

A holistic performance assessment of English Premier League football clubs 1992-2013

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Abstract

This paper devises and tests a statistical model (the PAM) to measure the financial and sporting performance of professional football clubs. The PAM has been applied to a longitudinal data set of English football clubs (21 clubs between 1992-2013) to identify trends in performance.

The results show that a small number of clubs have created an imbalance within English football and that there has been evidence of a 'financial crisis' at individual clubs. For the majority of clubs, overall performance appears to vary over time in cycles.

In addition to measuring holistic performance of professional football clubs in England, the paper has developed a statistically robust model that progresses research in the field. This new model has the potential to be adapted to fit other professional team sports to test league viability. It can also be used by the clubs themselves to set objectives and to analyse performance against competitors.

Keywords: economics, sports, finance, football, profit maximisation, utility maximisation

A holistic performance assessment of English Premier League football clubs 1992-2013

Contemporary sporting competition involves an abundance of statistics; whether it is the number of goals scored in a match, the number of points accumulated by a team during a league season, the time recorded by a sprinter in a race or the number of medals won by a country during the Olympic Games. As such, sport is an ideal laboratory in which to test various economic theories (Sloane, 2015). Such statistics need not be exclusively confined to the field of play. Indeed, as the field of sports economics has grown since Sloane's seminal article on the objectives of football clubs (1971), there has been increasing interest among academics surrounding the off-field objectives and performance of, most notably, professional football clubs across Europe.

This interest has been stimulated, in part at least by substantial increases in revenue in European football in recent years. In 2013/14 the cumulative revenue of the 'big five' European leagues (the English Premier League in England, the Bundesliga in Germany, La Liga in Spain, Serie A in Italy and Ligue 1 in France) grew 15% to €11.3 billion, driving the total European football market beyond €20 billion (Deloitte, 2015). However, despite these positive revenue figures, Drut and Raballand (2012) state that debt accumulation of European football clubs is an increasing source of concern for football authorities. Of the five major European leagues, the English Premier League (hereafter referred to as the EPL) remains, by a distance, the highest revenue generating league (€3.9 billion in 2013/14). This figure is €1.6 billion more than the next best revenue generating league in Europe (the Bundesliga in Germany) and during the last five years the EPL has established itself as the league with the highest turnover in world football. At individual club level, however, the figures are less positive. With reference to the EPL, financial data shows that clubs are leveraged by significant levels of debt, often in the form of interest free loans from their owners. In 2014

the total debt of EPL clubs was €3.3 billion with 'soft loans' from owners totalling €2.3 billion (Deloitte, 2015). Despite EPL clubs' revenue totalling €3.9 billion, clubs are spending €2.6 billion (72%) on wages and academics have confirmed similar imbalances between revenue and costs for clubs across Europe in recent years (see Andreff, 2007; Ascari and Gagnepain, 2007; Barros, 2006; Buraimo, Simmons and Syzmanski, 2006; Dietl and Franck, 2007; Dimitropoulos, 2010; Plumley, Wilson and Ramchandani, 2014; Wilson, Plumley and Ramchandani, 2013).

In an attempt to address this imbalance, the Union of European Football Associations (UEFA) has introduced Financial Fair Play (FFP) regulations across the European game in an attempt to reduce the reliance on debt and borrowings and to make clubs spend within their means. The cornerstone of UEFA's FFP regulations is the break-even requirement, which aims to help clubs across Europe achieve a more sustainable balance between their costs and revenues whilst also encouraging investment for the longer-term benefit of football. The regulations, applied in UEFA competitions for the first time in 2013/14, cover clubs' results from the 2011/12 and 2012/13 seasons and there have recently been high profile examples of fines handed to clubs who have not fulfilled the break-even requirement such as Manchester City in England and Paris St. Germain in France.

The advent of UEFA FFP has brought about an increase in pressure on clubs to become more financially prudent and sustainable. Additionally, the effect of investment and ownership structure within clubs is also being analysed as part of FFP (see Wilson et al., 2013). Surrounding these areas is the issue of how we assess the long-term viability of professional sports leagues and the future proofing of individual businesses, as arguably, from a fundamental business position, professional sports teams should be looking to operate as sustainable businesses focusing on long-term growth as opposed to seeking short-term gain and trophy acquisition through immediate cash injections. The problem with sports teams,

however, is that they are ultimately guided by twin objectives. One is financial, in relation to business operations, and the other is sporting, in relation to on-pitch performance and trophy success. This strategic dilemma is a product of the phrase 'peculiar economics' in relation to professional team sports as described in the seminal paper by Neale (1964). Central to this dilemma are the principles of competitive balance, uncertainty of outcome and profit and utility maximisation; all underlying themes present in contemporary sports economics literature (e.g. Buraimo, Frick, Hickfang and Simmons, 2015; Fort, 2015; Kesenne, 2015; Leach and Szymanski, 2015; Sloane, 2015; Vrooman, 2015). In addition to measuring financial performance, academics have also examined the relationship between financial and sporting performance and whether or not the two concepts are interlinked or mutually exclusive.

Consequently, this paper reports on a new approach to performance measurement in professional team sports. The paper uses football, and the EPL, as an example, and whilst the model presented is exclusive to football at the present time, it has the potential to be adapted to fit other professional team sports, particularly those in England. The model builds on UEFA's approach to FFP, and can be used by academics, practitioners and analysts to draw conclusions about club performance. It is important to note that the model is not used as a predictor for future performance, rather it is an analytical tool that can be used to check for performance health markers (both financial and sporting) to detect where clubs may be considered at risk. It outlines a composite index score that highlights how a club is performing in relation to its competitors. This paper outlines the formation of the model by firstly highlighting the key areas of literature and conceptual framework before discussing an exploratory pilot model that subsequently led to the production of the Performance Assessment Model (PAM) for football clubs following a test for the relationship between variables. The paper then utilises the PAM to evaluate the performance of English football

clubs since the inception of the EPL in 1992 and concludes by discussing the findings in relation to the extant literature and the model's contribution to knowledge in the field of sport business management.

Literature review and theoretical context

The Economic Theory of Professional Sports Leagues

Professional team sports are intrinsically different from other businesses, in which a firm is likely to prosper if it can eliminate competition and establish a position as a monopoly supplier (Dobson and Goddard, 2011). In sport, however, it does not pay for one team to establish such a position due to the joint nature of 'production' in sports. The theoretical literature on the determinants of the degree of competitive inequality in sports leagues was first developed by US sports economists, with North American team sports primarily in mind. Naturally, the development of this literature has led to comparisons between the North American and European model (see Hoehn and Szymanski, 1999; Andreff and Staudohar, 2000; Sloane, 2006; Szymanski, 2003). The European model is and will remain unique, but there appears to be convergence on certain features. In both Europe and the United States, we have seen the emergence of joint ventures that can be viewed as a single entity. Clubs are separately owned with discretion to set prices, market the games, and adopt strategies to compete with other clubs. There are, however, several key differences between the two models, all of which ultimately impinge on factors such as revenue generation and ability to compete. Firstly, the American sports model operates a draft system where the best performing rookie is assigned to the worst performing team. Furthermore, two American sports leagues operate under salary caps, share television revenue equally and compete exclusively in domestically structured leagues (aside from a handful of Canadian franchises) (Andreff and Staudohar, 2000). In place of promotion and relegation, evident throughout the

European model, changes in American leagues come from adding new franchises and relocating franchises to different cities.

Precisely why such differences have arisen in the two continents has never been fully explained (Sloane, 2015). However, Szymanski and Zimbalist (2005) contrast the development of baseball and soccer, with the latter spreading throughout the world, first under the influence of British expatriates and then by local elites, whereas baseball was much more inward looking and concerned with commercial development. Historically, the North American model of professional team sports has been argued to be closer to the profit maximisation end of a continuum with the European model more closely linked to the utility maximisation end (Andreff, 2011) although Markham and Teplitz (1981), Fort and Quirk (2004) and Zimbalist (2003) refute these claims. Markham and Teplitz (1981) argued that some owners seek 'playing success while remaining solvent' whilst others suggest that without detailed information on revenue functions it is hard to make comparisons about profit or win maximisation choices. Various papers have also suggested that the European sports model is more closely related to utility or 'win' maximisation (see Sloane, 1971; Kesenne, 2000; Garcia-del-Barro and Szymanski, 2009). Furthermore, Zimbalist (2003) found little convincing evidence distinguishing profit maximising behaviour from any other and concluded that 'owners maximise global long-term returns' and that these are very different from a team's reported operating profits. Zimbalist (2003) further argues that, in relation to American team sports, it is almost certain that different owners give different weights to the variety of arguments in their objective management functions. The omission of features such as salary caps and revenue sharing in the European model alongside a lack of regulation in the first instance ultimately gave rise to the inception of the EPL in 1992 which saw the most powerful clubs at the time breakaway and form their own league where they were able to negotiate their own broadcasting and sponsorship deals, sell them to the highest bidders and

retain the revenue for themselves. Furthermore, they were able to allocate these revenues as they saw fit.

Measuring Performance in Professional Team Sports

Reconciling the "on-field/off field" dichotomy in professional team sport is not easy and it has proved a highly contentious issue in recent years (Chadwick, 2009). Notwithstanding this, there is already partial recognition that on-field and off-field performances may be linked (e.g. Cornwell *et al*, 2001). It is within the measurement of both on-field and off-field performance that grey areas remain and the overriding conclusion is that there is currently no set definition as to what measures to include each time (Plumley *et al.*, 2014). Despite this problem, there is convergence in certain areas. Firstly, measuring off-field performance is normally undertaken by conducting financial analysis on the financial statements of clubs. Under UK accounting law, every limited company must report its financial information in line with the principles and formats of UK Generally Accepted Accounting Principles (GAAP). As such, financial analysis can be undertaken on any registered company, particularly in larger organisations such as professional sports teams where more detailed information is available in a standardised format.

One of the most popular and applied forms of financial measurement is ratio analysis. The measurement of variables under these headings have been utilised extensively in academic research, ranging across a variety of industries. Indeed, Feng and Wang (2000), Sueyoshi (2005) and Ponikvar, Tajnikar and Pusnik (2009) all incorporated similar areas of financial performance, namely debt, liquidity and profitability, in their respective analysis of: the airline industry; the American power/energy industry; and the Slovenian manufacturing industry.

With regards to sporting performance, the literature suggests that there is a link between sporting and financial performance (e.g. Szymanski and Kuypers, 1999) but there

remains a pragmatic problem with the debate surrounding cause and effect. Most studies that have focused on sporting performance have used 'league position' or 'league points won' as a measure for their analysis. Upon correlating the relationship between profit and league position for forty football clubs between the years 1978-97 Szymanski and Kuypers (1999) found little evidence of a significant relationship between changes in league position and changes in profit, implying that there is no simple formula that relates financial success to success on the pitch. However, as stated by Szymanski and Kuypers (1999), in the past, when club directors did not place great emphasis on financial success, this did not matter. In practice, financial performance can be measured by more than just the profit figure taken from the club accounts, just as playing performance can consist of a number of different variables in addition to league position. Indeed, Guzman (2006) claims that professional football clubs are special businesses since their performance can be viewed from two different objectives; success on the field and success in business performance. Morrow (2003; cited in Guzman and Morrow, 2007) concurs, agreeing in the first instance that football clubs are unusual businesses. Although generally constituted as limited liability companies and hence ostensibly operating within the same legal and governance framework as companies in other areas of economic activity, they exist in a peculiar emotional and social space, where unusually strong relationships often exist between the company and stakeholders. Unsurprisingly, these relationships can have an impact on business behaviour and decision making. For example, the objectives of football clubs, in particular the desire for on-field success, are likely to have implications for business decision making (Morrow, 2003). In addition, the presence of non-financial objectives also raises the question of how to measure the performance of football clubs (Guzman and Morrow, 2007) in line with their pursuit of twin objectives that can potentially conflict with each other. This point is pertinent in respect of a paper by Rascher (1997) who examined the individual owner's choice of talent,

the league's choice of revenue-sharing arrangement and a salary cap policy in both a profit-maximising model and a utility-maximising model. In a profit-maximising model, the paper found that owner's would be in favour of lowering the salary cap if it were a sufficiently small or a sufficiently large decrease and that the optimal revenue-sharing agreement and salary cap level are generally found to be 100 percent and 0 percent, respectively, from the owner's perspective (Rascher, 1997).

A further consideration in relation to financial performance is the application of weighting factors to each individual variable or measure. Previously it has been commonplace for analysts to assign equal weights to all ratios considered in the analysis. A more robust and scientific technique would be to weight factors of significant importance higher than others. However, there is no set definition for assigning weighting factors and, once again, it is at the discretion of the authors what weightings are set. Indeed, few academic papers cover this topic. Fadhil Abidali and Harris (1995) suggest a questionnaire or interview based approach focusing on industry experts to determine how variables should be weighted but there is very little empirical evidence in relation to this matter.

Key Issues

It is evident that there are many different types of performance measurement and that each method has its respective strengths and weaknesses. However, it is apparent from the literature that the choice of ratios is largely down to the discretion of individual researchers rather than rigorously tested scientific protocols. There is, at the present time, no set definition as to which ratios or variables to use. In actual fact, it appears that researchers instead opt for certain ratios or variables that fit best within the context of the study and the industry in which a business operates. It is important to understand that ratio analysis is also often used as a benchmarking tool within industries and it makes good business sense for organisations to benchmark themselves against their direct competitors. However, in the

context of sport, and more specifically professional football, this is difficult to replicate. For example, both Manchester United and AFC Bournemouth were in the EPL in the 2015/16 season, yet it is unrealistic that the two clubs would be in direct competition in a financial sense. Furthermore, despite the importance of benchmarking, there is little literature about benchmarking in professional team sports or indeed football.

In summary, sport is different from other products and industry sectors (Chadwick, 2009). There is a performance measurement objective of balancing on-field success with business performance that makes sport so unique and different from other industries. At present, the performance measurement debate is seen as being one which involves a tension between the effectiveness of on-field performances and the effectiveness of off-field financial performance (Chadwick, 2009).

Methodology

In this study, the original selection of variables was a consequence of a two stage process. The first, involved a systematic literature review from the lead author's PhD that covered search terms for financial performance measurement both in professional sport and general business. The systematic review returned a total of 80 relevant articles that were analysed from an original total of 2,635. These articles were then reviewed to extract the measures of financial performance used across multiple industries (some of which have been discussed in the literature review section of this paper). The second stage was to finalise the variables to be used in the first iteration of the model through a discussion with a panel of experts in the field and through a cross-reference of Deloitte's suggested key performance indicators (KPIs) for a football club. Through this two stage approach, the authors are confident that the initial variables put forward are indicative of both the actual performance measures that football clubs objectivise against and the variables put forward in previous academic research on the topic. The authors are confident that the selection of variables (both

financial and sporting) is rigorous and logical given the academic literature available on the topic and the context of the industry. First, from a playing perspective we have devised measures which accurately describe how on field success (or failure) can be captured easily in a series of indicators which are logical and for which the raw data is readily available in the public domain and, second, for the financial indicators we are using industry standard measures that again can be sourced from data in the public domain and have been justified through a systematic search of relevant academic literature.

Originally, the neutral model was made up of 18 different variables, 9 financial and 9 sporting, with equal weights applied to each variable (see table 1). A definition of each variable and its interpretation is provided in table 2. Financial data was gathered from the Deloitte Annual Review of Football Finance publications which use the annual financial statements of the legal entity registered in the United Kingdom which is the 'top' ownership structure in respect of each club to produce their figures. Where data was missing from this publication, data was extracted manually from the company accounts. Sporting data was gathered from the Sky Sports Football Yearbooks.

[Table 1 about here]

[Table 2 about here]

The neutral model takes its origins from the FOrNeX model (see Andrikopolous and Kaimenakis, 2009) which outlines a way to model the intellectual capital of a football club. For each dimension of performance (financial and sporting) a weight is assigned which sums to 1. The performance of the football club is the weighted average of the performance in both these dimensions. Within these two dimensions of performance there are a number of indicators which are also weighted and sum to 1 so each club has a dimension score for each sub-domain (using the *Hypothetical league rank column*) which is then used to calculate the overall performance score for each club. The league rank for each sub-domain is derived

from how well a club is performing in relation to other clubs in the league on that indicator. For each sub-domain, the league rank will range from 1 (best performance) to n (worst performance) - the latter is categorised by how many teams compete in the league. Therefore, a team with the best turnover figure in a given year will score 1; the team with the second best turnover figure will score 2 and so on. The multiplication of the scores and subsequent overall performance score (OPS) is described in table 1. A lower OPS is more desirable owing to the fact that clubs are ranked against each other (i.e. the perfect score for each indicator would be 1).

Alterations to the Neutral Model

After the completion of the pilot study, further alterations to the model were made in an attempt to define which factors were most important within the neutral model. The statistical analysis method utilised was factor analysis. In this research, factor analysis was underpinned by an initial correlation matrix which provides an opportunity to eliminate variables from the investigation where certain variables correlate highly and essentially measure the same thing. A very strong correlation (either positively or negatively) is deemed to be an r score of greater than 0.7. The correlation matrixes for both financial and sporting variables are outlined in tables 3 and 4.

[Table 3 about here]

[Table 4 about here]

The Model Restated - The PAM

Following correlation analysis on the neutral model ten variables (four financial and six sporting) were omitted owing to very strong correlations with other variables (variables shaded grey in tables 3 and 4). Where multiple correlations occurred, a logical rationale was

provided as to the exclusion of certain variables. A financial variable example of this was to include 'revenue' over 'TV revenue' owing to the fact that the TV revenue figure is a complete subset of the total revenue figure and therefore total revenue is deemed to be the better variable for inclusion in the model. A sporting variable example was to include 'total game variance' over 'total home game variance' for similar reasons.

Once the variables had been reduced they were weighted according to their respective importance to the model. The restated model is subsequently referred to as the Performance Assessment Model (PAM). The restated PAM (table 5) also uses a justified weighting system that takes into account the different measures in the model as well as current regulations in the industry. For example, wages/turnover is an efficiency measure (i.e. it is composed of two variables to create one measure). It is also a component of FFP with UEFA stating a suggested wages/turnover ratio as a benchmark for clubs. The measure is therefore allocated greater weight (0.4) within the PAM. A further reason behind this decision was the relationship between the three original models that were derived (the neutral model and two PAMs with different weighting factors). Correlation analysis of the results obtained in each model (the results of one year's worth of data for 19 clubs) found a strong relationship between the results for all three models, essentially identifying that all three models were stating identical results. The correlation r score between the results returned for the neutral model, the PAM (equal weights) and the PAM (justified weights) was 0.980 and 0.979 respectively whilst the r score between the two PAMs was 0.997.

[Table 5 about here]

Results

Applying the PAM - An Analysis of English Football Clubs since the Inception of the EPL

The paper now applies the PAM to a longitudinal dataset of English football clubs that have competed predominantly within the EPL since its inception in 1992. The results include data from 21 clubs in total (the selected clubs were the clubs that had spent the most seasons in the EPL at the time of data collection (2012)). However, the results have since been updated to include the most recent set of figures available at the time of writing (2012/13 season) meaning that performance has been analysed over a period of 21 years for 21 clubs.

[Table 6 about here]

Table 6 indicates that Manchester United is the best performing club on average. The club has recorded one of the largest net debt figures in recent years (primarily due to the levels of borrowing attached to the takeover of the club by the Glazer family in 2005) but its ability to generate revenue and profit remains unrivalled and its position at the top of the EPL and historically strong performance in both domestic and European cup competitions consolidates its position as the best performing club in England. A similar scenario can be found at Arsenal although its net debt figure has been one of the highest across all clubs since 2003. This debt must be considered in context however. It was in large part due to the construction of a new stadium which was necessary to help Arsenal bridge the gap to clubs with higher attendances such as Manchester United. Despite Chelsea ranking 3rd for sporting performance, the club ranked 6th in relation to the overall performance owing to poorer financial performance where the club ranked 13th. The three worst performing clubs in the study were Middlesbrough, Fulham and Coventry City (see table 6).

Figure 1 below examines the relationship between financial and sporting performance over 21 seasons. Here a club's average financial score is plotted against its average sporting score. Figure 1 offers insights into how well English professional football clubs have performed against their closest competitors when also faced with the tension of the twin

objectives of sports teams of winning and profit-making which Smith and Stewart (2010) define as one of the special features of sport. In the United States there is still no definitive conclusion as to whether teams are profit-maximisers where the balance sheet rules, or utility maximisers where a high win-loss ratio is the true measure of superior performance (Fort and Quirk, 2004). As such, it is difficult to frame figure 1 within a profit versus utility maximisation debate. Profit and utility maximisation ultimately represent motivations and there is not a unique relationship between motivation and outcome. For example, poor financial performance does not necessarily imply utility maximisation. Sport organisations share the same imperative in relation to having to pay wages to invest in the development of player talent in order to achieve winning performances that not only satisfy the shareholders and investors but also to keep the public interested and willing to pay for its product (Szymanski and Kuypers, 1999). Put simply, success is a function of a strong stream of revenue (Smith and Stewart, 2010). In relation to our findings, figure 1 certainly supports this theory.

[Figure 1 about here]

Manchester United has been the most consistent performer across the elite clubs in England since the formation of the EPL when analysed through the PAM. The top right hand quadrant indicated in figure 1 highlights occurrences where a club is performing well both financially and on the pitch in relation to its competitors. Past research (e.g. Buraimo et al., 2006 and Dobson and Goddard, 2011) has stated that occurrences like this have been rare in recent years and, superficially, figure 1 offers a similar conclusion. Aside from Manchester United, only three other clubs are placed in the top right quadrant (Arsenal, Liverpool and Tottenham Hotspur). Furthermore, all of these three clubs are closer to other quadrants than being closer to Manchester United. Tottenham Hotspur's financial performance is the closest challenger to Manchester United whilst Arsenal is the closest in terms of sporting

performance. It is arguably conceivable that large-market teams such as Manchester United could pursue profit maximisation and still rank highly in both sporting and financial performance. The same could be said for a number of other clubs including Arsenal and, more recently, Chelsea and Manchester City. With reference to the data for this study, Chelsea is one of only two clubs located in the top left quadrant of figure 1 indicating relatively good sporting performance but relatively poor financial performance.

Chelsea was one of the first clubs to be taken over by a new wave of foreign investors when Russian billionaire Roman Abramovich purchased the club in 2003 and recent literature has argued that this club has subsequently been following an approach most closely related to utility maximisation (Wilson et al., 2013). Whilst it is impossible to say whether this is true or not, in light of the subjectivity surrounding profit and utility maximisation, the data does depict a trade-off between financial and sporting performance for Chelsea at a time when the owner was attempting to strengthen playing talent to drive success on the pitch.

Of more cause for concern for English football clubs is the fact that thirteen of the twenty-one clubs in the study are placed in the bottom left quadrant of figure 1. In essence, this quadrant depicts clubs performing insufficiently in all areas of measurement compared with their competitors in the industry. Hypothetically, this quadrant supports the aforementioned 'financial crisis' in English football (see Buraimo et al., 2006) with certain clubs displaying neither good financial performance or reporting any significant success on the pitch. In relation to the PAM, the worst performing clubs would be placed furthest towards the bottom left corner of figure 1 meaning that Fulham, Coventry City and Sheffield Wednesday can be categorised as the worst performing clubs overall in relation to the years analysed. It must be noted that some of these clubs (e.g. Coventry City, Sheffield Wednesday, and Leeds United) have been relegated from the EPL in recent years and are yet to return. However, it is also interesting to note that there are also some established EPL teams that are

placed in this quadrant. Indeed, seven clubs in this quadrant are current EPL clubs at the time of writing (2014/15 season) including Everton which is one of only seven clubs that have competed in every EPL season since its formation in 1992. Additionally, figure 1 highlights that financial performance and sporting performance are not mutually exclusive as there are occurrences where clubs have recorded good financial performance and good sporting performance (e.g. Manchester United).

Lastly, figure 1 also indicates that there is a positive correlation between financial performance and sporting performance ($r=0.44$). Whilst this is not a strong correlation in absolute terms, it is statistically significant ($p<0.05$) which means that the probability of achieving a correlation coefficient of this magnitude by chance is remote. This in turn indicates the presence of a real relationship rather than a statistical quirk. Superficially at least, better financial health is moderately and positively associated with better performance in the EPL. This is a finding that is consistent with Wilson et al. (2013) who also found a similar moderate and positive relationship between financial and sporting performance in EPL clubs.

Time Series Analysis and Correlation over time

[Figure 2 about here]

Figure 2 records the variability in overall performance for all clubs for the time period analysed by considering their highest and lowest scores and the variance. The unshaded bars show clubs that have recorded an improvement in performance based on their score in 1993 compared with their score in 2013, whereas the shaded bars show clubs that have seen a decline in performance. There is a high level of variability in relation to overall performance for the majority of clubs although this time the main variance is between the highest and lowest scores. This suggests that these clubs have experienced both positive and negative

fluctuations between the years 1993 - 2013. Indeed, this is certainly the case at Manchester City and Newcastle United. Manchester City recorded a best score of 7.91 in 2012 and a worst score of 17.56 in 1998. There was a greater disparity in the scores recorded by Newcastle United with the club recording a best score of 2.66 in 1997 and a worst score of 16.28 in 2010. These findings also suggest that football club performance often runs in cycles, where sometimes clubs have a successful period spanning a number of years before declining for a period of time.

The smallest variances in performance occur at Coventry City, Manchester United and Tottenham Hotspur although in the case of Coventry City this cannot necessarily be classed as a positive outcome as the club never recorded an OPS higher than 13.41. In the case of Manchester United and Tottenham Hotspur, smaller variances were attributable to consistently good OPS scores with all scores for both clubs falling between 1 and 8 for 18 of the 21 seasons analysed. With reference to figure 2 it is evident that there is no clear pattern emerging over time in relation to performance. There are certain instances where a club returns an annual OPS that differs significantly from its average OPS (e.g. Chelsea in 1999, Leeds United in 2003 and 2004, Sunderland in 2001, Bolton Wanderers in 2005, 2006 and 2007, and Sheffield Wednesday in 1993) but these occurrences appear to be random rather than attributable to specific critical incidents. In order to test this assumption, further scrutiny of the time series analysis is considered through the correlation between overall performance and time for each club.

The correlation analysis (see figure 3) illustrates that, with the passage of time, comparative overall performance has declined either moderately or strongly for four clubs - Aston Villa, Leicester City, Manchester United, and Newcastle United ($0.30 < r < 0.71$) - whilst five clubs have improved either moderately or strongly - Manchester City, Tottenham, Arsenal, Everton and Fulham ($-0.62 < r < -0.32$). For the remaining twelve clubs,

performance was relatively unchanged ($-0.30 < r < 0.30$). This provides further indicative evidence that, for the majority of these clubs, overall performance, as measured using a mix of financial and sporting indicators, varies over time in cycles.

[Figure 3 about here]

Discussion

The results suggest that performance is not evenly distributed and that there is in fact a considerable disparity between the best performing clubs and the worst. For instance, there is a substantial gap between the best performing club (Manchester United) and the worst performing club (Coventry). Furthermore, there is a substantial gap between the best performing club (Manchester United) and the next best performing club (Arsenal). There is an argument here that Manchester United had, over the period under review, established a form of a monopoly over the rest of the league, a scenario that Dobson and Goddard (2011) state is not beneficial for a football club or indeed the league as a whole. The EPL, however, does not appear to be hindered by this particular situation and it has established itself as a highly successful product, becoming the largest revenue generating league in world football during the last five years (Deloitte, 2015).

It is important not to dismiss the argument of Zimbalist (2003) who stated that, in relation to American team sports, it is almost certain that different owners give different weights to the variety of arguments in their objective management functions. This point was also made earlier in the paper in relation to the EPL and the fact that clubs' objectives will undoubtedly change over time, making arguments around profit versus utility maximisation increasingly difficult to contextualise with reference to the modern industry of professional team sports.

The Problem with Objectives

It has been acknowledged in this paper that sports teams have to balance twin objectives (in this case these are financial and sporting objectives). There is a clear argument to support this in the academic literature that has preceded this paper. However, the authors are also aware that there are other factors that determine the objectives of professional sports teams that will subsequently impact on business and sporting performance. Primarily, in professional football clubs, there is a pragmatic problem with the objectives of owners. Indeed, this is further compounded by the fact that new owners might come into a club and that as a consequence business objectives might change over time. This is evidenced by the case of Chelsea, Manchester City and Manchester United in English football. When Roman Abramovich purchased Chelsea FC in 2003 (at a time when there were no restrictions) he primarily invested money into securing the best playing talent in an attempt to improve sporting performance. A similar scenario occurred at Manchester City in 2008 when they were purchased by the Abu Dhabi Group although the introduction of FFP has since meant that Manchester City must now balance the books as well. The acquisition of Manchester United in 2005 by the Glazer family was slightly different as they purchased the club through a method of debt finance. It was suggested at the time that this was the first example of an American owner exerting profit maximisation principles on a UK professional sports team and Manchester United have since floated on the Singapore and New York stock exchange in an attempt to raise further funds.

Given this context it is difficult to ascertain indefinitely what the objectives of clubs truly are. However, we are not necessarily trying to say that clubs are profit maximisers or utility maximisers, rather that they show the traits of these extremes to a greater or lesser extent. This issue is easily solved by examining the likes of Chelsea, Manchester City and Manchester United to show how (if at all) things change in response to critical incidents.

Notwithstanding the practical problem of owner objectives, it is clear from previous literature that success (in team sports) is a function of a strong stream of revenue (Smith and Stewart, 2010) primarily because teams have to pay the best wages to secure the best playing talent. As such, irrespective of what owner(s) actually wants to do, they must balance the financial and sporting objectives of the club accordingly in order to maximise playing success.

Conclusion

The contribution to the paper is twofold. First, the paper offers insights into the holistic performance of professional football clubs in England over a longitudinal time period. Among other things, the paper offers new and relevant insights into the economic theory of professional team sports most notably around the relationship between financial and sporting performance, thus building on the seminal work of Sloane (1971) and others (e.g. Kesenne, 2000; Garcia-del-Barro and Szymanski, 2006; Sloane, 2015). Our findings suggest that financial and sporting performance are not dichotomous variables but a continuum along which clubs place themselves and move backwards and forwards to a greater or lesser extent.

Secondly, the paper has developed a robust statistically tested model that can be used to conduct data analysis over longitudinal time periods. This new model also has the potential to be applied to other professional team sports to investigate league characteristics in future research. The model adds progression in the field, as previously the choice of variables used has been discretionary and has not been tempered by tests for covariance. By contrast, the PAM has been developed using recognised statistical techniques to inform its production and to minimise covariance. As outlined in the introduction, the aim of such a model is not to attempt to predict future performance but to pinpoint health markers to ascertain warning signs for when clubs may appear to be performing badly. The model can be used to quantify club objectives and help analysts outline in what way clubs are performing based on

economic principles. The model could also be used by governing bodies and decision makers within respective sports in order to inform policy and set new regulations.

Limitations and Future Research

Whilst this paper has focused explicitly on the twin objectives of professional sports teams, the authors acknowledge that there are perhaps multiple objectives of professional sports teams that transcend financial and sporting performance. Indeed, a recent paper by Carlsson-Wall, Kraus and Messner (2016) indicates that football clubs operate under multiple institutional logics, citing the work of Gammelsaeter (2010) who states that sports organisations are typically subject to several different logics. Notwithstanding this, Carlsson-Wall et al. (2016) also proceed to focus on two logics in their paper that they term *sports logic* and *business logic* respectively. These two logics are the same as the financial and sporting performance objectives that we use in our paper thus outlining their continued importance in the performance measurement of professional sports teams.

As such, the omission of other performance measures or logics is a limitation of the current study although it also presents a natural direction for future research. The model put forward in this paper is scientifically robust enough to stand up to scrutiny but is by no means perfect. Thus, progression of the model to incorporate different institutional logics is an area for future research development. Furthermore, a refinement of the model is possible through interviewing industry professionals to test whether the variables used are consistent with internal performance indicators. It is envisaged that the variables used in this paper would be confirmed to some extent through this approach given the systematic rigour applied to this paper although it would provide an interesting qualitative aspect to the research agenda if interviews could be sourced with owners and chief executives to help us understand further the thought-process behind setting performance objectives in football clubs.

A future quantitative research stream is to apply the model to other professional football leagues and other professional team sports. The aim would be to create a body of research in different sports that enables meaningful cross sport comparisons to be made and thereby contribute further to research into professional team sports. As Smith and Stewart (2010) highlight, sport has special features that demand a customised set of practices to ensure its effective operation. It is much more than just a business and is influenced by its rich history, emotional connections, tribal links and social relevance. Factors such as these are difficult to objectively measure yet they will have a bearing on the business performance of sporting teams. We have put forward a model that builds on previous research and provides a composite index score for financial and sporting performance. The application and expansion of the model across different sports would provide further enhancements to the field.

References

- Andreff, W (2011). Some comparative economics of the organisation of sports: competition and regulation in north American vs. Europe professional team sports leagues. *The European Journal of Comparative Economics*. 8 (1), 3-27.
- Andreff, W. (2007). French Football: A Financial Crisis Rooted in Weak Governance. *Journal of Sports Economics*. 8 (6), 652-661.
- Andreff, W. and Staudohar, P. D. (2000). The Evolving Model of Professional Sports Finance. *Journal of Sports Economics*. 1 (3), 257-276.
- Andrikopoulos, A., and N. Kaimenakis (2009). Introducing FOrNeX: A Composite Index for the Intangible Resources of the Football Club. *International Journal of Sport Management and Marketing* 5: 251–66.
- Ascari, G. and Gagnepain, P. (2007). Evaluating rent dissipation in the Spanish football industry. *Journal of Sports Economics*. 8 (5), 468-490.
- Barros, C. (2006). Portuguese Football. *Journal of Sports Economics*. 7 (1), 96-104.
- Buraimo, B., Frick, B., Hickfang, M. and Simmons, R. (2015). The economics of long-term contracts in the footballers' labour market. *Scottish Journal of Political Economy*. 62 (1), 8-24.
- Buraimo, B; Simmons, R. and Szymanski, S. (2006). English Football. *Journal of Sports Economics*. 7 (29), 29-46. doi: 10.1177/1527002505282911
- Carlsson-Wall, M., Kraus, K., & Messner, M. (2016). Performance measurement systems and the enactment of different institutional logics: Insights from a football organization. *Management Accounting Research*. In Press. doi:10.1016/j.mar.2016.01.006
- Chadwick, S. (2009). From outside lane to inside track: sport management research in the twenty-first century. *Management Decision*. 47 (1), 191-203.
- Cornwell, T.B., Pruitt, S.W. and Van Ness, R. (2001). The value of winning in motorsports: sponsorship-linked marketing. *Journal of Advertising Research*. 41 (1), 17-32.
- Deloitte (2015). *Annual Review of Football Finance: Revolution*. Manchester, Deloitte Sport Business Group.
- Dietl, H.M and Franck, E. (2007). Governance Failure and Financial Crisis in German Football. *Journal of Sports Economics*. 8 (6), 662-669.
- Dimitropoulos, P. (2010). The Financial Performance of the Greek Football Clubs. *Choregia*, 6 (1), 5-27.
- Dobson, S., and Goddard, J. (2011). *The Economics of Football*. (2nd ed.). Cambridge, University Press.

- Drut, B. and Raballand, G. (2012). Why does financial regulation matter for European professional football clubs? *International Journal of Sport Management and Marketing*. 11 (1/2), 73-88.
- Fadhil Abidali, A. and Harris, F. (1995). A methodology for predicting company failure in the construction industry. *Construction Management & Economics*, 13 (3), 189-196.
- Feng, C. and Wang, R. (2000). Performance evaluation for airlines including the consideration of financial ratios. *Journal of Air Transport Management*, 6 (3), 133-142.
- Fort, R. (2015). Managerial objectives: a retrospective on utility maximization in pro team sports. *Scottish Journal of Political Economy*. 62 (1), 75-89.
- Fort, R. and Quirk, J. (2004). Owner objectives and competitive balance. *Journal of Sports Economics*. 5 (1), 20-32.
- Gammelsæter, H. (2010). Institutional pluralism and governance in “commercialized” sport clubs. *European Sport Management Quarterly*, 10(5), 569-594. **DOI:** 10.1080/16184742.2010.524241.
- Garcia-del-Barrio, P. and Szymanski, S. (2009). Goal! Profit maximisation versus win maximisation in soccer. *Review of Industrial Organisation*. 34 (1), 45-68.
- Guzmán, I. (2006). Measuring Efficiency and Sustainable Growth in Spanish Football Teams. *European Sport Management Quarterly*, 6 (3), 267-287.
- Guzmán, I. and Morrow, S. (2007). Measuring efficiency and productivity in professional football teams: evidence from the English Premier League. *Central European Journal of Operations Research*, 15 (4), 309-328.
- Hoehn, T. and Szymanski, S. (1999). The Americanization of European Football. *Economic Policy*. 28, 205-240.
- Kesenne, S. (2000). Revenue Sharing and Competitive Balance in Professional Team Sports. *Journal of Sports Economics*. 1 (1), 56-65.
- Kesenne, S. (2015). Revenue sharing and absolute league quality: talent investment and talent allocation. *Scottish Journal of Political Economy*. 62 (1), 51-58.
- Leach, S. and Szymanski, S. (2015). Making money out of football. *Scottish Journal of Political Economy*. 62 (1), 25-50.
- Markham, J.W. and Teplitz, P.V. (1981). *Baseball Economics and Public Policy*. Lexington, MA, D.C Heath.
- Morrow, S. (2003). *The People's Game?: Football, Finance and Society*. Palgrave Macmillan, Hampshire.
- Neale, W. (1964). The peculiar economics of professional sports. *Quarterly Journal of Economics*, 78(1), 1-14.

- Plumley, D., Wilson, R., and Ramchandani, G. (2014). Towards a model for measuring holistic performance of professional football clubs. *Soccer and Society*.
- Ponikvar, N., Tajnikar, M. and Pusnik, K. (2009). Performance Ratios for Managerial Decision-Making in a Growing Firm. *Journal of Business Economics and Management*. 10 (2), 109-120.
- Sloane, P. (1971). The Economics of Professional Football: The Football Club as a Utility Maximiser. *Scottish Journal of Political Economy*. 17 (2), 121-146.
- Sloane, P. (2006). Rottenberg and the economics of sports after 50 years. In P. Rodriguez, S. Kesenne and J. Garcia (eds), *Sports Economics after 50 years; Essays in Honour of Simon Rottenberg*. Spain: University of Oviedo, pp. 211-26.
- Sloane, P. (2015). The economics of professional football revisited. *Scottish Journal of Political Economy*. 62 (1), 1-7.
- Smith, A.C.T. and Stewart, B. (2010). The special features of sport: a critical revisit. *Sport Management Review*. 13, 1-13.
- Sueyoshi, T. (2005). Financial Ratio Analysis of the electric power industry. *Asia-pacific Journal of Operational Research*, 22 (3), 349-376. Szymanski, S. (2003). The Economic Design of Sporting Contests. *Journal of Economic Literature*. 41 (4), 1137-1187.
- Szymanski, S. and Kuypers, T. (1999). *Winners and Losers: The Business Strategy of Football*. London: Viking Books.
- Szymanski, S. and Zimbalist, A. (2005). *National Pastime; How Americans Play Baseball and the Rest of the World Plays Soccer*. Washington DC: Brookings Institution Press.
- Vrooman, J. (2015). Sportsman leagues. *Scottish Journal of Political Economy*. 62 (1), 90-115.
- Wilson, R., Plumley, D. and Ramchandani, G. (2013). The relationship between ownership structure and club performance in the English Premier League. *Sport business and management: an international journal*, 3 (1).
- Zimbalist, A. (2003). Sport as business. *Oxford Review of Economic Policy*, 19 (4), 503-511.

Table 1 - The neutral model in practice

Dimension	Sub domain			Dimension		Overall Score (OPS)
	<i>Indicator</i>	<i>League rank</i>	<i>Weight</i>	<i>Score</i>	<i>Score</i>	<i>Weight</i>
Financial	Revenue	2	0.111	0.222		
	Operating Profit/(Loss) before player trading	4	0.111	0.444		
	Pre-tax profit/(loss)	3	0.111	0.333		
	Net Assets/(Liabilities)	8	0.111	0.888		
	Cash/(bank loans and overdrafts)	4	0.111	0.444		
	Other loans and leases	1	0.111	0.111	3.552	0.50
	Net funds/(debt)	3	0.111	0.333		
	Wages/Turnover	4	0.111	0.444		
	TV Revenue	3	0.111	0.333		
Sporting	League Points	5	0.111	0.555		
	Total Home Games	2	0.111	0.222	4.884	0.50
	Total Home Game Variance	1	0.111	0.111		
	Total Games	4	0.111	0.444		
	Total Game Variance	6	0.111	0.666		
	Total Win Ratio	8	0.111	0.888		
	Perfect Season	11	0.111	1.221		
	Attendance Spread	4	0.111	0.444		
	Revenue per Average Spectator	3	0.111	0.333		

Table 2 - Neutral Model Variable Definitions and Interpretations

Dimension	Indicator	Definition	Interpretation
Financial	Revenue	A club's total revenue figure taken from the first line of the income statement.	Higher figure is more desirable.
	Operating Profit/(Loss) before player trading	A club's operating profit/(loss) before player trading is accounted for.	Higher figure is more desirable.
	Pre-tax profit/(loss)	A club's profit/(loss) before any tax charges are deducted.	Higher figure is more desirable.
	Net Assets/(Liabilities)	A figure to show whether a club has more positive net assets or negative liabilities.	Higher figure is more desirable.
	Cash/(bank loans and overdrafts)	A figure to show whether a club has a positive cash figure or whether it is more reliant on bank loans/overdrafts.	Higher figure is more desirable.
	Other loans and leases	A figure to show any other loans or leases a club has.	Lower figure is more desirable.
	Net funds/(debt)	A figure to show whether a club has positive net funds or debt.	Higher figure is more desirable.
	Wages/Turnover	A figure to show the percentage of turnover that is spent on staff wages	Lower figure is more desirable.
	TV Revenue	A figure to show how much income a club receives from TV broadcasting deals	Higher figure is more desirable.
Sporting	League Points	The amount of points a club acquires through sporting performance in a given season	Higher figure is more desirable.
	Total Home Games	The total number of home games a club plays in a given season. This will fluctuate in line with performance in cup competitions.	Higher figure is more desirable.
	Total Home Game Variance	The difference between the fixed number of home games a club is guaranteed to play versus the actual number they play (fixed home games in the EPL is 19 per club).	Higher figure is more desirable.
	Total Games	The total number of games a club plays in any given season. A higher number typically indicates more sporting success.	Higher figure is more desirable.
	Total Game Variance	The difference between the fixed number of games a club is guaranteed to play versus the actual number they play (fixed games in the EPL is 40 per club (38 in the league plus a guaranteed 2 games in domestic cup competitions).	Higher figure is more desirable.
	Total Win Ratio	A ratio that considers the amount of wins a club achieves against the total number of games played in any given season.	Higher figure is more desirable.
	Perfect Season	The total number of games played should a club win every trophy possible and play in every round of the cup competitions (perfect season in the EPL is defined as 63 games (winning all four trophies of league, FA Cup, League Cup and Champions League). Perfect season is expressed as a ratio of total games played.	Higher figure is more desirable.
	Attendance Spread	The difference between highest and lowest league match attendances expressed as an absolute figure. A low percentage score might indicate capacity constraints and robust match day revenue streams whereas a high percentage might indicate a more fragile fan base and more dependence on the quality of the visiting team.	Lower figure is more desirable.
	Revenue per Average Spectator	The figure for revenue per average spectator is derived from calculating a club's revenue less Premier League TV revenues and UEFA central TV distributions divided by the average league attendance. This figure represents a 'broad measure' of a club's ability to generate revenue from its fan base.	Higher figure is more desirable.

Table 3 - Correlation Matrix (Financial)

	Revenue	Operating Profit	Pre-Tax Profit	Net Assets/(Liabilities)	Cash/(bank loans and overdrafts)	Other Loans	Net Funds/(Debt)	Wages/Turnover	TV Revenue
Correlation	Revenue	.239	-.389	.219	-.009	-.704	-.602	.295	.807
	Operating Profit		.432	.574	-.270	.089	.114	.925	.100
	Pre-Tax Profit			.453	.240	.411	.623	.433	-.504
	Net Assets/(Liabilities)				-.111	.082	.202	.632	.054
	Cash/(bank loans and overdrafts)					-.077	.346	-.149	-.209
	Other Loans						.830	.154	-.588
	Net Funds/(Debt)							.188	-.596
	Wages/Turnover								.002
	TV Revenue								
Sig. (1-tailed)	Revenue	.163	.050	.184	.486	.000**	.003**	.110	.000**
	Operating Profit		.033	.005**	.132	.358	.321	.000**	.342
	Pre-Tax Profit			.026	.161	.040*	.002**	.032*	.014*
	Net Assets/(Liabilities)				.326	.369	.204	.002**	.412
	Cash/(bank loans and overdrafts)					.377	.074	.271	.196
	Other Loans						.000**	.264	.004**
	Net Funds/(Debt)							.221	.004**
	Wages/Turnover								.497
	TV Revenue								

a. Determinant = 5.440E-005

** Correlation is significant at the .01 level (1-tailed)

* Correlation is significant at the .05 level (1-tailed)

Table 4 - Correlation Matrix (Sporting)

	League Points	Total Home Games	Total Home Game Variance	Total Games	Total Game Variance	Total Win Ratio	Perfect Season	Attendance Spread	Revenue per average spectator
Correlation	League Points	.702	.670	.698	.666	.969	.725	.314	.610
	Total Home Games		.987	.957	.938	.773	.962	.556	.710
	Total Home Game Variance			.958	.955	.745	.950	.580	.706
	Total Games				.986	.797	.993	.643	.814
	Total Game Variance					.764	.970	.665	.811
	Total Win Ratio						.813	.359	.672
	Perfect Season							.628	.801
	Attendance Spread								.784
	Revenue per average spectator								
Sig. (1-tailed)	League Points	.001**	.001**	.001**	.001**	.000**	.000**	.102	.004**
	Total Home Games		.000**	.000**	.000**	.000**	.000**	.008**	.000**
	Total Home Game Variance			.000**	.000**	.000**	.000**	.006**	.001**
	Total Games				.000**	.000**	.000**	.002**	.000**
	Total Game Variance					.000**	.000**	.001**	.000**
	Total Win Ratio						.000**	.072	.001**
	Perfect Season							.003**	.000**
	Attendance Spread								.000**
	Revenue per average spectator								

a. Determinant = 1.647E-010
 ** Correlation is significant at the .01 level (1-tailed)
 * Correlation is significant at the .05 level (1-tailed)

Table 5 - The PAM (justified weights)

Dimension	Sub domain			Dimension			OPS
	<i>Indicator</i>	<i>League rank</i>	<i>Weight</i>	<i>Score</i>	<i>Score</i>	<i>Weight</i>	
Financial	Revenue	2	0.15	0.30			
	Pre-tax profit/(loss)	4	0.15	0.60			
	Net assets/(liabilities)	3	0.15	0.45	4.15	0.625	3.59
	Net funds/(debt)	8	0.15	1.20			
	Wages/Turnover	4	0.40	1.60			
Sporting	League Points	5	0.333	1.665			
	Total Game Variance	2	0.333	0.666	2.66	0.375	
	Attendance Spread	1	0.333	0.333			

Table 6 - Average OPS for all clubs 1993-2013

Rank	Club	Average Finance Score	Average Sporting Score	Average OPS
1	Manchester United	2.89	3.08	2.96
2	Arsenal	6.20	3.65	5.24
3	Tottenham Hotspur	5.10	8.16	6.25
4	Liverpool	8.27	6.30	7.53
5	Newcastle United	9.48	7.86	8.87
6	Chelsea	11.79	5.71	9.51
7	Aston Villa	9.30	12.24	10.40
8	Leeds United	9.36	12.81	10.65
9	West Ham United	10.72	11.37	10.96
10	Everton	11.49	11.97	11.67
11	Manchester City	12.23	10.79	11.69
12	Southampton	11.75	12.17	11.91
13	Sunderland	10.26	14.71	11.93
14	Bolton Wanderers	12.55	12.13	12.39
15	Leicester City	12.79	13.51	13.06
16	Charlton Athletic	13.17	13.03	13.12
17	Sheffield Wednesday	11.26	16.32	13.16
18	Blackburn Rovers	14.24	11.40	13.17
19	Middlesbrough	14.81	11.95	13.74
20	Fulham	16.25	11.67	14.53
21	Coventry City	15.57	15.25	15.45

Figure 1 - Average Financial Performance versus Average Sporting Performance 1993-2013

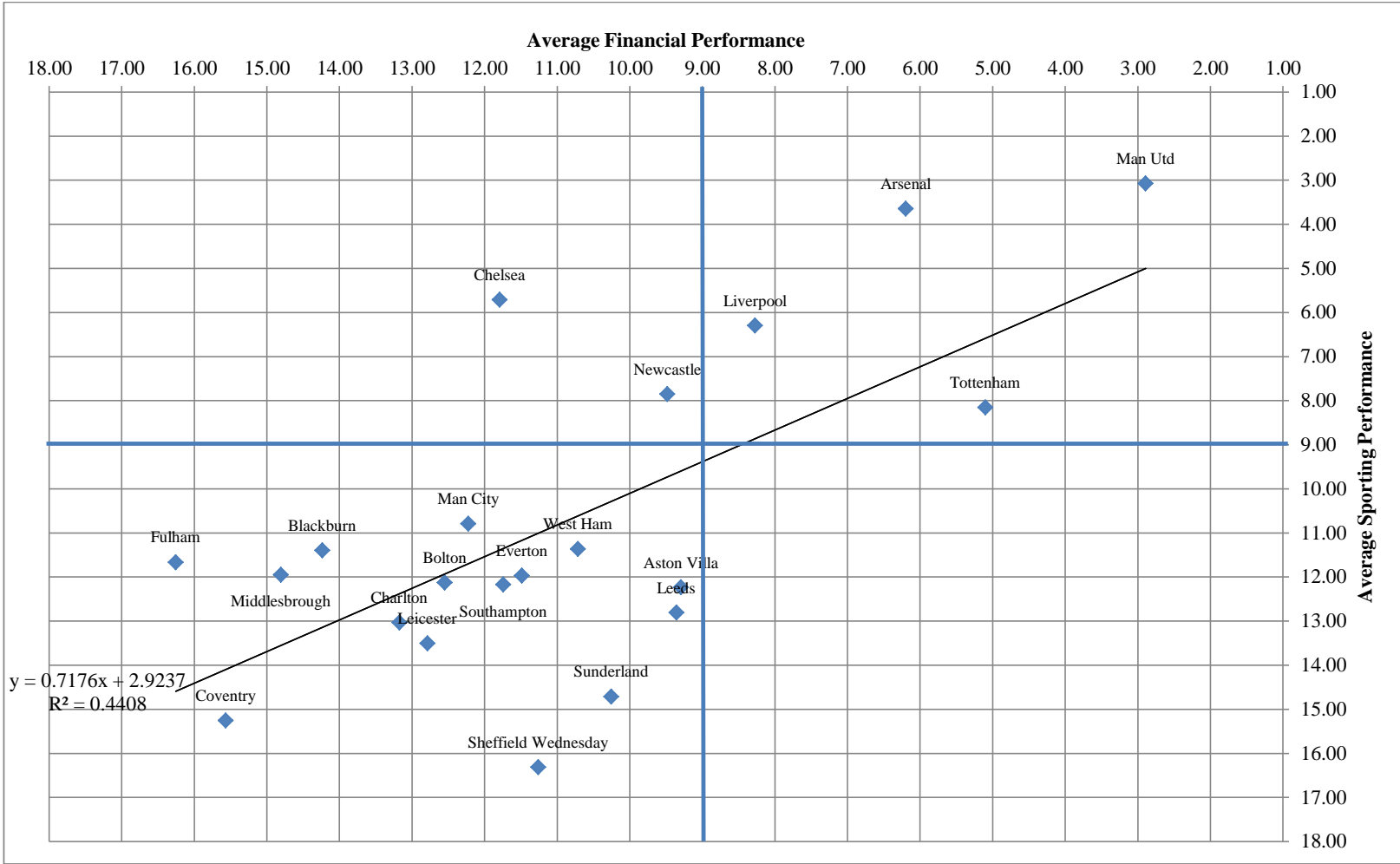


Figure 2 - Overall Performance Variability 1993-2013

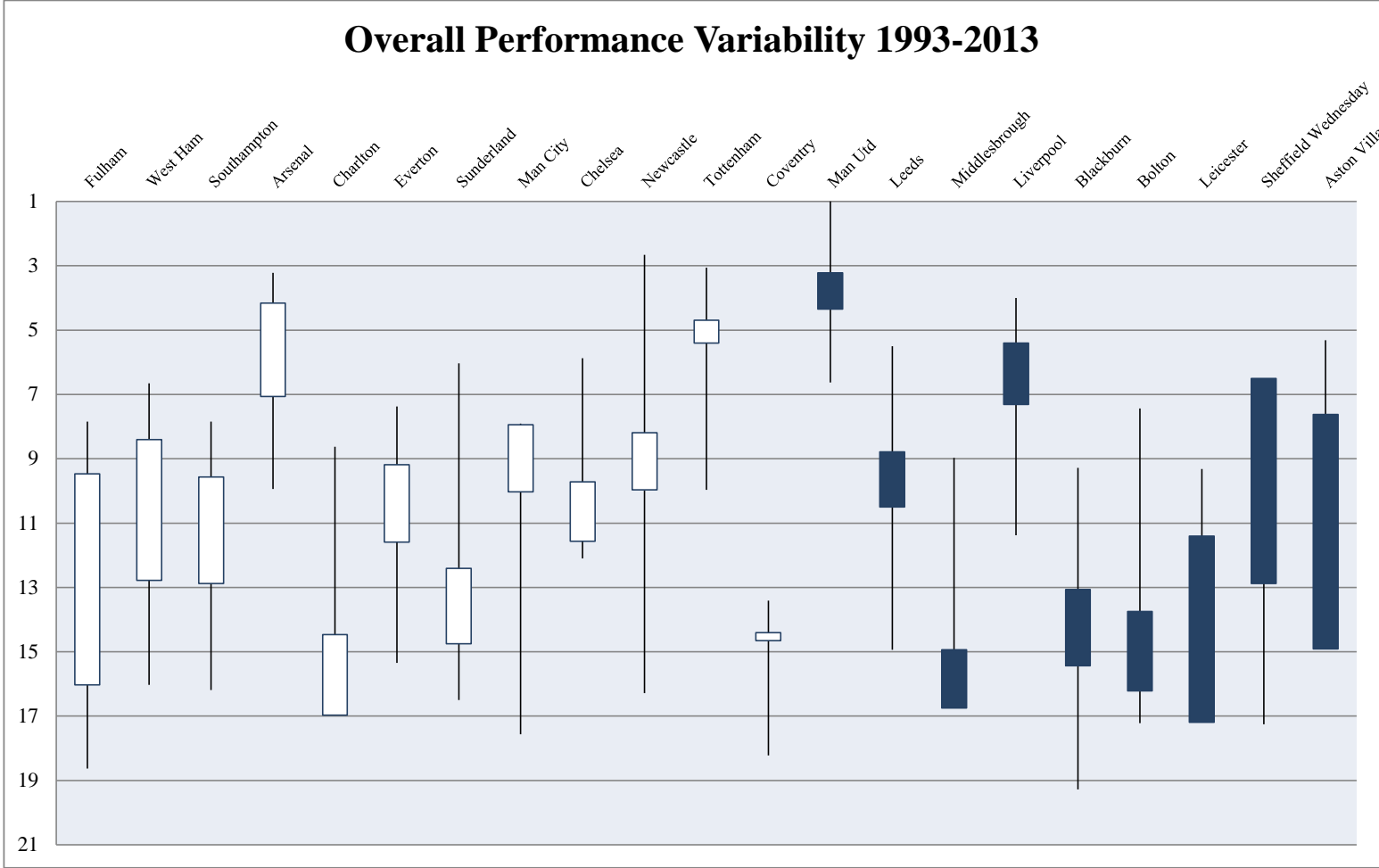
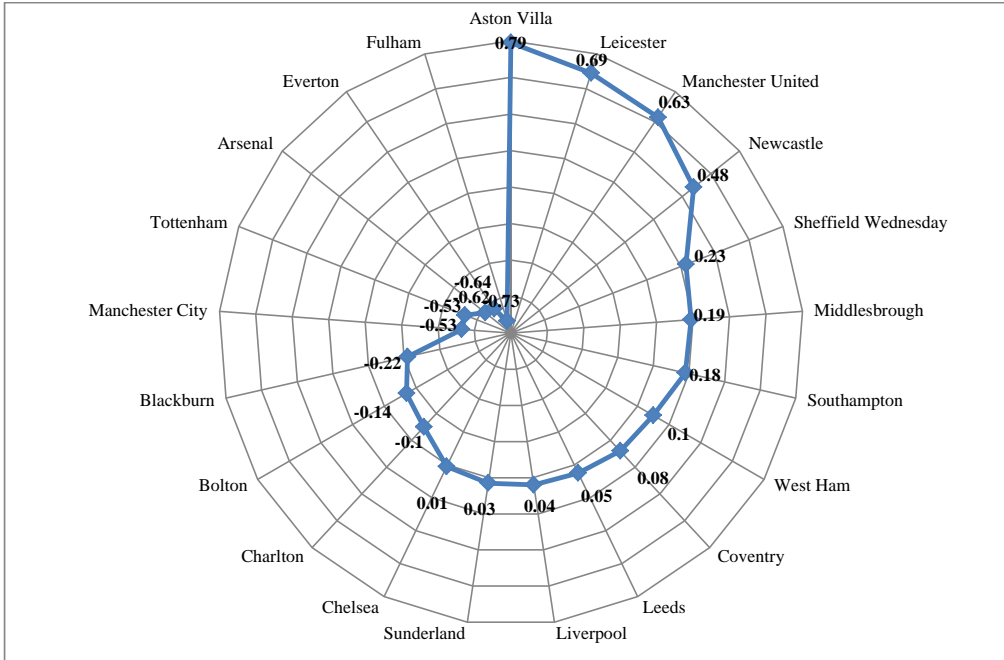


Figure 3 - Overall performance correlations over time 1993-2013



Management Whitepaper

A holistic performance assessment of English Premier League football clubs 1992-2013

I. Research problem(s)

The purpose of this paper is to measure the financial and sporting performance of English professional football clubs since the inception of the English Premier League (EPL) in 1992 up to and including the 2012/13 season to show trends in performance over time. This is achieved through the creation of a new model that measures both financial and sporting performance and computes an overall performance assessment score for the football club. The results show that a small number of clubs have created an imbalance within English football and that there has been evidence of a 'financial crisis' at individual clubs. For the majority of clubs, overall performance appears to vary over time in cycles. The findings also suggest that a large majority of English clubs are performing very poorly compared to their competitors within the league. The model can be used by the clubs themselves to set objectives and to analyse performance against competitors and also by industry analysts to help compare the performance of clubs within certain league structures. This article would likely be useful to stakeholders within the game itself in respect of governing bodies who may wish to measure and benchmark performance against regulation setting and also to stakeholders within individual clubs.

II. Issue(s)

There have been substantial increases in revenue in European football in recent years. In 2013/14 the cumulative revenue of the 'big five' European leagues (the English Premier League in England, the Bundesliga in Germany, La Liga in Spain, Serie A in Italy and Ligue 1 in France) grew 15% to €11.3 billion, driving the total European football market beyond €20 billion according to sports consultancy firm Deloitte. However, despite these positive

revenue figures, debt accumulation of European football clubs is an increasing source of concern for football authorities. Of the five major European leagues, the English Premier League (hereafter referred to as the EPL) remains, by a distance, the highest revenue generating league (€3.9 billion in 2013/14). This figure is €1.6 billion more than the next best revenue generating league in Europe (the Bundesliga in Germany) and during the last five years the EPL has established itself as the league with the highest turnover in world football. At individual club level, however, the figures are less positive. With reference to the EPL, financial data shows that clubs are leveraged by significant levels of debt, often in the form of interest free loans from their owners. In 2014 the total debt of EPL clubs was €3.3 billion with 'soft loans' from owners totalling €2.3 billion. Despite EPL clubs' revenue totalling €3.9 billion, clubs are spending €2.6 billion (72%) on wages and although this figure has reduced in recent years, it is still the biggest cost to professional football clubs.

In an attempt to address this imbalance, the Union of European Football Associations (UEFA) has introduced Financial Fair Play (FFP) regulations across the European game in an attempt to reduce the reliance on debt and borrowings and to make clubs spend within their means. The cornerstone of UEFA's FFP regulations is the break-even requirement, which aims to help clubs across Europe achieve a more sustainable balance between their costs and revenues whilst also encouraging investment for the longer-term benefit of football. The regulations, applied in UEFA competitions for the first time in 2013/14, cover clubs' results from the 2011/12 and 2012/13 seasons and there have recently been high profile examples of fines handed to clubs who have not fulfilled the break-even requirement such as Manchester City in England and Paris St. Germain in France.

The advent of UEFA FFP has brought about an increase in pressure on clubs to become more financially prudent and sustainable. Additionally, the effect of investment and ownership structure within clubs is also being analysed as part of FFP. Surrounding these areas is the

issue of how we assess the long-term viability of professional sports leagues and the future proofing of individual businesses, as arguably, from a fundamental business position, professional sports teams should be looking to operate as sustainable businesses focusing on long-term growth as opposed to seeking short-term gain and trophy acquisition through immediate cash injections. The problem with sports teams, however, is that they are ultimately guided by twin objectives. One is financial, in relation to business operations, and the other is sporting, in relation to on-pitch performance and trophy success. This is what makes professional team sports 'peculiar' in comparison to normal business models. Sports teams need to balance these objectives in order to maximise playing performance. This research is therefore important in the context of the information described above as it provides a composite measure that enables club(s) to review how they are performing against these twin objectives and what strategies they might be able to employ to bring them close to their competitors within a given league structure.

III. Summary

The results include data from 21 clubs in total and covered the period 1992-2013. In relation to the overall performance score in table 1 below a lower score is more desirable and a perfect score would be 1. The results indicate that Manchester United is the best performing club on average throughout the years studied. The club has recorded one of the largest net debt figures in recent years (primarily due to the levels of borrowing attached to the takeover of the club by the Glazer family in 2005) but its ability to generate revenue and profit remains unrivalled and its position at the top of the EPL and historically strong performance in both domestic and European cup competitions consolidates its position as the best performing club in England. A similar scenario can be found at Arsenal although its net debt figure has been one of the highest across all clubs since 2003. This debt must be considered in context however. It was in large part due to the construction of a new stadium which was necessary to

help Arsenal bridge the gap to clubs with higher attendances such as Manchester United. Despite Chelsea ranking 3rd for sporting performance, the club ranked 6th in relation to the overall performance. This was because of poorer financial performance for which Chelsea ranked 13th. The three worst performing clubs in the study were Middlesbrough, Fulham and Coventry City (see table 1).

Table 1 - Average OPS for all clubs 1992-2013

Rank	Club	Average Finance Score	Average Sporting Score	Average OPS
1	Manchester United	2.89	3.08	2.96
2	Arsenal	6.20	3.65	5.24
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6	Chelsea	11.79	5.71	9.51
7	Aston Villa	9.30	12.24	10.40
8	Leeds United	9.36	12.81	10.65
9	West Ham United	10.72	11.37	10.96
10	Everton	11.49	11.97	11.67
11	Manchester City	12.23	10.79	11.69
12	Southampton	11.75	12.17	11.91
13	Sunderland	10.26	14.71	11.93
14	Bolton Wanderers	12.55	12.13	12.39
15	Leicester City	12.79	13.51	13.06
16	Charlton Athletic	13.17	13.03	13.12
17	Sheffield Wednesday	11.26	16.32	13.16
18	Blackburn Rovers	14.24	11.40	13.17
19	Middlesbrough	14.81	11.95	13.74
20	Fulham	16.25	11.67	14.53
21	Coventry City	15.57	15.25	15.45

Further statistical analysis revealed a positive correlation between financial performance and sporting performance ($r=0.44$). Whilst this is not a strong correlation in absolute terms, it is statistically significant ($p<0.05$) which means that the probability of achieving a correlation coefficient of this magnitude by chance is remote. This in turn indicates the presence of a real relationship rather than a statistical quirk. Superficially at least, better financial health is moderately and positively associated with better sporting performance in the EPL.

A time series analysis for each club was also conducted and found evidence that, for the majority of clubs, overall performance, as measured using a mix of financial and sporting indicators, varies over time in cycles. Thus, football club performance often runs in cycles, where sometimes clubs have a successful period spanning a number of years before declining for a period of time.

IV. Analysis

Success (in team sports) is a function of a strong stream of revenue primarily because teams have to pay the best wages to secure the best playing talent. As such, irrespective of what owner(s) actually want to do, they must balance the financial and sporting objectives of the club accordingly in order to maximise playing success. This is further compounded by financial fair play regulations that will force clubs to operate as sustainable businesses in the future. The findings of the research are therefore timely, and the measurement model it produces, is of importance to the clubs themselves and analysts that provide commentary on the industry.

The research offers new and relevant insights into the economic theory of professional team sports most notably around the relationship between financial and sporting performance. Our findings suggest that financial and sporting performance are not dichotomous variables but a continuum along which clubs place themselves and move backwards and forwards to a greater or lesser extent.

The aim of the model produced is not to attempt to predict future performance but to pinpoint health markers to ascertain warning signs for when clubs may appear to be performing badly. The model can be used to quantify club objectives and help analysts outline in what way clubs are performing based on economic principles. The model could also be used by

governing bodies and decision makers within respective sports in order to inform policy and set new regulations.

V. Discussion/Implications

Whilst this research has focused explicitly on the twin objectives of professional sports teams, the authors acknowledge that there are perhaps multiple objectives of professional sports teams that transcend financial and sporting performance. Indeed, it has been suggested that football clubs operate under multiple institutional logics or performance objectives. However, most commentators, in some way shape or form refer to the two most important measurement logics as being financial and sporting performance objectives that we use in our paper. This outlines the importance of the research in the field of performance measurement of professional sports teams.

Sport has special features that demand a customised set of practices to ensure its effective operation. It is much more than just a business and is influenced by its rich history, emotional connections, tribal links and social relevance. Factors such as these are difficult to objectively measure yet they will have a bearing on the business performance of sporting teams. We have put forward a model that builds on previous research and provides a composite index score for financial and sporting performance. The application and expansion of the model across different sports would provide further enhancements to the field. Practitioners can use the model and learn from it to analyse individual sports teams and leagues and benchmark performance against competitors.