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The Financial Performance of the English Football Clubs

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Abstract
This paper examines the financial performance of the football clubs that participated in the English Premier League in season 2021-22. The study covers the ten-year period spanning from season 2012-13 to season 2021-22, while correlation and panel data analysis is applied. Financial performance is measured as return on assets (ROA), return on equity (ROE), and profit margin. The explanatory variables used concern the size of the clubs, along with their liquidity, leverage, efficiency, cash flow efficiency and turnover per employee. Sporting data is used too. This data includes attendance rate, the number of wins, the uncertainty in the Premier League, the participation in the Premier League or not and the presence in UEFA's European club competitions or not. The empirical results reveal a positive relation of financial performance with liquidity, efficiency, cash flow efficiency and revenue per employee. The opposite is the case for the relation of performance with leverage. From the sporting variables, the number of wins is positively related to ROA. The opposite relationship is found between ROA and uncertainty. Finally, the presence of the clubs in the Premier League is positively related to financial performance. The importance of our study rests with its significant policy implications for those involved in the administration of the English football clubs. In particular, professional managers should always be hired to run the business of the English football, rather than popular ex-footballers with poor academic records and entrepreneurship experience, which is not rare in the professional football in general. Moreover, the English football clubs have to acknowledge that a business model which creates constant losses may not be viable in the long run.
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1. Introduction

Football is one of the most popular, if not the most popular, sports worldwide. Billions of people are interested in football, whether it's a local team they are interested in or an international football game, regardless of their economic, educational and social status. The popularity of football leans on the fact that it is a game that offers the players and the fans moments of tremendous joy and tears, both in equal proportions (Dvorak et al., 2004).

Based on the popularity of the sport, international professional football has become a multi-billion dollar industry over the years. Football is a game that requires a lot of investment in the acquisition of talented players, the hire of competent training staff and the development of the necessary infrastructure. At the same time, the football industry can generate a lot of income. According to a Deloitte's survey on the European football, the total revenue of the industry increased by 7% in period 2021-22 and reached €29.5 billion compared to season 2020-21, which was significantly affected by the restrictive measures imposed by the European governments due to Covid-19.[1]

Football clubs can make money on several sources. Generally speaking, the main sources of revenue concern income from tickets, sponsorships, advertising, TV broadcasting rights, income from the sale or the lease of players, income from the sale of products and services under the brand name of the club, income from the presence in European competitions, such as the UEFA's Champions League and Europa League, income from grants and donations, income from the rental of suites and other areas of the clubs' stadiums, and income from the exploitation of their academies. However, clubs outside the top tiers rely heavily on tickets and other matchday revenue.

On the other hand, quite often the costs incurred by the professional football clubs are huge. The main costs concern the salaries of the footballers and their social contributions, salaries and insurance costs of training and other staff, depreciation of tangible and intangible assets, as well as the amortization of the rights associated with the various costs of acquiring footballers, the costs of matches, sponsorships, advertising costs, and other operating costs. With respect to the cash requirements of the professional football clubs, the more intense of them regards the huge amounts devoted to the acquisition of players and the respective fees and remunerations paid to managers and other agents involved in transfers.

Five leagues are considered to be the biggest in the European industry, both from a sporting and a financial perspective. These leagues are the German Bundesliga, the Ligue 1 of France, the Spanish La Liga, the English Premier League and the Italian Serie A. In season 2021-22, these "big-five" leagues held €17.2 billion (or 58%)

[1] Deloitte, "Annual Review of Football Finance 2023", available on: https://www2.deloitte.com/uk/en/pages/sports-business-group/articles/annual-review-of-football-finance-europe.

of total revenue of the entire European football market.

The football market of England has constantly been the leader of the European football industry over recent decades. According to Deloitte's survey, the Premier League clubs achieved record average crowds of 39,950 in season 2021-22. This figure corresponds to an average utilization of stadia's capacity by 98%. According to Millward (2013), the English Premier League can be considered as a transnational football league given the global mobility of the increasing number of overseas players acquired by the English football clubs. Similar global mobility can be observed in the number of managers and coaches hired by the English clubs.

The intense competition among the Premier League clubs, as well as their big domestic and international fan bases, commercial value, influential ability and social impact, have attracted the interest of wealthy international investors from around the world.[1] Investors are willing to invest billions in the clubs for the expansion of stadiums, improved training facilities and the acquisition of world-class players. Such investments usually result in an upgrade of the teams' on-field competitive advantage and performance, as well as the skyrocketing of footballers' transfer costs and salaries.[2] Along with the impact on the English football club, the vast investments made by the foreign owners are beneficial to the local communities of the teams.

The second largest European football market, both from a financial and a competitive perspective, is the Spanish "La Liga". Similar to the English Premier League, foreign interest in the Spanish football clubs has grown exponentially in recent years and big money is being spent by the top Spanish football clubs too.

Overall, within the environment of high operating costs and investment needs, quite often the revenue of clubs is not sufficient to meet their needs. In fact, as noted by Millward (2013), in 1995-96 season, clubs in the top division of England spent, on average, 47% of their income on player salaries, while 10 years later, in season 2005-06, the corresponding figure was 63%. As a result of the big spending on player wages, investments in footballers and infrastructure, as well as the rest of operating costs, are largely covered by bank lending or liquidity injections by the owners of the clubs in the form of share capital increases. Resulting from their financial policy, European clubs often present significant annual and cumulative losses on their income statement and balance sheet, respectively.

In this study we examine the financial performance of the twenty clubs that participated in the Premier League in season 2021-22 trying to identify financial and sporting factors that can contribute to financial performance. The period under study covers ten years from season 2012-13 to season 2021-22. Performance is measured in three ways, i.e., return on assets (ROA), return on equity (ROE), and profit margin, that is, profit before tax to turnover. The explanatory variables used in our analysis concern the size of the clubs, i.e., the magnitude of their assets, along with their liquidity, leverage, efficiency, cash flow efficiency, and turnover per employee. The sporting factors used are the attendance rate, the number of wins achieved by each club on an annual basis, the uncertainty in the Premier League, measured by the ratio of the points each team lags from the champion divided by the total points of the champion, one dummy variable concerning the presence of the clubs in Premier League or not, and one dummy variable regarding the presence in UEFA's European club competitions.

Our findings indicate that the majority of the examined English football clubs face liquidity issues, as the relevant ratio is quite lower than 100% for 16 out of 20 clubs in the sample. In addition, the examined clubs are highly leveraged, while their average efficiency (asset turnover) is lower than 100%. Their ability to use their assets to generate cash is very weak too. Moreover, the profitability of the clubs is rather poor as most of them present average losses before tax over the study period. Average ROA and ROE figures are not that spectacular either.

When it comes to financial performance, the results reveal a positive relation of performance with liquidity, efficiency, cash flow efficiency and revenue per employee. On the contrary, the relationship of financial performance with leverage is slightly negative. As far as the sporting variables are concerned, the number of wins achieved by each club is found to be positively related to ROA. The opposite relationship is found between ROA and uncertainty. Finally, the presence of the clubs in the Premier League exerts a positive impact on financial performance.

Overall, our results indicate that, despite the huge international interest in the Premier League football clubs and the big money collected by the top English clubs, most of them are loss makers with poor financial structure and performance. Our results can have significant policy implications for those involved in the administration of the English football clubs. First of all, professional managers should be hired to run the business of the English football clubs in those cases where ex-footballers of high popularity with the fans of the clubs but with poor academic records and entrepreneurship experience have undertaken crucial seats in the management of clubs. Moreover, the clubs need to acknowledge that a business model which is characterized by constant loss making

[1] According to the latest UEFA club benchmarking report, 40% of the Premier League clubs are majority owned by foreign investors. In addition, 35% of the Premier League clubs have foreign investors as minority shareholders (https://brandfinance.com/insights/foreign-ownership-in-the-premier-league).

[2] The most representative example of a club's on-field upgrade after its acquisition by foreign investors, is that of Manchester City, who have won six Premier League titles and numerous FA and League Cups since being taken over by the Abu Dhabi Investment United Group.

cannot be viable in the long run. The answer to this problem cannot be bank lending or capital injections by the owners simply because these options cannot be available forever.

The Greek football clubs need to work towards their financial self-sufficiency. In this respect, our results can be quite helpful. In particular, with respect to the financial factors that may affect financial performance, our analysis shows that among the variables that may affect performance, either positively or negatively, are the size of assets, liquidity, leverage, efficiency and the ability of clubs to use their assets to generate money. Therefore, along with the necessary improvements in their sporting performance, the Greek football clubs need to focus on improving their financial and business operations, avoiding unnecessary expenditure, and enhancing their financial independence and long-run viability.

The rest of the paper is structured as follows: Next chapter summarizes the main findings of previous research on the financial performance of the English football enterprises, as well as some findings on other football markets. Section 3 concerns the methodological approach and the sample of our study. Section 4 discusses key financial ratios of the sample. Section 5 provides an analysis of the sample's sporting statistics. Section 6 presents the empirical findings of our study. Conclusions are offered in section 7.

2. Literature Review

Several studies have evaluated the financial performance of the English football clubs. Szymanski and Smith (1997) examine the financial performance of 48 English clubs over the period 1974-89. Financial performance is measured as pre-tax profit. The determinative factors used are the prices of tickets, attendance rates, income from TV rights, sponsorships and other sources, the net amounts for and from transfers, the non-payroll expenses, the ranking of clubs in the league, promotion or relegation, and the presence of clubs in cup competitions. The empirical findings indicate that the promotion of a club from one league to the next contributes to a temporary excitement which increases the demand for tickets. However, this excitement does not last for long. Good performance in cup competitions also boosts attendance. The authors conclude that only the top clubs are profitable and that there is a high degree of profit concentration in the top five clubs, which held 20% of earnings during the study period.

Szymanski (1998) examines the on-pitch success of Manchester United during the 90's. During that period, Manchester United won numerous of Premier League championships and FA cups also being the most successful club from a financial perspective. Between 1992 and 1997 the club generated an income of £249 million, 66 million of which reported as profit. This was a stellar financial performance compared to other clubs in the industry who reported persistent pre-tax losses. Sporting and financial success could be interpreted as if the on-pitch success and sound financial performance go hand in hand. However, as the author additionally examines the financial performance of forty English clubs over the last twenty years, he concludes that there is no systematic relationship between financial and sporting success. In other words, it seems that when league performance improves or deteriorates, profits can either rise or fall in the same proportions in both cases.

Ozawa et al. (2004) examine the relationship between market orientation of the English football clubs and their financial performance. Using a sample 26 clubs playing in the Premiership (six clubs) and Nationwide Leagues (20 clubs). The empirical results show that there is little correlation between financial performance and the degree of market orientation. It is also found that no financially successful clubs have low market orientation scores. This means that measures of marketing behavior are necessary, but not sufficient conditions that will post financial performance.

Hamil and Walters (2010) analyze the financial performance of the English football clubs since the creation of the Premier League in 1992. The authors find that, despite large revenue increases, the English football clubs have failed to achieve a pre-tax profit on an annual basis. On the contrary, many clubs were forced to enter into administration due to rising debt levels.

Buraimo et al. (2006) deal with financial distress, which is not rare in the English football. The authors highlight that the number of the English clubs facing financial difficulties has escalated, while at the same time revenues accrued to English football have reached unprecedented levels. Clubs from the Premier League and the Football League are investigated. Based on the findings, financial distress primarily concerns clubs in the lower divisions who engage in the seasonal race for promotion to higher divisions where financial rewards are greater. In this effort, the examined clubs have tended to apply excessive wage expenditure, which combined with the collapse of a major broadcaster, have threaten the already fragile existence of many clubs.

Wilson et al. (2013) explore the relationship between the financial and on-field performance of the English clubs competing in the Premier League. They focus on the effect on financial and league performance by different models of club ownership. The sample of the study includes 20 clubs for the period 2001-2010. Methodologically speaking, correlation analysis is applied to assess the relationship between the finances of clubs and their league position. The empirical results reveal that the stock market model of ownership contributes to better financial health compared to clubs owned by either domestic or foreign private owners.

In the same context, Miragaia et al. (2019) examine the interactions between financial efficiency and sports

performance with a sample of 15 professional football clubs that won the league titles in the leading football leagues in England, Germany, Spain, Italy and Franch over the period 2009 and 2014. Based on the empirical results, only 10 of the examined clubs were efficient. The authors conclude that despite the attractiveness of professional football, the recent financial crisis burst in 2008 increasingly demands better management of the clubs' resources. Clubs need to improve their control over their financial resources given the positive relationship between their sporting performance and their financial efficiency. A positive correlation between sporting and financial performance is reported by Di Simone and Zanardi (2021) too.

Samagaio et al. (2009) examine the linkages between financial performance, sporting performance and stock market performance for English football clubs over the period 1995-2007 using structural equation modeling. The empirical results show that there is a strong relationship between financial and sporting performance. On the other hand, the analysis shows that financial and sporting factors are statistically correlated with stock returns, but not with risk. On the same topic, Prayoga et al. (2022), assess the impact of sporting and financial performance on the price of European football clubs. Results show that sporting performance and liquidity have a significantly positive effect on stock prices. On the other hand, solvency has a negative and significant effect on stock prices. Profitability has no effect on the stock prices of the examined football clubs.

Ika et al. (2020) assess the financial statements of Arsenal and Manchester City, two of the top clubs in the English Premier League. The study period spans from 2015 to 2017. In their assessment, the authors compare the financial performance of these clubs with the usage of Altman's Z-score and a bankruptcy prediction model. The analysis shows that both clubs are financially sound during the study period. The comparison between Arsenal and Manchester City indicates that Manchester City's finances are better than those of Arsenal.

On the financial performance of football clubs in other countries, Barajas et al. (2005) investigate the effect of the on-field performance on the financial results of 42 clubs in Spain during a period spanning from 1998 to 2002. Net profit is the dependent variable of the analysis. The explanatory factors considered are the position of clubs in the league, the total points gathered by the clubs, and the weighted average of points in each competition. The main conclusion reached by the authors is that sporting variables are not significantly related to the financial performance of the Spanish football clubs.

Ferri et al. (2017) provide the opposite results on the relation between sporting and financial performance. The authors use data for a sample of 29 Italian clubs that participated in the country's top league over the period 2007-08 to 2013-14. The results reveal a positive relationship between the expenses incurred by the clubs on players' salaries and the clubs' on-pitch performance, but no significant correlation exists between players' transfer fees and sporting performance. The authors conclude that the most profitable clubs are also those with the highest sporting performance.

Dimitropoulos and Tsagkanos (2012) analyze the impact of corporate governance quality on the profitability and viability of the European Union's football clubs over the period 2005-2009. Corporate governance quality is captured by the size and the independence of the board, managerial ownership, institutional ownership and duality in CEO and chairman roles. The results indicate that corporate governance quality, expressed by higher managerial and institutional ownership, increased board size and independence, as well as the separation of the CEO and chairman roles, contributes to greater profitability and viability. The analysis also indicates that sound governance mechanisms are more important for clubs facing intense issues of insolvency and poor financial performance.

Fraile et al. (2017) asses the relationship between ownership and financial performance in the five major European leagues from season 2007-08 to season 2012-13. They also evaluate the effect of the regulation regarding financial fair play. The study focuses on 94 clubs that compete in the German Bundesliga, the Frech Ligue 1, the Spanish La Liga, the English Premier League and the Italian Serie A. The results accentuate an inverted U-shaped curve relationship between ownership structure and financial performance. This relationship is attributed to monitoring and expropriation effects. The results also show that after the adoption of rules concerning financial fair play, the monitoring effect disappears and only the expropriation effect remains.

Martín-Magdalena et al. (2023) assess the impact of "financial fair play" regulations on the financial performance of the Spanish professional football league by examining the moderating role of club size. The authors use a 12-year dataset covering 22 football clubs and argue that introducing financial fair play positively impacted the financial performance of small clubs but increased the economic gap between large and small clubs. The results show that the regulation on financial fair play significantly affected the profitability of small clubs in a positive way, as well as the solvency of medium-sized clubs, but has not affected the financial performance of the big clubs. Overall, after new regulations, economic inequality in Spanish LaLiga increased. Similar inferences are drawn by Fernández-Villarino and Domínguez-Gómez (2022).

Scafarto and Dimitropoulos (2018) assess the relationship between investments in human capital and financial performance in the professional football industry. A fixed-effect econometric model is applied on a panel data set of 16 Italian football clubs by controlling for club-level internal governance mechanisms. As the Italian clubs are characterized by a highly concentrated ownership and familial control, the degree of family representation on boards and the dual leadership structure are assumed to exert a moderating effect on clubs' decision about spending

on talent acquisition. The results reveal that clubs with separated CEO and chairman roles and a high degree of family board representation can profit from investments in player contracts contrary to clubs which lack in such governance mechanisms.

Alaminos et al. (2020) investigate how financial, sporting and corporate factors affect the solvency and viability of the European football clubs over the period 2016-18. The results of the study show that the financial performance of clubs is determined by liquidity and leverage from the set of financial factors, as well as sporting performance. The reputation of clubs also bears a weak relationship with financial performance.

Kevser and Dogan (2022) compare the financial performance of five major European football clubs. In particular, Manchester City and Manchester United from the English Premier League are selected, along with Barcelona and Real Madrid from the Spanish La Liga, and Juventus from the Italian Seria A. The authors consider the liquidity, leverage and profitability ratios of these clubs over the period 2015-2019 and conclude that Manchester City has the stronger financial performance while Juventus has the poorest. The authors conclude that liquidity and short-term debt to equity ratios are the most important performance indicators for the examined football clubs.

Dimitropoulos (2009) examines the profitability of the Greek football clubs over the period 1994-2004 trying to identify factors that affect their financial performance. The results show that the profitability of clubs is positively related to their short-run sporting success, but not to their long-run success and seasonal uncertainty. The size of the clubs positively affects performance too. This is also the case asset turnover and ROA. Similar results are provided by Dimitropoulos and Alexopoulos (2014).

In another study on the Greek football clubs, Dimitropoulos (2010) analyzes the financial performance of the clubs competing in the top football division in Greece over the period 1993-2006. Financial analysis with key accounting ratios is applied. This analysis shows that the Greek football clubs are highly leveraged, face intense liquidity and profitability issues, as well as an increased financial distress risk.

Finally, Dimitropoulos and Limperopoulos (2014) assess the relationship between the sporting and financial performance of the Greek football clubs and how the investment in player contracts affects this relationship. They use data of a sample of twenty clubs participating in the three professional divisions of the country during the period 2004-05 to 2008-09. The results indicate that the higher the investment in player contracts, the more successful a club on the pitch. However, as the investment in player contracts increases, the club is becoming more unprofitable and insolvent suggesting that the decisions about players contracts are not based on economic standards.

3. Research Methodology

In this section, we define the variables that will be used in our analysis and describe the methodology we apply to assess the factors that affect the financial performance of the English football clubs.

3.1 Definition of Variables

Three types of financial performance are used in our analysis. The first one is return on assets (ROA), which is computed as the ratio of profit before tax (PBT) to total assets at the end of each year over the study period. The second measure is return on equity (ROE), calculated as the fraction of PBT to total equity at year end. The third measure of performance is the profit margin, that is, the fraction of profit before tax to turnover.

The explanatory variables used regard the size of the clubs, which is calculated as the logarithm of assets at the end of each reporting period, liquidity, i.e., the ratio of current assets to current liabilities, leverage, that is, the ratio of total debt (liabilities) to total equity, efficiency, i.e., the fraction of turnover to assets, cash flow efficiency, that is, the ratio of net cash flow/outflow to assets, and the ratio of turnover per employee.

Sporting factors are used as explanatory variables too. These factors include attendance rate, that is, the logarithm of total tickets sold annually, the number of wins achieved by each club, and league's uncertainty, which is measured as the fraction of the points each team is lagging from the champion at the end of each season to the total points gathered by the champion. Each club's participation in the Premier League, Championship or League One is also taken into consideration. Finally, the participation of clubs in UEFA's Champions League or Europe League is considered too.

3.2 Correlation analysis

In the first step, we apply simple correlation analysis of the key variables considered in our study using the correlation coefficient of Pearson. The main benefit of correlation analysis is that it helps identify which variables we should investigate further, and it allows for rapid hypothesis testing. This analysis is primarily concerned with finding out whether a relationship exists between variables and then determining the magnitude and sign of that relationship. However, correlation does not entail causation. That means that correlation analysis identities and evaluates a relationship between two variables, but a positive correlation does not automatically mean that one variable affects the other. This type of correlation only reflects a linear correlation of variables and ignores non-

linear types of relationships or correlations.

3.3 Regression Analysis of Performance

First, we run the following multi-factor panel regression model on the relationship of financial performance with pure financial factors:

$$PER = \beta_0 + \beta_1 SIZE + \beta_2 LIQ + \beta_4 LEV + \beta_5 EF + \beta_6 CFEF + \beta_7 EMPTUR + u \quad (1)$$

where, PER is the dependent variable of the model and stands alternatively for i) ROA, ii) ROE, and iii) profit margin. Size concerns the logarithm of clubs' assets. LIQ, LEV and EF regard the liquidity, leverage and efficiency of the examined clubs. CFEF is cash flow efficiency and EMPTUR refers to the average turnover per employee.

According to Majundar (1997), size is positively related to firm performance as large companies may be able to achieve superior performance by exploiting economies of scale and organizing their activities more efficiently. If this is true in our case, the coefficient of size will be positive and significant.

Liquidity indicates the ability of a company to meet its short-term obligations without jeopardizing its operation as a going concern. In addition, based on Zygmunt (2013), the liquidity of a firm might determine its profitability. Based on this analysis, the coefficient of the liquidity ratio in model (1) should be positive.

Leverage is a risk indicator associated with the probability of default, that is, the failure of a company to meet the legal obligations or conditions of a loan. Penman (2001) argues that the lower the leverage ratio the greater the financial security and, thus, the higher the level of the expected profitability. Several studies show that leverage is indeed related to firm performance in a negative way (e.g., Yameen et al., 2019). According to this analysis, the coefficient of leverage should be negative and statistically significant.

Several studies show that efficiency is positively related to firm performance (e.g., Khan et al., 2021). Generally speaking, efficiency and cash flow efficiency indicate the ability of a company to convert its assets into sales and cash, respectively. If this applies to the English football clubs, the coefficients of efficiency and cash flow efficiency in model (1) will be positive and significant.

Finally, the turnover (revenue) per employee ratio is a critical indicator of a firm's efficiency and profitability. This metric is used to assess the ability of a company to be highly competitive in its industry. A high turnover-per-employee ratio indicates that the company is generating more revenue per employee than its peers. A high turnover-per-employee ratio can also show that the firm is effectively exploiting its resources and investing in technology and automation to streamline its operations. The latter can lead to cost savings and increased profitability in the long run. According to this discussion, the coefficient of the employee turnover factor in model (1) is expected to be positive.

In order to check whether concurrent financial performance is driven by lagged performance, we apply model (1) by adding the one-year lagged performance of clubs in the explanatory variables. If performance persistence exists, the coefficient of lagged performance will be positive and significant.

Model (1) considers pure financial variables to explain the performance of the English football clubs. As an expansion to this model, along with financial factors, we use sporting variables to assess their possible impact on the financial success of the clubs. These factors include attendance rate, winning rate, uncertainty, the participation of clubs in Premier League or other inferior leagues, and the participation of clubs in UEFA's championships. The expanded model applied is the following:

$$PER = \gamma_0 + \gamma_1 SIZE + \gamma_2 LIQ + \gamma_4 LEV + \gamma_5 EF + \gamma_6 CFEF + \gamma_7 EMPTUR + \gamma_8 ATT + \gamma_9 WIN + \gamma_{10} UNC + \gamma_{11} PL + \gamma_{12} UEFA + u \quad (2)$$

where, ATT refers to total tickets sold annually, WIN refers to the percentage of wins achieved by a club over a season, UNC concerns uncertainty, PL refers to the participation of a club in the Premier League of not, and UEFA regards the presence in UEFA's contests or not.

Several studies have considered match attendance as a crucial factor to a club's financial performance (e.g., Jennett, 1984; Janssens and Kesenne, 1987; Peel and Thomas 1988). Based on the findings of these studies, the coefficient of attendance in model (2) is expected to be positive. Dimitropoulos (2009) finds that the number of wins achieved by a football club is positively related to its financial performance. If this pattern applies to our sample too, the coefficient of the winning rate in model (2) will be positive.

Moreover, Dimitropoulos (2009) reports a negative, but insignificant, relation between financial performance and uncertainty in the case of the Greek football clubs. If such a negative relation applies to the English football clubs, the relevant coefficient in model (2) will be negative and significant.

Finally, the participation of a club in the Premier League entails much more revenue compared to the money gathered by a club which competes in the Championship or League One. Increased revenue possibly entails higher profitability. Consequently, the coefficient of the Premier League dummy in model (2) is expected to be positive. A same discussion can be made about the participation of a club in UEFA's competitions. Thus, the estimate of the UEFA dummy is expected to be positive too.

Similar to model (1), we apply an alternative version of model (2) having the lagged performance in the independent variables to check whether the impact of lagged performance on concurrent financial performance is

stronger than the influence of the rest explanatory variables.

3.4 Sample

Our sample includes the twenty teams that participated in the Premier League during season 2021-22. The study covers a period from season 2012-13 to season 2021-22.

Table 1 presents key accounting figures from the balance sheet, income statement and cash flow statement of the examined English football clubs. Accounting figures include total assets, current assets, equity, total liabilities, current liabilities, the net cash flow, i.e., the change in cash reserves at the end of each year compared to the previous year, total operating revenue (turnover), and profit before taxes (PBT). The number of staff and revenue per employee are reported too.[1] The figures in the table concern the average terms of the accounting data for the entire period under review and have been hand collected from the published financial statements of the clubs.

The average assets of the clubs in the sample amount to £389 million. The largest club is Manchester United with average assets of £1.360 million. The smallest club in the club is Leeds United with average assets of £86 million. The average current assets equals £103 million, that is, 27% of the average total assets. In regard to equity, the average term of the sample amounts to £107 million, i.e., about 38% of total liabilities. Total liabilities amount to £282 million. This amounts captures 73% of total assets. Short-term (current) liabilities amount to £156 million, or approximately 55% of total liabilities.

From the simple presentation of the key balance sheet figures, we may conclude that the English football clubs rely quite heavily on external funding to finance their operations, as evidenced by the fact that 73% of assets are financed by liabilities to third parties. In addition, the fact that more than half of liabilities are of a short-term nature may pose risks regarding the liquidity of the English football firms. This risk is further enhanced by the fact that the average net cash flow, although positive at £2.4 million, is very small if we compare it to the total liabilities of the clubs (i.e., 0.86% of total liabilities). In other words, the money generated by the clubs is not enough to meet their obligations.

When it comes to the income statement figures, the average turnover of the examined clubs amounts to £194 million. Manchester United shows the highest average turnover of £509 million. The club with the second highest average revenue is Manchester City (£453 million), who falls behind Manchester City by 12%. The club with the smallest average turnover is Bretford, who shows a turnover of £24 million. In total, just six out of twenty clubs in the sample show turnover that exceed the average term of the entire sample. These clubs are Manchester United, Manchester City, Liverpool, Chelsea, Arsenal and Tottenham Hotspur.

In regard to the profitability of the English football clubs, Table 1 shows that the majority of the examined clubs are loss-makers. Only three clubs, i.e., Tottenham Hotspur, Liverpool and Burnley, present a positive profit before tax. The average PBT in the sample is equal to £8 million. The worse profitability is shown by Arsenal, with an average annual loss before tax of £12 million. On the other hand, the most profitable English football club is Tottenham Hotspur, with an average PBT of £21 million.

The low amount of revenue (compared either to total assets or total liabilities) combined with the significant losses, as well as the high leverage, evidenced by the large balance of total liabilities, and the weak ability of clubs to generate money, picture a rather negative financial structure and performance of the English football enterprises.

Finally, with respect to staff numbers, the relevant average term in the sample is equal to 435 employees. Manchester United employes the highest number of staff, i.e., 896, while Brentford presents the lowest staff number at 153 employees. The average revenue (turnover) per employee in the sample amounts to £431 thousand. The highest revenue per employee is equal to £1.1 million (achieved by Manchester City) and the lowest amounts to £117 thousand (presented by Leeds United).

4. Financial Ratios

The conclusion about the negative financial performance of the English clubs is verified by the financial ratios reported in Table 2. The three key financial performance metrics considered are negative for the majority of the examined clubs. In the case of ROA, only Burnley, Tottenham Hotspur, Liverpool and Newcastle United present an average positive relevant ratio. The average ROA in the sample is equal to -4.48%, with the lowest one being equal to -21.51% (presented by Leeds United). In the case of return on equity, just half of the clubs show a positive ROE. The average ROE in the sample is equal to 9.18%. Finally, regarding profitability, the average profit margin is equal to -13.71%. This ratio is positive only for the three clubs presenting a positive PBT.

Going further, the sample's average liquidity ratio is significantly lower than 100% (or the unity) at 94.95%. Only Wolverhampton Wanderers, Manchester City, Arsenal and Burnley present liquidity which exceeds 100%. Overall, liquidity ratios indicate that the English football clubs may face issues with their ability to meet their financial needs.

In regard to leverage, the sample's relevant average ratio is equal to -58.54%. This negative percentage is due

[1] Staff includes all types of personnel, that is, football players, training staff, management staff, etc.

to the fact that six clubs present a negative equity figure in Table 1. In addition, the leverage ratio of Norwich City (1.248%), Leeds United (-1.783%), and Brentford (-2.667%) stand as outliers in the sample. Without these outliers, the average leverage ratio is equal to 119.52%. This adjusted average ratio indicates that the majority of the English football clubs are highly leveraged.

Finally, as far as efficiency is concerned, the relevant sample's average ratio is 67.90%. Only Aston Villa, Crystal Palace and Burnley show an average efficiency ratio which exceeds 100%. In addition, ten clubs present an efficiency ratio which is lower than the sample's average. Overall, the efficiency ratios show that the majority of the examined football clubs do not utilize their assets in the best possible way. Similar inferences can be drawn about the cash flow efficiency ratio, whose average term is a bit lower than 1%, with the highest ratio being equal to 4.89% (achieved by West Ham United).

5. Sporting Statistics

Table 3 provides some sporting data of the examined clubs. Data concerns the number of years each team participated in the Premier League during the study period, total tickets sold annually, percentage of wins (either in Premier League, Championship or League One), uncertainty rate (either in Premier League, Championship or League One), and the number of years each team participated in UEFA's competitions.

Based on the data in Table 3, only nine out of the twenty clubs had a constant presence in the Premier League over the study period. These teams are Arsenal, Chelsea, Everton, Liverpool, Manchester City, Manchester United, Southampton, Tottenham Hotspur and West Ham United. In regard to attendance, the most ticket selling club is Manchester United, who shows an average annual tickets volume of 1.8 million. The second best-selling club is Arsenal with an average tickets volume of 1.6 million. Brentford presents the lowest average number of tickets sold, which is equal to 563 thousand. In sum, eleven clubs present a tickets volume which is lower than the average term of the entire sample.

Going further, the average winning rate in the sample is 43%. The highest rate of wins over the study period is equal to 69% and has been achieved by Manchester City, who have been the champion in five out of the ten seasons considered. The worst on-field team (based on winning rates) is Aston Villa, with an average winning rate which approximates 32%.

Finally, on the participation of the English clubs in the European competitions, twelve teams had at least one presence in such a contest. Manchester City had a European presence in each single season during the study period. Arsenal, Manchester United and Tottenham Hotspur failed to take part in a European competition in just one year each. On the other hand, Newcastle United, Southampton, West Ham United and Wolverhampton Wanderers have only one year of European participation. The clubs with nil European participation are Aston Villa, Brentford, Brighton & Hove Albion, Burnley, Crystal Palace, Leeds United, Norwich City and Watford.

6. Empirical Results

In this section, we first discuss the correlation estimates among the variables considered in our study. Then, we present the results of the regression analysis on the financial performance of the English football enterprises.

6.1 Correlation Analysis

Table 4 presents the correlation coefficients among the average ROA, ROE, profit margin, size, liquidity, leverage, efficiency, cash flow efficiency, turnover per employee, attendance, winning rate, uncertainty, Premier League membership and participation in UEFA's Champions League or Europa League.

According to the data in Table 4, ROA shows a positive correlation with the size of 0.15. Based on this estimate, we can infer that the size of the clubs is a factor that can affect the financial performance of the English football enterprises in a positive way. Similar positive correlations are found between ROA and liquidity (0.27), efficiency (0.25), cash flow efficiency (0.31), turnover per employee (0.38), attendance (0.14), and the presence in the Premier League (0.34) and UEFA's competitions (0.13). There is also a positive correlation between ROA and leverage, which, however, is quite close to zero (0.02). Therefore, the effect of efficiency on ROA cannot be expected to be significant from an economic perspective. The correlation of ROA with the winning rate is slightly positive at 0.05, while the correlation with uncertainty is equal to -0.29.

In regard to ROE, the only material correlations is that with leverage, which is negative and equal to -0.64, and that with the presence in the Premier League, which is also negative at -0.12. The absolute value of ROE's correlation estimates with the other factors considered are below 0.10 Based on these correlation coefficients, one might expect that the more leveraged an English football company, the lower its return on equity. Quite surprisingly, a similar inference applies to the relation of ROE with the participation in the Premier League.

Finally, when it comes to the profit margin, we observe in Table 4 that, to a significant degree, the correlations with the determinative factors resemble the corresponding estimates of ROA. In particular, profit margin is positively correlated to size (0.23), liquidity (0.14), efficiency (0.31), cash flow efficiency (0.10), turnover per employee (0.53), attendance (0.11), and the presence in the Premier League (0.45) and UEFA's competitions

(0.20). The correlation between profit margin and the leverage ratio approximates zero (0.01). The correlation of profit margin with the winning rate is negative at -0.09, while the correlation with uncertainty is equal to -0.25.

Overall, the results of correlation analysis entail that the variables we have chosen to use in our analysis have some sort of relationship with the financial performance of the English football clubs. However, whether these linear relationships can be interpreted as if the selected variables can explain or affect financial performance will be answered via the results of the regression analysis that follow in the next section.

6.2 Regression Analysis of Performance

The results of the basic regression model (1) on the financial performance of the English football clubs are provided in Table 5. The estimates of independent variables, t-statistics on their statistical significance and R-squared are offered in the table. The table has two panels; Panel A concerns the basic model (1), and Panel B regards the extended model (1) with lagged performance in the explanatory variables.

In the case of ROA, model (1) offers positive and significant estimates for liquidity, efficiency, cash flow efficiency and revenue per employee. The values of these estimates are equal to 0.06, 0.14, 0.36 and 13.16, respectively. As expected, the coefficient of size is positive too, but is not significant from a statistical perspective. Finally, the coefficient of leverage is not significantly different from zero.

When it comes to ROE, the coefficients of liquidity and efficiency are positive and significant. The opposite is the case for leverage. The rest of the variables present no statistically significant estimates.

To a large extent, the regression results on profit margin resemble the results of ROA. Liquidity, efficiency, cash flow efficiency and revenue per employee present positive and significant estimates, whose values are 0.08, 0.34, 0.14 and 56.04, respectively. The coefficient of size is also positive but insignificant, while the coefficient of leverage is slightly negative and significant at -0.01.

The results of the extended model (1) with the lagged performance in the independent variables are quite close to the results of the basic model (1). In the case of ROA, liquidity, efficiency and cash flow efficiency present significantly positive estimates. Revenue per employee also has a positive, but insignificant estimate. This is also the case for size. Leverage's estimate is statistically insignificant. Finally, some sort of performance persistence seems to exist as the coefficient of lagged performance is significantly positive at 0.17.

ROE's results from the alternative model (1) in Panel B are essentially equal to those from the basic model. The estimates of liquidity and efficiency are positive and significant, while leverage's coefficient is significantly negative. Lagged ROE's seems not to have an impact on concurrent ROE. This is also the case for size, cash flow efficiency and revenue per employee.

Finally, with respect to profit margin, the results approximate those obtained from the basic model (1). The estimates of liquidity, efficiency, cash flow efficiency and revenue per employee present positive and significant estimates. The values of these significant estimates are 0.11, 0.27, 0.13 and 49.00, respectively. The coefficients of size and leverage are not significant. The lagged profit margin presents a positive and significant estimate, which is equal to 0.23, indicating a persistence in the profit margin achieved by the English football clubs over time.

Overall, the empirical results obtained from the two versions of model (1) are in line with our expectations and the relevant results of previous studies on the English football clubs. Elements such as liquidity, efficiency, cash flow efficiency and revenue per employee are crucial factors that can define the financial performance of the examined football clubs. Leverage can also have some negative impact on performance. Based on our results, the clubs need to focus on these factors in order to improve their financial health and performance. Investors need to focus on such factors too when they decide to invest in the English football clubs expecting that a financial gain will accrue on their investments.

The results of model (2) with both financial and sporting factors in the explanatory variables are provided in Table 6. Similar to Table 5, Table 6 has two panels; Panel A regards the basic model (2), and Panel B refers to the extended model (2), which has the lagged performance in the independent variables.

In the case of ROA, the results on financial factors resemble those obtained from model (1). Liquidity, efficiency, cash flow efficiency and revenue per employee have a positive and significant impact on performance. This finding applies to both versions of model (2). Lagged performance also has a positive influence on concurrent performance. In regard to sporting variables, only winning rate and uncertainty present significant estimates. The winning rate's coefficient is equal to 0.26 and the uncertainty's estimate is equal to -0.28. These estimates verify our expectations about a positive and a negative relation between financial performance and on-field success, i.e., the number of wins, and uncertainty, respectively. As expected, the coefficients of the Premier League and UEFA dummies are positive. However, these estimates are not statistically significant. The estimate of attendance is not significant either.

Regarding ROE, the results of model (2) are close to those from model (1). Liquidity's and efficiency's estimates are positive and significant. The coefficient of size is significantly positive too. In model (1), ROE's relationship with size was positive too but insignificant. On the other hand, the relation with leverage is negative

and significant. The coefficient of the lagged ROE is not significant. From the sporting variables, only the Premier League dummy shows a significantly positive relationship with ROE. The coefficients of the rest of the sporting factors are insignificant.

Finally, as far as the profit margin is concerned, similar to model (1), the two versions of model (2) produce significantly positive estimates for liquidity, efficiency, cash flow efficiency and revenue per employee. Leverage's estimates are slightly negative, but significant only in the first version of model (2). On the other hand, sporting variables provide no significant estimates.

Overall, the incorporation of sporting variables in the explanatory variables of the regression models showed that such variables can have a limited impact on the financial performance of the English football clubs. In fact, the significance of the sporting factors depends on the metric used each time for financial performance. In particular, winning rate and uncertainty seem to have a positive and a negative effect on ROA, respectively, but not on other performance measures. The participation in the Premier League affects ROE but not ROA, nor profit margin. Attendance and presence in UEFA's competitions seem not to affect financial performance at all.

7. Conclusion

In this study, we investigate the factors that can affect the financial performance of the English football clubs. Our sample includes the twenty teams that participated in the Premier League of season 2021-22. The period under study spans from season 2012-13 to season 2021-22, whereas correlation and panel data analysis is applied. Three alternative measures of financial performance are used, namely, return on assets, return on equity and profit margin. The explanatory factors considered regard the assets (size) of the clubs, along with their liquidity, leverage, efficiency, cash flow efficiency, turnover per employee, attendance rate, winning rate, uncertainty in the Premier League, participation in the Premier League or not and the presence in UEFA's European club competitions or not.

The empirical results reveal that elements such as size, liquidity, leverage, efficiency, cash flow efficiency and revenue per employee are crucial factors that can define the financial performance of the English football clubs. Yet, the magnitude and the sign of each factor's impact on financial performance depends on the metric of performance used each time. In other words, the explanatory financial variables used do not affect return on assets, return on equity and profit margin in the same way. The same pattern applies to the sporting data considered in our analysis, of which the winning rate, uncertainty and the presence in the Premier League seem to affect financial performance in some way.

In any case, from a practical perspective, our results indicate that in order for the English football clubs to be financially healthy and self-sufficient, they need to focus on non-sporting factors such as liquidity, leverage, efficiency, cash flow efficiency and staff's productivity (i.e., turnover per employee). The significance of sporting factors seem to be less crucial than the financial factors for the determination of the club's financial performance.

In other words, the football clubs need to make effort for the improvement of their efficiency in using their assets to make revenue and money that will meet their financial needs. The current business model of several football clubs in England which entails that a large portion of the clubs' transfer costs and operating expenses are covered by loans or capital injections by the owners might not be viable in the long run. Several examples in the past have shown that powerful clubs occasionally encounter significant financial issues that can jeopardize their very existence. Obviously, our results and inferences are not relevant only for the English clubs. On the contrary, they can be reflected to football clubs from other European or international championships.

The main limitation of the current study is that it focuses solely on the English football clubs. Future expansions of the research on the financial performance of football clubs could involve comparisons among the major European football leagues, including at least the leagues of Spain, Germany, Italy and France. A comparison between the European leagues and other international football clubs would be welcome too. Finally, a relevant study of the soccer clubs in the United States is missing. Given the rising popularity of this football market, as significant investments are being made by the clubs and popular players have been choosing to play for a club in the U.S. over the last years, research should focus on the sporting and financial implications of the rising popularity of soccer in the U.S. for the clubs themselves and the American economy and society in general.

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Table 1: Accounting Data

This table presents accounting data of the English football clubs over the ten-year period spanning from season 2012-13 to season 2021-22. Data are presented in average terms and include total assets, current assets, equity, total liabilities, current liabilities, net cash flow inflow(+)/outflow(-), revenue from sales (turnover), profit before tax (PBT), number of staff and revenue (turnover) per employee.

Team	Assets	Current Assets	Equity	Total Liabilities	Current Liabilities	Cash Flow +/-	Turnover	PBT	Staff	Turnover per Employee
Arsenal	881,278,300	247,170,600	321,860,700	559,417,600	230,266,400	-12,366,900	354,775,000	-10,033,500	648	547,286
Aston Villa	104,297,647	13,301,118	-63,799,710	168,097,358	150,382,183	N/A	101,172,754	-7,594,804	188	534,746
Brentford	100,455,705	33,562,562	15,572,753	84,882,952	41,046,926	1,558,165	23,870,932	-1,175,234	153	140,252
Brighton & Hove Albion	230,745,198	36,012,164	-56,540,211	287,285,409	254,094,923	803,357	86,588,689	-20,751,579	542	157,611
Burnley	113,501,200	65,634,000	48,495,200	65,006,000	47,808,600	956,700	92,398,000	12,500,600	209	426,613
Chelsea	706,476,900	211,279,000	384,101,100	322,375,800	279,540,500	3,645,900	379,406,500	-38,306,200	754	500,409
Crystal Palace	103,501,200	31,502,100	-6,116,100	109,617,300	85,899,300	749,700	119,625,000	-11,520,700	219	538,245
Everton	255,704,100	84,200,200	61,126,800	194,577,300	126,510,300	4,341,000	157,434,200	-39,887,400	365	431,443
Leeds United	85,779,961	26,557,024	-15,595,526	101,375,486	67,853,435	331,617	64,664,958	-17,671,335	660	116,826
Leicester City	269,152,000	72,828,100	53,551,100	215,600,900	135,760,200	3,389,300	144,492,600	-13,116,300	291	478,585
Liverpool	508,514,800	118,779,300	120,931,000	387,583,800	120,931,000	861,200	398,558,900	15,344,600	774	503,255
Manchester City	1,024,235,200	290,011,000	650,794,200	373,441,000	272,434,500	6,515,200	453,127,400	-13,027,300	418	1,099,668
Manchester United	1,360,213,900	283,653,800	395,214,700	964,999,200	385,168,500	1,680,700	509,131,900	-764,500	896	567,634
Newcastle United	222,161,100	67,396,600	20,225,900	201,935,200	94,371,600	440,000	139,453,600	-2,618,800	280	498,993
Norwich City	99,007,400	40,861,000	17,091,000	81,916,400	63,026,500	-1,177,100	80,015,500	-859,900	303	261,345
Southampton	180,066,600	84,865,600	29,747,300	150,319,300	114,016,400	1,870,700	131,022,600	-2,257,500	337	390,293
Tottenham Hotspur	1,061,941,400	173,687,500	238,534,800	823,406,600	297,564,500	21,070,800	308,082,800	20,292,500	508	595,093
Watford	143,261,400	32,800,600	-10,877,800	154,139,200	86,609,900	180,300	85,259,400	-8,991,600	257	308,579
West Ham United	177,161,300	63,484,300	-34,003,100	211,164,400	118,368,400	9,464,900	160,180,600	-4,141,000	573	287,544
Wolverhampton Wanderers	154,830,200	85,927,600	-32,660,300	187,490,500	143,283,600	1,856,800	83,328,300	-12,353,900	317	235,696
Average	**389,114,276**	**103,175,708**	**106,882,690**	**282,231,585**	**155,746,883**	**2,430,123**	**193,629,482**	**-7,846,693**	**435**	**431,006**
Min	**85,779,961**	**13,301,118**	**-63,799,710**	**65,006,000**	**41,046,926**	**-12,366,900**	**23,870,932**	**-39,887,400**	**153**	**116,826**
Max	**1,360,213,900**	**290,011,000**	**650,794,200**	**964,999,200**	**385,168,500**	**21,070,800**	**509,131,900**	**20,292,500**	**896**	**1,099,668**

Table 2: Financial Ratios

This table presents several financial ratios of the English football clubs over the ten-year period spanning from season 2012-13 to season 2021-22. Ratios are presented in average terms and i) include return on assets (ROA), ii) return on equity (ROE), iii) profit margin, i.e., profit before tax to turnover, iv) liquidity, i.e., current assets to current liabilities, v) leverage, i.e., total debt (liabilities) to total equity, vi) efficiency (asset turnover), i.e., turnover to assets, and vii) cash flow efficiency, i.e., net cash flow inflow/outflow to assets.

Team	ROA	ROE	Profit Margin	Liquidity	Leverage	Efficiency	Cash Flow Efficiency
Arsenal	-1.41	-5.87	-3.38	110.80	183.78	40.26	-1.51
Aston Villa	-11.37	13.75	-8.63	10.29	-248.20	133.02	N/A
Brentford	-6.70	61.38	-65.47	98.27	-2,667.47	19.60	1.77
Brighton & Hove Albion	-9.80	-49.16	-47.11	20.65	751.10	32.71	-0.30
Burnley	6.45	47.26	2.76	109.74	41.10	108.39	3.37
Chelsea	-5.20	-10.11	-9.74	76.40	84.43	54.05	0.49
Crystal Palace	-8.16	-60.18	-6.04	81.06	511.47	120.67	-0.44
Everton	-9.42	-62.48	-20.80	64.62	-22.44	90.33	3.20
Leeds United	-21.51	335.79	-34.52	57.52	-1,782.89	71.98	0.71
Leicester City	-6.94	8.74	-27.59	56.04	137.04	56.90	2.68
Liverpool	1.75	24.65	2.65	55.50	124.82	81.29	0.14
Manchester City	-1.79	-2.81	-4.25	130.04	56.74	43.97	0.59
Manchester United	-0.22	-9.15	-0.06	73.26	299.88	37.30	0.18
Newcastle United	0.10	25.93	-2.97	97.64	220.88	63.40	0.22
Norwich City	-1.59	-200.93	-6.00	65.09	1,247.81	83.59	-2.05
Southampton	-0.04	-59.98	-2.08	76.69	-20.18	76.93	1.62
Tottenham Hotspur	3.90	7.40	9.01	59.94	345.94	34.20	2.58
Watford	-5.20	-5.97	-11.36	37.85	54.77	67.98	1.07
West Ham United	-1.39	3.28	-3.24	58.69	-276.29	91.84	4.89
Wolverhampton Wanderers	-10.97	122.13	-35.39	158.90	-213.05	49.68	-0.77
Average	**-4.48**	**9.18**	**-13.71**	**74.95**	**-58.54**	**67.90**	**0.97**
Min	**-21.51**	**-200.93**	**-65.47**	**10.29**	**-2,667.47**	**19.60**	**-2.05**
Max	**6.45**	**335.79**	**9.01**	**158.90**	**1,247.81**	**133.02**	**4.89**

Table 3: Sporting Data

This table presents sporting data of the English football clubs over the ten-year period spanning from season 2012-13 to season 2021-22. Data are presented in average terms and include the number of years each team participated in Premier League, total tickets sold on an annual basis, winning rate (either in Premier League, Championship or League One), uncertainty rate, i.e., the fraction of total champion's points minus team's X points to champion's points (either in Premier League, Championship or League One), and the number of years each team participated in UEFA's Champions League or Europa League.

Team	Premier League	Total Tickets	Winning Rate %	Uncertainty %	UEFA
Arsenal	10	1,606,653	53.68	-25.12	9
Aston Villa	7	1,187,796	31.73	-97.05	0
Brentford	1	563,019	45.16	-22.13	0
Brighton & Hove Albion	5	1,010,707	34.37	-37.57	0
Burnley	7	863,032	34.52	-52.70	0
Chelsea	10	1,303,266	57.11	-21.79	8
Crystal Palace	9	1,009,224	32.55	-59.82	0
Everton	10	1,263,053	38.42	-48.84	2
Leeds United	2	1,007,388	40.58	-31.02	0
Leicester City	8	1,086,642	43.76	-39.14	3
Liverpool	10	1,443,534	60.26	-18.87	8
Manchester City	10	1,466,105	68.95	-8.13	10
Manchester United	10	1,851,982	53.42	-24.38	9
Newcastle United	9	1,463,012	33.94	-69.52	1
Norwich City	5	1,004,100	34.95	-62.56	0
Southampton	10	1,128,870	32.63	-57.34	1
Tottenham Hotspur	10	1,380,479	54.74	-24.99	9
Watford	6	863,087	36.32	-44.59	0
West Ham United	10	1,394,123	35.00	-60.56	1
Wolverhampton Wanderers	4	946,609	42.87	-30.57	1
Average	**8**	**1,192,134**	**43.25**	**-41.83**	**3**
Min	**1**	**563,019**	**31.73**	**-97.05**	**0**
Max	**10**	**1,851,982**	**68.95**	**-8.13**	**10**

Table 4: Correlations

This table presents the correlation coefficients among ROA, ROE, profit margin, size, liquidity, leverage, efficiency, cash flow efficiency, turnover per employee, attendance, i.e., number of tickets, winning rate, uncertainty, Premier League membership and participation in UEFA's Champions League or Europa League.

	ROA	ROE	Profit Margin	Size	Liquidity	Leverage	Efficiency	Cash Flow Efficiency	Turnover per Employee	Attendance	Winning Rate	Uncertainty	Premier	UEFA
ROA	1.00	0.04	0.73	0.15	0.27	0.02	0.25	0.31	0.38	0.14	0.05	-0.29	0.34	0.13
ROE	0.04	1.00	0.09	-0.09	0.09	-0.64	0.05	-0.03	-0.10	0.05	-0.02	-0.01	-0.12	-0.01
Profit Margin	0.73	0.09	1.00	0.23	0.14	0.01	0.31	0.10	0.53	0.11	-0.09	-0.25	0.45	0.20
Size	0.15	-0.09	0.23	1.00	0.03	0.10	-0.44	-0.02	0.68	0.05	0.42	0.26	0.61	0.70
Liquidity	0.27	0.09	0.14	0.03	1.00	0.01	-0.10	0.14	0.06	0.07	0.10	0.05	-0.08	0.08
Leverage	0.02	-0.64	0.01	0.10	0.01	1.00	0.02	0.01	0.13	-0.04	-0.01	-0.03	0.14	0.04
Efficiency	0.25	0.05	0.31	-0.44	-0.10	0.02	1.00	0.07	0.19	0.06	-0.37	-0.52	0.28	-0.26
Cash Flow Efficiency	0.31	-0.03	0.10	-0.02	0.14	0.01	0.07	1.00	0.06	0.23	0.01	-0.07	0.08	-0.02
Turnover per Employee	0.38	-0.10	0.53	0.68	0.06	0.13	0.19	0.06	1.00	0.11	0.14	-0.12	0.84	0.50
Attendance	0.14	0.05	0.11	0.05	0.07	-0.04	0.06	0.23	0.11	1.00	0.00	-0.13	0.12	0.10
Winning Rate	0.05	-0.02	-0.09	0.42	0.10	-0.01	-0.37	0.01	0.14	0.00	1.00	0.80	-0.10	0.48
Uncertainty	-0.29	-0.01	-0.25	0.26	0.05	-0.03	-0.52	-0.07	-0.12	-0.13	0.80	1.00	-0.36	0.29
Premier	0.34	0.12	0.45	0.61	-0.08	0.14	0.28	0.08	0.84	0.12	-0.10	-0.36	1.00	0.38
UEFA	0.13	-0.01	0.20	0.70	0.08	0.04	-0.26	-0.02	0.50	0.10	0.48	0.29	0.38	1.00

Table 5: Regression Analysis of Performance based on Financial Data

This table presents the results of a panel regression analysis of the English football clubs' financial performance over the ten-year period spanning from season 2012-13 to season 2021-22. Financial performance is measured as the return on assets (ROA), return on equity (ROE), and profit margin. The independent variables considered are the size of clubs in assets terms, liquidity, leverage, efficiency, cash flow efficiency and revenue per employee. The lagged value of performance is also included in the control variables in an alternative version of the basic regression model.

	Dependent Variable: ROA		Dependent Variable: ROE		Dependent Variable: Profit Margin	
Variable	**Coefficient**	**t-Statistic**	**Coefficient**	**t-Statistic**	**Coefficient**	**t-Statistic**
Panel A: Basic Model						
Constant	*-153.01	-5.93	138.00	0.26	*-507.98	-5.20
Size	4.25	0.63	114.30	1.57	5.27	0.49
Liquidity	**0.06	2.71	*0.55	3.81	***0.08	1.69
Leverage	0.00	-0.91	**-0.07	-2.76	**-0.01	-2.32
Efficiency	***0.14	1.72	*1.70	1.70	*0.34	2.65
Cash Flow Eff.	***0.36	1.97	-0.82	-0.33	***0.14	1.69
Employee Rev.	***13.16	1.65	-164.90	-1.29	*56.04	3.58
R-squared	0.31		0.43		0.35	
Panel B: Alternative Model with Lagged Performance						
Constant	*-117.81	-4.57	347.67	0.51	*-399.41	-3.64
Lagged Perform	**0.17	2.08	-0.08	-1.26	**0.23	2.38
Size	3.96	0.57	106.42	1.41	-0.59	-0.06
Liquidity	*0.08	4.17	*0.53	3.03	**0.11	2.67
Leverage	0.00	-0.77	**-0.07	-2.72	0.00	-1.27
Efficiency	***0.18	1.69	***1.78	1.71	**0.27	2.03
Cash Flow Eff.	***0.31	1.68	-0.70	-0.25	***0.13	1.72
Employee Rev.	8.52	1.08	-183.93	-1.35	*49.00	3.62
R-squared	0.35		0.43		0.39	
* Statistically significant at 1%; ** Statistically significant at 5%; *** Statistically significant at 10%.						

Table 6: Regression Analysis of Performance based on Financial and Sporting Data

This table presents the results of a panel regression analysis of the English football clubs' financial performance over the ten-year period spanning from season 2012-13 to season 2021-22. Financial performance is measured as the return on assets (ROA), return on equity (ROE), and profit margin. The independent variables considered are the size of clubs in assets terms, liquidity, leverage, efficiency, cash flow efficiency and revenue per employee, attendance, i.e., the logarithm of total tickets sold annually, winning rate, uncertainty, Premier League membership and participation in UEFA's Champions League or Europa League. The lagged value of performance is also included in the control variables in an alternative version of the basic regression model.

	Dependent Variable: ROA		Dependent Variable: ROE		Dependent Variable: Profit Margin	
Variable	**Coefficient**	**t-Statistic**	**Coefficient**	**t-Statistic**	**Coefficient**	**t-Statistic**
Panel A: Basic Model						
Constant	*-206.85	-3.22	**-1,184.17	-2.34	*-689.59	-2.99
Size	7.94	0.82	**211.29	2.49	22.14	1.07
Liquidity	**0.06	2.56	*0.47	3.40	***0.07	1.69
Leverage	0.00	-0.97	**-0.07	-2.72	**-0.01	-2.39
Efficiency	***0.11	1.68	***2.54	1.96	**0.41	2.34
Cash Flow Eff.	**0.35	2.08	-0.55	-0.22	***0.17	1.80
Employee Rev.	**14.93	2.09	-81.47	-0.72	*64.37	3.08
Attendance	-0.53	-0.25	14.10	0.63	1.35	0.33
Winning Rate	***0.26	1.92	-2.39	-0.92	-0.44	-1.15
Uncertainty	*-0.28	-2.92	0.05	0.05	-0.10	-0.93
Premier League	-8.95	-0.90	**-199.51	-2.73	-26.75	-1.22
UEFA	0.18	0.05	37.05	1.17	4.34	0.69
R-squared	0.36		0.44		0.37	
Panel B: Alternative Model with Lagged Performance						
Constant	**-208.22	-2.73	**-1,237.62	-2.19	**-653.73	-2.32
Lagged Perform	**0.16	2.08	-0.08	-1.25	**0.22	2.17
Size	10.58	1.04	**212.30	2.29	24.89	0.99
Liquidity	*0.07	4.52	**0.45	2.60	**0.11	2.62
Leverage	0.00	-0.96	**-0.07	-2.69	0.00	-1.46
Efficiency	***0.16	1.74	***2.87	1.92	***0.40	1.91
Cash Flow Eff.	***0.31	1.79	-0.57	-0.19	***0.18	1.75
Employee Rev.	***12.87	1.75	-74.90	-0.65	*60.32	3.08
Attendance	-1.11	-0.59	20.61	0.76	-0.94	-0.23
Winning Rate	***0.22	1.69	-2.78	-0.96	-0.55	-1.39
Uncertainty	**-0.28	-2.71	0.39	0.30	-0.04	-0.38
Premier League	-13.36	-1.24	*-238.95	-3.02	-32.06	-1.23
UEFA	0.08	0.02	42.22	1.07	-1.37	-0.17
R-squared	0.41		0.45		0.41	
* Statistically significant at 1%; ** Statistically significant at 5%; *** Statistically significant at 10%.						