

A Work Project presented as part of the requirements for the Award of a Master's degree in  
Finance and Management from the Nova School of Business and Economics.

**Exploring the Virtuous Cycle of Marketing, Fan Engagement,  
Financial Performance, and League Attendance in Enhancing  
Competitiveness**

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## **Abstract**

This study, in collaboration with UEFA's Growth Programme, explores how marketing, fan engagement, league attendances and financial management in European football form a "virtuous cycle" that can be leveraged by National Football Associations (NAs). It identifies key strategies for maximizing value: diversifying revenue sources, investing in infrastructure and youth, renewing squad talent, and adopting data-driven decision-making. It highlights sophisticated marketing and fan engagement tactics like hosting cultural events, creating tailored loyalty programs, and boosting digital interaction through fan zones and social media. These approaches, demonstrated by NAs like the English FA, German DFB, and Dutch KNVB, aim to improve attendance, loyalty, and competitiveness.

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**Keywords:** Football; Virtuous Cycle; Sports Marketing; Fan Engagement; Financial Performance; League Attendances; Competitiveness

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# 1. Executive Summary

This study, conducted in partnership with UEFA's Growth Programme, explores the virtuous cycle linking marketing efforts, fan engagement, financial performance, and attendances in driving competitiveness among football clubs and associations. The goal of the analysis is to identify the key factors that contribute to this cycle, and how they impact each other, in order to provide actionable insights for National Associations to enhance performance and competitiveness.

The analysis begins with a review of existing literature to establish the theoretical foundation and find the research gap that provides added value to our study. While current literature examines bilateral relationships between factors and sports performance, there is a lack of resources on the interlinkage within the "virtuous cycle", which is what our work focuses on.

Data was collected from several clubs to assess match attendance, fan engagement, financial performance, and marketing strategies. Best practices retrieved include digital innovation, fan advisory boards, loyalty programs, and immersive matchday experiences, as well as revenue diversification, strategic investments and long-term planning, and responsible management.

Furthermore, a regression analysis was performed to evaluate the relationships between the variables in question. Results show that fan engagement drives revenue, through match attendance and digital interactions. Revenues, in turn, influence transfers, which then positively affect sports performance. Success on the pitch increases both digital engagement and match attendance. Hence, fan engagement, financial performance, and sports success mutually reinforce each other, driving sustainable growth and competitiveness.

Finally, a case study comparing Sporting CP and SL Benfica tests the study's conclusions with real-world data. Key findings highlight that Sporting's controlled investment, financial discipline, and focus on youth development have fuelled a positive virtuous cycle, driving both

engagement and on-field success. In contrast, Benfica's underperformance on the pitch, despite aggressive financial strategies, has created a negative cycle, thus underscoring the importance of properly leveraging the virtuous cycle to achieve sustained success.

Overall, the study demonstrates that marketing drives fan engagement, which, in turn, leads to higher attendance and improved financial performance. This enhanced financial health boosts sports performance, which positively affects fan engagement, forming a deep interconnected cycle.

Based on these insights, we recommend that National Associations adapt successful club-related strategies, emphasizing community engagement, fan-centric initiatives, and financial stability as foundational elements of growth. A strong marketing strategy that reflects the NA's identity and values leads to strategic sponsorship deals and enhances brand recognition. Additionally, engaging fans through tailored initiatives such as fan zones, loyalty programs, and digital experiences foster deeper connections and strengthens loyalty. Customised matchday experiences through targeted campaigns and cultural events results in higher attendance, which further increases fan engagement. As fan engagement grows, it will positively impact financial performance.

In terms of financial strategy, NAs should focus on diversifying their revenue streams, balancing income from the various segments. Furthermore, investing in infrastructure and youth development is critical to sustaining growth. A recommended approach includes investing in high-quality facilities and renewing 15%-20% of the squad annually.

The focus on fan engagement and strong financial management will translate into improved competitiveness. By adopting data-driven decision making, NAs can benchmark against top-performer organizations and position themselves for sustainable growth and enhanced competitiveness. Several NAs are already implementing the mentioned practices. Examples

include the English FA's "FA Player" for exclusive content, the German DFB's app for behind-the-scenes access, and the Portuguese FPF's fan zones during major tournaments. These personalised strategies foster fan loyalty and improve financial and performance outcomes.

## **2. Introduction**

Sports are becoming increasingly relevant in today's landscape, with football at its centre. As a multi-billion-euro industry that attracts fans worldwide, effective marketing, fan engagement and financial performance have a growing significance in enhancing overall competitiveness.

By joining efforts with UEFA's Growth Programme - which offers strategic support to European football associations - we intend to assist in maximising National Associations' ability to drive sustainable growth, enhance fan engagement and match attendance, diminish financial disparities, and increase the competitive balance across the sport.

The main objective of this thesis is thus to explore the intersection of marketing, fan engagement, and financial performance, retrieving important insights on how the interplay of these factors can drive match attendance, fan loyalty, and competitiveness within and across National Associations. Following a bottom-up approach, we examine relevant marketing strategies employed by European clubs, alongside their financial and on-pitch performance, enabling us to assess the relevance of each factor, and afterwards their interconnectedness, and identify actionable strategies that National Associations can adopt to enhance their performance. Ultimately, these findings lead to practical recommendations for NAs on how to optimize their projects by leveraging the so-called virtuous cycle.

As mentioned, while existing literature often explores two-way relationships between these factors and sports performance, a gap remains in understanding how they interconnect and influence each other in a cyclical manner. This study seeks to address that gap and offer insights on how National Associations can tap into this cycle to drive overall improvement.

### **3. Methodology & Data Collection**

This work draws insights from a comprehensive analysis of key metrics, club reports, and case and industry studies. Relevant data include fan engagement metrics, social media activity, financial figures and match attendance metrics across major European leagues and clubs. Additionally, data was retrieved from reputable databases, namely Orbis and Deloitte Reports.

The methodology follows a bottom-up approach, starting with club analysis and achieving its main goal on National Associations recommendations.

Three top European leagues were selected – English Premier League, Bundesliga and Serie A – and within each three clubs are analysed – two top-performers and one outlier, that exhibits lower financial performance and popularity but is still capable of achieving respectable sporting results.

In the EPL, which is often perceived as the best football league, the selected clubs were Manchester City, Manchester United and Leicester City. Manchester City has been the dominant player for the last few years, while its neighbour Manchester United has struggled to live up to its former glory. As to Leicester, its climb to the top was a remarkable milestone that makes it worthy to look at.

As to the Bundesliga, Bayern Munich, Borussia Dortmund and Eintracht Frankfurt were the chosen teams. Bayern has monopolised the league's title for over a decade, with Borussia constantly being the team that comes close but falls short. Eintracht, on the other hand, although not in the same degree of excellence, is a club that has often demonstrated resilience and success.

Finally, Juventus, Inter Milan and SSC Napoli were the representatives of Serie A, a league that is still perceived as having a high margin for improvement. Juve's significant role in European

football and its historical dominance, despite the recent challenges, makes it an important entity to understand. Inter Milan is the current title holder, and Napoli, with its growing force, was selected as an outlier due to its relatively smaller appeal.

The implemented framework begins with a descriptive analysis of key metrics and strategies employed by clubs, providing a foundational understanding of current practices, followed by a comparative view.

Additionally, various regression models are used to assess correlations, identify patterns and evaluate the impact of the inputs in question on overall competitiveness. Such models allow us to quantify and isolate the influence of each factor, thus providing a deeper understanding of how the different variables, like financial turnover and match attendance, contribute to the virtuous cycle that strongly relates to competitiveness.

Lastly, a case study analysing Sporting CP and SL Benfica is developed, in order to test our hypothesis in a real-world situation and highlight the importance of strategically exploiting the virtuous cycle.

## **4. Literature Review**

It is difficult to argue against football's broad popularity, with a fanbase estimated at 3.5 billion and growing (Miller 2024). Over the years, the football industry has undergone significant transformation, evolving into a commercial sport and one of the largest global businesses. This growth is reflected not only in the vast number of fans and supporters worldwide but also in the substantial revenues it generates. Massive financial investments now come from a variety of stakeholders, including media corporations, corporate shareholders, and sponsors, with a growing number of football clubs listed on stock exchanges (Toma and Catană 2021).

This financial growth is sustained by many factors including fan-generated income, media revenues like broadcasting rights, and additional sources like sponsorships, ownership stakes and gate receipts, as shown in Table A1. For professional leagues, this market segment, the fans, has been the most reliable and, possibly, the most taken-for-granted revenue source (S. Mason 1999).

This literature review explores the current research on how these factors – with a particular focus on fan engagement and match attendance – affect the financial situation of clubs and ultimately associations, and how they operate in a loop that has overall competitiveness as its core.

#### **4.1. Fan Engagement**

Fan engagement bridges two critical concepts: “fan” and “engagement.” The term “fan” may adopt a variety of levels considering the involvement with and psychological connection of a person (fan) to a team (football club); however, it always includes the shared interest in following a team through supportive and repetitive consumption behaviours (File and Worlledge 2023). “Engagement” can be related to customer engagement - a customer’s (a fan’s) voluntary resource contribution to a firm’s (a club’s) marketing function, going beyond financial patronage (Harmeling et al. 2017).

In a football context, fan engagement refers to the process by which sports organizations build and maintain the loyalty of their supporters by understanding their behaviours and preferences and delivering experiences that go beyond winning games or championships, to foster lasting connections with fans. This can include fan interaction via digital platforms, personalised experiences at stadiums, and emotional connections to the club’s brand and values. Keeping this in mind, the previously discussed link between customer engagement and a firm’s performance (Figure A1) is also relevant. Engaged fans are more likely to purchase tickets,

merchandise, and subscriptions, directly contributing to a team's revenue. By fostering a strong connection with fans, sports organizations can build brand loyalty, ensuring long-term support and advocacy. Additionally, engaged fans enhance a team's marketability, making the club more attractive to sponsors and partners, which can lead to lucrative endorsement deals and sponsorships. In a competitive sports market, effective fan engagement helps differentiate a team or brand, attracting and retaining fans (Donen 2024). According to a 2015 study by Deloitte, engaged fans may spend up to six times more than casual fans (Deloitte 2015).

Taking this into consideration, many football clubs have increasingly focused on fan engagement through enhanced marketing strategies. Manchester City, for instance, has embraced digital transformation to diversify its revenue streams and digital memberships. As highlighted in the club's annual report, "Entertaining fans across the world through digital channels is a core part of the Club's approach to fan engagement." This approach led to a significant expansion in digital engagement, notably through the creation of City Studios, which boosted video views by 107% and social media engagement by 87% year-on-year. Additionally, the club set record TV viewership figures, reaching a total audience of 786 million across all competitions, marking a 28% increase from the previous season (Manchester City Football Club 2023). Real Madrid has also invested significantly in its digital transformation, with a key focus on creating personalised experiences for its fans. The club launched an innovative digital ecosystem that includes its official mobile app and renewed website, offering personalised content based on user preferences.

#### **4.2. Match Attendance**

Football teams' financial success now heavily depends on fan engagement, which has a direct impact on revenue streams such as match attendance (Allison 2013). Although the main factor influencing attendance has historically been on-field performance, research indicates that teams can mitigate attendance fluctuations by concentrating on fan engagement tactics that improve

the whole matchday experience and strengthen fans' bonds with the team (Maderer, Parganas, and Anagnostopoulos 2018).

One executive from a Championship club highlighted that fan attendance often varies depending on team results, but by investing in fan engagement, clubs can stabilize these numbers. He stated, "Attendance levels ebb and flow based on results, but focusing on fan engagement can help even out those fluctuations, leading to more stable revenue" (Allison 2013). This insight underscores the need for football clubs to shift their attention toward understanding what fans value and to focus on delivering experiences that keep fans returning, regardless of team performance (Maderer, Parganas, and Anagnostopoulos 2018). Enhancing matchday experiences through targeted initiatives - such as better in-stadium entertainment, improved facilities, and tailored fan interactions - can also increase revenue (Fathy, Elsharnouby, and AbouAish 2022). As another executive explained, "If fans stay longer, they spend more, and this directly improves the club's financial health, allowing for further reinvestment into the team" (Allison 2013).

Social media platforms have become essential tools for clubs to engage their followers and improve financial results, in addition to actual fan involvement. Allison suggests that fans who engage with their teams on social media are more likely to recommend and purchase merchandise connected to the clubs (Allison 2013). For instance, a study by Perform (McCabe 2013) reports that 25% of fans who use social media are more inclined to make purchases, and 28% of fans who use social media express a stronger interest in brands sponsoring their favourite teams.

This demonstrates the potential of social media as a commercial asset that can be used to improve sponsorship agreements and boost income from fan interactions, in addition to its usefulness as an engagement tool (Fathy, Elsharnouby, and AbouAish 2022).

Clubs who successfully include social media tactics into their overall engagement strategy experience quantifiable financial benefits (Maderer, Parganas, and Anagnostopoulos 2018). Clubs like Manchester City and Bayern Munich have developed digital campaigns that generate new revenue streams by customizing material, providing unique behind-the-scenes access, and cultivating a global fan community (Nield 2013) (Baena 2019). These tactics keep supporters interested throughout the season, which fosters fan loyalty, increases merchandise sales, and results in increased match attendance (Deloitte, n.d.).

Even if social media interaction is still not directly monetised, it is obvious that these platforms present significant chances for financial gain. Sponsors are increasingly focusing on gaining access to content and followers via social media. This emphasizes the significance of leveraging consumer data to comprehend fan behaviour and adjust marketing plans appropriately (Parganas and Anagnostopoulos 2015). Football teams may generate more profitable and individualised marketing campaigns by investing in customer relationship management (CRM) systems, which provide them with better insights into the preferences and spending habits of their supporters, allowing clubs to tailor matchday experience and marketing campaigns to engage fans and attract people to the stadium, assuring great occupancy rates regardless of the team's on-field performance (Annamalai et al. 2021).

This way, football teams who place a high priority on fan involvement stand a higher chance of achieving both financial stability and growth through matchday experiences and digital engagements. In a highly competitive sports climate, clubs may ensure long-term profitability by developing stronger relationships with their followers, increasing attendance, and securing lucrative sponsorships by utilizing social media as a primary engagement tool (McCabe 2013).

### **4.3. Financial and Sports Performance**

Football is not only a source of entertainment but has also become a significant economic activity. Clubs operate similarly to typical businesses, focusing on revenue generation, brand value, marketing, and financial management to remain competitive and manage resources efficiently (Morrow 2013). Thus, a healthy financial situation is a key success factor for football entities that wish to thrive.

Several studies have confirmed the interconnection between financial success and competitive results, particularly in top European leagues. In this context, a relevant work is the one by Rohde and Breuer (2016), which states that “financial success is driven by national and international sporting success, as well as brand value; sporting success is driven by team investments, and team investments tend to be driven by (foreign) private majority investors”, thus reflecting the reciprocal impact of financial decisions in sports performance and vice-versa.

Although there is a consensus on the importance of financial activity in sports success, the question remains of what metrics to look at when exploring such relationship. Wages are often used as a proxy for club financial strength, with studies by Kuper and Szymanski (2012) suggesting that wage expenditure is closely correlated with league performance. The higher the wage expenditure, the more likely it is to achieve high rankings and titles. The capacity to spend such amounts come from a variety of revenue streams, namely matchday sales, commercial ventures, and broadcasting rights, which then allow clubs to secure top talent, giving them a competitive advantage. Hence, revenue on its own is also a reference metric when assessing clubs' financial health, with its evolution being the driver of financial growth (Rohde and Breuer 2016). Still, other angles have been used, namely club investments and player acquisitions.

Szymanski and Kuypers (1999) explore the reasons why some clubs achieve success while others are not able to get the same outcome, arguing that financial performance is the strongest

determinant of sports success. According to their view, well-funded clubs are in a better position to attract high-calibre players and coaching talent, which frequently results in enhanced team performance. In fact, by looking at the dominance of wealthy clubs such as Real Madrid (La Liga), Manchester City (English Premier League) and Paris Saint Germain (Ligue 1), one is driven to take this argument as granted, as their financial muscle is a key tool to consistently outperform competitors. This phenomenon is often described as a “virtuous cycle”, a theory defended by a numerous of authors, namely Morrow, which suggests that winning results boost revenues from sponsorships, broadcasting rights and commercial sales, which in turn enable further investments in on-field success (Morrow 2013). Consequently, clubs with lower financial resources face considerable obstacles in penetrating the elite level dominated by powerful teams, which results in a perpetual disparity in league competitiveness (Vöpel 2011). As stated by Vöpel, “in the long run this process could end up with the dominance of a few teams predetermining the championship and making it less interesting”.

To address this imbalance between financial power and competitive fairness, UEFA introduced the Financial Fair Play (FFP) regulation, which a study (Peeters and Szymanski 2014) suggests that led to increased financial stability among clubs, but at a cost. By limiting overspending and financial mismanagement, the FFP consolidated the power of traditionally wealthy teams, thus reinforcing the established hierarchy within European football and reducing upward mobility for smaller clubs, intensifying the effects of the virtuous cycle.

Nevertheless, there are other factors that also affect on-field sports success, such as youth academy development, efficient management and marketing, scouting, etc. Borussia Dortmund is the living proof, as it engages in a model that is characterised by financial prudence mixed with strategic investments in talent development, as a way to achieve competitive results without the financial wealth of the biggest clubs.

Furthermore, it is also important to recognize that although there is a significant relationship between financial health and sporting success, financial mismanagement can lead affluent clubs to decline sports performance, as happened with FC Barcelona in recent years. Excessive debt or poorly planned investments can outweigh the benefits of financial strength, leading the club on a downward path on-field.

Financial performance undeniably impacts sports outcomes in European football, but this relationship is complex and multidimensional. Wealthier clubs generally have a competitive advantage as they are in better conditions to invest in talent and infrastructure, but financial success by itself does not guarantee sports success. Studies show evidence of a close in-loop relationship between financial and sports success, with financial regulations like FFP intervening to ensure equitable competition.

#### **4.4. Competitiveness**

By generating revenue through match attendance and digital interaction, fan engagement has a major impact on league competitiveness (Ramchandani et al. 2018). Financial benefits allow clubs with larger and more devoted fan bases to make investments in infrastructure and talent. This reduces the competitive balance by increasing the gap between wealthy clubs and those with fewer resources (Oughton and Michie 2004). Top teams like Manchester City, Real Madrid, and Barcelona, for example, employ effective fan interaction tactics to increase their revenue and further solidify their control over smaller clubs in the English Premier League and La Liga (Ramchandani et al. 2018).

Additionally, social media has globalised fan interaction, which enables teams to reach a wider audience and attract international sponsorships. Because teams with a larger worldwide fan base, like Bayern Munich, can continue to achieve consistent on-field success (Baena 2019), this increase in commercial income deepens the gap between rich and poor. In leagues like La

Liga and the Bundesliga, where only a small number of teams consistently compete for titles, this trend adds to the long-term erosion of competitiveness. In order to preserve league competitiveness and guarantee a more equal playing field for all teams, revenue distribution must be balanced (Ramchandani et al. 2018).

From this perspective, to succeed in the industry of football, it is important not only to achieve good results at an on-field level, but also off-field. Hence, the relationship between financial performance and sports performance in European football is a central topic of contemporary sports economic literature, as is the role of marketing, fan engagement, and attendances.

## **5. Relationship Between Marketing Potential, Fan Engagement, Match Attendance, Financial Performance and Overall Competitiveness**

This section highlights the critical relationship between marketing, fan engagement, and match attendance, which will be analysed alongside financial performance to explore their connection to competitiveness using collected data and correlations.

Modern football clubs increasingly operate like businesses, focusing on understanding their audience. Unlike typical companies that aim to build loyalty by convincing prospects of their products' value, football clubs already possess loyal fans who may not necessarily become paying customers. As Celtic manager Jock Stein remarked, "Without fans who pay at the turnstile, football is nothing" (Mitchell 2021). Marketing bridges this gap by converting fans into customers, as revenue streams heavily depend on them.

Marketing, fan engagement, match attendance, and financial performance are vital for competitive and sporting success. Clubs are leveraging media deals, sponsorships, and fan

Regression

To evaluate the interlinkage between marketing efforts, fan engagement, financial performance, and league attendance within the virtuous cycle, we employed both multilinear regressions and simple linear regressions.

Our analysis focuses on historical data from 13 prominent European clubs across four major leagues—Bundesliga, Premier League, Serie A, and La Liga. The selected clubs include FC Bayern Munich and Borussia Dortmund (Bundesliga); Chelsea, Manchester City, Manchester United, and Tottenham Hotspur (Premier League); AC Milan, AS Roma, Inter Milan, Juventus, and Napoli (Serie A); Valencia and Villarreal (La Liga). These teams were chosen to represent a diverse range of top-performing clubs across Europe, offering insights into the factors driving the virtuous cycle.

The timeframe analysed spans from the 2013/2014 season onward, as earlier data was unavailable. This period provides a comprehensive view of the trends and strategies adopted by these clubs in key performance areas, facilitating a robust assessment of the virtuous cycle's dynamics.

### **5.5.1. Data Sources**

The primary data sources for this study included Orbis, Transfermarkt, Instagram, and the Football Observatory. Orbis was used to obtain financial data (turnover). Orbis is a comprehensive database offering detailed financial information for organisations globally. Transfermarkt provided data on match attendance figures, stadium capacity, player acquisitions and sales for the selected clubs. To ensure comparability over time, player transfer values were adjusted for inflation using indices proposed by the Football Observatory. As detailed in their research article, this adjustment accounts for market value shifts in the football industry. The Football Observatory Inflation Index offered a robust method to deflate monetary values in the football market, ensuring consistency across the dataset (Poli, Ravenel, and Besson 2023).

Instagram was the source of Instagram followers' data to estimate the impact of social media engagement.

### **5.5.2. Data Construction and Preparation**

The data collection and organization process were conducted using Microsoft Excel to compile and initially analyse the data. Our dataset originally included 130 observations, covering multiple seasons from 2013/2014 onward. After organizing the data in Excel, further statistical analysis and regression modelling were performed using Stata. This software allowed us to compute the regression models, test assumptions, and analyse results effectively.

### **5.5.3. Data Standardisation**

To ensure comparability and accuracy in the regression model, all numerical variables were standardised by converting them into z-scores, which represent the number of standard deviations a value is from the mean. This process addressed two key issues: first, it ensured comparability across variables measured in different units, such as turnover (in thousands of euros) and market acquisitions (in millions), allowing direct comparison of their relative influence on club performance. Second, standardisation improved numerical stability, preventing computational errors caused by variables with widely differing magnitudes and ensuring reliable regression coefficients.

### **5.5.4. Model Metrics**

#### **Transfer Market Acquisitions and Sales**

The transfer market plays a central role in modern football as a mechanism for talent acquisition and redistribution. We included transfer market acquisitions and sales in our regression model due to their documented influence on club performance. Prior studies, such as " (Wanat and Leksowski 2022) show that effective player transfers enhance team competitiveness,

particularly when aligned with strategic objectives, though transfers alone explain only part of club success.

Our decision was further supported by an analysis of the clubs in our model—Bayern Munich, Borussia Dortmund, Inter Milan, Juventus, Manchester City, and Manchester United—where historical data revealed a consistent pattern: clubs that excel in acquiring and integrating talent tend to achieve stronger performance on and off the pitch. The transfer market thus emerges as a key tool for addressing team weaknesses, replacing players, and building squads capable of sustained success, aligning with research emphasizing the importance of strategic transfer planning.

Additionally, to ensure comparability of transfer market values across seasons, we decided to deflate the transfer values over the years, using the 2013/14 season as the base year. The deflator values were extracted from the Football Observatory's research article on transfer market inflation (Poli, Ravenel, and Besson 2023), which provides an inflation index specific to the football market. This adjustment enables us to account for the rising costs in the transfer market and isolate the real impact of player transactions on club performance over time.

### **Turnover (Operating Revenues)**

We decided to include club revenues as a variable in our regression model due to its well-established connection to organizational performance, both in academic literature and practical contexts. Previous studies, such as "The Importance of Club Revenues for Player Salaries and Transfer Expenses in Professional Football" (Quansah et al. 2021), have demonstrated that higher revenues enable clubs to invest more significantly in player acquisitions, coaching, infrastructure, and other resources that directly enhance on-field performance. This highlights a strong link between financial success and sporting outcomes, justifying its inclusion in our analysis.

In addition to the support found in the literature, we also recognize that revenues generated by football clubs are analogous to those of traditional firms. Football clubs today operate as complex businesses, with multiple revenue streams such as broadcasting rights, matchday income, and commercial partnerships. These revenues are not only indicators of a club's financial health but also directly influence their capacity to compete at the highest levels.

### **Social Media Followers**

Social media followers, represented by a sample which corresponds to Instagram followers, were included as a variable in the regression model to assess the impact of digital engagement on club performance. Social media platforms, particularly Instagram, have become crucial for football clubs to connect with fans, enhance their brand, and generate revenue through sponsorships and merchandise sales. Previous studies, such as "Team Sports Performance Analysed Through the Lens of Social Network Theory: Implications for Research and Practice" (Ribeiro et al. 2017) have shown that there is a relationship between Team Performance and Social Networks, which leveraged some potential to analyse the relationship between the Social Media Network, represented by the followers of a club in one of the most famous social media platforms, and Sports Performance.

### **Match Attendance**

Match attendance for home matches was included as a variable in the regression model to evaluate its influence on club performance. High attendance figures are often seen as a sign of strong local support and fan engagement, which can provide a motivational boost to players. A study of how competitive balance explains stadium attendance, with evidence from Finnish Men's Football, (Mangeloja and Szeróvay 2024) demonstrated that Finish Football attendance is positively correlated with the competitive balance between rival teams, suggesting also some relationship with a club's performance.

### 5.5.5. Empirical Methodology

The regression analysis was conducted on a time-series dataset comprising 130 observations. To ensure the robustness and validity of the regression models, several statistical assumptions and diagnostic tests were addressed and implemented. The regression analysis was conducted on a time-series dataset comprising 130 observations.

#### Heteroskedasticity Testing

Heteroskedasticity, which refers to the non-constant variance of error terms across observations, was tested using the **Breusch-Pagan test** in STATA<sup>1</sup>. This test evaluates whether the assumption of homoskedasticity (constant variance of residuals) holds. Since standard OLS regression models inherently assume homoskedasticity, failing this assumption would result in biased standard errors, rendering t-statistics and F-statistics inappropriate. In instances where the Breusch-Pagan test rejected the null hypothesis (indicating the presence of heteroskedasticity), the robust standard errors method would be applied to correct for the variability in residuals. The robust standard errors are adjusted to account for the observed variability of model residuals, ensuring the reliability of statistical inferences, such as coefficient significance and model fit.

#### Multicollinearity Testing

To address multicollinearity<sup>2</sup>, which occurs when independent variables are highly correlated, the Variance Inflation Factor (VIF) was calculated for each variable<sup>3</sup>. Multicollinearity can inflate standard errors, making it difficult to determine the unique contribution of each variable.

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<sup>1</sup> Test was conducted using the built-in STATA command named *estat hettest*.

<sup>2</sup> **Multicollinearity** occurs when independent variables in a linear regression model are correlated with each other. This correlation can negatively impact the model's predictions on new data by increasing complexity and leading to overfitting, which ultimately reduces the accuracy of the predictions (Murel and Kavlakoglu 2023).

<sup>3</sup> Test was conducted using the built-in STATA command named *estat vif*.

By testing the VIF, we ensured that no variable exhibited excessively high correlation with others, thereby preserving the interpretability and precision of our coefficient estimates. For the simple linear regressions, the VIF was not used because these models involve only one independent variable. Multicollinearity, by definition, arises when there is high correlation among multiple independent variables in a model, which is not applicable to simple linear regression.

### **Model 1: Revenues as a Function of Lagged Fan Engagement Metrics**

This study investigates the complex dynamics within the virtuous cycle of football club performance, where marketing efforts, fan engagement, financial performance, and match attendance interact to drive competitiveness. In this first model, we analyse the effect of fan engagement metrics on revenues, testing the hypothesis that heightened fan engagement positively contributes to a club's financial performance.

The use of lagged variables in this model is grounded in both theoretical and practical considerations. Revenues in football clubs are influenced by prior periods' fan engagement activities, such as match attendance, interactions on social media, and other forms of fan involvement. In this case, match attendance serves as a key measure of fan engagement, capturing the extent to which fans are physically present at games and actively supporting their teams. Since fan engagement requires time to translate into tangible financial outcomes - such as matchday revenues, merchandise sales, and sponsorship agreements - using lagged variables allows us to account for this time-dependent effect.

Lagging match attendance and social media metrics also addresses concerns of endogeneity, particularly reverse causality, where higher revenues in the current period might influence fan engagement. By using lagged measures, we ensure a more directional relationship, where

engagement at time t-1 influences revenues at time t. This approach strengthens the causal interpretation of the relationship. The model itself is expressed as follows:

*Regression 1: Revenues at time t, as a function of Match attendance and Social Media at time t-1*

$$\text{Revenues}_t = \beta_0 + \beta_1 * \text{Match Attendance}_{t-1} + \beta_2 * \text{Match Attendance}_{t-1} + \epsilon_t$$

Here, revenues at time t are modelled as a function of lagged match attendance, which represents fan engagement, and lagged social media followers, which capture digital engagement. The inclusion of an error term accounts for any unobserved factors that may influence revenues.

## **Model 2: Transfers as a Function of Lagged Revenues**

This study investigates the interconnections within the virtuous cycle of football club performance, where financial performance enables clubs to make strategic investments that drive future competitiveness. In the second set of regressions, we analyse the relationship between revenues and player transfers, measured through acquisitions and sales. Specifically, we test how lagged revenues impact two key components: market acquisitions (Regression 2a) and market sales (Regression 2b).

The use of lagged revenues in these models reflects the time-dependent nature of financial decision-making in football clubs. Revenues generated in a prior period serve as the financial foundation for clubs' strategic decisions regarding player transfers in the subsequent period. Financial performance provides clubs with the resources to acquire new players, enhance squad quality, and drive competitiveness. At the same time, revenues may influence player sales, as clubs often strategically offload players to balance their budgets, manage wage bills, or reinvest funds into future acquisitions. By introducing lagged revenues into the model, we account for this delayed effect, ensuring that the directionality of the relationship is appropriately captured.

In addition to its theoretical justification, using lagged revenues helps address concerns about simultaneity bias. Player transfers, whether acquisitions or sales, can influence revenues in the same period through factors like increased match attendance, merchandise sales, or sponsorship deals. By lagging revenues, we ensure that the observed relationship reflects the influence of prior financial performance on transfer decisions rather than a concurrent interaction. This temporal separation strengthens the causal interpretation of the model, aligning revenues as a determinant of subsequent transfer activity. The models are specified as follows:

*Regression 2a: Market Acquisitions at time t, as a function of Revenues at time t-1*

$$\text{Market Acquisitions}_t = \beta_0 + \beta_1 * \text{Revenues}_{t-1} + \epsilon_t$$

*Regression 2b: Market Sales at time t, as a function of Revenues at time t-1*

$$\text{Market Sales}_t = \beta_0 + \beta_1 * \text{Revenues}_{t-1} + \epsilon_t$$

In both equations, revenues at time t-1 represent the financial performance of the club in the prior period, serving as the independent variable. The dependent variables, market acquisitions and market sales, measure the transfer activity of the club, reflecting strategic investments and financial adjustments. The error term captures unobserved factors that may influence transfer decisions.

These models allow us to examine how prior revenues influence transfer market behaviour, distinguishing between investments in acquiring new players and the strategic sale of existing players. The focus on lagged revenues is particularly relevant in football's financial context, as clubs often allocate financial resources from previous periods to shape their transfer strategies for the upcoming season.

### **Model 3: Sports Performance as a Function of Lagged Transfer Activity**

This study examines how transfer market decisions influence the competitive performance of football clubs, emphasizing their role within the virtuous cycle. In the third set of regressions,

we investigate the effects of transfer activity on sports performance over time. Specifically, we analyse the impact of market acquisitions (Regression 3a) and market sales (Regression 3b) in prior periods on subsequent on-field outcomes.

The use of lagged transfer activity in these models is essential to reflect the sequential and cumulative nature of team performance. Player acquisitions are investments made to improve squad quality, strengthen specific positions, and enhance overall competitiveness, but these effects are rarely instantaneous. It takes time for new players to adapt to their teams, integrate into playing systems, and deliver measurable improvements on the field. Similarly, the sale of players, whether driven by financial constraints or strategic choices, can have delayed effects on performance through changes in squad depth, cohesion, or reinvestment strategies. By introducing lagged variables, we ensure the model captures this time-dependent relationship more accurately.

Lagging transfer activity also mitigates the issue of simultaneity bias, where current sports performance might otherwise influence transfer activity in the same period. Clubs experiencing strong performance may attract better players or command higher transfer fees, creating a two-way relationship between transfers and performance. By focusing on lagged market acquisitions and sales, we isolate the directionality of the relationship, where transfer decisions made in the prior period shape performance outcomes in the current period. The models are specified as follows:

*Regression 3a: Sports Performance at time  $t$ , as a function of Market Acquisitions at time  $t-1$*

$$\text{Sports Performance}_t = \beta_0 + \beta_1 * \text{Market Acquisitions}_{t-1} + \epsilon_t$$

*Regression 3b: Sports Performance at time  $t$ , as a function of Market Sales at time  $t-1$*

$$\text{Sports Performance}_t = \beta_0 + \beta_1 * \text{Market Sales}_{t-1} + \epsilon_t$$

In these models, sports performance at time  $t$ , measured through competitive scores, serves as the dependent variable. The independent variables - market acquisitions and market sales at time  $t-1$  - represent transfer activity in the prior period. The error term accounts for other unobserved factors that may affect sports performance.

By adopting this framework, we aim to understand how investments in the transfer market and strategic player sales translate into measurable performance on the pitch. This approach highlights the delayed nature of transfer outcomes while accounting for the dynamic decisions clubs must make to balance short-term performance goals with long-term sustainability.

#### **Model 4: Fan Engagement and Match Attendance as a Function of Lagged Sports Performance**

The final set of models explores the relationship between sports performance and two critical measures of fan engagement: digital fan engagement (Regression 4a) and match attendance (Regression 4b/Regression 4). Understanding this relationship is essential within the virtuous cycle framework, as on-field success often serves as a catalyst for increased fan interest, participation, and loyalty.

The use of lagged sports performance as the independent variable reflects both practical and theoretical considerations. Sports performance, measured through competitive scores, influences fan behaviour over time rather than instantaneously. Successful performance in one period can strengthen fans' emotional connection to the club, leading to increased match attendance, social media engagement, and other forms of interaction in subsequent periods. By focusing on lagged performance, we account for this time-delayed reaction and ensure that fan engagement is modelled as a response to prior performance outcomes.

Additionally, lagging sports performance mitigates concerns of simultaneity, where fan engagement metrics in the current period could influence team performance directly. For

example, higher match attendance or social media buzz might motivate players and contribute to better on-field results. By introducing a lagged structure, we separate the influence of sports performance on subsequent fan engagement, ensuring a clearer, unidirectional relationship. The models are expressed as follows:

*Regression 4a: Social Media at time t, as a function of Sports Performance at time t-1*

$$\text{Social Media}_t = \beta_0 + \beta_1 * \text{Sports Performance}_{t-1} + \epsilon_t$$

*Regression 4b: Match Attendance at time t, as a function of Sports Performance at time t-1*

$$\text{Match Attendance}_t = \beta_0 + \beta_1 * \text{Sports Performance}_{t-1} + \epsilon_t$$

In both models, the dependent variables capture distinct but complementary dimensions of fan engagement: digital interaction through social media and physical participation through match attendance. The independent variable, sports performance at time t-1, represents the competitive outcomes that drive fan enthusiasm. The error term accounts for other unobservable factors that might influence fan engagement and attendance. This approach allows us to empirically evaluate how prior on-field success translates into increased fan interaction and attendance, highlighting the role of sports performance as a driver of fan engagement. By disentangling this relationship through lagged variables, we emphasize the sequential and dynamic nature of the virtuous cycle, where performance fuels fan involvement, which can, in turn, reinforce financial and competitive success.

### **5.5.6. First Regression Model**

The first regression model aimed to examine the influence of fan engagement metrics on the financial performance of football clubs, with Revenues as the dependent variable and Match

Attendance (a measure of physical fan engagement) and Social Media Interaction (a measure of digital fan engagement) as the independent variables.

### **Multicollinearity and Heteroskedasticity Test Interpretation**

To ensure the reliability of the regression estimates, multicollinearity was assessed using the Variance Inflation Factor (VIF). The results of the VIF test (Table C1) showed that both variables, Match Attendance and Social Media Interaction, had VIF values of 1.02, which are well below the generally accepted threshold of 10. These results indicate that multicollinearity is not a significant concern in this model, allowing for the coefficients to be interpreted without substantial bias or imprecision.

The Breusch-Pagan/Cook-Weisberg test was performed to check for heteroskedasticity, which occurs when the variance of the error terms is not constant across observations. Heteroskedasticity can lead to inefficient estimates and unreliable hypothesis testing if left unaddressed. The test produced a chi-squared value of 6.25 and a corresponding p-value of 0.0124 (Table C2). Since the p-value is less than the conventional significance level of 0.05, we reject the null hypothesis of constant variance. This suggests the presence of heteroskedasticity in the model.

To address this issue, robust standard errors were applied to ensure that the regression results are reliable and account for the non-constant variance of the residuals. This adjustment ensures that the standard errors remain valid, thereby providing more accurate statistical inference.

### **Overview of Regression Results**

The model explains a substantial proportion of the variation in revenues, with an R-squared value of 0.4933. The overall model is statistically significant, as indicated by an F-statistic of 36.51 and a corresponding  $\text{Prob} > F = 0.000$ , confirming that the combined influence of match attendance and social media engagement meaningfully explains variations in revenues.

It is important to note that while the R-squared suggests that approximately 49.33% of the variation in revenues is explained by the included predictors, this does not imply that half of revenue changes are *caused* by match attendance and social media engagement. The R-squared reflects the explanatory power of the model but does not establish causality, as other unobserved factors, such as team performance, marketing efforts, or economic conditions, may also play a role.

**Regression Results and Coefficient Interpretation**

*Table 1: Results for Regression 1: Revenues at time t, as a function of Match attendance and Social Media at time t-1*

<b>Number of obs</b>	117					
<b>F(2, 114)</b>	36.51					
<b>Prob &gt; F</b>	0.0000					
<b>R-squared</b>	0.4933					
<b>Root MSE</b>	.71802					

<b>std_Revenues</b>	<b>Coefficient</b>	<b>Robust std. err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>[95% conf. Interval]</b>	
std_MatchAttendance	0.318658	0.0705623	4.52	0.000	0.1788748	0.4584413
std_Social Media	0.6716939	0.0924598	7.26	0.000	0.4885317	0.854856
_cons	1.52E-09	0.0663807	0.00	1.000	-0.1314997	0.1314997

*Source: Authors*

The regression results, as shown in Regression Results and Coefficient Interpretation Table 2, demonstrate that both independent variables have statistically significant positive associations with revenues at the 1% level.

Match Attendance has a standardised coefficient of 0.3187 ( $P < 0.01$ ), suggesting that higher physical fan engagement in the previous period is positively associated with revenues. This reflects the direct contribution of match attendance through ticket sales, in-stadium purchases, and other matchday-related income.

Social Media Followers has a larger standardised coefficient of 0.6717 ( $P < 0.01$ ), indicating a stronger positive relationship with revenues. This highlights the growing role of digital engagement in driving financial outcomes, particularly through sponsorship deals, digital monetisation, and increased brand exposure.

The standardised coefficients provide insight into the relative strength of these predictors, with Social Media Followers having a larger impact on revenues compared to Match Attendance. This suggests that digital fan engagement is becoming increasingly important for football clubs, complementing traditional matchday income.

### **Conclusions from the First Model**

The results align with theoretical expectations, highlighting the critical role of fan engagement, both physical and digital, in driving financial performance. Higher Match Attendance reflects immediate revenue contributions from fans physically attending games, while Social Media Followers underscores the financial benefits of digital platforms, including increased sponsorship opportunities and broader commercial reach.

The use of lagged variables ensures that the observed relationships capture the delayed impact of engagement efforts, supporting the hypothesis of the virtuous cycle, where past fan engagement translates into financial performance over time.

While the model satisfies key statistical assumptions, no evidence of multicollinearity (mean VIF = 1.02) and heteroskedasticity addressed through robust standard errors, it is important to recognize its limitations. The R-squared value of 49.33% indicates strong explanatory power but does not imply that match attendance and social media alone drive revenue changes. Other factors, such as team performance, economic conditions, and marketing strategies, are likely to influence financial outcomes and should be explored in subsequent models.

In conclusion, the first model provides valuable insights into the financial impact of fan engagement. It highlights the complementary roles of physical and digital engagement, with digital platforms showing a particularly strong association with revenues. These findings emphasize the importance of football clubs adopting integrated strategies that enhance both matchday experiences and online fan interactions to drive sustainable financial performance.

### **5.5.7. Second Regression Model**

The second set of regression models aimed to evaluate the influence of lagged revenues on football clubs' transfer market activity, specifically analysing player acquisitions, (Regression 2a) and market sales (Regression 2b).

#### **Heteroskedasticity Test and Interpretation**

To ensure the validity of the regression results, heteroskedasticity was tested using the Breusch-Pagan/Cook-Weisberg test for both models.

For Regression 2a (Player Acquisitions as the dependent variable), the null hypothesis of constant variance was rejected, with a chi-squared value of 7.12 and a corresponding p-value of 0.0076 (Table C3). These results indicate the presence of heteroskedasticity, which can lead to inefficient standard error estimates and unreliable statistical inferences. To address this issue, robust standard errors were applied to ensure the reliability and precision of the results.

In contrast, for Regression 2b (Player Sales as the dependent variable), the test failed to reject the null hypothesis of constant variance, producing a chi-squared value of 0.84 and a p-value of 0.3591 (Table C4). These results confirm the assumption of homoskedasticity, indicating that heteroskedasticity is not a concern for this model.

#### **Overview of Regression Results**

The regression models provide insights into the relationship between lagged revenues and transfer market activity, revealing clear differences between acquisitions and sales.

For Regression 2a, which examines player acquisitions, the model produced an R-squared value of 0.090, meaning that approximately 9% of the variation in player acquisitions is explained by lagged revenues. Despite the relatively low explanatory power, the model was statistically

significant, as indicated by an F-statistic of 12 and a corresponding p-value of 0. These results confirm that lagged revenues meaningfully contribute to explaining market acquisitions.

For Regression 2b, which focuses on player sales, the model had a much lower R-squared value of 0.011, suggesting that only 1.1% of the variation in player sales is explained by lagged revenues. The model was not statistically significant, as indicated by an F-statistic of 1.3 and a p-value of 0.247, suggesting a weak and inconclusive relationship between lagged revenues and player sales.

**Regression Results and Coefficient Interpretation**

The regression coefficients further clarify the differences between player acquisitions and player sales.

*Table 2: Results for Regression 2a: Market Acquisitions at time t, as a function of Revenues at time t-1*

<b>Number of obs</b>	117					
<b>F(1, 115)</b>	12.03					
<b>Prob &gt; F</b>	0.0007					
<b>R-squared</b>	0.0909					
<b>Root MSE</b>	.95758					

<b>std_MarketAcquisitions</b>	<b>Coefficient</b>	<b>Robust std. err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>[95% conf. Interval]</b>	
std_RevenuesLagged	0.3015604	0.0869546	3.47	0.001	0.12932	0.4738008
_cons	-4.20e-09	0.0885286	-0.00	1.000	-0.1753582	0.1753582

Source: Authors

For Regression 2a, the coefficient for Lagged Revenues was 0.3016 with a p-value of 0.001. This result demonstrates a positive and statistically significant relationship between lagged revenues and player acquisitions. It suggests that higher revenues in the previous period enable clubs to allocate more financial resources toward acquiring new players, reinforcing the role of financial performance in strengthening squad competitiveness.

*Table 3: Results for Regression 2b: Market Sales at time t, as a function of Revenues at time t-1*

<b>Number of obs</b>	117	<b>Source</b>	<b>SS</b>	<b>df</b>	<b>MS</b>
<b>F(1, 115)</b>	1.35	Model	1.349503	1	1.395025

<b>Prob &gt; F</b>	0.2471
<b>R-squared</b>	0.0116
<b>Adj R-squared</b>	0.0030
<b>Root MSE</b>	0.9984

<b>Residual</b>	114.6505	115	0.996961
<b>Total</b>	116	116	1

<b>std Market Sales</b>	<b>Coefficient</b>	<b>Robust std. err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>[95% conf. Interval]</b>	
std_RevenuesLagged	0.107859	0.092707	1.16	0.247	-0.075774	0.29149
cons	4.97E-09	0.092309	0	1	-0.182847	0.182847

Source: Authors

In contrast, for Regression 2b, the coefficient for Lagged Revenues was 0.1079, with a p-value of 0.247. While the coefficient is positive, the relationship is not statistically significant, providing insufficient evidence to conclude a strong link between lagged revenues and player sales.

The results from Regression 2a align with theoretical expectations, as higher revenues in a prior period provide clubs with the financial capacity to invest in acquiring players. This supports the hypothesis of the virtuous cycle, where financial performance enables investment in squad development, enhancing competitiveness over time.

The results from Regression 2b show that lagged revenues do not significantly influence player sales, suggesting that decisions may be driven by factors like strategic planning, market demand, or player performance. The low R-squared value highlights that revenues alone explain little of the variation in player sales, emphasizing the role of unobserved variables.

### **Conclusions from the Second Model**

The second set of regression models highlights key distinctions between player acquisitions and player sales in relation to lagged revenues. The results show that lagged revenues have a significant and positive effect on player acquisitions, reinforcing the importance of financial health in enabling clubs to strengthen their squads. However, no significant relationship was found between lagged revenues and player sales, suggesting that sales decisions are influenced by factors unrelated to financial performance. The relatively low explanatory power of both

models indicates that additional factors likely play a significant role in transfer market decisions. For player acquisitions, variables such as managerial strategy, competitive goals, and market opportunities may complement financial resources. For player sales, dynamics such as contractual conditions, player demand, and external market forces may exert a stronger influence.

Overall, the findings emphasize the complexity of transfer market decisions and suggest that while financial performance facilitates acquisitions, player sales are driven by a broader set of considerations. Further research incorporating additional variables is needed to fully capture the determinants of transfer market activity in football clubs.

#### **5.5.8. Third Regression Model**

The third regression model investigates the relationship between financial decisions and on-field performance to explore another dimension of the virtuous cycle. Specifically, Regression 3a examines the impact of lagged market acquisitions (players acquired in the previous period) on current sports performance, while Regression 3b assesses the influence of lagged market sales (players sold in the previous period) on sports performance.

#### **Heteroskedasticity Test and Interpretation**

To assess the validity of the regression models, the Breusch-Pagan/Cook-Weisberg test was conducted to check for heteroskedasticity.

For Regression 3a, the test produced a chi-squared value of 3.02 with a p-value of 0.0822, indicating weak evidence of heteroskedasticity (Table C5). While this does not constitute a strong violation of the homoskedasticity assumption, caution is warranted when interpreting

the results. To ensure robustness, adjustments for heteroskedasticity, could further strengthen inference.

In Regression 3b, the test failed to reject the null hypothesis of constant variance, with a chi-squared value of 0.41 and a corresponding p-value of 0.5209 (Table C6). This result confirms the presence of homoskedasticity in this model, ensuring that the standard errors remain valid and reliable.

### **Overview of Regression Results**

The regression results reveal notable differences in the explanatory power and significance of the two models.

For Regression 3a, the model produced an R-squared value of 0.041 and an adjusted R-squared of 0.033, indicating that approximately 4.1% of the variation in sports performance is explained by lagged market acquisitions. Despite the modest explanatory power, the model is statistically significant overall, as reflected by an F-statistic of 5.0 and a p-value of 0.027.

In contrast, Regression 3b had an R-squared value of 0.011 and an adjusted R-squared of 0.003, suggesting that only 1.1% of the variation in sports performance is explained by lagged market sales. The model was not statistically significant, with an F-statistic of 1.3 and a p-value of 0.247, indicating a weak relationship between player sales and sports performance.

### **Regression Results and Coefficient Interpretation**

The regression coefficients further highlight the relationships between financial decisions and sports performance.

Table 4: Results for Regression 3a: Sports Performance at time  $t$ , as a function of Market Acquisitions at time  $t-1$

<b>Number of obs</b>	117	<b>Source</b>	<b>SS</b>	<b>df</b>	<b>MS</b>
<b>F(1, 115)</b>	5.00	Model	4.8346785	1	4.83467859
<b>Prob &gt; F</b>	0.0273	Residual	111.16532	115	0.96665497
<b>R-squared</b>	0.0417	<b>Total</b>	116	116	1
<b>Adj R-squared</b>	0.0333				
<b>Root MSE</b>	0.98319				

<b>std_SportsPerformance</b>	<b>Coefficient</b>	<b>Robust std. err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>[95% conf. Interval]</b>	
std_MarketAcqLagged	0.2041525	0.0912865	2.24	0.027	0.0233315	0.384973
cons	1.97e-10	0.0908956	0.00	1.000	-0.1800467	0.180046

Source: Authors

In Regression 3a, the coefficient for lagged market acquisitions was 0.204, with a p-value of 0.027, demonstrating a positive and statistically significant relationship at the 5% level. This result suggests that higher investments in acquiring players in the previous period are associated with improved sports performance in the current period.

In Regression 3a, the coefficient for lagged market acquisitions was 0.204, with a p-value of 0.027, demonstrating a positive and statistically significant relationship at the 5% level. This result suggests that higher investments in acquiring players in the previous period are associated with improved sports performance in the current period.

The findings of Regression 3a align with the broader theoretical framework of the virtuous cycle, where financial investments in player acquisitions contribute to improved on-field performance. Acquiring high-quality players enhances team capabilities by increasing overall skill levels, which can translate into better competitive outcomes. However, the relatively low R-squared value of 4.1% suggests that market acquisitions alone cannot fully explain variations in sports performance. Other unobserved factors, such as managerial strategies, team cohesion, training quality, and external conditions, likely play significant roles in determining performance outcomes.

Table 5: Results for Regression 3b: Sports Performance at time  $t$ , as a function of Market Sales at time  $t-1$

<b>Number of obs</b>	117	<b>Source</b>	<b>SS</b>	<b>df</b>	<b>MS</b>
<b>F(1, 115)</b>	2.94	Model	2.8961369	1	2.8961369
<b>Prob &gt; F</b>	0.0889	Residual	113.10386	115	0.983511854
<b>R-squared</b>	0.0250	<b>Total</b>	116	116	1
<b>Adj R-squared</b>	0.0165				
<b>Root MSE</b>	0.99172				

<b>std_SportsPerformance</b>	<b>Coefficient</b>	<b>Robust std. err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>[95% conf. Interval]</b>	
std_MarketSalesLagged	0.1580085	0.092079	1.72	0.089	-0.0243823	0.3403994
cons	6.33e-10	0.0916847	0.00	1.000	-0.1816097	0.1816097

Source: Authors

In contrast, the results from Regression 3b indicate that lagged market sales do not have a statistically significant immediate impact on sports performance. This result may reflect the strategic nature of player sales, where clubs offload players not necessarily to harm their competitiveness but to achieve financial stability, reallocate resources, or focus on long-term planning. It is plausible that the proceeds from player sales contribute to performance improvements over a longer horizon, which may not be captured within the current period's sports performance.

### Conclusions from the Third Model

The third regression model highlights the role of financial decisions, particularly player acquisitions, in influencing on-field performance. The results demonstrate that lagged market acquisitions have a positive and significant effect on current sports performance, reinforcing the notion that investments in strengthening squads can yield competitive benefits. However, the limited explanatory power of the model suggests that other variables also contribute to on-field success.

In contrast, market sales do not exhibit a significant direct relationship with sports performance in the short term. This finding underscores the need to consider the strategic and long-term

nature of player sales, as their effects on performance may materialize beyond the immediate timeframe.

Overall, the results emphasize the complexity of the virtuous cycle, where financial investments in players play a critical role in driving performance, but other factors must be accounted for to fully understand the determinants of competitive success. Future research could explore additional variables, such as managerial decisions, tactical strategies, and player-specific performance metrics, to provide a more comprehensive explanation of the factors influencing sports performance in football clubs.

#### **5.5.9. Fourth Regression Model**

The fourth regression model examines the influence of sports performance on fan engagement, focusing on two measures of engagement. Regression 4a uses social media followers as the dependent variable, while Regression 4b analyses match attendance. To capture the delayed impact of on-field success on fan behaviour, sports performance was lagged by one period. This approach aligns with the theoretical framework of the virtuous cycle, where improved sports performance drives fan engagement, which subsequently contributes to financial growth and long-term competitiveness.

#### **Heteroskedasticity Test and Interpretation**

To verify the validity of the regression estimates, the Breusch-Pagan/Cook-Weisberg test was conducted for both regressions.

For Regression 4a, the null hypothesis of constant variance was rejected, with a chi-squared value of 7.69 and a p-value of 0.0056 (

Table C7), indicating the presence of heteroskedasticity. To address this issue and ensure reliable coefficient estimates, robust standard errors were applied.

In Regression 4b, the test failed to reject the null hypothesis of constant variance, with a chi-squared value of 1.24 and a corresponding p-value of 0.2646 (Table C8). These results confirm the absence of heteroskedasticity in this model, validating the standard errors used in the estimation.

### Regression Results and Coefficient Interpretation

The regression coefficients emphasize the relationship between lagged sports performance and fan engagement.

*Table 6: Results for Model 4a (Equation 9a): Social Media at time t, as a function of Sports Performance at time t-1*

<b>Number of obs</b>	117
<b>F(1, 115)</b>	31.82
<b>Prob &gt; F</b>	0.0000
<b>R-squared</b>	0.1576
<b>Root MSE</b>	.92179

<b>std_SocialMedia</b>	<b>Coefficient</b>	<b>Robust std. err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>[95% conf. Interval]</b>	
std_SportsPerformLagged	0.3970268	0.0703857	5.64	0.000	0.2576062	0.536447
_cons	2.24e-09	0.0852194	0.00	1.000	-0.1688032	0.168803

*Source: Authors*

For Regression 4a, the coefficient for lagged sports performance is 0.397 with a p-value of 0. These results indicate a strong and statistically significant positive effect of prior club success on social media followers, underscoring the importance of on-field performance in expanding a club’s digital presence.

*Table 7: Model 4b (Equation 9b): Match Attendance at time t, as a function of Sports Performance at time t-1*

<b>Number of obs</b>	117
<b>F(1, 115)</b>	5.46
<b>Prob &gt; F</b>	0.0211
<b>R-squared</b>	0.0454
<b>Adj R-squared</b>	0.0371
<b>Root MSE</b>	0.9813

<b>Source</b>	<b>SS</b>	<b>df</b>	<b>MS</b>
Model	5.26161472	1	5.26161472
Residual	110.738385	115	0.962942475
<b>Total</b>	<b>115.99999</b>	<b>115.99999</b>	<b>0.999999994</b>

std_MatchAttendance	Coefficient	Robust std. err.	t	P >  t	[95% conf. Interval]	
std_SportsPerformLagged	0.2129759	0.0911111	2.34	0.021	0.0325024	0.393449
cons	3.75e-09	0.0907209	0.00	1.000	-0.1797006	0.179700

*Source: Authors*

In Regression 4b, the coefficient for lagged sports performance is 0.213, with a p-value of 0.021. This confirms a positive and statistically significant relationship between prior sports performance and match attendance, though the magnitude of the effect is smaller compared to digital engagement.

The results from both regressions highlight the positive influence of lagged sports performance on fan engagement, with notable differences in the magnitude of the effects.

In Regression 4a, the coefficient of 0.397 demonstrates a strong association between improved sports performance in the prior period and an increase in social media followers. This finding reflects the ability of on-field success to attract new fans, broaden the club's digital reach, and expand its audience. Such growth in digital engagement creates opportunities for clubs to leverage their online following through targeted marketing campaigns, merchandise sales, and enhanced sponsorship value, contributing to overall financial performance.

In Regression 4b, the coefficient of 0.213 indicates that lagged sports performance also positively influences match attendance, though the effect is smaller compared to digital fan engagement. This difference likely reflects the more complex nature of physical fan behaviour, where decisions to attend matches are influenced by additional factors such as logistical constraints, ticket pricing, seasonal dynamics, and personal habits, in addition to sports performance.

### **Conclusions from the Fourth Model**

The results of the fourth regression model provide further support for the theoretical framework of the virtuous cycle, demonstrating the significant positive impact of sports performance on

fan engagement. Lagged sports performance was found to have a stronger influence on digital engagement (social media followers) compared to physical engagement (match attendance).

The stronger relationship observed in digital fan engagement underscores the immediacy and accessibility of online platforms, where fans can easily follow and engage with clubs after on-field successes. In contrast, the smaller effect on match attendance highlights the additional barriers to physical engagement and suggests that fan attendance is influenced by a broader set of factors beyond sports performance.

These findings reinforce the interconnected nature of the virtuous cycle, where on-field success enhances fan engagement, ultimately contributing to financial growth and long-term competitiveness. The results emphasize the importance of clubs adopting strategies that capitalize on digital fan engagement while also addressing the factors that influence physical attendance to maximize overall fan participation.

### **Overall Conclusion**

This study empirically investigates the virtuous cycle in football, exploring the interconnected relationships between fan engagement, financial performance, transfer market activity, and sports performance. Through a series of regression models, we analysed how these variables influence one another over time, reinforcing the hypothesis that each component plays a crucial role in driving a club's success both on and off the pitch.

The results of the first regression model demonstrated that fan engagement, measured through match attendance and social media followers, significantly contributes to club revenues. Digital engagement, in particular, showed a stronger association, underscoring its growing importance in modern football. This highlights that clubs must integrate strategies to boost both physical and digital fan participation to sustain financial growth.

Building on these findings, the second regression model examined how lagged revenues influence transfer market decisions. The results revealed that financial success positively drives player acquisitions, reinforcing the role of revenues in enabling clubs to invest in squad development. However, the impact on player sales was statistically insignificant, suggesting that sales are often driven by strategic and external factors beyond immediate financial performance.

The third regression model shifted focus to the impact of transfer activity on sports performance, revealing that lagged player acquisitions have a significant positive effect on on-field outcomes. This reflects the delayed benefits of investing in talent and highlights the role of strategic acquisitions in enhancing competitiveness. Conversely, player sales did not exhibit a significant relationship with sports performance, further emphasizing their complex and long-term nature.

Finally, the fourth regression model explored how sports performance influences fan engagement, revealing a significant positive relationship with both social media followers and match attendance. Digital engagement responded more strongly to prior success, illustrating the immediacy and accessibility of online platforms. Match attendance, while also positively influenced, showed a smaller effect, reflecting the logistical and behavioural factors that shape physical fan participation.

Taken together, these results provide strong evidence for the existence of a virtuous cycle in football, where fan engagement, financial performance, player investments, and sports performance dynamically reinforce one another. Improved on-field performance drives fan engagement, which, in turn, enhances financial revenues. Financial success enables further investment in talent through acquisitions, ultimately boosting sports performance and sustaining competitiveness.

This study highlights the sequential and interdependent nature of these relationships, offering valuable insights for football clubs and associations. By understanding and leveraging this virtuous cycle, clubs can adopt integrated strategies that align fan engagement efforts, financial planning, and squad development to achieve sustainable growth and success. Future research could further enrich this framework by incorporating additional variables, such as managerial decisions, player-specific performance metrics, and macroeconomic factors, to provide a more comprehensive understanding of the drivers of success in football.

## **6. Best practices**

### **6.1. Marketing, Fan Engagement and Attendances**

Football clubs have been implementing a variety of marketing, fan engagement, and match attendance strategies that not only boost their financial health but also make their leagues more competitive. From improving merchandise sales and hosting events outside matchdays to securing major sponsorship deals and building emotional connections with fans, these efforts show how clubs can strengthen their bonds with supporters while growing their revenue. By looking at what works best, we can identify key practices that other clubs can adopt to achieve similar success.

One of the strategies employed by teams like Manchester City, Manchester United, Bayern Munich and Leicester City is the maximisation of digital interactions in an effort to engage and connect with the teams' supporters. These clubs use high-quality video content, interactive experiences and gamification to pull fans in a new way (Manchester City Football Club 2023)(Leicester City Football Club 2024). Such as, Manchester City has massively included Instagram and TikTok in their digital offer while Bayern Munchen have placed QR codes on jerseys to provide fans with backstage access and exclusive content (Mateo Hermida 2024).

Just as with Manchester United, who built an end-to-end digital ecosystem with HCL to bring fans closer through data-driven personalisation, to drive satisfaction (HCL Technologies 2018).

Creating fan advisory boards is another commonly used strategy. These boards were established by Manchester City, Manchester United, and Leicester City to include fans in decisions on club strategy, matchday experiences, and stadium facilities. By enabling fans to express their thoughts on important matters, these boards foster inclusivity and guarantee that the club's policies represent the desires of its loyal supporters. To strengthen loyalty and give supporters a sense of importance, Manchester United Supporters' Trust (MUST) and Manchester City's City Matters, for example, assist in facilitating contact between supporters and club management (Manchester United 2024)(Manchester City, n.d.). Through frequent feedback sessions with its Fan Advisory Board (FAB), where supporters' opinions directly impact the improvement of matchday experiences, Leicester City also places a strong emphasis on community engagement (Leicester City Football Club 2024).

Clubs also work to enhance the physical matchday experience. The ~25,000 standing fans that make Borussia Dortmund's "Yellow Wall" are a perfect example of how a team can create an exciting environment that increases fan engagement (Andy Delaney 2024)(Brad Cox 2024). Whether fans are watching from home or in the stadium, this dynamic atmosphere and programs like Dortmund's AI-powered content production with WSC Sports help keep them engaged all year long (Kieran O'Connor 2024). Leicester City, meanwhile, places a strong emphasis on community engagement by holding frequent fan feedback sessions and enhancing matchday experiences and stadium facilities in response to fans' suggestions (Leicester City Football Club 2024).

Lastly, loyalty programs and exclusive fan experiences are essential to maintaining a strong fan base. Both Manchester City and Juventus have made it possible for supporters to take part in

exclusive club activities, such as meeting players or attending exclusive celebrations (Ciaran Varley, 2024)(JFC News 2024). Juventus' Fan Token system increases supporters' sense of involvement by giving them the ability to vote on club decisions and enjoy exclusive rewards (The Big Whale, n.d.). By implementing these strategies, teams are improving stadium experiences overall and increasing fan engagement, giving supporters a stronger sense of connection to the team both virtually and physically.

Analysing outliers like Eintracht Frankfurt, Napoli, and Leicester City allows understanding their role in driving innovation in fan engagement and marketing as a club with less resources. Eintracht Frankfurt enhances fan engagement through community involvement, digital innovation, and inclusivity, using its "mainaqla" app for centralised services, IoT technology for a "smart stadium," and an esports academy to connect with younger audiences. Napoli utilizes digital tools like loyalty platforms, Napoli-themed app keyboards, match-worn t-shirt auctions, and metaverse collaborations to foster fan interaction, complemented by the Napoli Fan Token for exclusive rewards and voting opportunities. Leicester City emphasizes transparency and inclusivity through structured fan feedback platforms like the Fan Advisory Board and Fans Consultative Committee, while leveraging social media for updates and enhancing communication.

These clubs showcase how creative approaches, such as fan tokens, advisory boards, and unique matchday experiences, do not depend on exceptional financial performances. Outlier analysis is vital for identifying scalable strategies that promote fan engagement and consequently contribute positively to the cycle.

## **6.2. Financial Performance**

By analysing the clubs' behaviours, it is possible to retrieve some best practices that constitute important financial success factors. Firstly, to achieve good financial performance, clubs should

strategically balance their income across the various revenue categories, so that they can safeguard themselves against any single-source shock, as Manchester United is a good example of. Revenue diversification reduces their dependency on a specific segment, thus allowing the other segments to offset any unexpected losses (Cordery and Baskerville 2011)(Hohmann 2021). Matchday revenue, in particular, presents a development opportunity, as its lower share of revenue leaves space for further exploration.

Furthermore, strategic long-term investments are also key, with investment vehicles going from talent, structures or youth academies. Borussia Dortmund's profitable player sales and youth focus, as well as Bayern Munich's global branding success and City's aggressive transfer investment, reflect this, as their long-term development approaches constantly lead to significant added value, be it at the club level or player level (Church 2020)(Bavarian Football Works 2024)(Martin 2023).

Ensuring efficient cost management is another technique that if applied may boost financial success, by keeping operations within the clubs' means and minimizing risks (Dobson and Goddard 2001c). If expenses are carefully managed and do not greatly surpass the team's inflows, then it is possible to conduct future operations without any major disruptions even in case of temporary shortfalls, avoiding liquidity crises and assuring continued financial health. To that end, complying with the Financial Fair Play policy is a reasonable starting point (Martín-Magdalena et al. 2023). Attracting private investors who are willing to invest heavily in the team stands out as a possible turning point (Manchester City, Inter Milan) due to the valuable inflows received, but one must be careful not to accumulate too much debt. Juventus case is the mirror of this lesson, as their snowballing debt led them to a 10-point deduction in Serie A, which pushed the team to 7<sup>th</sup> place (Roberts 2023). Inter Milan also suffered from hard consequences, as their inability to repay the loaned funds drove the team into American hands.

Additionally, a sustainable transfer balance also adds to the previous point, by preventing overspending and reducing financial instability. For this purpose, balancing high-profile signings with lower-cost transfers, underlying home-developed youth talent or undervalued players is a good strategy to follow. Again, Dortmund is a benchmark on this matter, having built a reputation for valuing players and selling them at significant profits, reinvesting such income afterwards.

Sponsorship alignment is yet another tactic to keep in mind since it drives revenue maximisation, community trust and brand value (Dobson and Goddard 2001c). Commercial revenues are often the most significant ones, which further emphasize the need to adopt an adequate commercial strategy. On one hand, partnerships with high-profile companies that operate within current market trends can generate highly lucrative agreements, as well as expand the club's reach. On the other hand, building relationships with local and meaningful partners, who support impactful initiatives, translates into enhanced fan loyalty and goodwill, which will then positively affect matchday attendance and merchandise sales. Furthermore, the association with such reputable brands increases the club's marketability, boosting its visibility and brand value. Manchester City's partnerships with Etihad Airways and Puma showcase the relevance of this practice.

Finally, community engagement is one of the most important cornerstones when it comes to financial performance, as it highly penetrates inside the already mentioned virtuous cycle. A loyal supporter base will constantly contribute to revenue streams, be it through ticket sales, merchandise acquisitions or even digital interactions (Dobson and Goddard 2001c). Manchester United is the perfect reflection of such strategy. Although its sports performance has been far from expected, with the team staying out of the podium in the last few years, fans keep showing up to the games and closely follow the club's daily life, hoping to make United great again.

Clubs should aim to build a stable and resilient profit-generating model, ensuring they can cope with any unexpected shock, such as a revenue drop (Hohmann 2021). Ideally, for a top-gun team, shareholders' return should be kept above 10%. Bayern Munich is, hence, a clear example of consistent positive ROE, achieving strong profitability even in challenging periods. Furthermore, the German team is also a role model when it comes to liquidity. The healthy current ratio above 1.0, aligned with significant cash reserves, ensures that short-term liabilities can be met without financial stress.

As to the outliers, the perpetuity of the virtuous cycle leaves them competing in unequal terms. Still, they can build their virtuous cycle of growth, proving that financial sustainability and good sports performance are achievable through intelligent management and strategic decisions, even though harder. The financial strategies of Napoli, Frankfurt and Leicester show that clubs outside traditional powerhouses can still thrive if they properly leverage key elements of the virtuous cycle. Napoli's Champions League success and strategic acquisition of Victor Osimhen have led to increased revenue, highlighting the importance of combining sporting success with strong financial management. Moreover, the team is living proof that smaller sports enterprises can achieve profitability, even without top-tier resources. Leicester's model built around a humble squad and the club's run to the top also showcases how a well-balanced financial strategy can lead to success, even without deploying vast financial resources (Hill 2016). Although starting from a position of financial disadvantage compared to elite clubs, the analysed outliers demonstrate that success is still achievable through smart financial practices, namely the ones that elite clubs use as well – revenue diversification, strategic investments, etc. - and a self-sustained cycle of growth.

## **7. Case study**

This section presents a comparative case study of Sport Lisboa e Benfica (Benfica) and Sporting Clube de Portugal (Sporting), two of Portugal's leading clubs. Despite being from the same city (Lisbon) and having been founded in the early 1900s, these two clubs' development in terms of marketing tactics, financial status, and general performance show notable differences. The purpose of this case study is to assess if the conclusions retrieved from the previous sections properly apply to a real-life example. By focusing on two clubs with comparable historical legacies and geographic proximity, we can isolate and evaluate the impact of strategic decisions rather than external factors. This comparative analysis seeks, therefore, to explore how each club approaches fan engagement, assess the financial status of the two clubs, and correlate these factors with on-field success, considering their competitive score in the last few years.

### **7.1. Sport Lisboa e Benfica**

Benfica combines its rich history with modern fan engagement to build a global fan base. The club's digital strategy focuses on platforms like Instagram, Facebook, and X, along with a popular YouTube channel for interviews and match highlights, targeting younger international fans (José Miguel Bento 2024). Matchday experiences at Estádio da Luz are elevated by vibrant atmospheres, "roulottes" and the "Inferno da Luz", accommodating over 60,000 fans, enhanced by modern LED panels (CNN Portugal 2023) (SL Benfica, n.d.-a). The Benfica Fan Zone, created in partnership with Pepsi, offers live music, food, and entertainment, fostering stronger fan connections (Forbes Portugal 2024). The club utilizes CRM technology via Salesforce to centralize fan data, providing personalised deals and content, enhancing loyalty (Empreendedor 2022). Through strategic partnerships, digital outreach, and memorable matchday experiences, Benfica has become a leader in fan engagement and sports marketing.

Sport Lisboa e Benfica has 38 Portuguese champions titles, being the record holder in such category. The team won the 2022/2023 national title on the final day of the season, but it disappointed its fans in the following year, with a 10-points away second place. Benfica's recent performance scores, as reflected in Table D1, show a fluctuating pattern with a notable decline from a high of 2.830 in the 2015/2016 season to 1.830 in 2023/2024.

Even with far-from-expected sporting outcomes, fan engagement has proven to be solid, with more than 55,000 constantly supporting the team's home games (Table D2). The relatively stable fan dedication reflects the effectiveness of the employed marketing and engagement strategies. The tailored stadium experience help stabilize attendance levels, while the cultivated loyalty encourages supporters to remain engaged with the team through both successes and challenges.

Using Orbis as the selected database, Benfica's operating turnover has constantly stood above €200 million, with the 2023 value achieving €284.7 million. The club's EBIT in that same year was €53.5 million, while the PBT and Net Income were €1.8 million and €4.2 million, respectively. Although these are good indicators of proper financial health, each of these values has significantly decreased in the current year, with both the PBT and Net Income returning to negative values (Bureau van Dijk 2024i).

Benfica has gained €757.46 million through transfers in the last five years, a value that more than offsets the €420.3 million expenditure (Transfermarkt 2024l). The club's most expensive deal was Enzo Fernandez, for a €44.25 million fee, which then left the team for €121 million. The only departure that exceeds such value was the one of João Félix, for €127.20 million.

## **7.2. Sporting Clube de Portugal**

Sporting CP's devoted fan base supports innovative fan engagement strategies. The club has a strong digital presence across platforms like Facebook, Instagram, X, TikTok, and Telegram,

engaging fans through interactive content tailored to their feedback. In just 10 days, Sporting gained over 6,000 Telegram followers, showcasing its adoption of new technologies (Carlos Jorge 2023). During the 2020/2021 championship season, Sporting launched entertainment-focused content like Inside Sporting CP and Backstage Sporting CP, fostering deeper fan connections with exclusive insights into team preparations and matchday experiences (Carlos Jorge 2023). The ADN de Leão podcast provides informal player discussions, enhancing fan interaction via YouTube and Spotify (Sporting CP, n.d.). Sporting's "Future is Coming" strategy includes premium seating options, stadium modernisation, and expanded seating aimed at increasing matchday attendance and doubling revenue over the next decade (Sporting CP 2024)(Bradley Rial 2024). CRM platforms like Salesforce automate processes and enable real-time marketing, enhancing fan engagement (Sporting CP 2023). These initiatives demonstrate Sporting's commitment to delivering top-tier fan experiences.

Sporting Clube de Portugal has returned to its previous prestigious status in the last few years. After 19 years without winning the national championship, such prize came back to the team's hands in the 2020/2021 season, marking a turning point for the club. Sporting's performance scores have shown improvement, particularly evident from a score of 1.119 in 2013/2014 to 1.842 in 2023/2024 (Table D1). Such improvement, accompanied by the investment in fan-centric strategies, has led fans to return to the stadium and actively support their team, with increased average match attendance being a clear sign of higher fan engagement (Table D2).

According to Orbis, the team's operating turnover almost doubled after that result, going from €64.4 million to over €120 million in the following two years. The year 2022, the one immediately after the conquer, marked an EBIT outlier, as that value was exceptionally positive (€11.6 million). Furthermore, PBT and Net Income also became constantly positive since that period – achieving values around €25 million, a sign of improved financial health (Bureau van Dijk 2024j).

The club's current cumulative squad value is €443.50 million, with its top player Viktor Gyökeres valued at €70 million.

As to the transfer policy, Sporting has cumulatively spent €232.32 million in the last five seasons, an investment that is fully covered by the €446.64 million transfer income in the same period. The maximum amount invested in a single player was €24.50 million for Manuel Ugarte, which then turned into one of the team's record departures once it left for Manchester United for €60 million (Transfermarkt 2024m). Besides investing only controlled amounts, the team also puts a lot of importance in its academy, having formed several Portuguese elite players that are now renowned due to their outstanding quality – such as Cristiano Ronaldo, Nani and João Moutinho.

### **7.3. Comparative View**

When comparing the neighbouring clubs, we can conclude that Benfica has higher operating turnovers (consistently above €200 million), which results in a higher transfer investment. This aligns with our regression results, which show that revenues influence transfers.

However, also in line with the regression results, market acquisitions alone do not fully explain changes in competitiveness, as seen in this case study. Despite Benfica's aggressive transfer strategy (over €400 million in the last half-decade), this has not consistently translated into on-pitch success, with the club winning the title only once. In contrast, Sporting secured the title twice with far lower investment.

A key factor lies in Sporting's policy of retaining core players, such as Viktor Gyökeres, which provides squad continuity, tactical stability, and team cohesion. Benfica, while excelling in market sales, suffers from frequent disruption caused by the sale of key players, as seen this year with João Neves. This constant turnover undermines squad consistency and impacts long-term performance, despite the financial gains achieved.

The Reds' recent underperformance led to a decline in profitability and revenues. Still, due to the immersive matchday experience and fan involvement tactics, fan engagement does not seem to have been affected. As to Sporting, the turning point in Sporting's fan base, which fiercely returned to the stadium after the outstanding sports performance, reflects that the faith in the club's greatness has been restored, and as so, fans became more engaged. The club's financial health has improved significantly since its comeback to the top, with positive EBIT and PBT (unlike its rival).

Following the cycle, Benfica's higher revenues lead to a higher transfer expenditure, and the recent underperformance has been negatively affecting the club's financial standings. The decline in financial performance has led to investment constraints, with this season's transfer outflows being almost half of last year's. On the opposite side, Sporting's success on the pitch has provided the Greens with boosted fan engagement and financial standings, which has driven investment.

These clubs, enjoying the same geographic conditions, illustrate opposite sides of the virtuous cycle. Sporting reflects the positive consequences: controlled investment in youth development and financial discipline have built a strong, cost-effective squad, with profits reinvested strategically. This has improved team performance, which in turn boosted financial performance by increasing revenues due to higher attractiveness and engagement that brings new income from matches, sponsors, and merchandise sales. Furthermore, Sporting's effective branding draws in more fans and sponsors, increasing loyalty, feeding back into financial growth and team investment. Benfica, however, represents the negative side of this cycle. Its poor performances are causing financial figures to drop, hindering the team's ability to invest in squad improvements, which again spills into disappointing performances on the pitch. The poor results are eroding revenue streams and brand strength, creating a negative spiral that

ultimately affects competitiveness. Fan engagement, however, is not suffering, as the club was able to properly cultivate loyalty throughout the years.

## **8. National Associations**

UEFA, established in 1954, oversees football across Europe and represents 55 National Associations (NAs), each governing their own domestic leagues and national teams. UEFA organizes major tournaments like the European Championship, Champions League, and Europa League (UEFA, n.d.-b). National associations also implement marketing strategies to engage fans, often adopting successful approaches from clubs to foster loyalty and broader audience interaction.

The **English Football Association (FA)** is the oldest football association in the world and the body that controls football in England. It currently manages national teams, including England men's and women's squads. The FA's purpose is, in the words of its CEO, Mark Bullingham, "Our ultimate purpose is to inspire positive change through football" (UEFA, n.d.-a).

One of the most crucial instruments for the future is a digital transformation as part of their plan, and the federation's most powerful asset is its capacity for digital engagement (Next Sports, n.d.). Through their new "FA Player", they provide their fans access to a wide range of football content, including live and on-demand coverage of various leagues and competitions, such as the Barclays Women's Super League (WSL), the FA Women's Cup, the Emirates FA Cup, and others. The platform is designed to enhance fan engagement by providing exclusive content, highlights, and behind-the-scenes footage ("The FA Player," n.d.).

The **German Football Association (DFB)**, which is also in the digital transformation space, has improved its online visibility by providing fans with backstage access through exclusive behind-the-scenes content and interactive features on its official app ("Digital Advancement

New App Launches for DFB Cup” 2016). This is comparable to Bayern Munich’s use of QR codes on jerseys.

Another way of strengthening loyalty among supporters is by involving fans in decision-making processes, as observed in club-level strategies. The **Scottish Football Association (SFA)** conducts annual fan surveys to gather feedback on matchday experiences. The creation of the Premiership Play-Offs, the appointment of SDS and other independent groups (players, coaches, and referee representatives) to the Scottish FA Congress, the reformatting of the League Cup, and the establishment of a single league body, the SPFL, are just a few examples of the innovations that have been implemented thanks to the input of supporters, according to "Supporters Direct Scotland." (“ Annual Supporters Survey,” n.d.).

When it comes to matchday experiences, seeing a national team play frequently stimulates strong feelings and has patriotic meanings, which makes them essential for fostering loyalty. The **Portuguese Football Federation (FPF)** has established fan zones during major international tournaments. Called “Dia de Portugal”, this Fan Zone in the federative complex allows guests and fans of the national team (Portugal +) to follow Portugal’s games live and participate in various activities promoted by the team’s sponsors (FPF 2024).

Known for having one of the best fans in the world (Jonathan Shannon 2014), the Dutch fanbase is highly supported by the **Royal Dutch Football Association (KNVB)**. To create a distinctive "Oranje Experience," KNVB planned several events throughout the year, such as the Oranje Fanzone at home games and the renowned Oranjepleinen and Oranjeparades for the Dutch national team’s final competitions. In addition, the Dutch Football Association is making investments in digital transformation. They have developed a new 3D software that allows fans to virtually take pictures with their favourite players and engage in virtual interactive experiences (KNVB, n.d.-a).

Deeper relationships between national teams and their followers are largely fostered by loyalty programs and unique experiences. Numerous national associations attest to the fact that these programs provide a variety of advantages that appeal to the devoted fan base (Table E1). For example, France's Les Bleus Supporters Club offers benefits including supporter events, travel discounts, and priority tickets for big competitions, while Belgium's 1895 Official Fan Club offers also priority ticket access, discounts, and invites to exclusive events. Similar to this, Germany's Fan Club National Team and Italy's Vivo Azzurro Card increase fan interaction by providing pre-sale possibilities, discounts, and admission to cultural events like football museums.

In conclusion, national football associations have already started to effectively incorporate some innovative cutting-edge fan loyalty and marketing tactics that mirror top football teams' best practices. Through the use of digital channels, the creation of fan advisory boards to promote fan inclusion in decision-making, the improvement of matchday experiences, and the introduction of loyalty programs, associations have improved their relationship with supporters. These initiatives demonstrate how important fan-centric tactics are to maintaining a competitive edge and strengthening relationships with the most loyal supporters.

## **9. Conclusions and Recommendations**

The analyses conducted show that clubs operate in a virtuous cycle that, if leveraged, can lead to a self-reinforcing loop that drives growth, enhances brand value, and strengthens competitiveness. However, the inappropriate management of such a cycle will most likely lead to negative consequences. Poor brand management and neglect of fan engagement can lead to financial struggles that not only hinder a club's performance but also reduce its overall competitiveness. These issues, if not addressed, can initiate a downward spiral where decreased

financial resources impair the ability to maintain competitive teams and marketing initiatives, further alienating fans and reducing revenue.

The diversification of revenue sources, efficient cost management, and strategic long-term investments are critical practices for sustained success. Examples from clubs like Bayern Munich, Borussia Dortmund, and Sporting show that by balancing revenues, while simultaneously strategically investing in youth development and sustainably managing costs, clubs can grow financially and consequently improve their sports performance. Furthermore, cultivating a strong connection with their fanbase, through community engagement, fan-centric initiatives, and effective branding will also positively contribute to better financial outcomes, leading to another entry into the same cycle. Benfica's and Manchester United's fan loyalty highlights how fan engagement is key to financial health and competitive capacity.

Football clubs are strategically enhancing fan engagement and match attendance to boost financial health and competitiveness within their leagues. By embracing digital interactions, clubs like Manchester City and Bayern Munich connect with fans through social media and exclusive digital content. Moreover, fan advisory boards at clubs such as Leicester City and Manchester United involve supporters in key decisions, fostering inclusivity and loyalty. Enhanced matchday experiences, exemplified by Borussia Dortmund's "Yellow Wall", Benfica's "Inferno da Luz" and exclusive fan programs from teams like Juventus, further deepen emotional connections with fans. These diverse strategies not only strengthen fan bonds but also improve clubs' financial and competitive standings. Given such considerations, in order to reach their full potential and achieve sustainable growth, National Associations can implement a group of measures that, if adequately applied, will leave them a step closer to their goal.

First, National Associations should ensure that their revenue is diversified, to not overly rely on any single source, thus preventing hardships related to financial shocks. Even though mainly funded by governmental sources, NAs can assure a remaining reasonably equitable distribution, with slightly higher relevance of broadcasting and sponsorship, an appropriate distribution could be 30% from broadcasting, 30% from sponsorship and partnerships, 20% from matchday income, and 20% from other commercial activities. To do so, a NA-owned channel could be an intelligent strategy, with the Portuguese Federation's "Canal 11" being a good benchmark.

Second, NAs should strategically invest in infrastructure, youth development, and global branding. To have a facility ready to receive pre-competition training camps, with high-quality training pitches and additional smaller training areas; a modern gymnasium and fitness centre with recovery zones; a medical and rehabilitation facility equipped with proper tools and staff; extensive accommodation; dining facilities; and video analysis rooms is a way to implement such suggestion. Furthermore, a 15%-20% annual rate of renewal (incorporation of 3-5 younger players into a 25-player squad annually) is also recommended. Overall, a 15% rate of reinvestment in youths and structures would be a good metric to account for. In the long-term, to assess the youngest' game minutes can also be a hypothesis, as to properly guarantee that youth development is being a concern.

To enhance marketing and fan engagement, NAs should implement fan-centred strategies, including cultural events on non-match days and tailored loyalty programs. This can boost ticket sales, merchandise purchases, and participation in sponsored activities. Establishing localised fan zones in various cities with merchandise, food vendors, and entertainment, alongside adopting technologies like Virtual Reality and Augmented Reality for virtual match experiences, is recommended. For social media, NAs should initiate campaigns around major events and incorporate interactive content like polls and quizzes. Enhancing the matchday experience with tours and celebrity collaborations could attract a younger audience. NAs should

track and aim to increase fan attendance and engagement metrics. Goals include boosting social media followers by 15%-20% annually, increasing revenue from ticket sales, concessions, and merchandise by 8%-12% yearly, and expanding loyalty program participation by 5%-10% annually. These targets will help gauge the effectiveness of the implemented strategies.

In addition, a robust marketing strategy, focused on stating the NA's identity and values, is essential to collect strategic sponsorship deals, which enhance global brand recognition. Collaborations and Partnerships can broaden the fan base and increase revenue through co-branded merchandise and events, enhancing financial stability and allowing for strategic reinvestment. A 10% year-on-year sponsorship revenue increase, alongside an additional sponsor every 3 years and a 10% ROE, would be proper benchmark metrics to achieve.

Finally, National Associations should adopt a data-driven approach to decision-making, benchmarking themselves against top-performing NAs to identify potential points of improvement. To do so, tracking financial performance through the analysis of profitability and revenue figures, and sporting performance through European competitions success and titles, with a targeted 5% annual growth in both, is recommended.

It is important to address contextual challenges of National Associations by acknowledging that not all of them possess equal capacity to implement these recommendations. Resources or infrastructures disparities should not be seen as unbearable obstacles, but as an opportunity for tailored strategies. National Associations operating from less developed contexts can achieve progress by focusing on scalable initiatives and partnerships. For example, establishing partnerships with schools or community organizations can extend the reach of a youth academy program at a low cost. Additionally, close collaborations with international bodies such as FIFA, UEFA, or regional confederations, often provide technical expertise, funding and credibility. Finally, digital fan engagement, through social media campaigns or mobile apps, offers a cost-

effective way to grow local and global fan bases, which can eventually attract sponsors and boost the virtuous cycle.

Incorporating outliers into the present study, such as clubs like Eintracht Frankfurt, Napoli, and Leicester City, highlights the benefits of tracking initiatives from less powerful or traditionally underdog clubs. By studying such examples, the recommendations and strategies proposed can be better aligned with the realities of National Associations with varied capacities.

## **10. Limitations**

This section outlines the limitations of the current thesis. The competitiveness score, based solely on win percentages, omits factors like goal differentials, draw totals, and point accumulations, possibly not fully reflecting the competitive dynamics or match quality. Additionally, the score does not account for variations in competitiveness across different league levels, potentially obscuring the dominance of top teams and struggles of lower-ranked teams.

The Linear Regression Analysis faced issues with inconsistent historical data. Financial data from Orbis was used, but gaps, especially for Inter Milan, required assumptions or alternative data sources. The limited data timeframe also constrained the depth of historical analysis, affecting the regression model's robustness. Furthermore, potential sampling bias from a dataset focused on first-division clubs might not represent broader club demographics. Assumptions required by regression models, like linearity and error independence, could compromise the findings' accuracy if violated.

The absence of primary quantitative and qualitative data, such as fan surveys or stakeholder interviews, limits deeper insight into football dynamics. Future research could benefit from including these elements for a more thorough exploration of the issues.

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## 12. Appendix

### Appendix A: Literature Review

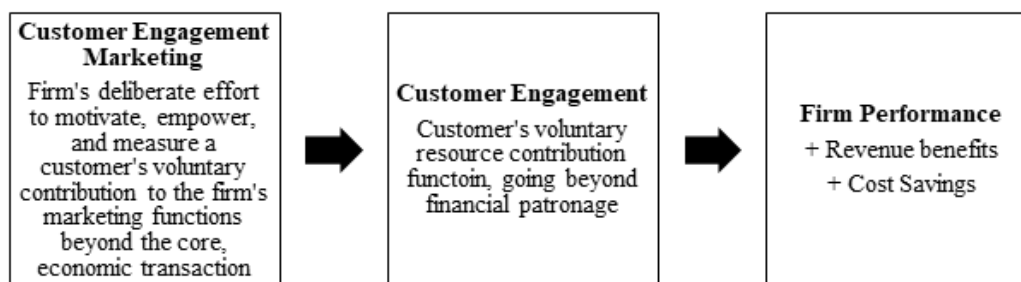
Table A1: Consumers and the league product - The marketing of professional sports leagues

Consumer Product	Direct revenues	Indirect revenues/benefits
Fans	Attendance (incl. gate, parking concessions) Licensing	Provide market for media, TV League, team exposure
Host cities	Favorable Leases Guaranteed Revenues	Tax breaks, tax exempt land, new publicly funded facilities
Media	Network TV Local TV Pay-per-vies Cable Radio	Exposure, publicity
Corporations	Sponsorship  Ownership (i.e. expansion fees) Advertising Gate	Exposure, publicity, cross-promotion, synergies with corporations  Corporate affiliation

Source: 'What Is the Sports Product and Who Buys It? The Marketing of Professional Sports Leagues' (S. Mason 1999)

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Figure A1: Visual representation of key constructs in customer engagement marketing (adapted)



Source: Adapted from Harmeling et al. 2017

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### Appendix B: Relationship Between Marketing Potential, Fan Engagement, Match Attendance, Financial Performance and Overall Competitiveness

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Appendix C: Regression

Table C1: Variance inflation factors (VIF) for Regression 1: Revenues at time  $t$ , as a function of Match attendance and Social Media at time  $t-1$

Variable	VIF	1/VIF
std_MatchAttendance	1.02	0.980762
std_Social Media	1.02	0.980762
Mean VIF	1.02	

Source: Authors

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Table C2: Breusch-Pagan heteroskedasticity test for Regression 1: Revenues at time  $t$ , as a function of Match attendance and Social Media at time  $t-1$

**Breusch-Pagan/Cook-Weisberg test for heteroskedasticity**

H0: Constant variance

**chi2(1)** 6.25  
**Prob > chi2** 0.0124

Source: Author

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Table C3: Breusch-Pagan heteroskedasticity test for Regression 2a: Market Acquisitions at time  $t$ , as a function of Revenues at time  $t-1$

**Breusch-Pagan/Cook-Weisberg test for heteroskedasticity**

H0: Constant variance

**chi2(1)** 7.12  
**Prob > chi2** 0.0076

Source: Authors

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Table C4: Breusch-Pagan heteroskedasticity test for Regression 2b: Market Sales at time  $t$ , as a function of Revenues at time  $t-1$

**Breusch-Pagan/Cook-Weisberg test for heteroskedasticity**

H0: Constant variance

<b>chi2(1)</b>	0.84
<b>Prob &gt; chi2</b>	0.3591

Source: Authors

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Table C5: Breusch-Pagan heteroskedasticity test for Regression 3a: Sports Performance at time  $t$ , as a function of Market Acquisitions at time  $t-1$

**Breusch-Pagan/Cook-Weisberg test for heteroskedasticity**

H0: Constant variance

<b>chi2(1)</b>	3.02
<b>Prob &gt; chi2</b>	0.0822

Source: Authors

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Table C6: Breusch-Pagan heteroskedasticity test for Regression 3b: Sports Performance at time  $t$ , as a function of Market Sales at time  $t-1$

**Breusch-Pagan/Cook-Weisberg test for heteroskedasticity**

H0: Constant variance

<b>chi2(1)</b>	0.41
<b>Prob &gt; chi2</b>	0.5209

Source: Authors

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*Table C7: Breusch-Pagan heteroskedasticity test for Regression 4a: Social Media at time t, as a function of Sports Performance at time t-1*

**Breusch-Pagan/Cook-Weisberg test for heteroskedasticity**

H0: Constant variance

<b>chi2(1)</b>	7.69
<b>Prob &gt; chi2</b>	0.0056

*Source: Authors*

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*Table C8: Breusch-Pagan heteroskedasticity test for Regression 4b: Match Attendance at time t, as a function of Sports Performance at time t-1*

**Breusch-Pagan/Cook-Weisberg test for heteroskedasticity**

H0: Constant variance

<b>chi2(1)</b>	1.24
<b>Prob &gt; chi2</b>	0.2646

*Source: Authors*

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## Appendix D: Case Study

Table D1: SL Benfica and Sporting CP Performance Score

Season	Club	National League Score	European Competitions Score	Performance Score	
2013/2014	SL Benfica	2.313	5.792*	2.662	
2014/2015		2.240	0.310	1.564	
2015/2016		2.405	3.620	2.830	
2016/2017		2.238	2.566	2.353	
2017/2018		1.712	0	1.113	
2018/2019		2.137	3.644*	2.118	
2019/2020		2.049	3.133	2.428	
2020/2021		1.713	0	1.114	
2021/2022		1.525	3.071	2.066	
2022/2023		2.037	3.893	2.687	
2023/2024		1.700	3.626*	1.830	
2013/2014		Sporting CP	1.722	0	1.119
2014/2015			1.479	0.782	1.235
2015/2016	2.108		0.945*	1.559	
2016/2017	1.519		0.411	1.131	
2017/2018	1.562		3.562*	1.728	
2018/2019	1.397		1.244*	1.157	
2019/2020	0.969		4.015	2.035	
2020/2021	2.214		0	1.439	
2021/2022	2.088		2.468	2.221	
2022/2023	1.312		2.672*	1.387	
2023/2024	2.258		1.872*	1.842	

\*UEFA Europa League

Source: Authors

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Table D2: Match Attendance for SL Benfica and Sporting CP

Season	SL Benfica	Sporting CP
2000/2001	29,262	26,068
2001/2002	29,679	15,116
2002/2003	28,944	28,778
2003/2004	31,274	29,840
2004/2005	32,524	32,099
2005/2006	43,070	31,495
2006/2007	39,005	29,111
2007/2008	37,485	26,515
2008/2009	35,705	24,606
2009/2010	50,033	24,858
2010/2011	38,146	34,490
2011/2012	42,730	26,521
2012/2013	42,364	33,703
2013/2014	43,613	34,988
2014/2015	48,525	39,886
2015/2016	50,328	42,772
2016/2017	55,949	43,623
2017/2018	53,209	33,691
2018/2019	53,824	30,234
2019/2020	52,479	0
2020/2021	0	25,159
2021/2022	31,956	29,292
2022/2023	57,108	40,102
2023/2024	56,248	42,303

Source: Transfermarkt, 2024

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*Table D3: Winning Percentages for SL Benfica and Sporting CP 2013/2014 and 2023/2024 in Liga Portugal*

	SL Benfica	Sporting CP
2013/2014	77%	67%
2014/2015	79%	65%
2015/2016	85%	79%
2016/2017	74%	62%
2017/2018	74%	71%
2018/2019	82%	68%
2019/2020	71%	53%
2020/2021	68%	76%
2021/2022	68%	79%
2022/2023	82%	68%
2023/2024	74%	85%

*Source: Transfermarkt, 2024*

Table D4: Winning Percentage Rate for the Liga Portugal selected clubs, stage of European competition reached in each season between 2013/2014 and 2023/2024

Season	Club	WPCT	Stage Reached	Competition
2013/2014	SL Benfica	1.653	Final	Europa League
2014/2015		-0.816	Group Stage	Champions League
2015/2016		0.699	Quarter Finals	Champions League
2016/2017		0.277	Round of 16	Champions League
2017/2018		-1.433	Group Stage	Champions League
2018/2019		0.740	Quarter Finals	Europa League
2019/2020		-0.112	Quarter Finals	Champions League
2020/2021		-		
2021/2022		-0.215	Quarter Finals	Champions League
2022/2023		1.155	Quarter Finals	Champions League
2023/2024		0.709	Quarter Finals	Europa League
2013/2014		Sporting CP	-0.030	Group Stage
2014/2015	0.242		Round of 32	Europa League
2015/2016	-0.648		Group Stage	Champions League
2016/2017	0.603		Quarter Finals	Europa League
2017/2018	0.740		Round of 32	Europa League
2018/2019	2.692		Round of 16	Champions League
2019/2020	0			
2020/2021	0.114		Round of 16	Champions League
2021/2022	-0.881		Quarter Finals	Europa League
2022/2023	-0.881		Round of 16	Europa League
2023/2024	-0.030		Group Stage	Champions League

Source: UEFA Official website, [www.uefa.com](http://www.uefa.com)

## Appendix E: National Associations

Table E1: UEFA National Associations Membership Programs

UEFA National Association	Membership Program	Key Benefits
Belgium	<a href="#">1895 Official Fan Club</a>	Priority tickets, 15% webshop discount, exclusive events, training access, prizes, newsletters (RBFA, n.d.).
Czechia	<a href="#">ALIVE FAČR Membership Card</a>	Benefits at 1,500+ locations (insurance, restaurants, events, etc.) (FAČR, n.d.).
Denmark	<a href="#">Fanklubben</a>	First refusal tickets, ticket discounts, live U-matches, exclusive events, loyalty points, merchandise discounts (ForDanmark, n.d.).
England	<a href="#">England Supporters Club</a>	Free membership, priority home tickets, competitions, e-newsletters (England Supporters Club, n.d.)
Finland	<a href="#">Finnish National Team Supporters Association (SMJK)</a>	Priority ticket purchase, ticket discounts (Pohjoiskaarre, n.d.).
France	<a href="#">Les Bleus Supporters Club</a>	Welcome pack, training access, supporter events, travel discounts, priority tickets, store discounts (FFF, n.d.)
Germany	<a href="#">Fan Club National Team</a>	Welcome package, fan shop discount, exclusive ticket phases, fan trips, museum discounts (DFB, n.d.)
Italy	<a href="#">Vivo Azzurro Card</a>	Newsletters, pre-purchase tickets, game discounts, FIGC Store discount, tourist packages, museum discounts (FIGC, n.d.)
Netherlands	<a href="#">Oranje ClubCard</a>	Priority/discounts on games, shop, away sales, exclusive activities (KNVB, n.d.-b).
Northern Ireland	<a href="#">GAWA Official Membership</a>	Members pack, 15% JD Sports discount, exclusive content/events, stadium tour discounts (Irish FA 2021).
Norway	<a href="#">Supporterklubben</a>	First refusal tickets, lounge access, exclusive content, mascot opportunities (NFF, n.d.).
Portugal	<a href="#">Portugal+</a>	Ticket priority, discounts, exclusive fan experiences, newsletters (Portugal Store 2022)
Republic of Ireland	<a href="#">Club Ireland</a>	Season seat, VIP lounge, ticket transfers, pre-sale access to WNT/U21/FAI (FAI, n.d.).
Scotland	<a href="#">Scotland Supporters Club</a>	Priority tickets, exclusive events, member discounts on kits/training wear (Scottish FA, n.d.).
Spain	<a href="#">MAS Fan App</a>	Exclusive content, VIP activities, player meet-ups, store/third-party discounts (RFEF, n.d.).
Sweden	<a href="#">Supporterklubben</a>	Discounted tickets, exclusive content, point system (SvFF, n.d.)
Switzerland	<a href="#">Football Fans Premium Club</a>	Ticket priority, exclusive raffles, welcome gifts (SFV, n.d.)
Wales	<a href="#">Red Wall +</a>	Priority home and away tickets, discounted campaign tickets, membership pack, digital card, kit discount, partner offers (FAW, n.d.)

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