not the time for clubs and leagues to act in self-interest. Instead, it is a time to engage with evidence and for collective action. In addition, cost reduction targets - incentivised with broadcasting rights redistribution - could be implemented to improve financial stability at all levels and especially for the rest of the EPL and EFL clubs which are more at risk of bankruptcy. In this paper, we have shown that the financial gap between leagues and certain clubs within leagues is growing. Furthermore, most clubs in the EPL and Championship are at high risk of financial distress. The leagues need to work together on these issues through sharing wealth collectively and identifying relevant cost control measures such as salary caps to promote financial sustainability across the

industry as a whole at a time where revenue from matchday income (the main source of revenue for a large number of clubs) is scarce.

Conclusion

In conclusion, this paper presents two main findings. First, the descriptive analysis of English clubs' finances (for both EPL and Championship clubs) as measured by Altman's Z-score presents evidence of poor financial health and the potential for financial distress to occur. This is despite the introduction of FFP regulations that were designed, in part, to bring about financial sustainability at club level. Second, in relation to comparative performance, there was a significant difference between Championship and EPL clubs based on the Z-scores with Championship returning poorer scores and being more at risk of financial distress in a league where the opportunity to increase revenues through lucrative broadcasting deals is not available. These findings not only extend the evidence base of measuring financial distress in professional team sports but also contribute to the academic literature in a novel way, primarily by being the first paper of its kind to examine Z-scores in relation to Championship clubs in England.

Consequently, the paper provides three main recommendations that could be implemented at policy level to potentially safeguard the long-term viability of the league structure in English professional football and to potentially alleviate the financial distress occurring at individual club level. First, a re-distribution of broadcasting revenue is recommended to bridge the financial gap between the leagues. Solidarity payments paid to Championship clubs are dwarfed by parachute payments and by the central broadcasting money to EPL clubs which creates an immediate financial disparity between the EPL and Football League. A more equal distribution and conditional to cost-reduction targets, of the broadcasting rights, suggested by Noll (2007) in relation to improving competitive balance of leagues, would possibly begin to bridge the financial

gap between some clubs and in some cases reduce the tendency to gamble thus reducing volatility and risk in financial performance.

Second, a fixed salary cap should be imposed at league level set at an actual value rather than a percentage of turnover. This would help clubs to keep costs under control to some extent and promote financial sustainability in the long-term. Football Leagues 1 and 2 in England have already implemented this for the start of the 2020/21 season but the evidence provided in this paper suggests it is needed in the EPL and Championship also.

Third, in relation to recommendations one and two above, it would be advisable for UEFA, the EPL and the EFL to revisit the FFP regulations that were designed to bring about financial sustainability. Whilst there have been positive instances of more clubs conforming to the break-even principle and generating profit since the implementation of FFP, the overall picture of financial health as measured by Altman's Z-score for clubs in this paper paints a more negative picture. Furthermore, clubs in these two leagues (particularly those that move between them in a promotion and relegation context) effectively find themselves at times conforming to two or three different types of FFP (as each affiliation has implemented their own version). Greater consistency is needed within the regulations to help clubs deliver long-term financial sustainability. This paper presents strong evidence through statistically significant results that there remains a problem with financial distress in English professional football and more needs to be done at governance level to secure the long-term viability of clubs. There has always been the question raised as to whether or not professional football clubs are 'too big to fail', and this paper has shown that this is not necessarily the case. The 'big 6' may be immune to some extent but for the rest of the clubs in the EPL and Championship, financial sustainability remains an issue. Therefore, it would be unwise of clubs and league organisers not to heed the warning signs given the precarious nature of their financial health and uncontrollable external market factors and economic shocks such as the global pandemic caused by COVID-19.

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Table 1 - Clubs and League Placings

EPL Clubs	EFL Championship Clubs
Arsenal FC	Birmingham City FC
Aston Villa FC	Brighton and Hove Albion FC
Blackburn Rovers FC	Bristol City
Bolton Wanderers FC	Burnley FC
Charlton Athletic FC	Cardiff City FC
Chelsea FC	Coventry City FC
Everton FC	Crystal Palace FC
Fulham FC	Derby County FC
Liverpool FC	Hull City FC
Manchester City FC	Ipswich Town FC
Manchester United FC	Leeds United FC
Middlesbrough FC	Leicester City FC
Newcastle United FC	Millwall FC
Southampton FC	Norwich City FC
Stoke City FC	Nottingham Forest FC
Sunderland FC	Preston North End FC
Swansea City FC	Queens Park Rangers FC
Tottenham Hotspur FC	Reading FC
West Bromwich Albion FC	Sheffield United FC
West Ham United FC	Sheffield Wednesday FC
Wigan Athletic FC	Watford FC
	Wolverhampton Wanderers FC

Table 2 - Seasonal Averages (EPL)

£'m	Rev	EBIT	CA	CL	TA	TL	SE	Wages	Z1	Z2
2002	46.1	-3.4	13.3	38.2	77.4	67.7	9.3	27.8	-0.62	-6.27
2003	53.0	-4.8	14.4	43.	77.4	74.4	2.6	32.2	1.23	-7.47
2004	56.1	-5.1	16.7	43.5	93.4	87.3	7.8	34.5	0.11	-7.16
2005	57.2	-4.2	20.0	45.5	102.0	94.1	8.4	35.2	-0.72	-8.68
2006	62.9	-4.5	21.9	50.0	144.7	121.3	23.8	40.2	0.29	-5.23
2007	72.3	-5.8	40.8	60.00	170.3	151.9	18.7	43.8	-0.60	-6.19
2008	88.4	-2.4	52.9	79.8	192.3	183.2	9.4	53.8	-0.17	-4.34
2009	93.3	-0.4	60.1	96.5	201.4	180.5	21.2	56.4	-0.11	-5.57
2010	100.6	-15.7	80.8	107.3	224.1	196.3	27.9	61.8	-0.33	-5.59
2002-2010	70.0	-5.1	35.6	62.7	142.6	128.5	14.3	42.9	-0.10	-6.28
2011	104.0	-12.4	75.7	127.4	224.3	210.3	13.6	70.4	-0.61	-7.31
2012	106.5	-8.2	75.5	117.8	225.9	209.6	14.5	73.0	-0.25	-5.74
2013	116.0	-10.3	83.5	95.4	238.3	326.0	54.6	78.4	-0.31	-5.74
2014	143.8	7.0	98.5	104.6	268.2	187.5	67.7	82.9	-0.05	-6.28
2015	145.0	3.7	107.4	114.8	295.4	201.6	93.7	86.9	-0.03	-4.33
2016	155.1	-3.1	120.6	150.4	325.1	246.8	78.3	93.2	-0.52	-6.96
2017	187.8	28.1	136.5	160.6	365.	261.2	104.2	105.9	1.27	-1.78
2018	205.0	20.8	150.2	178.1	446.8	303.2	143.6	119.1	-0.60	-6.65
2019	220.8	-10.8	142.9	192.0	488.1	330.7	157.5	132.0	-0.29	-4.68
2011-2019	153.8	1.7	110.0	137.9	319.7	253.0	80.9	93.6	-0.15	-5.50

Table 3 - Seasonal Averages (EFL Championship)

£'000	Rev	EBIT	CA	CL	TA	TL	SE	Wages	Z1	Z2
2002	15.3	-3.7	5.8	16.4	25.2	32.3	-7.0	11.9	-0.51	-6.67
2003	13.2	-5.3	4.9	18.9	20.1	33.3	-13.2	11.9	-1.51	-11.59
2004	15.2	2.3	4.5	13.8	18.1	26.7	-8.7	10.9	-0.61	-11.56
2005	15.0	-0.3	4.8	14.7	18.8	28.7	-9.9	10.1	-1.33	-15.27
2006	13.6	-0.7	5.1	14.3	19.1	29.8	-10.7	10.1	-0.95	-11.21
2007	15.2	-1.3	5.4	16.4	22.0	31.8	-9.8	11.5	-1.69	-13.40
2008	18.1	-1.6	7.1	18.6	27.9	36.4	-8.4	13.2	-1.30	-10.05
2009	18.1	-4.3	6.5	19.0	31.9	41.1	-9.1	15.3	-1.41	-8.77
2010	22.9	-2.0	7.1	20.1	32.1	42.9	-10.8	16.8	-0.76	-7.23
2002-2010	16.3	-1.9	5.7	16.9	23.9	33.7	-9.8	12.4	-1.12	-10.64
2011	21.6	-5.0	7.5	19.8	30.1	44.3	-14.3	17.4	-1.34	-9.24
2012	23.9	-4.2	8.8	27.8	31.8	51.3	-19.7	19.9	-1.92	-13.95
2013	24.8	-9.1	8.4	35.2	31.8	55.4	-24.2	23.0	-3.63	-22.34
2014	34.4	-2.2	9.8	32.9	35.0	52.2	-18.1	26.0	-2.37	-20.01
2015	38.0	0.8	14.5	32.9	43.4	57.2	-14.7	29.8	-3.19	-24.43
2016	37.6	-4.6	16.7	53.5	52.2	66.5	-15.3	30.7	-2.66	37562
2017	53.4	3.9	22.7	57.7	70.3	76.5	-9.4	38.2	-1.91	-17.74
2018	54.0	-5.8	31.8	74.3	85.1	94.4	-9.5	45.7	-2.19	-17.51
2019	70.9	-5.5	40.5	99.0	101.5	117.6	-16.1	55.5	-2.71	-22.00
2011-2019	39.8	-3.5	17.9	48.1	53.5	68.4	-15.7	31.8	-2.44	-18.58

Table 4 - Descriptive statistics for all clubs Z1 and Z2 scores

Number of Clubs	EPL	EFL Championship
Total Observations	794	828
No business risk	48	50
Monitoring and analysis recommended	87	91
High risk of bankruptcy	659	687
Percentage of observations at high risk	83%	83%

Table 5 – Club Averages £'000 (EPL) 2011-2018

Club	Rev	EBIT	CA	CL	TA	TL	SE	Wages	Z1	Z2
Arsenal	264679	32527	228761	186933	706385	637360	220192	133185	0.98	1.99
Aston Villa	73169	-20969	58797	144311	67836	146539	-78702	8798	-1.28	-13.49
Blackburn	37322	-9789	8270	55119	57733	75232	-17500	34359	-1.08	-9.49
Bolton	39386	3271	8365	63761	57546	125262	-67716	30731	-0.60	-9.31
Charlton	20816	-3064	5614	15358	42926	57149	-14222	17418	-0.28	-3.32
Chelsea	246073	-42774	102801	170118	470579	276092	194487	167180	0.75	0.41
Everton	94329	-3767	30738	65701	104373	101825	2548	65076	0.54	-4.09
Fulham	56672	-15881	12171	38197	35554	139404	-105377	46806	-4.23	-24.39
Liverpool	219700	8702	72189	179368	291035	238819	52217	131788	0.74	-1.81
Man City	214851	-31771	132539	254696	542727	345811	196892	140023	0.30	-1.76
Man Utd	322492	32104	553216	234986	1267150	676602	590548	159105	1.15	3.22
Middlesbrough	43141	-8533	15984	77067	77228	126871	-50227	32913	-1.20	-8.42
Newcastle	102984	4238	37841	81106	168902	178805	-11571	64165	0.36	-2.23
Southampton	65356	2854	33253	47750	91839	72089	19751	45989	0.26	-3.47
Stoke	56140	-5164	27639	63873	55288	69054	-13771	40358	-0.08	-5.45
Sunderland	65675	-12498	23796	73897	75396	113566	-38170	47610	-0.65	-7.74
Swansea	50321	1706	14766	26857	38336	32430	5906	48747	2.71	-9.95
Tottenham	165705	33189	79688	134012	423662	303309	120353	80251	1.04	0.82
West Brom	59831	4233	23656	34448	59641	40345	19295	41122	1.43	0.38
West Ham	89176	-1562	28271	111786	126381	163217	-36836	59134	-0.08	-5.29
Wigan	27274	-2925	6364	25528	17291	48764	-27985	23906	-3.56	-21.00

Table 6 – Club Averages £'000 (EFL Championship) 2011-2018

Club	Rev	EBIT	CA	CL	TA	TL	SE	Wages	Z1	Z2
Birmingham	32125	-4403	12878	39271	38411	51253	-12842	25382	-0.35	-6.48
Brighton	26597	-6483	7700	47830	20758	66198	-45440	20172	-8.46	-48.77
Bristol City	11291	-6445	4665	20378	27786	34995	-7184	12785	-1.22	-6.75
Burnley	39851	5313	16214	19690	31551	22894	8657	24656	0.64	-4.60
Cardiff City	27144	-7483	7048	46772	50335	81371	-31036	25647	-1.77	-10.40
Coventry City	9207	-3698	2976	29569	6920	42557	-35586	8287	-21.45	-131.60
Crystal Palace	56371	-625	16654	40900	53447	49727	3782	41858	0.25	-4.60
Derby County	22490	-5443	13378	32205	68895	50143	18752	19697	0.00	-2.99
Hull	33137	1303	14035	51272	25799	52463	-26665	23706	-1.46	-17.55
Ipswich	16871	-4295	7133	16395	30235	67078	-36827	15845	-1.35	-8.18
Leeds United	34401	-3809	16906	32762	39025	48229	-9175	25245	0.64	-4.18
Leicester City	64444	1917	29664	57752	105826	77016	28810	45581	0.24	-2.60
Millwall	9754	-3572	2251	23915	18194	65052	-46858	9317	-3.49	-18.59
Norwich	42711	840	19261	32931	61424	45993	13930	30901	0.84	-0.34
Notts Forest	14427	-6582	3671	35765	14215	55872	-41662	17919	-5.37	-30.57
Preston	8988	-3667	3241	16316	31142	31080	-314	9374	-0.18	-2.89
QPR	36325	-613	8995	9553	19318	11191	8127	26642	3.36	6.19
Reading	25941	-4299	8945	39284	42536	59967	-19791	24399	-0.75	-7.13
Sheff Utd	15221	-1870	12002	22727	32390	48302	-15912	14231	-0.12	-5.62
Sheff Weds	14213	-2345	6019	27370	32866	43911	-11044	12698	-0.74	-7.39
Watford	38849	236	11417	32250	49663	53422	-8356	26009	0.04	-5.52
Wolves	38802	-2172	33077	35882	53353	59923	-6570	26791	0.65	-0.63

Table 7: ‘Big Five’ European league clubs’ profitability 2009/10 – 2018/19 (€m)

Year	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
England	103	81	104	96	739	721	681	1,208	979	934
Spain	-	-	-	-	347	260	397	455	226	445
Germany	138	171	190	264	250	316	284	343	373	394
Italy	(110)	(149)	(160)	(53)	(143)	(133)	(40)	30	59	(36)
France	(102)	(97)	(67)	(3)	(140)	(35)	(98)	(43)	(298)	(306)

Source: Adapted from Deloitte (2020)

Table 8: Z2 scores for ‘Big 6’ clubs in comparison to the rest post FFP

Date	2011	2012	2013	2014	2015	2016	2017	2018	2019
<u>Average of Z2 scores for the big 6</u>	= <u>1.78</u>	= <u>1.13</u>	<u>1.25</u>	<u>2.49</u>	<u>3.18</u>	<u>2.27</u>	<u>2.42</u>	<u>2.72</u>	<u>2.00</u>
<u>Average of Z2 scores for the rest of the EPL</u>	= <u>7.59</u>	= <u>7.77</u>	= <u>6.99</u>	= <u>7.94</u>	= <u>4.65</u>	= <u>6.62</u>	= <u>3.57</u>	= <u>2.78</u>	= <u>3.38</u>
<u>Correlation Z2/revenue big 6</u>	<u>.77</u>	<u>.35</u>	<u>.71</u>	<u>.54</u>	<u>.63</u>	<u>.51</u>	<u>.75</u>	<u>.68</u>	<u>.56</u>
<u>Correlation Z2/revenue rest of the EPL</u>	<u>-.03</u>	<u>-.16</u>	<u>-.28</u>	<u>.19</u>	<u>.40</u>	<u>.50</u>	<u>.72</u>	<u>.36</u>	<u>.50</u>

Table 9: Z2 scores for ‘Big 6’ clubs in comparison to the rest pre FFP

Date	2002	2003	2004	2005	2006	2007	2008	2009	2010
<u>Average of Z2 scores for the big 6</u>	= <u>1.17</u>	= <u>1.10</u>	<u>-.79</u>	<u>-.51</u>	<u>.06</u>	<u>-.06</u>	<u>-.42</u>	<u>-.13</u>	<u>-.68</u>
<u>Average of Z2 scores for the rest of the EPL</u>	= <u>7.42</u>	= <u>8.00</u>	= <u>8.77</u>	= <u>7.00</u>	= <u>6.51</u>	= <u>9.12</u>	= <u>6.33</u>	= <u>9.17</u>	= <u>7.51</u>
<u>Correlation Z2/revenue big 6</u>	<u>.80</u>	<u>.66</u>	<u>.01</u>	<u>-.02</u>	<u>.42</u>	<u>.35</u>	<u>.63</u>	<u>.68</u>	<u>.72</u>
<u>Correlation Z2/revenue rest of the EPL</u>	<u>.41</u>	<u>.41</u>	<u>.25</u>	<u>0.19</u>	<u>-.02</u>	<u>-.25</u>	<u>.1</u>	<u>-.13</u>	<u>-.58</u>