

Department of Management and Production Engineering
Master of Science in Engineering and Management



**The management of the football transfer market by clubs:
financial strategies and economic sustainability through loans,
capital gains and transfer operations**

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Abstract

Over the last three decades, the football transfer market has undergone a profound transformation, evolving from a primarily sporting mechanism into a complex financial system with significant economic and regulatory implications. Increasing transfer fees, widespread use of loan agreements, and the growing relevance of capital gains have reshaped clubs' financial strategies, often raising concerns about sustainability, transparency, and regulatory compliance. In this context, this thesis investigates whether financial sustainability in professional football is structurally grounded or, in some cases, only apparent.

The study combines institutional analysis, empirical investigation, and original quantitative indicators to examine how transfer-related strategies affect clubs' financial stability. First, the regulatory evolution of the football transfer market is analyzed, with particular attention to the UEFA Financial Sustainability Regulations and their role in shaping clubs' financial behavior. This regulatory framework provides the institutional background against which contemporary transfer strategies are assessed.

Second, the thesis develops an original dataset based on official financial statements of major European football clubs, covering the period from 2018 to 2022. The dataset harmonizes the balance sheet and income statement variables, enabling a consistent cross-club and intertemporal comparison. On this basis, two complementary synthetic indicators are constructed. The Football Sustainability Synthetic Index (FSSI), derived through Principal Component Analysis, captures structural financial vulnerabilities by summarizing multiple financial dimensions into a single, interpretable score. In parallel, the Capital Gain Dependency Index (CGDI) measures the extent to which clubs rely on transfer-related capital gains to sustain their financial performance.

The joint interpretation of these indices provides a nuanced perspective on financial sustainability, highlighting the interaction between overall financial soundness and dependence on player trading. This framework allows the identification of different financial profiles, distinguishing between structurally sustainable models and cases in which apparent stability is supported by recurring or extraordinary capital gains.

To explore the analysis in greater depth, the thesis presents two comparative case studies: Inter and FC Barcelona. Despite operating under the same regulatory framework, the two clubs exhibit markedly different financial strategies. Inter's model is characterized by systematic reliance on capital gains and extensive use of loan deals to manage costs and amortization, resulting in high dependency but relatively contained structural sustainabil-

ity. Conversely, FC Barcelona's strategy relies less on recurring capital gains and more on extraordinary operations and the anticipation of future revenues, producing higher but more volatile sustainability indicators and exposing the club to long-term financial risks.

Overall, the findings suggest that current regulatory mechanisms, while limiting excessive losses, may still allow forms of opportunistic behavior that mask underlying financial fragilities. The thesis contributes to the literature by offering original empirical tools to assess financial sustainability in football and by demonstrating how transfer market strategies can generate misleading signals of financial health. These results have relevant implications for policymakers, regulators, and club managers, highlighting the need for more comprehensive and forward-looking approaches to financial governance in professional football.

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Introduction

In the contemporary landscape of professional sport, football occupies an unrivaled position in terms of economic importance, media visibility and social impact. From a simple sporting and recreational activity, it has transformed into a truly globalized industry, capable of generating billions of euros every year, attracting international investors and influencing public policy and urban dynamics. Within this ecosystem, the football transfer market is a crucial hub, both for its technical and sporting implications (i.e. the building of teams and competitive performance) and for its economic and financial dimensions, which touch on aspects of budgeting, sustainability, regulation and reputation.

The football transfer market is not just a media phenomenon with great appeal for fans and the media, but a sophisticated management mechanism governed by international, European and national rules. The sale, loan and exchange of players are directly reflected in clubs' balance sheets, influencing capital ratios, cash flows and regulatory compliance. In this sense, the football transfer market is no longer a simple “technical tool”, but a real strategic lever used by clubs to sustain their competitiveness in the short term and their financial survival in the long term.

In recent years, increasing attention has been paid to certain distortive practices linked to the transfer market, first and foremost the abuse of capital gains. Investigations into Juventus, and more generally the debate on the transparency of football clubs' financial statements, have revealed the existence of formally legal but essentially fictitious transactions (Házi and Tóth, 2024), often used to embellish accounts and comply with the constraints of Financial Fair Play (UEFA) or COVISOC (FIGC). These cases have fueled a heated debate among sports economists, lawyers, policy makers and industry operators, raising crucial questions: is the current economic model of European football sustainable? To what extent has the football transfer market become a parallel “financial market”, more oriented towards accounting value than sporting performance? What reforms are needed to rebalance the entire system?

These questions are accompanied by a clear need for a more in-depth scientific analysis of the phenomenon. Although there is extensive literature on the legal, managerial and financial aspects of football, there is still no integrated approach that combines the economic-accounting perspective with the regulatory perspective and is based on an empirical analysis of real cases. It is precisely this gap that forms the basis of this thesis.

Objectives of the thesis

This thesis aims to critically analyze, in a multidisciplinary and comparative manner, the functioning of the modern football transfer market, with particular reference to loan, sale and capital gains transactions. Far from being mere sporting transactions, these activities are now central tools in the economic strategy of professional clubs, influencing their balance sheets, income statements and regulatory compliance.

The primary objective is to understand how clubs use the transfer market to achieve not only sporting goals but also (and sometimes above all) accounting, tax and regulatory objectives. In particular, the thesis will examine the nature of capital gains, their role in the artificial construction of operating results, and the implications that such practices may have in terms of truthfulness, transparency and financial sustainability. The thesis will focus on two emblematic cases: FC Internazionale Milano and FC Barcelona, two historic clubs of international importance, united by a high level of debt and aggressive management of the transfer market, but profoundly different in terms of legal structure, revenue structure and national regulatory context.

Relevance of the topic in the current context

The importance of this issue is clear from a growing body of empirical evidence. According to the Federazione Italiana Giuoco Calcio (2023), the whole Italian football system generated over €3 billion, which is 0.17% of the country's GDP. However, despite this value, the system appears to be chronically indebted and dependent on extraordinary revenues. Inter Milan, for example, recorded significant operating losses in the three years following the pandemic, which were partially covered by player trading and capital gains.

At the European level, the problem is just as widespread. Ernst & Young (2023) highlighted that half of the leading European clubs are technically insolvent or at high risk, despite revenues exceeding €500 million. The case of Barcelona is exemplary: debt ex-

ceeding €1 billion, offset in part by the sale of commercial assets (“leverage”) and an aggressive policy of exchanges and loans. The issue of fictitious capital gains, in particular, has been the subject of numerous studies, including that of HÁzi and Tóth (2024), which analyze the Juventus case, highlighting the accounting dynamics behind many inflated transactions. Cotta Ramusino and Pozzo (2022) emphasize that such practices fall into a gray area between formal legality and substantial violation of accounting principles, requiring urgent regulatory updates at both federal and international level.

Research questions

This thesis aims to answer the following research questions:

1. What has been the regulatory and strategic evolution of the football transfer market over the last thirty years?
2. How do loan and capital gains transactions affect club finances?
3. What differences emerge between the management models of Inter and Barcelona?
4. Are current regulations (UEFA, FIGC) sufficient to prevent abuse? Or do they encourage opportunistic behaviour?
5. What are the future prospects for a more sustainable, transparent and fair football transfer market?

Methodology

The approach adopted is mixed-method, based on the analysis of official documentary sources (UEFA regulations, club financial statements, FIGC regulations), financial reports (Deloitte, EY), and peer-reviewed academic literature. The thesis integrates tools from business economics (balance sheet analysis, costs/revenues, sustainability indicators), sports law (fair play, sports justice, capital gains), and management strategy (SWOT and PESTEL analysis). Alongside this qualitative and institutional dimension, Chapter 3 develops an original quantitative analysis based on Principal Component Analysis (PCA), combining official financial statement data into two synthetic indices: the Football Sustainability Synthetic Index (FSSI) and the Capital Gain Dependency Index (CGDI). There are two main methodological components:

- Case study: comparative analysis of Inter and Barcelona, selected for the relevance of the available data and the peculiarities of their management models.
- Regulatory and accounting analysis: evaluation of the main UEFA and FIGC regulations, with a focus on Financial Fair Play, capitalization thresholds, and the instrumental use of player trading.
- Quantitative analysis: construction of the FSSI and CGDI indices through PCA, applied to an original dataset of 16 European clubs over the period 2018–2022, to measure financial sustainability and dependence on capital gains.

Thesis structure

The thesis is divided into five chapters.

- Chapter 1: defines the historical, legal and structural context of the football transfer market, analyzing regulatory developments and the players involved.
- Chapter 2: introduces the managerial and economic-financial dimension of the market, with a focus on loans, capital gains and accounting strategies.
- Chapter 3: examines the impact on the balance sheet and financial statements, analyzing the effects of market transactions on sustainability and break-even.
- Chapter 4: presents case studies of Inter and Barcelona, comparing strategies, performance and accounting practices.
- Chapter 5: offers a critical reflection, with regulatory insights, alternative models and future scenarios, including an assessment of the role of technology and data analytics in the football transfer market.

Chapter 1

The football transfer market: context, players and regulations

The origins of modern football date back to the second half of the 19th century, when it became necessary to standardize the rules in England, which until then had varied greatly. The founding of the Football Association in 1863 marked the codification of a set of shared rules and the distinction from rugby, promoting the rapid spread of the game in urban and industrial contexts (The Football Association, nd).

The gradual professionalization of the game at the end of the 19th century transformed football from a recreational activity into an organized spectacle, with the birth of the first national championships. In Italy, the FIGC was founded in Turin on 26 March 1898 (as the Italian Football Federation) and in the same year organized the first championship, marking the beginning of a history that would be intertwined with the social and economic events of the country (FIGC, 2024).

At the international level, the creation of FIFA (1904) and, in Europe, UEFA (1954) marked the institutionalization of football as a phenomenon regulated beyond national borders (UEFA, 2023a). These bodies not only coordinated international competitions, but also gradually defined the mechanisms for player transfers, outlining the first embryonic forms of the “transfer market”.

The transfer market is one of the most visible and strategic components of club management in the world of football. Far beyond its simple function of exchanging players, it now constitutes a complex and regulated economic system in which various entities (clubs, players, agents, federations) interact within a multi-level regulatory framework.

The transfer market is not only a reflection of sporting activity, but also a financial management and competitive positioning tool for professional clubs.

This chapter aims to outline the general context in which the modern football transfer market operates, starting with its historical and legal evolution (section 1.1), then analyzing the main players involved and their roles (section 1.2), the functioning of regulatory institutions at international, European and national level (section 1.3), and the regulatory framework governing the most significant economic and financial transactions, such as capital gains and sustainability rules (section 1.4). The chapter concludes with a comparative analysis with the NBA (section 1.5), which highlights the structural differences between the European and US models of professional football, particularly in terms of competitive balance and economic regulation tools.

1.1 Origins and development of the football transfer market

The transfer market, in its modern form, is the result of a complex historical process that has transformed football from an amateur sport into a fully-fledged international industry. The origins of the transfer market can be traced back to the first half of the 20th century, when player transfers between clubs were regulated in an informal and highly discretionary manner. With the rise of professionalism and the growth of economic interests linked to football, the transfer system has become increasingly institutionalized.

According to Kesenne (2007), professional football has evolved in line with the growing economic importance of sport in modern economies. Teams have gradually transformed into business organizations, and the transfer market has become a central tool in the management of clubs' human and financial resources. This transition from a corporate to a managerial model has led to the adoption of more sophisticated market strategies, where the acquisition and sale of players respond to investment, return and asset valuation logic.

A landmark change in the regulation of the football transfer market came with the Bosman ruling (C-415/93) of 1995 (Corte di Giustizia delle Comunità Europee, 1995). Prior to this decision, players were not free to transfer at the end of their contracts without the approval of their club, which could demand compensation even in the absence of contractual obligations. The European Court of Justice ruling established that this practice was incompatible with the free movement of workers provided for in the Treaty of Rome. The

decision opened the door to the liberalization of the football transfer market within the EU, radically changing transfer mechanisms and contractual dynamics.

At the same time, international federations such as FIFA have gradually refined the regulatory framework to protect the integrity of competitions and ensure transparency in transactions. Official documents contain numerous regulatory measures aimed at defining the transfer period, the registration of minors and minimum contractual conditions, contributing to the formalization of an increasingly complex market.

In the new millennium, digitization with the Transfer Matching System (TMS) made international transactions more traceable: since 1 October 2010, the ITMS has become mandatory for international transfers in men's 11-a-side football (FIFA, 2022). At the same time, reforms concerning agents and clearing houses aimed to improve the integrity and transparency of the system (FIFA, 2015). Digitization (TMS/ITMS) has increased transparency and traceability, with additional measures (e.g. FIFA Clearing House) to protect "training" credits and the integrity of the system (FIFA, 2022). In summary, the transfer market is also a business management mechanism: transfer and wage policy choices have a direct impact on sustainability and risk.

The growing spectacle of football, driven by television rights and commercial revenues, has strengthened the role of the transfer market as a strategic lever not only in sport but also in the economy and finance. As highlighted by Szymanski and Kuypers (1999), the transformation of football into an entertainment industry has led clubs to adopt market strategies similar to those of businesses, using the purchase and sale of players as tools to increase visibility, brand value and sporting competitiveness.

The growth of football as an entertainment industry has pushed revenues to record levels. According to Deloitte (2024), revenues in the European football market reached €35.3 billion in 2022/23; according to the Deloitte (2025), the "big five" leagues totalled €20.4 billion in 2023/24.

Club revenues come mainly from broadcasting, commercial/sponsorship and matchdays; in the major leagues, the media component remains predominant, while stadiums are recovering ground post-pandemic. A key indicator of sustainability is the wages-to-revenue ratio, which averages around 60% in Europe, with differences between leagues (Deloitte, 2024; UEFA, 2023a).

- **Broadcasting:** domestic and international TV rights; central source of income for

the top-5 European leagues.

- **Commercial:** main and regional sponsors, licensing agreements, merchandising, naming rights.
- **Matchday:** ticket sales, corporate hospitality, stadium tours and museums, ancillary services.

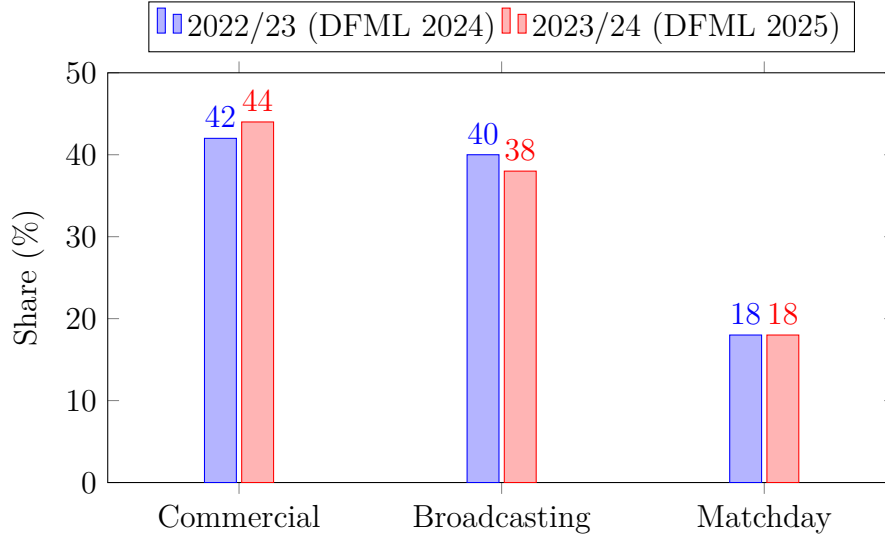


Figure 1.1: *Percentage composition of revenues for the average Football Money League club. Source: Deloitte (2024); Deloitte (2025).*

Note: The values are average percentages calculated by Deloitte for the Money League clubs, referring to the European elite rather than the entire professional football sample.

The comparison across two consecutive seasons reduces outlier effects and highlights the gradual structural shift towards commercial revenues.

The figure shows the average breakdown of revenues for clubs in the Deloitte Football Money League over the last two seasons considered. In 2023/24, the weight of commercial revenues (44%) increases further at the expense of broadcasting (38%), while matchday revenues remain stable at around 18%. The data confirms a trend already observed: for top clubs, revenue growth increasingly comes from sponsorship, branding and commercial activities (tours, naming rights, premium hospitality), while the average share of broadcasting tends to decline slightly, although it remains essential to the business model.

The concept of the ‘transfer market’ stems from the intertwining of transfer regulations and contracts. Historically, the ‘transfer card’ bound the player to the club even after the expiry of the contract; the reforms of the 1990s and European case law reconfigured the

system, emphasizing freedom of movement (Corte di Giustizia delle Comunità Europee, 1995). In the current framework, rights to sporting performances are recorded as intangible assets, subject to amortization; fees and ancillary charges generate capital gains/losses and impact cash flows and coverage ratios (FIFA, 2015).

The cost of the player's sporting rights is recorded under intangible assets and amortized on a straight-line basis over the term of the contract (accrual basis). Amortization is recognized in the income statement as a non-cash cost, reduces the carrying amount of the asset in the balance sheet and is included in the structural costs relevant for sustainability purposes. In the event of events that reduce the recoverable value (serious injuries, market write-downs), an impairment test is required.

Upon disposal, the transfer result is given by:

$$\text{Disposal result} = \text{Selling price} - \text{Net Book Value (NBV)}$$

The capital gain (or loss) impacts the income statement in the financial year in which the transaction is completed (upon signing the contract), while liquidity depends on the terms of collection/payment (installments, clauses, offsets). The capital gain is not included in the structural component of costs monitored by team cost regulations, but it can alter profitability and leverage indicators in the short term.

Transfers generate receivables/payables from player trading (if settled in installments), affect cash flows (operating or investing, depending on club practice), and change leverage and debt coverage when maturities require recourse to financing (or factoring on market receivables). The sustainability analysis therefore requires a distinction to be made between the economic effect (amortization/capital gains) and the financial effect (timing and methods of collection/payment).

The Squad Cost Rule primarily considers wages, player amortization and agent commissions in relation to eligible revenues; capital gains do not reduce the denominator of squad costs, so a model that is overly dependent on transfers may improve profits but not compliance with the cost constraint.

Item	Income Statement	Balance Sheet	Cash Flows
Player acquisition	No immediate cost (except accessory expenses if applicable)	+ Intangible asset (historical cost)	Cash outflow for transfer fee (upfront or instalments); possible agent fees
Annual amortization	Amortization expense	– Net book value of intangible asset	No cash impact
Player disposal	Gain/Loss = Selling price – NBV	– Intangible asset; + Receivable from buyer	Cash inflow from proceeds (upfront or instalments)
Instalment payments/receipts	—	– Liability / + Receivable	Outflows / Inflows according to schedule
Impairment (if needed)	Impairment loss	– Net book value of intangible asset	No immediate cash impact

Table 1.1: *Accounting treatment of player transfers: income statement, balance sheet and cash flow perspectives.*

Numerical example

Player acquisition, amortization and disposal

Scenario. Acquisition in July 2021: transfer fee of €60m, 5-year contract → annual amortization €12m.

Situation as of June 2024 (after 3 years). Cumulative amortization = €36m, Net Book Value (NBV) = €60m – €36m = €24m.

Disposal. Sale in July 2024 for €35m, proceeds collected in 3 equal annual installments (without contractual interest).

1) Income statement effect (2024/25). Gain = €35m – €24m = €11m (recognized immediately upon sale).

2) Balance sheet effect.

- Removal of intangible asset (NBV, €24m);
- Recognition of receivables from sale (€35m), which decrease as instalments are collected.

3) Cash flow effect.

- Cash inflows spread over three years (approx. €11.67m/year);
- If the receivable is discounted (factoring), cash is obtained immediately but financial charges increase.

4) Implications for financial indicators.

- Amortization (€12m/year) disappears from 2024/25 onwards for this player → structural costs decrease.
- Gain (+€11m) improves profit but does *not* help the *Squad Cost Rule*, which focuses on recurring costs (wages + amortization + agents).
- Liquidity improves only for the part effectively collected in the year; remaining receivables are not cash.
- Leverage: If future installments are used to repay debt, leverage may decrease; if discounted via factoring, net financial position may worsen due to interest.

Note The gain “adjusts” the result but does not solve, by itself, sustainability as measured by indicators such as wage/revenue, interest coverage, quick ratio, and especially the SCR. It is the combination of *wage policies + amortization* (and their dynamics over time) that determines true compliance with regulatory thresholds.

1.2 Stakeholders: clubs, agents, players, federations

The functioning of the football transfer market is determined by the interaction between a number of stakeholders, each with specific interests, roles and responsibilities.

Clubs

Clubs are at the center of the transfer market because they represent both sporting entities and economic enterprises (Deloitte, 2025). Their mission is twofold: on the one hand, to maximize sporting performance and, on the other, to ensure sustainability and financial attractiveness. This “hybrid” nature sets them apart from traditional businesses: sporting performance directly affects their ability to generate revenue (from media rights, sponsors and match days), while economic and financial stability affects their ability to invest in talent and remain competitive.

Investments in players constitute the most significant part of intangible assets in financial statements. The purchase and sale of sporting rights are management tools that affect the income statement and balance sheet through amortization and capital gains. Clubs plan transfer cycles to comply with regulatory constraints, such as the Squad Cost Rule introduced by the new FSR and discussed in detail in Section 1.4, which limits spending on wages, amortization and commissions in relation to revenue (UEFA, 2023b).

Financial stability does not depend solely on the transfer market, but also on the ability to generate structural revenues. According to Deloitte (2025), top clubs are gradually shifting their focus towards commercial revenues and global brands, while weaker leagues (e.g. Serie A) remain heavily dependent on television rights. This gap is reflected in the market: clubs with a more solid revenue base have greater scope for investment, reducing their dependence on capital gains.

UEFA and national regulations (UEFA, 2023b; FIGC, 2023) impose stringent controls on net assets, debt and transparency. However, clubs also remain spaces for innovation: the use of data analysis and player trading models (e.g. Atalanta, Benfica, Ajax) demonstrates how sustainability and competitiveness can be combined, transforming the transfer market into a tool for creating value.

The footballers

The modern footballer has gone from being a simple employee to becoming a true intangible asset with economic value and bargaining power (UEFA, 2023b). Recorded in the balance sheet as a fixed asset, the footballer represents both a sporting investment and an asset.

European case law, with the Bosman ruling (1995), radically changed the balance of power, recognizing players' freedom to transfer when their contracts expired. This increased competition between clubs to attract talent and raised the importance of salaries as the main bargaining chip (Corte di Giustizia delle Comunità Europee, 1995).

In addition to sporting performance, a footballer's value is now linked to his ability to generate ancillary revenue: merchandising, image rights, individual partnerships. Some top athletes (Cristiano Ronaldo, Messi, Mbappé) are true global brands, capable of influencing even the market policy of clubs. Deloitte (2025) emphasizes how the brand equity of a top player can affect a club's commercial revenues.

Alongside economic development, there is growing attention to the protection and welfare of footballers. National federations and FIFPro have introduced guidelines to ensure adequate working conditions, protection from contractual abuse and safeguarding of mental and physical health. The sustainability of the system also depends on the ability to reconcile performance requirements with the protection of individual rights.

The footballer's wishes are increasingly influencing negotiations. Through agents and representatives, players exercise decision-making power over their own contractual destiny, influencing market dynamics. In some cases (e.g. refusal to renew contracts or pressure for release clauses), the footballer becomes the deciding factor in club strategies.

Sports agents: intermediaries and hidden regulators of the market

An increasingly important role is played by sports agents, now more accurately referred to as intermediaries. FIFA, with the Regulations on Working with Intermediaries (FIFA, 2015) and the reform that came into force in 2023–2024 (FIFA, 2024), regulates requirements, remuneration and transparency obligations. Intermediaries act as representatives of players or clubs, but their role goes beyond contract mediation:

- they facilitate the matching between talent supply and demand,

- they affect wage allocation and transfer strategies,
- they influence the dynamics of international wage competition.

The commissions paid to agents represent a significant item of expenditure for clubs: according to the FIFA (2022), the fees paid exceeded €600 million globally, showing steady growth compared to the previous decade. In Italy, the FIGC publishes an annual report on the sums paid to agents: in 2022, Serie A clubs spent around €200 million, with Juventus, Roma and Inter among the clubs most exposed. The activities of prosecutors have been the subject of frequent criticism, linked to:

- information asymmetries between clubs, players, and agents,
- conflicts of interest (e.g., simultaneous representation of both parties),
- lack of transparency in fees,
- risk of market cost inflation.

To address these issues, FIFA has introduced maximum commission caps (generally between 3% and 10% of the value of the transaction, depending on the role and size of the contract) and registration and disclosure requirements. These reforms have met with resistance and legal disputes in several countries, demonstrating the high stakes involved in controlling economic flows in the football transfer market.

Federations: multi-level regulators

The system is complemented by national and international sports federations, which act as guarantors of integrity and stability. FIFA defines global principles (FIFA, 2015, 2024), UEFA supplements them with specific financial regulations (UEFA, 2023b), while the FIGC applies them at national level with rules on league registration, economic and financial controls and capital gains regulations. As highlighted in the Lubrano (2011), these institutions act not only as regulators, but also as judges and guarantors of the proper functioning of the system.

1.3 The role of institutions: FIFA, UEFA, FIGC

The transfer market is regulated by a multi-level set of rules and principles designed to ensure transparency, competitive fairness and financial sustainability. These institutional bodies, located at global (FIFA), continental (UEFA) and national (FIGC) levels, do not

merely set the formal rules for transfers, but also exercise supervisory and sanctioning functions, influencing club strategies and the evolution of the system itself (UEFA, 2023b; FIFA, 2024; FIGC, 2023).

1.3.1 FIFA: global regulatory framework and Transfer Matching System

FIFA is the central governing body for world football. Through its Regulations on the Status and Transfer of Players (latest version: 2024), it defines the fundamental principles governing:

- international transfers and transfer windows,
- player registration with national associations,
- protection of minors and youth training,
- solidarity mechanisms and training compensation.

An innovative element was the introduction of the Transfer Matching System (TMS), an electronic platform that has been mandatory since 2010 for all international transactions. The TMS allows financial flows to be traced and reduces the risk of opacity by requiring the entry of uniform and verifiable data (FIFA, 2015, 2024). FIFA also imposes sanctions (fines, registration bans, suspensions) on clubs that violate registration rules, with numerous practical cases involving European clubs being penalized for irregularities relating to the transfer of minors.

1.3.2 UEFA: from Financial Fair Play to Financial Sustainability Rules

At European level, UEFA supplements FIFA principles by introducing specific rules on club licensing and financial sustainability. The regulatory process has undergone a number of crucial stages:

Table 1.2: *UEFA reform timeline*

Year	Reform
2010	Introduction of Financial Fair Play (FFP)
2015	FFP review: first set of sanctions
2022	Announcement of FFP reform and transition to new criteria
2023	Entry into force of the Club Licensing and Financial Sustainability Regulations

Source: UEFA (2023b).

One of the most significant innovations of the FSR is Article 69, which prohibits clubs with negative net equity that has not been covered within the established deadlines from participating in UEFA competitions, placing a strict constraint on their financial structure (UEFA, 2023b).

These rules are not abstract, but have been applied in practice: over the years, several clubs (including PSG, Manchester City, Roma and Milan) have been subject to sanctions or settlement agreements for FFP/FSR violations. Sanctions range from fines and squad restrictions to exclusion from European competitions in the most serious cases. This has prompted clubs to review their spending strategies, in some cases resorting to player trading and capital gains to rebalance their accounts (Deloitte, 2025).

1.3.3 FIGC: national adaptation and internal controls

In Italy, the FIGC implements FIFA and UEFA principles within its own regulations. The main instruments are:

- the *Regulations of the Game of Football* and the *Code of Sports Justice*,
- the controls of COVISOC (Supervisory Commission on Professional Football Clubs), which monitors compliance with the financial requirements for league admission,
- the Commission of Sports Agents, which regulates the activity of intermediaries at the domestic level.

These mechanisms reinforce the stability of the system, requiring clubs to submit certified financial statements that comply with minimum capital requirements. Violations can lead to financial penalties, points deductions in the league table or, in extreme cases, exclusion from the championships. Recent events related to “anomalous” capital gains and compliance with capital ratios have highlighted the importance of comprehensive monitoring by the federation (FIGC, 2023).

Critical issues: regulatory plurality and grey areas

Coordination between FIFA, UEFA and FIGC is essential to ensure a balance between contractual freedom and protection of the integrity of the system. However, the plurality of regulatory sources can lead to difficulties in application:

- FIFA rules have a global scope but leave room for adaptation by national federations,
- UEFA regulations apply only to clubs participating in European competitions,
- FIGC rules concern the domestic context and may diverge from international standards.

This regulatory stratification sometimes produces areas of interpretative ambiguity, as demonstrated by appeals to sports and ordinary courts in cases of financial penalties, the registration of minors or disputes over capital gains. Despite this, the multi-level system remains essential: without coordinated oversight, the transfer market would risk degenerating into a context of opacity and structural imbalances.

Institutions are not just “external” regulators, but real players within the transfer market. FIFA, UEFA and the FIGC directly influence clubs’ decisions by setting limits, opportunities and sustainability constraints. In this sense, the transfer market is not a free market in the pure sense, but a regulated market in which investment decisions must constantly be measured against financial and capital criteria defined by supranational bodies.

1.4 Relevant regulations: Financial Fair Play, capital gains and sustainability

The functioning of the modern football transfer market cannot be understood without an analysis of the regulatory framework governing the purchase, sale and accounting valuation of players. In recent years, regulatory efforts have focused on reducing structural

losses, liquidity risks and opportunistic behavior, balancing negotiating freedom and competitive integrity.

UEFA Financial Fair Play → Financial Sustainability Regulations (2023)

Since 2010, the Financial Fair Play (FFP) introduced limits on spending relative to relevant revenues. In 2023, UEFA reformed the system with the *Club Licensing and Financial Sustainability Regulations* (FSR), based on three pillars: solvency, stability, and cost control.

Two key points are:

- **Article 69 (net equity):** exclusion from competitions for clubs with negative equity not covered within the prescribed deadlines.
- **Squad Cost Rule (SCR):** wages + player amortization + agents' commissions must be $\leq 90\%$ (2023/24) $\rightarrow 80\%$ (2024/25) $\rightarrow 70\%$ (from 2025/26) of relevant revenues. Violations lead to increasing sanctions (fines, squad restrictions, up to exclusions).

The SCR directly affects transfer market strategies:

- it pushes clubs to curb wages and amortization (contract duration, loan formulas, timing of disposals);
- it makes capital gains neutral for SCR purposes (they improve profit but do not reduce the numerator of the SCR).

BOX 1 – FSR: what counts and what does not count in the Squad Cost Rule

SCR numerator (counts):

- Wages and salaries of first-team players;
- Amortization of player registrations;
- Agents' and intermediaries' commissions.

Does not count in the SCR:

- Capital gains from player disposals;
- Extraordinary income and non-recurring items;
- Financial or asset-related revenues not linked to core operations.

Target thresholds:

- 90% of relevant revenues in 2023/24;
- 80% in 2024/25;
- 70% from 2025/26 onwards.

Note: Compliance with the SCR is a prerequisite for eligibility in UEFA competitions. Capital gains improve profit but do not directly reduce the SCR numerator.

Capital gains: use, abuse and critical issues

In Italy, capital gains from the sale of football players have become a structural element of many companies' financial statements, particularly in times of liquidity crisis. However, as highlighted in the literature, the distorted use of capital gains can generate artificial economic results, with serious implications:

- manipulation of operating results (formal but not real profit);
- influence on capitalization, avoiding real capital increases;
- circumvention of FFP thresholds and COVISOC controls.

Fictitious capital gains often arise from simultaneous exchanges between clubs, with off-market valuations attributed to medium or low-profile players. In these cases, the value attributed to the players serves only to improve the statutory financial statements, inflating assets against costs amortized in subsequent years. Although formally compliant with the accrual principle (Article 2423 of the Italian Civil Code), this accounting model is considered abusive in relation to the principle of truth and fairness in financial statements (Repubblica Italiana, 2024).

Some emblematic cases of suspicious transactions carried out by Italian clubs are reported below, demonstrating the systemic spread of the phenomenon and its disciplinary and economic repercussions.

Table 1.3: *Examples of fictitious capital gains in Serie A*

Case	Description
Juventus (2022)	Recognition in the balance sheet of artificial values on exchanges with Atalanta and other minor clubs
Chievo Verona (2018)	Exchange deal with Cesena to boost balance sheet and secure UEFA licence
Inter-Milan (2019)	Cross-exchanges with Primavera youngsters with over-estimated values
Parma (2015)	Liquidity problems masked by simulated capital gains, followed by bankruptcy

Source: Házi and Tóth (2024).

BOX 2 – Checklist against abusive use of capital gains

Criteria to distinguish a physiological use from an accounting abuse:

1. Market valuations aligned with objective parameters (age, position, performance, remaining contract duration);
2. Absence of simultaneous cross-trades with mirrored values;
3. Clarity on collection methods (instalments, compensations, factoring);
4. Proportionality between the immediate economic effect (profit) and future costs to be amortized;
5. Consistency with the principle of true and fair view of the financial statements (Art. 2423 of the Italian Civil Code) and with FIGC/COVISOC recommendations.

Note: this checklist makes it possible to assess whether a capital gain enhances the true and fair representation of the accounts or whether it constitutes an evasive practice aimed at manipulating net profit.

Regulatory responses and FIGC case law

The FIGC has sought to respond to the phenomenon of abnormal capital gains through:

- accounting recommendations,
- targeted Covisoc inspections,
- and, more recently, disciplinary measures.

The Juventus – Capital Gains case (Házi and Tóth, 2024) is emblematic: following investigations and findings by Covisoc, the Federal Prosecutor’s Office imposed penalties and referrals, arguing that the capital gains recorded in the financial statements were economically non-existent. Although the first ruling by the CONI Guarantee Board annulled the sanction due to procedural flaws, subsequent grounds recognized the need to intervene on transactions with no real economic content.

The problem of regulatory circumvention is not limited to Italy. At European level, several leading clubs have also been investigated or sanctioned for failing to comply with UEFA rules.

Table 1.4: *FFP disputes and creative accounting in Europe*

Club/ Country	Context
Paris Saint-Germain (Francia)	UEFA investigation into circumvention of FFP through inflated sponsorship deals by Qatari owners (2014–2019)
Manchester City (Inghilterra)	Allegations of over 100 FFP violations between 2009 and 2018, including misleading statements and artificial revenues
Galatasaray (Turchia)	Player trading agreements and suspicious sponsorships that led to UEFA sanctions in 2016 and 2020
Olympique Marsiglia (Francia)	UEFA warnings for budget imbalances and irregularities in multi-year contracts in 2022

Source: Deloitte (2025); UEFA (2023b).

The economic valuation of football players

According to Deloitte (2025), major European clubs make extensive use of player trading as a means of financial balance. However, systemic dependence on these transactions can undermine long-term sustainability, especially when ordinary revenues (matchday, broadcasting, sponsorship) are declining or stagnating.

At the same time, academic interest in player valuation has increased. Franceschi et al. (2023) show that economic valuations are influenced by objective variables (age, performance) and subjective variables (visibility, role, nationality), and can diverge significantly from the book value. This reinforces the idea that football balance sheets are particularly vulnerable to manipulation and arbitrary valuation.

1.5 Comparison with the NBA: regulatory models compared

The European model of professional football finds an interesting point of comparison in the National Basketball Association (NBA), the leading basketball league in the United States. Although both systems generate billions in revenue and have a global impact, the economic and institutional rules differ profoundly, producing different effects in terms of sustainability and competitiveness.

The NBA as a closed league

The NBA is a closed league, with no promotions or relegations, where franchises are stable entities and do not risk exclusion from the championships. This structure allows for long-term economic planning and encourages internal redistribution mechanisms (Kessenne, 2007).

Three main instruments are fundamental:

- the **soft salary cap**, which limits the overall expenditure on players' wages (National Basketball Association, 2024);
- the **luxury tax**, which economically penalizes franchises that exceed the salary cap, redistributing the excess amounts (National Basketball Association, 2023);
- the **annual draft**, which assigns the best college talents to the teams with the weakest results, thereby reducing the competitive gap (National Basketball Association,

2025).

These mechanisms, combined with forms of **revenue sharing** on television and commercial rights, aim to ensure a broader competitive balance, fostering greater alternation of winning teams over the years (Kessenne, 2007).

In contrast, European football has developed as an open system, characterized by promotion and relegation and much more fragmented competition between national leagues and international tournaments. The absence of salary caps and drafts creates a context in which structural differences in revenues are amplified: the Premier League generates more than twice the revenues of Serie A (Deloitte, 2025), which translates into a growing competitive advantage for English clubs.

With the introduction of the Financial Sustainability Regulations, the European regulatory system does not directly aim to rebalance the competitive level, but rather to ensure the economic and financial sustainability of clubs through capital and labor cost constraints (UEFA, 2023b). The objective is not to redistribute talent, but to reduce the risk of insolvency and bankruptcy.

The consequence is that the NBA has a greater variety of winning teams, with shorter competitive cycles, while European football sees a strong concentration of titles in the hands of a few dominant clubs at national and international level. The comparison highlights how the nature of the European transfer market, while guaranteeing contractual freedom and enormous economic attractiveness, is structurally less balanced in sporting terms than the US leagues.

BOX – Comparison between European football and the NBA

NBA (closed league):

- Salary cap with luxury tax;
- Annual draft to redistribute talent;
- Centralized revenue sharing;
- Franchise stability (no relegation).

European football (open leagues):

- No salary cap nor draft;
- Strong revenue inequality among leagues and clubs;
- UEFA regulation focused on sustainability (FSR), not on competitive balance;
- Promotion/relegation increasing financial volatility.

Consequence: greater alternation of champions in the NBA, strong concentration of titles in European football.

Chapter 2

Market management tools and strategies

The second chapter of the thesis aims to analyze in depth the main practices that characterize the modern football transfer market, with particular attention to the economic and financial logic that guides its evolution. In the contemporary football system, player transfers are not only technical choices but also business operations aimed at generating value, managing risk and optimizing balance sheets. The market is no longer seen as a simple sporting exchange, but as a multifunctional lever of corporate governance.

Structured in six sections, the chapter begins with an overview of the Italian football transfer market and then addresses the main tools used by clubs to create or redistribute value in the market: the sale and purchase of players, loan transactions, capital gains, borderline accounting practices and the development of young players and reserve teams. Each section integrates regulatory, accounting and managerial sources with empirical examples and case studies from the European context in order to offer a multidimensional and critical view of market strategies.

In particular, the focus is on the accounting treatment of transfers, the use of capital gains as a balance sheet lever, the strategic use of loans and the emergence of “creative accounting” practices that challenge the principles of transparency and sustainability. The analysis concludes with an in-depth look at second teams and youth training, understood as tools for generating human and economic capital. The entire chapter therefore aims to map the main operational levers of the football transfer market, assessing their systemic implications, opportunities and risks.

2.1 The Italian context of the football transfer market

The Italian football transfer market is characterized by a series of peculiarities that make it unique within the European football landscape. Although Serie A maintains a central role among the “big five” European leagues, it has specific features that significantly affect the economic and financial strategies of clubs and influence their sustainability. An analysis of the main market management tools, player transfers, loans, capital gains, “creative accounting” operations and the development of young players and reserve teams shows that these practices are more prevalent in Italy than in other contexts, reflecting structural weaknesses but also opportunities for development.

In the Italian system, the purchase and sale of player registrations represents a particularly significant asset item. According to Deloitte (2024), the incidence of players’ registration rights on the total assets of Serie A clubs exceeds 25% on average, which is higher than in the Premier League and Bundesliga. This figure highlights a greater dependence on the management of players as intangible assets, which are recorded in the balance sheet and amortized in accordance with IAS/IFRS standards.

Serie A holds the European record for the use of loans, with over 400 transactions recorded in some seasons (CIES Football Observatory, 2023). Big clubs, such as Juventus, have built up veritable networks of control, loaning dozens of players to smaller clubs, while clubs such as Empoli and Verona use incoming loans to remain competitive with limited resources.

Capital gains

Capital gains are a structural tool in Italian financial statements: FIGC (2023) reports that, for several Serie A clubs, over 30% of net profit derives from player transfers. This dependence makes the system vulnerable and encourages questionable valuation practices, as demonstrated by the cases of Juventus and Chievo.

Italy also stands out for its widespread use of borderline accounting practices, such as cross-trading young footballers at inflated values. Although formally compliant with accounting standards, these transactions generate fictitious capital gains that improve short-term balance sheets but increase future liabilities. The Chievo–Cesena case (2018) is one of the few in which the FIGC has sanctioned such conduct, highlighting the difficulties

of controlling the system.

The promotion of young players is an Italian tradition (academies such as Atalanta, Empoli, Torino), but their stable integration into the first team remains limited. The creation of second teams was only introduced in 2018 with Juventus Next Gen, the only structured example to date. This contrasts with established models in Spain and Germany, where second teams are a fundamental link in the technical-financial chain.

Technical Box – Key Accounting Notes

Capital gains from player sales: non-recurring revenues calculated as the difference between the transfer fee and the net book value of the player. They improve the accounting profit of the season but do not directly affect the Squad Cost Ratio under UEFA Financial Sustainability Regulations (FSR).

Loans out: the amortization of the player's registration rights remains with the parent club, while loan fees and salary contributions paid by the receiving club generate immediate positive effects on operating costs.

Loans in: reduce the immediate impact of amortization expenses and provide higher flexibility in squad management, allowing clubs to better comply with the Squad Cost Rule.

Palancas: extraordinary transactions involving the sale of future revenue streams (e.g. broadcasting or commercial rights). They generate short-term liquidity but reduce future revenues and are not classified as core operating income.

Aspects	Serie A (Italy)	La Liga (Spain)	Premier League (England)
Player transfers (registration rights)	High incidence on total assets (25%+)	Moderate (around 20%)	Lower, balance sheets mainly driven by operating revenues
Loans	European record (400+)	Common but regulated	More limited, strong use of Academy players
Capital gains (player trading)	Structural weight (>30% of net profit)	Controlled by the <i>control económico</i> system	Less relevant, focus on broadcasting and sponsorship revenues
“Creative” accounting practices	Frequent cross-swaps; weak FIGC oversight	Ex ante controls by La Liga, possibility to block registrations	FA oversight on equity requirements, less on player valuations
Youth and reserve teams	Productive academies but underutilized; only Juventus Next Gen	Historic B teams (Barça B, Castilla)	Academies central; reserve teams not allowed in professional leagues

Table 2.1: *Comparison between Serie A, La Liga and Premier League in terms of market management tools.*

Sources: Deloitte (2024); FIGC (2023); CIES Football Observatory (2023); UEFA (2023a).

2.2 Transfer of players: sporting and financial considerations

In the context of contemporary professional football, the sale and purchase of players’ registration rights is a fundamental strategic and structural component of the sporting and economic-financial management of clubs. The purchase of a player is not merely a

technical decision, but constitutes a genuine investment in an intangible asset: the right to the athlete's sporting services.

As explained in Chapter 1, according to IAS 38 – Intangible Assets, the costs incurred for the acquisition of a player must be recorded as intangible assets and amortized systematically over the contract term. This includes not only transfer fees, but also directly related expenses, such as agent commissions and legal fees. This accounting approach ensures consistency but reduces the possibility of representing the true market value of players, which often differs significantly from their carrying amount (Arnau, 2021).

From a sporting perspective, the purchase of a player aims to strengthen the squad, fill technical gaps or develop young talent. However, in the current context, management and financial considerations are equally decisive: clubs view their squads as asset portfolios, the active management of which can generate capital gains and rebalance the books. In Italy, for example, the business models of clubs such as Inter and Roma have often involved significant transfers (Hakimi, Onana, Alisson) aimed at generating extraordinary revenues that are essential for complying with UEFA restrictions. Napoli's approach is different, having built value by investing in emerging players such as Osimhen and Kvaratskhelia, who are capable of guaranteeing sporting performance and potential future economic returns. Atalanta is another emblematic case: its scouting and resale policy has allowed the club to combine competitiveness and sustainability, consolidating a model based on the enhancement of human capital.

Under UEFA regulations on licensing and financial sustainability, football clubs are required to provide a minimum level of transparency in the accounting of market transactions. The UEFA (2023b) require the disclosure of the gross value, accumulated amortization, any impairment losses and disposals for each class of intangible assets (including player registrations). However, as demonstrated by the comparative analysis between clubs, there are significant differences in the levels of detail and transparency adopted.

For example, Juventus FC provides an analytical disclosure of player registration rights, presenting the historical cost, accumulated amortization and residual carrying amount for each player. In contrast, clubs such as Manchester United and Borussia Dortmund only report aggregate values, making it more difficult to accurately assess the intangible assets recognized in the balance sheet (PwC, nd).

Table 2.2: *Percentage of player registration rights out of total active players (some UEFA clubs)*

Club	% Player registration rights on Total Assets
Arsenal FC	15,13%
Manchester United	10,73%
Juventus FC	28,41%
FC Porto	33,42%
Borussia Dortmund	9,96%

Source: Deloitte (2025); UEFA (2023a).

The main issue that emerged concerns the undervaluation of football capital in official financial statements compared to its perceived market value. According to Arnau (2021), the book value of player registrations in Premier League clubs corresponds on average to approximately 49.7% of the value estimated by Transfermarkt, highlighting a marked discrepancy between book value and perceived market value. This gap reduces the accuracy of financial valuations and complicates comparative analysis by investors.

This discrepancy is further accentuated by the fact that IAS 38 (IFRS Interpretations Committee, 2020) prohibits the revaluation of intangible assets such as player registration rights, except in exceptional cases. Furthermore, internally generated assets (such as players developed in the youth sector) cannot be capitalized, as they do not meet the criteria of reliability of cost and predictability of future economic benefits.

The buying and selling of players is a complex process that combines sporting strategy with economic and financial considerations. The current accounting system, based on historical cost, ensures uniformity but sacrifices accuracy in the representation of real value. In an increasingly competitive market, the ability to accurately assess human capital and communicate it transparently is a key lever for the reliability and sustainability of football clubs.

2.3 Loans: advantages, risks and contractual arrangements

The loan of players is a key tool in the sporting and financial management of modern football clubs. Used for different purposes, it can meet the needs of talent development, resource optimization, risk reduction or value creation through collaboration strategies between clubs. In recent years, this practice has taken on a systemic dimension, prompting bodies such as FIFA and UEFA to consider stricter regulations, particularly in light of cases of excessive or potentially distortive use by some clubs.

From a sporting point of view, loans are a useful tool for promoting the development of young footballers who, unable to find a place in the first team, can accumulate playing time in a less competitive environment. In this perspective, loans allow clubs to enhance their internal human capital, deferring sporting investment to a more mature stage. From the receiving club's point of view, they represent an opportunity to temporarily acquire players of a higher value than their financial means would allow.

Financially, loans reduce the wage bill and sometimes generate revenue through a loan fee or a buy-back option. The lending club can thus enhance the player's value for the future, while the receiving club benefits from a sporting service that is often low-cost.

However, the practice has risks: on the one hand, excessive dependence on loan players can compromise sporting stability and team identity. On the other hand, the strategic use of loans to "hoard" young talent risks undermining fair competition. FIFA has found that some clubs (such as Juventus and Chelsea) have used the system to build a network of control over players, effectively influencing the competitive balance.

At the contractual level, the formulas are diverse: they range from straight loans (without charges and without the right to redeem) to loans with the right or obligation to redeem, to so-called "conditional options", linked to performance targets or valuation clauses. In some cases, there are even multiple loan exchanges between clubs linked by strategic alliances or common ownership, creating a complex and interdependent economic and sporting network.

A study by Bond et al. (2020) analyzes loans as a topological economic network in European football, highlighting the high density of connections in the Italian league and the central role of certain clubs, such as Juventus, in acting as brokers between different clubs. Similarly, qualitative observations (Smith, 2022) show that loans are often experienced

by players with ambivalent feelings, between opportunities for growth and a perception of precariousness.

Overall, the loan system takes the form of a cross-subsidization mechanism: clubs with greater financial capacity temporarily distribute human resources to smaller clubs, which in return provide visibility and competitive space. The regulatory implications are significant: any limits on the number of loans could penalize smaller clubs if not accompanied by compensatory measures or greater standardization of contractual clauses.

Table 2.3: *Advantages and risks associated with football player loans*

Aspects	Lending Club	Receiving Club
Advantages	- Talent development - Reduced payroll - Strategic relationships	- Access to quality players - Lower costs - Performance improvement
Risks	- Dependence on relational networks - Criticism for “stockpiling”	- Less project continuity - Possible subordination
Contract Terms	- Straight loan - Loan with purchase option/obligation - Multiple loans with conditions	- Redemption option - Free or paid loans

Source: Adapted from Smith (2022).

Loans are therefore a multifunctional tool for football clubs: if well managed, they can be used to improve sporting performance, develop talent and promote cooperation between clubs. However, strategic abuse or asymmetry in relationships can create imbalances and require regulatory attention. In an increasingly interconnected system, loans must be considered not only a sporting practice but a real governance resource for the sustainability of the football system.

Serie A stands out for its extensive use of loan deals compared to other European leagues. According to the CIES Football Observatory, between 2018 and 2022, Italian clubs recorded the highest number of loan deals in Europe, exceeding 400 in a single season. Juventus

has long been the club with the most players on loan (over 60 in some seasons), creating a veritable network for controlling human capital. Atalanta, on the other hand, is a virtuous example: it uses incoming and outgoing loans as part of a scouting and development strategy that has supported its sporting and economic growth (CIES Football Observatory, 2023).

2.4 Capital gains: definition, accounting and strategic use

In professional football, capital gains represent the positive difference between the transfer value of a player and his residual book value at the time of sale. In accounting terms, they are immediately recognized as income and contribute to the operating result, in accordance with the IAS/IFRS accounting standards applicable to listed or large clubs (Fioravanti, 2022).

The “intangible” nature of a player’s registration and its straight-line amortization over the term of the contract form the basis for this accounting treatment. As a result, in the event of a transfer, the entire amount received may generate a significant capital gain if the player’s book value is close to zero, which is typically the case for players who have come through the club’s youth system or have already been amortized.

In Italy, capital gains have become structural: according to Covisoc data, in the last five financial years, over 40% of Serie A clubs recorded profits mainly deriving from capital gains, indicating a strong dependence on this instrument.

The strategic use of capital gains has led many Italian clubs to structure exchange transactions with inflated values, often for purely accounting purposes. A prime example is the exchange between Juventus and Barcelona involving Pjanić and Arthur.

Table 2.4: *Case study: Pjanić–Arthur swap deal*

Club	Transferred player	Official valuation (€M)
Juventus	Miralem Pjanić	60
Barcelona	Arthur Melo	72

Estimated value (Transfermarkt, €M)	Estimated capital gain
35	+55 (residual value nearly zero)
40	+70 (book value < €10M)

Main observations
Almost fully amortized, strong impact on income
Book gain recorded, performance uncertain

Source: Transfermarkt, Juventus Football Club and FC Barcelona (2020).

Case study: Audero, Sala, Rizza

An even more controversial practice concerns the estimation of the value of young footballers coming through the youth ranks. The following table compares the market value estimated by Transfermarkt with the value attributed in the financial statements for three young players involved in cross-capital gains transactions:

Table 2.5: *Transfer values and book valuations of selected young players*

Player	Age (at transfer)	Transfermarkt value	Book value	Destination club
Emil Audero	21	€3.50 mln	€20.00 mln	Sampdoria
Marco Sala	19	€0.15 mln	€5.00 mln	Sassuolo
Andrea Rizza	19	—	€4.00 mln	Genoa

Source: Transfermarkt (2020), Fioravanti (2022).

These transactions raised serious doubts about the reliability of the values attributed and the real economic purpose, highlighting how player registration rights are sometimes used as accounting tools rather than sporting assets (Fioravanti, 2023). The case of Audero, in particular, received attention from the specialized press and investigative bodies.

In Spain, the control rules imposed by La Liga (in particular by the control económico system) severely restrict the use of capital gains as a lever for artificial financial sustainability (LaLiga, 2023a; UEFA, 2023b; Deloitte, 2025). The system sets strict spending

limits based on the available wage margin and allows capital gains to be recorded only if they are validated by actual transactions consistent with market parameters. This results in a more prudent and transparent practice, in which the use of fictitious valuations is much less widespread.

The transfer of Neymar to PSG for €222M significantly exceeded Transfermarkt’s estimated market value, generating an extraordinary capital gain of approximately €204M for Barcelona, illustrating how a single transaction, even when genuine, can dramatically distort short-term financial indicators.

The systematic use of capital gains for accounting purposes, especially when not linked to objective market valuations, exposes clubs to a twofold risk: on the one hand, regulatory and sanctioning risk (as emerged in the Juventus case), and on the other, reputational risk that can undermine the trust of fans, investors and institutional stakeholders. The image of a club perceived as “creative” in its financial statements can in fact overshadow its sporting successes and undermine the credibility of its governance. Transparency, the adoption of independent valuations and convergence towards international fair value standards appear to be necessary steps to restore balance and integrity to the system.

2.5 “Creative accounting” and the risks of abuse

In professional football, “creative accounting” is a form of financial engineering which, while formally compliant with current accounting standards, aims to artificially improve a club’s financial position and results. One of the most widespread practices is that of so-called “abusive player trading”, i.e. the systematic use of player transfers at inflated values, often cross-transfers and without any actual cash flow, to generate immediate capital gains that can “adjust” the club’s accounts (UEFA, 2023b).

These transactions have short-term effects, allowing clubs to comply with financial fair play constraints or obtain national licenses, but in the medium term they lead to higher amortization charges and a risk of asset impairment. The increase in the incidence of intangible assets in balance sheets, which rose from 31% to 41% of assets between 2016 and 2020, testifies to the expansion of such practices (Deloitte, 2025).

The most striking case remains that of Juventus, which is the subject of proceedings by the Turin Public Prosecutor’s Office, which has alleged systematic alteration of the financial statements through 42 suspicious market transactions. The allegations concerned a lower

operating loss of approximately €210 million over three years, due to the recognition of income from player rights with disputed valuations. However, the absence of clear criteria for the valuation of players made it difficult for the judges to definitively recognize the offense, leading to a general acquittal (Házi and Tóth, 2024).

This difficulty in determining the value has regulatory roots: the FIGC does not currently have a codified system for assessing the “fair price” of a player, while market sources (such as Transfermarkt) have no legal value. This results in a regulatory vacuum that allows operators to act with a wide margin of discretion.

In Spain, La Liga’s accounting and financial control system is considered more stringent and centralized. The regulations impose a salary cap calculated on the basis of certain revenues and sustainable costs, approved in advance by La Liga itself. In addition, the financial statements are checked *ex ante* by La Liga’s Economic Directorate, which can block the registration of players or transfer transactions deemed unsustainable (LaLiga, 2023a; UEFA, 2023b).

Unlike Serie A, where accounting transactions are verified *ex post* and with uncertain regulatory limits, in Spain clubs are subject to a system of “binding” licenses that limits the misuse of the market for financial purposes from the outset. This approach has helped to reduce the use of opaque player trading practices and increase accounting transparency (Deloitte, 2025; UEFA, 2023b).

A paradigmatic example is represented by so-called mirror transactions, in which two clubs exchange young players at highly inflated values. The Chievo-Cesena case (2018), one of the few to be sanctioned, saw the simultaneous transfer of youth players with valuations completely disconnected from their real market value. These transactions did not involve actual cash movements, but generated immediate capital gains and future amortization spread over time.

Table 2.6: *Example of “mirror” transactions between Chievo and Cesena (2018)*

Involved clubs	Player A	Declared value (€)	Player B	Declared value (€)
Chievo Verona	Lorenzo Pietribiasi	2.000.000	Davide Mordini	1.800.000
Cesena	Emanuele Zucchetti	1.700.000	Giuseppe Panico	2.100.000

Source: elaboration from Fimmanò and Rocco (2022) and FIGC (2024).

The abuse of creative accounting practices poses a systemic risk to professional football. Not only does it undermine the credibility of financial statements and the economic sustainability of clubs, but it also damages the image of the entire sports sector. The

reputational risk for the clubs involved is high: the loss of trust on the part of investors, sponsors and fans can have lasting consequences, far beyond the sanctions imposed.

To effectively combat this phenomenon, coordinated regulatory action is needed between the FIGC, UEFA and independent supervisory authorities to establish objective criteria for evaluating transfer fees, thresholds of appropriateness and preventive monitoring mechanisms. Without these reforms, “creative accounting” practices will continue to represent a dangerous shortcut for clubs seeking financial stability.

2.6 The role of young players and reserve teams in generating value

In recent years, developing young players has become a crucial part of football clubs’ economic and sporting strategy, not only for technical reasons but also for financial sustainability. The training and promotion of internal talent allows clubs to reduce acquisition costs on the market, generate future capital gains and meet increasingly stringent regulatory requirements. In this context, second teams have established themselves as a bridge between the youth sector and the first team, offering the most promising prospects the opportunity to compete in professional football in competitive environments.

The importance of youth sectors in building club value is highlighted by data published by European Club Association (2020) in its report *Transition from Academy to First Team* (2020), which emphasizes that an increasing percentage of elite European players have come through the ranks of their own clubs. According to UEFA (2023a) data, clubs that maintain strong links with their academies show greater financial stability and self-financing capacity. This approach has recently been reinforced by the FIGC (2024), which is promoting an “internal supply chain” model through targeted regulatory reforms, including the authorization of second teams in Serie C.

Second teams were introduced in Italy in 2018 with the creation of Juventus Next Gen, which was registered in Serie C. Although this is still an isolated project compared to other countries, Juventus’ experience has demonstrated the usefulness of the model: players such as Fagioli, Miretti and Iling-Junior have followed a linear path from the youth teams to the second team, until they were permanently included in the first team. However, the lack of financial incentives and highly rigid regulations (e.g. age limits, spending caps, infrastructure constraints) have slowed down the adoption of the model by other Italian

clubs.

Table 2.7: *Comparison between Serie A and La Liga in U21 Player Development (2022/23)*

League	U21 players launched (2022/23)	Total debuts (last 5 years)
Serie A	49	350
La Liga	49	296

League	Presence of reserve teams	Division where they play
Serie A	Yes (e.g., Juventus Next Gen)	Serie C
La Liga	Yes (e.g., Barça B, Real Madrid Castilla)	Segunda B / Primera Federación

League	Avg. U21 minutes	Avg. market value (€ mln)
Serie A	810	3.5
La Liga	689	4.1

Source: elaboration from CIES Football Observatory (2023).

This table highlights some structural differences between the two models: while Italy sees greater turnover, Spain favors a quality and continuity approach, with a training system more closely integrated with the first team.

Young footballers also represent an economic resource for clubs, especially in terms of player trading. However, as highlighted by the study by Franceschi et al. (2024), there is a significant gap between objective and subjective valuations, with the risk of overestimating the potential value of players who are not yet established. This is where second teams play a crucial role: they provide empirical evidence of performance, reduce information uncertainty and improve the accuracy of market estimates.

Case study: Lamine Yamal and the Barça Atlètic model

A prime example of the ability to develop young talent is Lamine Yamal, born in 2007, who emerged from Barcelona’s youth academy and became a first-team regular at just

16 years of age. His career path fully reflects the effectiveness of the Catalan training model, based on technical continuity, a shared tactical culture across all categories and progressive integration through the B team (The Athletic, 2023).

After making his debut for Barcelona B in 2022, Yamal was integrated into the first team under Xavi Hernández during the 2022–2023 season, becoming a regular starter in key La Liga and Champions League matches in 2023–2024 (Marca, 2023). At the end of that season, Transfermarkt estimated his value at around €75 million, compared to a training cost of close to zero, making him one of the most profitable assets in the club's recent history (Transfermarkt, 2024b).

The Yamal case demonstrates how long-term investment in technical training, combined with prudent contract planning (renewal until 2026 with a €1 billion release clause) (FC Barcelona, 2023), can generate a double impact: technical and financial. It also highlights the structural gap between the Spanish model, where second teams are an integral part of the technical project, and the Italian model, where growth paths are often interrupted or dispersed in multiple loans without a coherent direction (CIES Football Observatory, 2023).

In conclusion, the development of young players and the adoption of second teams are key levers for a more sustainable transfer market. However, their success depends on the ability of the federal system and clubs to adopt a strategic and integrated approach to training. Without a long-term vision, there is a risk that youth academies will become mere speculative tools, losing their original function as an investment in sport and identity.

Chapter 3

Measuring financial sustainability and dependence on capital gains in European football: construction of the FSSI and CGDI indices

The analysis in the previous chapters has shown that the contemporary transfer market is not just a mechanism for sporting exchange, but a system closely intertwined with the economic and financial sustainability of clubs. The growing complexity of management, competitive pressure and the evolution of international regulations, in particular the Club Licensing and Financial Sustainability Regulations introduced by UEFA in 2023, now require systematic monitoring of economic and financial balance indicators.

In light of these considerations, this chapter proposes the construction and analysis of a synthetic financial sustainability index, called the Football Sustainability Synthetic Index (FSSI). Developed from an original dataset comprising official financial statements and sector reports, the index aims to provide a comparable quantitative tool capable of assessing, over time, the financial soundness of football clubs and their adherence to the principles of solvency, stability and cost control established by UEFA.

The development of the FSSI directly responds to the Research Questions of the thesis, which investigate:

1. Which indicators effectively describe the financial sustainability of football clubs (RQ1);

2. Whether it is possible to synthesize these indicators into a single comparable index to identify situations of risk and virtuosity (RQ2).

Furthermore, the chapter is consistent with the general questions of the research, helping to assess the impact of market strategies (loans, capital gains and wage policies) on the long-term sustainability of clubs and on the effectiveness of the regulatory measures introduced by UEFA (RQ2 general), while offering a quantitative perspective useful for outlining the prospects for a more transparent and sustainable football transfer market (RQ5 general).

The FSSI is designed as a structural vulnerability indicator, capable of signaling situations of economic and financial risk and acting as an operational complement to UEFA's Financial Sustainability Ratio. At the same time, a second indicator, the Capital Gain Dependency Index (CGDI), is developed to measure the economic dependence of clubs on extraordinary income from player trading. This index allows the financial perspective to be integrated with the accounting perspective, distinguishing between solid clubs and those whose profitability depends significantly on extraordinary components.

To address these objectives, Chapter 3 introduces two operational sub-questions derived from the general research framework: RQ1: which indicators effectively describe financial sustainability? and RQ2: can they be synthesized into a single comparable index?

The analysis combines a quantitative econometric approach with a comparative perspective, extending the sample to a group of clubs belonging to the main European leagues (Serie A, La Liga, Premier League and Bundesliga) in the period 2018–2022. This allows us to identify common patterns, structural differences and national specificities, with a particular focus on the Italian context, which has historically been more exposed to the risk of accounting imbalances.

The chapter is structured as follows:

- Section 3.1 presents the dataset, the variable selection and the link to the research questions;
- Section 3.2 illustrates the construction of the Football Sustainability Synthetic Index (FSSI) through Principal Component Analysis;
- Section 3.3 presents the empirical results and the classification of clubs into sustainability zones;

- Section 3.4 provides the temporal trends, introduces the Capital Gain Dependency Index (CGDI) and discusses the joint FSSI–CGDI map;
- Section 3.5 summarizes the main findings and their implications for research;
- Section 3.6 discusses methodological limitations and prospects for future development.

In conclusion, the chapter aims to provide a systematic and analytical reading of the economic and financial sustainability of European clubs, demonstrating how synthetic tools such as the FSSI and the CGDI can support regulatory monitoring and contribute to a more sustainable, transparent and good governance-compliant football transfer market.

3.1 Definition of variables, data sources and link to Research Questions

The construction of the Football Sustainability Synthetic Index (FSSI) is based on an original dataset compiled from the official financial statements of European football clubs and the main institutional sources in the sector. The aim is to provide a comparable representation of the various dimensions of economic and financial sustainability in professional football, integrating the latest performance indicators and monitoring criteria introduced by UEFA regulations.

The sample analyzed includes **sixteen clubs from the main European leagues (Serie A, Premier League, La Liga and Bundesliga)**, observed over the period **2018–2022**. The choice of a broad and homogeneous time horizon allows for the analysis of the evolution of management models and the measurement of clubs’ ability to adapt to the new sustainability rules introduced by the Club Licensing and Financial Sustainability Regulation (UEFA, 2023b). This approach ensures longitudinal comparability and responds to the need to assess the resilience of clubs over a period of time characterized by severe external shocks, such as the COVID-19 pandemic and subsequent reforms of economic control systems.

The variables selected are derived from both academic literature (Zoccali, 2021; Házi and Tóth, 2024) and leading international reports on European football (UEFA, 2023b; Deloitte, 2024). They represent quantitative indicators capable of capturing five fundamental dimensions of sustainability: **capital strength, liquidity, cost sustainability,**

operating performance and revenue stability. These dimensions directly address Research Question 1 (RQ1), which investigates which factors effectively describe the financial sustainability of football clubs.

Table 3.1: *Variables considered for the construction of the FSSI*

Variable	Formula	Description
Equity / Total Assets (E/TA)	Equity / Total Assets	Measures the degree of financial independence and the club's ability to self-finance in the long run.
Quick Ratio	(Current Assets – Inventories) / Current Liabilities	Indicates the ability to cover short-term liabilities without relying on external financing.
Staff Costs / Revenues	Staff Costs / Total Revenues	Assesses the weight of personnel expenses, which represent the main operating cost for football clubs.
EBITDA / Revenues	EBITDA / Total Revenues	Measures the capacity of core operations to generate cash flows net of extraordinary components.
Recurring Revenues / Total Revenues	Ordinary Revenues / Total Revenues	Evaluates the stability of the business model and the reliance on extraordinary revenues, such as capital gains.

The selection of these five variables is grounded in both the academic literature on financial sustainability in professional football and the regulatory framework developed by UEFA for club monitoring.

The Equity/Total Assets ratio (E/TA) is the primary measure of capital solidity and long-term solvency. A higher ratio indicates that the club finances its assets predominantly through equity rather than debt, reducing exposure to financial distress. This indicator is consistent with UEFA's Article 69 FSR requirement on net equity coverage, and is widely used in the sports finance literature as a proxy for structural financial independence (Barajas and Rodríguez, 2014; Zoccali, 2021).

The Quick Ratio captures short-term liquidity, the ability to meet immediate obligations without relying on the sale of illiquid assets such as player registrations. In the football context, liquidity risk is particularly relevant given the seasonality of revenues and the concentration of transfer activity in specific windows. Clubs with low Quick Ratio values are more exposed to cash flow shocks, as documented in the post-pandemic period (UEFA, 2023b; Deloitte, 2025).

The Staff Costs/Total Revenues ratio is the most widely used indicator of cost sustainability in professional football. It measures the share of revenues absorbed by personnel expenses, the largest and most rigid cost item for football clubs. Deloitte’s Annual Review of Football Finance consistently uses this ratio as the primary benchmark for financial health across European leagues, with values above 70% considered a signal of structural imbalance (Deloitte, 2024, 2025). The UEFA Squad Cost Rule, introduced in 2023, is directly derived from this logic, extending the numerator to include amortization and agent fees (UEFA, 2023b).

The EBITDA/Total Revenues ratio measures the capacity of core operations to generate operating margins, net of extraordinary components such as capital gains and financial items. Unlike net profit, which can be distorted by transfer activity, EBITDA provides a cleaner measure of the club’s ability to sustain itself through its primary business activities. This indicator is used in both academic research and industry reports as a proxy for operational self-financing capacity (Házi and Tóth, 2024; Ernst & Young, 2023).

Finally, the Recurring Revenues/Total Revenues ratio captures the stability of the revenue structure by measuring the share of income derived from recurring sources (broadcasting rights, commercial revenues and matchday) as opposed to extraordinary items such as capital gains from player sales. As highlighted by Franceschi et al. (2023), clubs that rely heavily on transfer income for profitability are structurally more vulnerable to market downturns and regulatory changes. This variable provides a direct link to the CGDI, which will be introduced in Section 3.4.2 as a dedicated measure of capital gain dependency.

Alongside these main variables, the dataset includes a set of control indicators used for robustness checks and comparisons with the UEFA Financial Warning Indicators:

- **Debt/Equity**, which measures financial leverage and the level of structural indebtedness;
- **Interest Coverage Ratio** (EBIT / Financial Expenses), which evaluates the abil-

ity to cover interest expenses through operating income;

- **Revenue Volatility** (σ/μ), which captures the variability of total revenues over the period 2018–2022.

Although these indicators are not directly included in the FSSI calculation, they allow for the identification of complementary aspects of risk and management instability.

The selection of this set of variables forms the empirical basis for the quantitative analysis in this chapter. The next section describes the synthesis process using **Principal Component Analysis (PCA)**, which allows the five indicators to be integrated into a single synthetic financial sustainability index. At the same time, a second indicator will be introduced, the **Capital Gain Dependency Index (CGDI)**, designed to assess clubs' dependence on capital gains as a lever for profitability. The distinction between structural sustainability (FSSI) and accounting dependency (CGDI) represents a crucial methodological step in answering Research Question 2 (RQ2), which aims to verify whether the financial soundness of clubs is actually sustainable or depends on extraordinary market transactions.

The choice to construct two original indices, rather than adopting existing regulatory metrics, responds to a precise methodological need. The indicators currently used in official monitoring, such as UEFA's Financial Sustainability Ratio (FSR) and the Squad Cost Rule (SCR), are designed primarily as compliance tools: they measure whether a club remains within pre-defined thresholds, but do not capture the structural quality of the financial position nor the composition of revenues. As noted by Barajas and Rodríguez (2014), break-even based indicators tend to treat all revenues as equivalent, regardless of whether they derive from stable operating sources or from cyclical and non-recurring transactions such as player sales. This limitation is particularly relevant in the football context, where capital gains can temporarily improve accounting results without reflecting any genuine improvement in structural sustainability.

The FSSI addresses this gap by synthesizing five balance-sheet and income-statement dimensions (capital solidity, liquidity, cost sustainability, operating profitability and revenue stability) into a single comparable score. Unlike the FSR, which focuses on flow-based break-even compliance, the FSSI captures the structural stock of a club's financial health, providing a cross-sectional and longitudinal measure that is independent of extraordinary transactions. The use of Principal Component Analysis ensures that the weighting of each variable reflects the empirical covariance structure of the data rather than arbi-

trary regulatory choices, making the index both statistically grounded and economically interpretable (Jolliffe and Cadima, 2016; Abdi and Williams, 2010).

The CGDI complements the FSSI by directly measuring the extent to which a club's apparent profitability depends on capital gains from player trading. This dimension is entirely absent from existing regulatory frameworks: the SCR explicitly excludes capital gains from its numerator, meaning that a club heavily reliant on transfer income can formally comply with UEFA requirements while remaining structurally fragile. By expressing capital gains as a share of total margin capacity, defined as EBITDA plus capital gains, the CGDI isolates the contribution of extraordinary income to the club's overall financial performance. Together, the two indices allow for a distinction between structural sustainability, captured by the FSSI, and accounting sustainability, identified by the CGDI, addressing directly the central research question of this thesis: is financial sustainability in European football real, or is it sometimes only apparent?

3.2 PCA method and construction of the FSSI index

Principal Component Analysis (PCA) was used to construct the Football Sustainability Synthetic Index (FSSI). PCA is a multivariate statistical technique that reduces the dimensionality of the dataset by synthesizing the information contained in multiple correlated variables into a limited number of principal components (Jolliffe and Cadima, 2016).

In this context, PCA was applied to identify the latent factors that explain the relationship structure between the main financial sustainability indicators of European football clubs.

Standardization and variable sets

The five variables included in the analysis are those defined in Section 3.1:

- **Equity/Total Assets (E/TA)**: measures capital solidity and independence from debt financing;
- **Quick Ratio**: captures the ability to cover short-term liabilities;
- **Staff Costs/Total Revenues**: assesses the sustainability of labour costs relative to total revenues;
- **EBITDA/Total Revenues**: indicates the ability of core operations to generate

operating margins;

- **Recurring Revenues/Total Revenues:** measures the club's dependence on extraordinary revenues such as capital gains.

All variables were standardized using the z-score transformation in order to remove scale effects and ensure an equal contribution of each indicator to the analysis. The final dataset includes 80 observations (club-year), corresponding to the financial statements of 16 European clubs over the period 2018–2022.

Selection of main components

The results of the PCA analysis are summarized in Table 3.2. The first component (PC1) has an eigenvalue of 2.165 and explains 42.73% of the total variance, while the second component (PC2) explains a further 24.59%. Overall, the first two components explain 67.32% of the total variance of the dataset, exceeding the 60% threshold commonly considered satisfactory in exploratory analysis (Kaiser, 1960).

Table 3.2: *Eigenvalues and explained variance from PCA*

Component	Eigenvalue	Explained variance (%)	Cumulative variance (%)
PC1	2,165	42,73	42,73
PC2	1,246	24,59	67,32
PC3	0,946	18,66	85,98
PC4	0,458	9,04	95,02
PC5	0,252	4,98	100,00

According to Kaiser's criterion (eigenvalues > 1), both PC1 and PC2 are statistically significant. Nevertheless, as discussed below, the FSSI is constructed using only PC1: it captures the largest share of variance (42.73%) and provides a single, economically interpretable synthetic measure of financial sustainability. PC2 is reported and interpreted for completeness, but is not incorporated into the index.

Figure 3.1 (Scree Plot) shows that the sharpest drop in explained variance occurs between PC1 and PC2 (from 42.73% to 24.59%), graphically supporting the selection of PC1 as

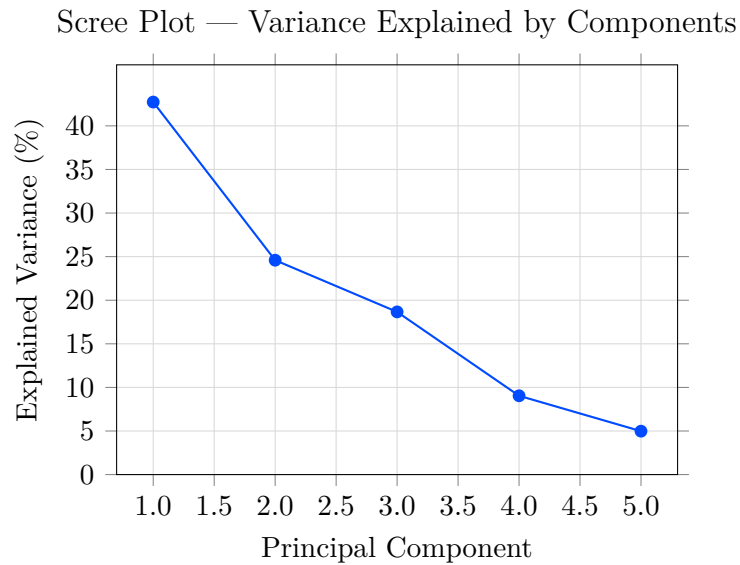


Figure 3.1: *Variance explained by components*

the primary component. The curve flattens progressively from PC2 onwards, confirming that no subsequent component adds a comparable informational contribution.

Interpretation of loadings

Table 3.3 shows the loadings, i.e. the coefficients expressing the contribution of each variable to the principal components.

Table 3.3: *Loadings of the variables on the principal components*

Variable	PC1	PC2
Equity / Total Assets (E/TA)	0.556	0.373
Quick Ratio	0.505	0.284
Staff Costs / Total Revenues	-0.374	0.631
EBITDA / Total Revenues	0.523	-0.362
Recurring Revenues / Total Revenues	0.149	0.502

PC1 is strongly associated with indicators of solidity and profitability (E/TA, EBITDA/- Total revenues, Quick Ratio), with a negative sign for the Personnel costs/Total revenues ratio. It can therefore be interpreted as a **component of structural sustainability**, reflecting the club's ability to maintain adequate financial balance and operating margins.

PC2, on the other hand, is dominated by the positive weight of Personnel costs/Total revenues and Ordinary revenues/Total revenues, representing a **component of management efficiency and revenue stability**, linked to the ability to generate recurring revenues and control labor costs.

Construction of the synthetic index (FSSI)

In line with the literature (Abdi and Williams, 2010; Jolliffe and Cadima, 2016), the FSSI index is constructed using only the first principal component (PC1), as it represents the linear combination that maximizes the explained variance and provides a synthetic and comparable measure of financial sustainability.

The FSSI score for each club-year is therefore calculated as the standardized projection of the observed values on PC1:

$$\begin{aligned} \text{FSSI}_i = & 0.556 \cdot Z_{\text{E/TA},i} + 0.505 \cdot Z_{\text{Quick Ratio},i} \\ & - 0.374 \cdot Z_{\text{Staff Costs/Revenues},i} + 0.523 \cdot Z_{\text{EBITDA/Revenues},i} \\ & + 0.149 \cdot Z_{\text{Recurring Revenues/Revenues},i} \end{aligned} \quad (3.1)$$

This summary index allows clubs to be classified according to their level of economic and financial balance, with higher values indicating greater sustainability. In the following paragraph (3.3), a percentile threshold will be applied to identify “virtuous” clubs and those at risk of imbalance.

3.3 Empirical results and classification (FSSI 2018–2022)

The application of Principal Component Analysis (PCA) to a sample of sixteen European clubs in the period 2018–2022 has made it possible to construct a synthetic indicator of economic and financial sustainability, called the Football Sustainability Synthetic Index (FSSI). The index is based on the first principal component (PC1), which explains 42.7% of the total variance and summarizes the main dimensions of capital strength, liquidity, operating profitability and cost control.

The variables with the highest weights on PC1, Equity/Total Assets (0.556), EBITDA/Revenues (0.523) and Quick Ratio (0.505), show a clear positive relationship with sustainability. This means that the most stable clubs are those with substantial net

assets, a good ability to generate cash and a balance between short-term assets and liabilities. Conversely, the incidence of Personnel Costs on Total Revenues (-0.374) has a negative effect on the index, highlighting how the excessive weight of salaries is one of the main factors of managerial fragility. The low loading of Recurring Revenues (0.149) reflects the fact that this dimension, while relevant, operates on a different latent factor than structural solidity, precisely the reason why the CGDI is needed.

Distribution of scores and definition of thresholds

To enable temporal and inter-club comparisons, FSSI values were normalized on a scale of 0–100. Subsequently, the multi-year average scores (2018–2022) were classified according to three classification zones, in line with a UEFA-style warning system approach:

- **Sustainable Zone (≥ 70):** clubs characterised by high patrimonial stability and strong structural financial sustainability.
- **Intermediate Zone (50–69):** clubs operating in a condition of overall balance, but showing emerging weaknesses in cost control and/or liquidity management.
- **Warning Zone (< 50):** financially vulnerable clubs, often relying on extraordinary revenues and exposed to higher sustainability risk.

The thresholds were defined by combining empirical observation of the score distribution with the three-tier logic of UEFA’s Financial Warning Indicators, which distinguish between compliant, at-risk and non-compliant clubs. The value of 70 corresponds approximately to the 80th percentile of the distribution, while 50 approximates the median, ensuring that zones are meaningfully populated across the sample.

This segmentation makes it possible to identify clubs that are potentially at risk of non-compliance with the parameters of the UEFA Financial Sustainability Regulation (UEFA, 2023b), providing a useful monitoring tool for federations and supervisory bodies.

From an interpretative perspective, the Football Sustainability Synthetic Index (FSSI) should be read as a relative measure of a club’s financial soundness within the European football ecosystem. Higher values of the index indicate a stronger alignment with long-term sustainability principles, while lower values signal increased exposure to financial stress, leverage and regulatory risk. Importantly, the FSSI does not represent an absolute judgment of “financial health”, but rather a comparative indicator designed to capture structural vulnerabilities and imbalances across clubs.

Analysis by sustainability zones

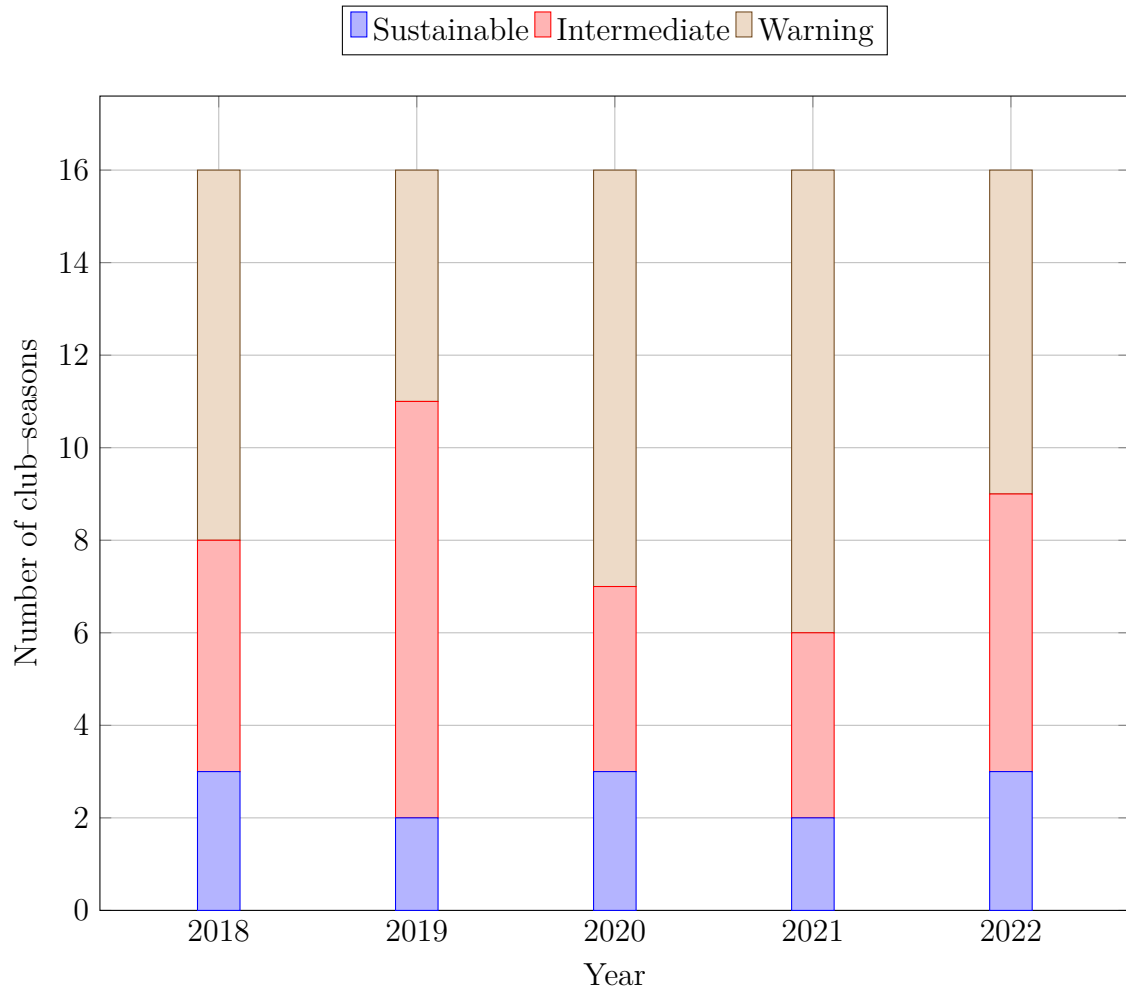


Figure 3.2: *Yearly distribution of FSSI zones (2018–2022).*

Note: Each bar represents the number of club-season observations classified in the Sustainable, Intermediate, and Warning zones.

The yearly distribution of FSSI zones reveals a non-linear pattern strongly influenced by the COVID-19 pandemic. The Warning zone, which included 8 clubs in 2018, temporarily contracted in 2019 (5 clubs) before surging to a peak of 10 clubs in 2021, reflecting the full financial impact of the health crisis. A partial recovery occurred in 2022 (7 clubs), though without returning to pre-crisis levels. The Sustainable zone remained persistently low throughout the entire period, never exceeding 3 clubs per year, confirming the structural fragility of the sample and the difficulty of achieving genuine long-term financial soundness in European football.

Interpretation of results and management implications

The FSSI index confirms the validity of UEFA's strategies aimed at long-term economic stability. Clubs with high scores share three main characteristics:

1. A diversified revenue structure, with a significant share of recurring revenues (sponsorship, matchday, and merchandising activities);
2. Strict control of wage costs, consistent with the Squad Cost Rule introduced under the UEFA Financial Sustainability Regulations (UEFA, 2023b);
3. The ability to generate positive operating margins, which reduces reliance on player trading and capital gains as sources of financial balance.

Conversely, clubs with low FSSI scores show:

- High volatility of cash flows, reflecting instability in operating performance;
- Short-term oriented accounting practices, including systematic reliance on capital gains and reciprocal player exchanges;
- Structural imbalances between cost levels and recurring revenues, indicating a fragile long-term financial equilibrium.

This evidence reinforces the idea that sustainability in contemporary football does not depend solely on sporting results, but on integrated management of economic and financial performance.

The *Football Sustainability Synthetic Index* is a robust and replicable synthetic indicator for the comparative assessment of the sustainability of European clubs. Thanks to its ability to combine accounting, management and operational variables, the FSSI is a useful tool for:

- Measure the coherence between sporting strategy and financial sustainability;
- Identify structural signals of financial risk and imbalance;
- Support regulatory decisions related to cost control mechanisms and UEFA club licensing.

The quantitative analysis conducted forms the basis for the subsequent in-depth study (Chapter 4), in which the index will be applied to the case studies of Inter and Barcelona to verify how market choices and capital gains management affect overall sustainability.

3.4 Temporal trends and comparisons between clubs and leagues

The application of the Football Sustainability Synthetic Index (FSSI) to the financial statements of the main European clubs in the period 2018–2022 has made it possible to analyze the level of economic and financial sustainability in professional football in a quantitative and comparable manner. The index, constructed using Principal Component Analysis (PCA) methodology, has made it possible to summarize the main dimensions of financial stability, management efficiency and operational soundness of clubs in a single measure, thus answering the two Research Questions.

3.4.1 Trend and comparison of the FSSI index (2018–2022)

The average trend of the FSSI index shows strong cyclicalality in the period **2018–2022**. After a period of growth in the two years prior to the pandemic, with average values of **54.3** in **2018** and **57.8** in **2019**, there was a significant decline between 2020 and 2021, when the index reached a low of **46.0**. This decline reflects the effects of the Covid-19 pandemic, which led to a reduction in stadium revenues and an increase in financial debt for many European clubs.

In **2022**, there is a partial recovery (average value of **52.0**), attributable to the return to normal competition and the reopening of sports facilities. However, sustainability levels have not yet returned to pre-crisis levels, signaling persistent financial fragility and a strong dependence on extraordinary income.

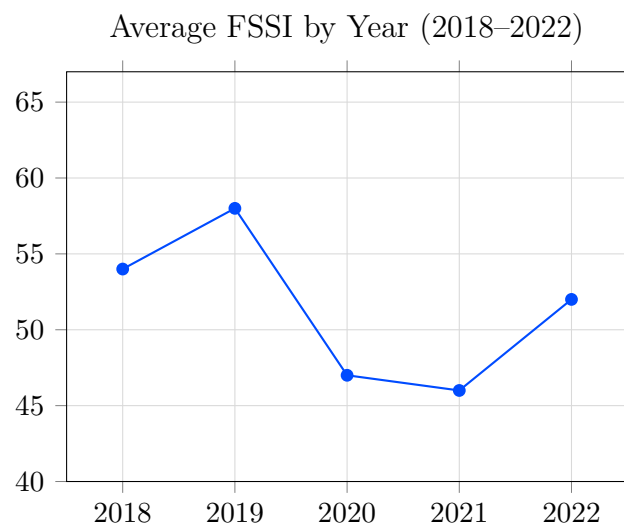


Figure 3.3: *Average trend of the FSSI index per year (2018–2022)*

The graph visually shows the sudden contraction in 2020–2021 and the subsequent recovery, highlighting the direct impact of the health crisis on club stability. This trend suggests that the European football system remains vulnerable to external shocks, mainly due to the rigidity of the cost structure and the volatility of competition revenues.

Comparison between European clubs

A comparative analysis of the average FSSI values among clubs reveals significant differences in management. The overall results are summarized in Table 3.4.

Table 3.4: *Average Football Sustainability Synthetic Index (FSSI) by Club and League, 2018–2022*

Pos	Club	League	Average FSSI
1	Bayern Munich	Bundesliga	82.56
2	Manchester City	Premier League	77.73
3	Atalanta	Serie A	67.74
4	Real Madrid	La Liga	65.92
5	Chelsea	Premier League	61.93
6	Cologne	Bundesliga	57.05
7	Arsenal	Premier League	53.52
8	Liverpool	Premier League	52.07
9	Juventus	Serie A	44.08
10	Schalke 04	Bundesliga	43.55
11	Barcelona	La Liga	39.10
12	Inter	Serie A	39.00
13	Athletico Madrid	La Liga	38.30
14	Valencia	La Liga	25.40
15	Milan	Serie A	21.90

Source: Author’s elaboration based on official financial statements (2018–2022).

Note: Borussia Dortmund is excluded from the average FSSI ranking due to insufficient data availability for one or more years in the 2018–2022 period, which prevented the computation of a reliable multi-year average.

As shown in Table 3.4, clubs from the Premier League and Bundesliga consistently occupy the top positions, while Serie A clubs show lower average FSSI values.

The table shows that **Bayern Munich** remains the most solid club in the league, thanks to prudent management, a high operating margin and a robust capital structure. It is

followed by **Manchester City**, which shows a stable economic model despite high levels of spending, and **Atalanta**, which represents a virtuous case of sustainability despite more limited resources.

Atalanta stands out for its high economic efficiency and its ability to generate value through the development of young players and sustainable player trading.

In contrast, clubs such as **Juventus** and **Schalke 04** have significantly lower indices, reflecting structural issues related to the weight of personnel costs and the instability of revenue sources.

3.4.2 Capital Gain Dependency Index (CGDI): methodology and results

To complete the economic and financial sustainability analysis, a new indicator has been introduced alongside the Football Sustainability Synthetic Index (FSSI): **the Capital Gain Dependency Index (CGDI)**. While the FSSI captures the overall financial sustainability of clubs, it does not explicitly account for potential distortions generated by accounting practices related to player trading. This index measures **the club's dependence on extraordinary income from player transfers**, offering a complementary perspective to the FSSI, which focuses on structural stability and operational efficiency. Formally, the CGDI is defined as:

$$CGDI = \frac{\text{Net Capital Gains}}{\text{EBITDA} + \text{Net Capital Gains}} \quad (3.2)$$

The index ranges between 0 and 1:

- values close to 0 indicate a business model primarily based on operating profitability and recurring revenues;
- higher values denote a strong dependence on capital gains, implying greater vulnerability to market shocks or periods of reduced activity in the transfer market.

It should be noted that the formal range of the CGDI between 0 and 1 is guaranteed only under the condition that EBITDA is non-negative. When a club records a negative EBITDA, a situation that occurred for several clubs in the sample during the pandemic years 2020 and 2021, the denominator (EBITDA + Net Capital Gains) may take on values that would place the index outside its intended range, producing results that are either

negative or greater than unity. To preserve the interpretability and comparability of the index across all observations, an automatic bounding rule was applied during computation: values below 0 were set equal to 0, and values above 1 were set equal to 1. This treatment is consistent with the approach adopted in similar composite indices in the financial distress literature and ensures that the CGDI retains its ordinal interpretation across the full sample. Observations in which EBITDA was negative and capital gains were insufficient to bring the denominator to a positive value were assigned a CGDI of 1, reflecting maximum dependence on extraordinary income, which is economically coherent, since in such cases the club's operating performance is negative and any profitability derives entirely from transfer activity.

Empirical results

The CGDI's analysis of the 2018–2022 financial statements shows that European clubs have highly heterogeneous profiles. The highest values are recorded for **Milan** (1.00) and **Valencia** (0.90), which show profitability strongly based on capital gains. They are followed by **Atlético Madrid**, **Inter**, **Juventus** and **Chelsea**, all with values above 0.55. These clubs have partially offset operating losses with extraordinary revenues from transfers, demonstrating **apparent sustainability** that is more accounting than structural.

In contrast, clubs such as **Bayern Munich** (0.02) and **Real Madrid** (0.01) show the lowest levels of dependence, confirming balanced management and an ability to generate positive margins through sporting and commercial activities, without resorting heavily to player trading.

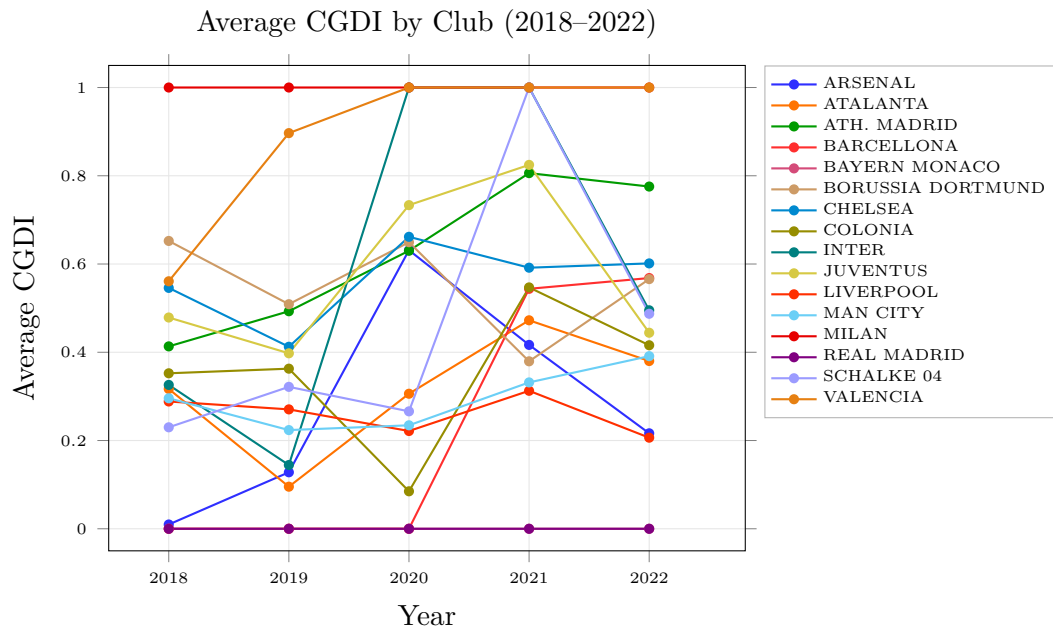


Figure 3.4: *Average CGDI by Clubs*

The graph shows a general upward trend in capital gains dependency between 2020 and 2021, coinciding with the pandemic crisis and the reduction in stadium revenues. In 2022, some clubs (particularly Italian and Spanish ones) maintained high levels of CGDI, indicating that capital gains remain a systematic management lever and not just an emergency measure.

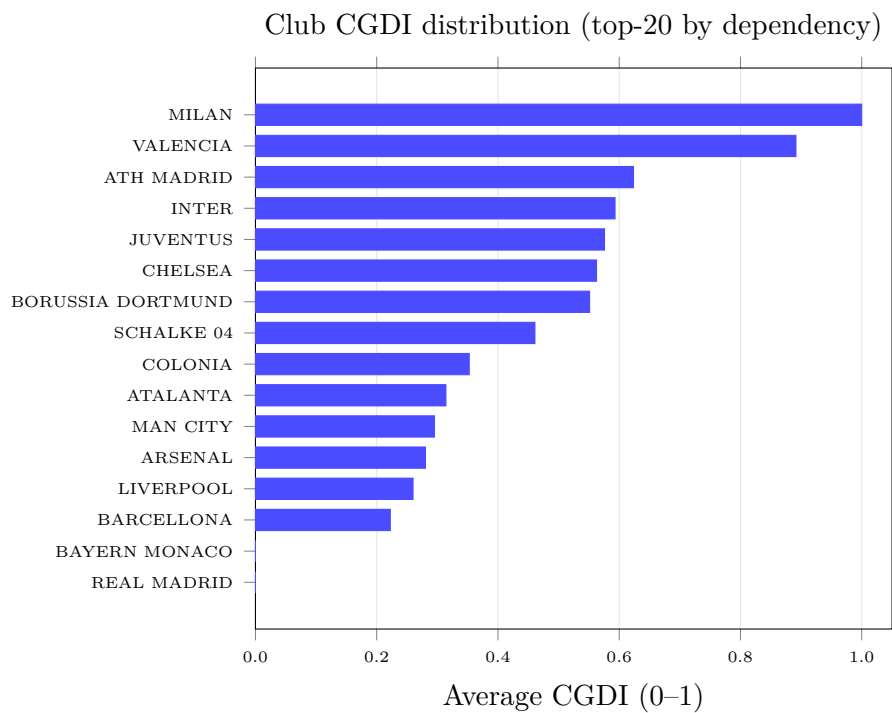


Figure 3.5: *Club CGDI distribution*

The distribution highlights a clear gap between business models: English and German clubs are characterized by low values, while Italian and Iberian clubs show greater volatility and a revenue structure that is more heavily weighted towards extraordinary items.

These results suggest that the CGDI is a sensitive indicator of the quality of the sustainability model: a high value does not necessarily imply accounting imbalance, but signals less robustness in the long term, as the ability to generate capital gains is cyclical and depends on exogenous factors (market, performance, regulation).

Before presenting the joint classification, it is worth addressing a potential methodological concern: whether the FSSI and the CGDI measure overlapping dimensions of financial sustainability, thereby reducing the informational value of using both indices simultaneously.

The two indices are designed to capture fundamentally different aspects of club finances. The FSSI measures structural sustainability, the stock dimension of financial health, by synthesizing balance sheet strength, liquidity, cost efficiency and operating profitability through PCA. It answers the question: how solid is the club's financial structure? The CGDI, by contrast, measures accounting dependency, the flow dimension of revenue quality, by isolating the contribution of capital gains to total margin capacity. It answers a different question: is the club's apparent profitability genuine, or does it depend on extraordinary and non-recurring transactions?

The empirical results confirm that the two indices are complementary rather than redundant. As shown in Figure 3.6, the correlation between FSSI and CGDI is negative but imperfect: clubs with high structural soundness tend to have lower capital gain dependency, but the relationship is not deterministic. Manchester City and Chelsea, for instance, combine above-average FSSI scores with relatively high CGDI values, a profile that neither index alone would capture. Conversely, Barcelona shows a medium-high FSSI but a low CGDI, which reflects the specific nature of its *palancas* strategy rather than genuine revenue stability. These cases demonstrate that the two indices provide independent and complementary information: a club can be structurally solid while remaining heavily dependent on capital gains, or structurally fragile while keeping transfer income at moderate levels. It is precisely this two-dimensional reading that allows for the identification of cases of apparent sustainability, the central concept of this thesis.

3.4.3 Joint discussion between FSSI and CGDI

The joint analysis of the two indices makes it possible to identify four macro-profiles of clubs:

1. *Sustainable and independent* (high FSSI, low CGDI): clubs such as Bayern Munich, Real Madrid, and Liverpool, which combine strong capital structures, a high share of recurring revenues, and low exposure to capital gains.
2. *Sustainable but dependent* (high FSSI, high CGDI): clubs such as Chelsea and Manchester City, which display solid structural indicators but rely to a significant extent on extraordinary revenues.
3. *Fragile but prudent* (low FSSI, low CGDI): clubs with below-average structural sustainability but limited dependence on capital gains, typically characterized by constrained revenues and disciplined market behavior. This profile is underrepresented in the current sample, suggesting that financially fragile clubs tend to resort to capital gains as a compensatory tool rather than operating with market prudence.
4. *Fragile and speculative* (low FSSI, high CGDI): clubs such as Milan and Valencia, where accounting sustainability relies almost entirely on capital gains and short-term market dynamics.

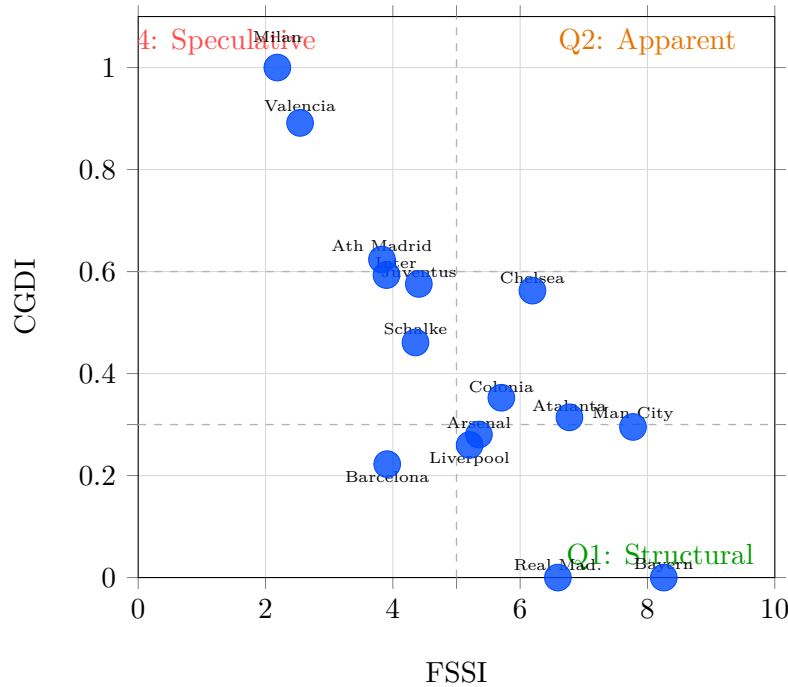


Figure 3.6: *Joint Map FSSI-CGDI*

The graph shows an uneven distribution: clubs with FSSI above 70 tend to have CGDI below 0.40, while clubs with FSSI below 50 show a wide dispersion, often accompanied by high CGDI values (> 0.60). This pattern confirms the inverse relationship between structural soundness and dependence on capital gains.

The integration of the two indicators allows us to move from a purely accounting perspective to a qualitative assessment of sustainability. The FSSI measures the ability to maintain balance and solidity, while the CGDI indicates how “real” this balance is or whether it has been artificially constructed through extraordinary income. Overall, the FSSI–CGDI combination makes it possible to identify cases of “apparent sustainability”, i.e. clubs that comply with budgetary parameters but do so in a structurally fragile manner.

From a regulatory perspective, these results support the latest UEFA guidelines, which propose a holistic view of sustainability, integrating performance indicators (such as break-even) with composition indicators of revenue. In this perspective, the CGDI index can be used as a monitoring and diagnostic tool, useful for identifying situations of imbalance and for assessing the real ability of clubs to maintain stable profitability over time.

3.5 Summary of results and implications for research

The analysis carried out in this chapter has provided a quantitative and comparative insight into the economic and financial sustainability of the leading European football clubs, laying the foundations for an integrated approach to measuring long-term performance. The construction of two synthetic indices, the Football Sustainability Synthetic Index (FSSI) and the Capital Gain Dependency Index (CGDI), has made it possible to assess the structural soundness of clubs and their dependence on extraordinary income, offering a multidimensional interpretation of the concept of sustainability.

From a methodological point of view, the use of Principal Component Analysis (PCA) for the construction of the FSSI made it possible to reduce the complexity of the information, synthesizing five key variables into a single comparable indicator. This approach was consistent with the economic and financial literature (Abdi and Williams, 2010; Jolliffe and Cadima, 2016) and made it possible to objectively combine the main dimensions of management performance: financial strength, operational efficiency, cost control, liquidity and revenue stability.

The empirical results highlighted significant differences between governance models and financial strategies. Clubs belonging to the Premier League and Bundesliga rank on average at the top of the FSSI ranking, thanks to greater capitalization and a more balanced revenue structure. Bayern Munich and Manchester City are the most virtuous examples: both have a business model supported by recurring revenues (sponsorship, matchday and commercial revenues), high operating margins and a low debt-to-equity ratio. Conversely, clubs such as Juventus and Schalke 04 have lower FSSI levels, penalized by high labor costs, reduced cash generation and a marked dependence on extraordinary revenues from capital gains. This evidence confirms that sustainability in contemporary football does not depend solely on economic or sporting factors, but on the quality of management and the efficiency in converting resources into lasting financial results.

At the same time, the introduction of the Capital Gain Dependency Index (CGDI) has provided a complementary perspective, focused on assessing the quality of revenues. The CGDI measures the degree of a club's dependence on income generated by player trading, i.e. capital gains linked to the sale of players. This indicator has proved particularly useful in distinguishing between clubs that base their stability on constant operating revenues and those that compensate for structural losses through market transactions.

The results show a clear polarization: German and English clubs (Bayern Munich, Real Madrid, Liverpool) have CGDI values below 0.3, indicating autonomous and sustainable management; on the contrary, Italian and Spanish clubs (Milan, Valencia, Juventus, Atlético Madrid) have values above 0.6, indicating a systemic dependence on capital gains. This suggests that, in such contexts, player trading is used not as a strategic lever for development but as an accounting tool to compensate for structural imbalances.

The joint analysis of the two indices, FSSI and CGDI, made it possible to classify clubs into four sustainability categories:

- *Sustainable and independent*, characterized by strong capital solidity and low dependence on capital gains (e.g., Bayern Munich, Real Madrid, Liverpool);
- *Sustainable but dependent*, displaying sound financial indicators but a significant reliance on extraordinary revenues (e.g., Chelsea, Manchester City);
- *Fragile but prudent*, clubs with below-average structural sustainability but low capital gain dependency, a profile underrepresented in this sample, which in itself suggests that structural fragility and market dependence tend to co-occur;

- *Fragile and speculative*, clubs whose accounting sustainability relies almost exclusively on revenues from player sales (e.g., Milan, Valencia, Schalke 04).

This classification confirms that economic sustainability in football cannot be assessed solely on the basis of static accounting results, but requires an analysis of the composition of revenues and the consistency of spending strategies. The inverse relationship observed between FSSI and CGDI highlights how greater structural soundness tends to reduce the need to resort to capital gains, while high dependence on them is a sign of systemic vulnerability.

From a theoretical point of view, the results offer an original contribution to the literature on financial sustainability management in professional football. Previous studies have focused mainly on the break-even rule or profitability indicators, neglecting the qualitative dimension of revenues (Barajas and Rodríguez, 2014; Deloitte, 2025). The proposed integration of FSSI and CGDI, on the other hand, allows sustainability to be analyzed in dynamic terms, distinguishing between accounting equilibrium and structural resilience.

Looking ahead, the combined use of the two indicators could form an empirical basis for the development of financial risk prediction models and early warning tools for supervisory authorities (UEFA, FIGC, ECA). Furthermore, the quantitative approach used in this chapter paves the way for future interdisciplinary research combining economic, regulatory and sporting variables in order to gain a deeper understanding of the determinants of sustainability in contemporary European football.

3.6 Methodological limitations and prospects for development

Although the results obtained demonstrate the robustness and applicability of the Football Sustainability Synthetic Index (FSSI) and the Capital Gain Dependency Index (CGDI), the model has some methodological and perspective limitations that deserve careful consideration. Reflection on these aspects is essential in order to assess the reliability of the results and to outline possible future improvements to the approach.

The first limitation concerns the availability and consistency of data. Although football clubs' financial statements are public, they differ in terms of accounting standards, level of detail and reporting methods. Some items, such as capital gains, personnel costs and commercial revenues, do not follow uniform criteria across different national regulations

(UEFA, 2023b). This can introduce some variability in the ratios and indices calculated, affecting international comparability.

A second limitation is related to the static nature of the variables considered. Although the FSSI effectively summarizes five dimensions of economic and financial performance, it does not directly capture the temporal dynamics of the indicators. Annual changes in revenues or costs, investment strategies and cash flow volatility are not integrated into the index formula, partially reducing its sensitivity to exogenous shocks.

A third limitation concerns the absence of qualitative and contextual variables. The model is based exclusively on financial statement data, without considering factors such as corporate governance, managerial quality, environmental sustainability policies or fan loyalty, which recent literature recognizes as determinants of long-term stability (Deloitte, 2025; Barajas and Rodríguez, 2014).

Finally, from a statistical point of view, the choice to use only the first principal component (PC1) in the construction of the FSSI, although supported by criteria of explained variance and interpretative simplicity (Jolliffe and Cadima, 2016), implies a partial loss of information with respect to the subsequent components. This simplification may reduce accuracy in borderline cases or in more heterogeneous samples.

Based on these considerations, several areas for improvement of the model can be identified:

1. *Expansion of the sample and time horizon.* The inclusion of a larger number of clubs and seasons would allow for testing the stability of the indices across different contexts and for constructing more robust benchmarks for each national league.
2. *Introduction of dynamic and qualitative variables.* Integrating measures related to governance quality, managerial efficiency, or ESG performance would broaden the concept of sustainability beyond a purely accounting-based perspective, in line with recent trends in corporate and sustainability reporting.
3. *Development of a predictive model.* By combining the FSSI and CGDI with regression techniques or machine learning methods, it would be possible to estimate the probability of financial distress or non-compliance with UEFA requirements, transforming the indices into an operational risk monitoring tool.
4. *Sensitivity analysis and cross-country validation.* Applying the model to non-European leagues (e.g. MLS, Brasileirão, J-League) would allow testing its external validity

and comparing different models of financial sustainability in professional football at a global level.

5. *Integration with sporting performance indicators.* Analyzing the relationship between financial sustainability and sporting outcomes (league points, UEFA rankings, trophies won) represents a promising extension to assess the compatibility between economic stability and competitive success.

In conclusion, the FSSI-CGDI model is an original and replicable contribution to the assessment of the economic and financial sustainability of European football clubs. Although it has limitations related to the nature of the data and the size of the sample, it provides a solid empirical basis on which to build more complex analyses and advanced monitoring tools. The future evolution of the framework should aim to integrate quantitative and qualitative dimensions, moving from a purely descriptive approach to a predictive assessment system capable of supporting the strategic decisions of federations, investors and sports institutions.

Chapter 3 developed an in-depth quantitative analysis aimed at assessing the economic and financial sustainability of European football clubs through the construction of two original indicators: the Football Sustainability Synthetic Index (FSSI) and the Capital Gain Dependency Index (CGDI). The combination of these tools made it possible to interpret the managerial complexity of the sector in a more comprehensive manner than traditional economic indicators and UEFA metrics currently in use.

Summary of main findings

The analysis based on Principal Component Analysis (PCA) highlighted how five variables – net assets (E/TA), liquidity ratio (Quick Ratio), sustainability of personnel costs, operating profitability (EBITDA/Revenues) and revenue stability – effectively describe the main dimensions of the financial sustainability of European clubs.

Applying the FSSI to the period 2018–2022 showed marked differences between clubs and leagues: German and English clubs, such as Bayern Munich and Chelsea, have high and stable levels of sustainability, while clubs such as Juventus and Schalke 04 show lower values and greater volatility over time. The Covid-19 pandemic has had a significant impact on the index, with a collapse in the two-year period 2020–2021 and a partial recovery in 2022.

At the same time, the CGDI showed high heterogeneity in business models: clubs such as Milan, Valencia and Atlético Madrid are structurally highly dependent on capital gains, while clubs such as Bayern Munich and Real Madrid are largely independent of extraordinary income. This shows that the formal sustainability recorded in financial statements can hide deep fragility when operating revenues are insufficient to cover structural costs.

Response to Research Questions

The analysis developed in this chapter allows us to fully answer the two Research Questions (RQ) introduced at the beginning of the section:

RQ1 — Which indicators effectively describe the financial sustainability of football clubs?

The results confirm that the combination of capital, liquidity, cost efficiency and operating profitability indicators is sufficient to capture the main dimensions of football sustainability. These variables are not only statistically significant within the PCA, but also consistent with the metrics used by UEFA and academic literature.

RQ2 — Is it possible to synthesize these indicators into a single index that can be compared between clubs and seasons?

The FSSI responds positively and robustly: the first principal component explains a significant portion of the variance and allows for a homogeneous comparison between clubs with profoundly different economic characteristics. The index has proven to be stable, replicable and interpretatively clear, allowing clubs to be classified into three zones (Sustainable, Intermediate, Warning) and offering a complementary tool to the regulatory metrics currently in use.

The contribution of the CGDI and the identification of ‘apparent sustainability’

Integration with the CGDI is one of the innovative elements of the chapter. The index allows a distinction to be made between:

- *real sustainability*, based on operating revenues and structural soundness,
- *apparent sustainability*, based on capital gains and extraordinary transactions.

The joint FSSI–CGDI map has made it possible to identify four distinct club profiles, highlighting situations of equilibrium, systemic dependence on capital gains and structural fragility. This distinction introduces a deeper layer of interpretation than that offered by traditional indicators alone, bringing the proposed model closer to the structural monitoring logic adopted in the most regulated financial sectors.

Implications for the debate on football sustainability

The analysis conducted suggests that:

- financial sustainability does not depend on the economic size of the club, but rather on the consistency between the business model, cost structure and revenue diversification;
- player trading can be an effective lever when used in a complementary manner, but becomes risky when it represents a primary and recurring source of profitability;
- UEFA (2023b) are moving in the right direction, but do not yet explicitly consider the qualitative composition of revenues, an element that the CGDI helps to highlight.

The inclusion of synthetic indicators such as FSSI and CGDI in federal control systems could represent a natural evolution towards more holistic and transparent regulation.

Chapter 4

Case studies: Inter and Barcelona

The previous chapters outlined the theoretical (Chapters 1 and 2) and quantitative (Chapter 3) assumptions necessary to interpret the financial sustainability of football clubs. The analysis of the Football Sustainability Synthetic Index (FSSI) has shown how certain clubs are in critical areas, characterized by cost rigidity, heavy dependence on non-recurring items and pressure on working capital. Among these, Inter and Barcelona stand out in particular, two clubs that are emblematic not only for their sporting importance, but also for the scale of the financial challenges they have faced in recent years. The case studies presented in this chapter aim to provide an empirical validation of the synthetic indices developed in Chapter 3. By analyzing the financial and market strategies of Inter and FC Barcelona, the objective is to assess whether the dynamics observed at club level are consistent with the signals emerging from the FSSI and CGDI.

This chapter aims to explore, through a case study approach, the financial, managerial and strategic dynamics of the two clubs, highlighting the interactions between market choices, regulatory constraints and sporting consequences. The logic followed is not to repeat the concepts already outlined in the theoretical chapters, but rather to verify their concrete application: how the notions of player trading, capital gains, salary caps and UEFA sustainability have been translated into operational practices and what effects they have had on the trajectory of the clubs.

The analysis will be divided into five sections: first, a reconstruction of the debt and financial situation (4.1), then an examination of the market strategies adopted over the last five years (4.2), the role of loans and capital gains (4.3), the sporting and financial repercussions (4.4) and, finally, a comparison with models considered more sustainable,

such as Bayern Munich and Athletic Bilbao (4.5). The choice of these two clubs is not random: they represent management alternatives based on financial solidity, wage discipline and community roots, elements that allow for a clearer measurement of the critical issues in the cases of Inter and Barcelona.

In closing, the chapter will propose two synthetic assessment tools, a SWOT analysis and a PESTEL analysis, to systematize the results that have emerged and link them to the FSSI's quantitative framework. In this way, qualitative reflection is integrated with empirical analysis, providing a more complete picture of the tensions and opportunities that characterize the management of top European clubs.

It is important to clarify that the synthetic indices (FSSI and CGDI) are computed over the period 2018–2022, reflecting data availability and the objective of capturing medium-term financial dynamics. Conversely, the analysis of market strategies focuses on the seasons from 2019/20 to 2022/23, in order to incorporate the most recent transfer windows and account for post-pandemic strategic adjustments. While the two time horizons do not perfectly overlap, they are sufficiently aligned to allow for a coherent and meaningful interpretation of the results.

4.1 Analysis of debt and asset situation

Inter

Following the transfer of control to Oaktree (May 2024), Inter's financial profile remains characterized by significant gross debt, despite signs of improvement in its net financial position. In its report for the nine months ended 31 March 2025, Inter Media and Communication S.p.A. (MediaCo) reported a NFP of €325.2 million, down from €357.5 million at 30 June 2024; the report also notes the €15 million buyback of the 2027 bond carried out in July 2024 (Inter Media and Communication S.p.A., 2025). On a broader basis (TeamCo/FC Internazionale Milano S.p.A.), NFP stands at €398.6 million, down from €420.2 million in June 2024: it is therefore necessary to always specify the scope used when analyzing the club's financial dynamics. At the end of June 2025, Inter placed €350 million of new private debt to repay MediaCo's 2027 bond early, redefining the maturities and structure of the debt (Reuters, 2025; Bloomberg, 2025). Overall, the club remains dependent on capital gains from player transfers to re-balance its accounts, against a backdrop of progressive rationalization of labor costs.

FC Barcelona

The 2023/24 consolidated financial statements show a positive EBIT of approximately €12 million, but a net loss of €91 million, mainly due to uncollected receivables related to extraordinary transactions (palancas and Barça Vision). As reported by the club: ‘the consolidated net result is negative by €91 million, due to uncollected receivables related to commercial partners of economic levers’ (FC Barcelona, 2024); the Spanish financial press confirms that these items prevented the operating profit from being translated into net profit (Cinco Días, 2024). For 2024/25, the board has approved a budget aimed at increasing commercial revenues and a gradual return to Camp Nou, considered key elements for improving liquidity and net equity. However, independent analyses converge in pointing out that, net of extraordinary income, financial performance would be more deteriorated, highlighting dependence on non-recurring revenue (Swiss Ramble, 2024).

Regulatory framework

In 2023, UEFA introduced the Financial Sustainability Regulations (FSR), which include the Squad Cost Ratio, measured as the ratio between salaries, amortization of player registrations and agent fees and relevant revenues. The thresholds apply progressively: 90% in 2023/24, 80% in 2024/25 and 70% from 2025/26 (UEFA, 2023b). Purpose: to reduce structural losses and realign costs with revenue generation capacity.

Link with the FSSI

The balance sheet evidence is consistent with the signals emerging from the synthetic index: for Inter, high financial leverage and dependence on capital gains remain critical factors despite the improvement in NFP; for Barcelona, net equity and liquidity are affected by the actual realization of receivables generated by extraordinary transactions.

4.2 Market strategies adopted over the last 5 years (2019/20-2023/24)

Inter

In the period 2019/20–2023/24, Inter pursued a market strategy based on a balance between sporting competitiveness and financial constraints deriving from UEFA’s Financial

Sustainability Regulations (FSR), with reference to both the football earnings indicator (an evolution of the previous break-even requirement) and the new Squad Cost Ratio (UEFA, 2023b). The latter stipulates that the sum of salaries, amortization of player registration costs and agent fees must not exceed 90% of relevant revenues in 2023/24, 80% in 2024/25 and 70% from 2025/26 onwards (UEFA, 2023b).

A first step was to focus on free transfers or low-cost acquisitions in order to reduce amortization: among the most significant examples are Hakan Çalhanoğlu (2021, free), Henrikh Mkhitaryan (2022, free), Marcus Thuram (2023, free) and Juan Cuadrado (2023, free). Added to this is the case of Francesco Acerbi, initially on loan and then bought for €4 million: a hybrid formula consistent with the objective of making spending more flexible (Transfermarkt, 2024a).

At the same time, the club made high-value sales to generate cash and capital gains: in 2021, Romelu Lukaku to Chelsea for £95 million and, a few months earlier, Achraf Hakimi to PSG for around £50 million, for total proceeds of around £170 million (Transfermarkt, 2024a). In 2023, André Onana moved to Manchester United for €52.5 million + €5 million in bonuses: with a residual value on the balance sheet of around €1.55 million, the potential capital gain is >€50 million (Calcio e Finanza, 2024). In addition, the selective use of incoming/outgoing loans has made it possible to modulate the wage bill and enhance the value of non-priority assets. Overall, the mix confirms the FSSI's findings: dependence on capital gains and flexible operations to remain within UEFA parameters.

FC Barcelona

In 2019/20-2023/24, Barcelona pursued a compromise between sporting needs and financial constraints. The strategy alternated between expensive purchases and free transfers, with the aim of maintaining competitiveness despite a rigid cost structure. In 2022, Robert Lewandowski was purchased from Bayern for €45 million + €5 million (FC Barcelona, 2024). In 2023, İlkay Gündoğan and Íñigo Martínez arrived on free transfers, with a limited impact on transfer fees but a significant impact on the wage bill (Transfermarkt, 2024a). Also in 2023/24, the signings of Vitor Roque (£30 million) and Oriol Romeu (£3.4 million) were completed (Transfermarkt, 2024a)).

On the transfer side, Transfermarkt estimates proceeds of around £80 million in 2023/24; these are market estimates, as the official financial statements do not break down individual transactions (Transfermarkt, 2024a). These disposals helped to free up salary space

in compliance with the cap imposed by LaLiga (Límite de Coste de Plantilla Deportiva - LCPD), the main tool for controlling spending on salaries in Spain¹. A distinctive feature of Blaugrana management has been the use of palancas (since 2022), i.e. the sale of future cash flows (TV rights/media-retail assets) in exchange for immediate liquidity. As indicated in the 2023/24 financial statements, “the consolidated net result is negative by €91 million, due to uncollected receivables relating to economic leverage partners” (FC Barcelona, 2024): the strategy has allowed new registrations in compliance with the LCPD, but has also increased dependence on extraordinary income and reduced future revenue prospects.

Comparison with the literature

The dynamics described are empirically confirmed: Franceschi et al. (2024) show how top clubs often pay a “premium” on the estimated value of players (variables: age, role, performance, popularity), with pressure on amortization and greater difficulty in complying with UEFA SCR and LaLiga LCPD (Franceschi et al., 2024).

Outlook 2024/25

For completeness, Barcelona’s 2024/25 budget forecasts growth in commercial revenues and a gradual return to Camp Nou (FC Barcelona, 2024). As these elements fall outside the 2019/20–2023/24 window, their impact is included in the conclusions.

Table 4.1: *Transfer market activity of Inter and FC Barcelona (2019/20–2023/24)*

Season	Inter Spending	Inter Income	Inter Balance	Barça Spending	Barça Income	Barça Balance
	(€m)	(€m)	(€m)	(€m)	(€m)	(€m)
2019/20	155	120	−35	304	154	−150
2020/21	45	190	+145	110	90	−20
2021/22	85	200	+115	55	35	−20
2022/23	70	60	−10	160	50	−110
2023/24	40	110	+70	33	80	+47
Total	395	680	+285	662	409	−253

Methodological notes All values are expressed in million euros. Figures are based on market estimates from sectoral databases; amounts include fixed transfer fees and, where available, bonuses and commissions (Transfermarkt, 2024a; Calcio e Finanza, 2024). Free

transfers are reported with a zero transfer fee, although they may still involve signing bonuses and agent fees. Official financial statements do not always provide a full disaggregation of individual transfer operations, particularly in the case of FC Barcelona (FC Barcelona, 2024).

Regulatory context Transfer strategies are influenced by UEFA Financial Sustainability Regulations (FSR), in particular the Squad Cost Ratio, and by the *Límite de Coste de Plantilla Deportiva* (LCPD)¹ (UEFA, 2023b; LaLiga, 2023a).

Relevance of UEFA regulations (FSR)

Furthermore, both clubs operate under the new UEFA (2023b) framework, which replaced the previous Financial Fair Play regulations. The three key rules (Squad Cost Rule, Football Earnings Rule and Solvency Requirements) now constitute the main parameter for assessing the sustainability of European clubs. The position of the two clubs with respect to these criteria is a central element of this analysis and will be explored in more detail in the following sections through the FSSI and CGDI indices, in order to identify any areas of risk or alignment with UEFA standards.

4.3 Use of loans and capital gains in the two clubs: accounting dynamics and impact on sustainability

An analysis of Inter and FC Barcelona's financial statements for 2018–2022 reveals that capital gains and loans are central tools in their economic and financial strategies, but with profoundly different purposes, frequencies and impacts. In light of the theoretical framework (Chapter 2) and the empirical results of Chapter 3, in particular through the Football Sustainability Synthetic Index (FSSI) and the Capital Gain Dependency Index (CGDI), this section examines the role that these transactions play in ensuring the economic balance of the two clubs and compliance with UEFA and LaLiga regulations.

¹The LCPD is the maximum spending limit for player wages, amortisation of transfer fees, and related personnel costs established annually by LaLiga for each club (LaLiga, 2023a)

Inter: a model built on recurring capital gains and targeted loans

During the period under review, Inter made extensive use of capital gains as a corrective tool for its financial results. The disposal of players who had been almost fully amortized had an immediate effect on the income statement, partially offsetting the fragility of the club's operational management. Notable examples include:

- Achraf Hakimi (2021), sold to PSG after only one season, with a significant net difference compared to the residual book value.
- Romelu Lukaku (2021), a transaction with a very high impact on the 2021/22 financial statements.
- André Onana (2023), sold to Manchester United with an almost full capital gain.

These transactions enabled the club to meet its commitments to UEFA in the *2022 Settlement Agreement*, but contributed to high volatility in the economic result.

In Inter's case, loans are a complementary tool for:

- reducing wage costs (outgoing loans with a contribution from the receiving club);
- mitigating the impact of amortization (incoming loans with non-mandatory buy-back options);
- enhancing the value of non-core assets (Primavera players or marginal members of the squad).

Inter's profile is consistent with the findings of the FSSI and CGDI indicators:

- High CGDI (>0.60) $\rightarrow$ strong structural dependence on capital gains.
- Medium-low FSSI $\rightarrow$ financial fragility and operating cost pressure.

The club therefore shows "short-term" sustainability, supported by extraordinary transactions rather than recurring revenues.

FC Barcelona: marginal capital gains and increasing reliance on extraordinary income

In the case of Barcelona, the weight of capital gains from transfers was lower than that of Inter, as confirmed by the lower average CGDI (around 0.21). However, in recent years,

the Catalan club has adopted an alternative strategy based on non-recurring income, the “palancas”, such as:

- sales of future TV rights (25% to Sixth Street),
- divestment of media and retail holdings,
- advances on future revenues to comply with the Squad Cost Control limit imposed by LaLiga.

These instruments have generated immediate cash flow and allowed the club to register for the championship and sign new players, but they reduce the ability to generate revenues in subsequent cycles. Barcelona’s loans have a different function than Inter’s:

- they are used on the outgoing side to develop young players or lighten the wage bill,
- they are marginal on the incoming side, mainly due to the salary constraints imposed by LaLiga,
- and they are not a key lever for sustainability.

The Blaugrana profile shows:

- moderately high FSSI, thanks to the breadth of structural revenues,
- capital fragility due to the intensive use of extraordinary income,
- high prospective risk, linked to the reduction in future cash flows.

4.3.1 Comparison between the two models

The comparative analysis shows a substantial difference in the re-balancing mechanisms:

Table 4.2: *Comparison between Inter and FC Barcelona: financial strategies and sustainability indicators*

Aspect	Inter	FC Barcelona
Role of capital gains	Central and systematic	Marginal compared to <i>palancas</i>
Use of loan deals	High, tactical leverage on costs and amortization	Limited, secondary role
CGDI	High → structural dependency	Medium → moderate dependency
FSSI	Medium–low	Low
Main risks	Volatility of player trading	Erosion of future revenues

Both clubs demonstrate forms of “reactive” sustainability, based on corrective measures rather than structural balance. However:

- Inter uses **capital gains and loans** as immediate tools to re-balance its budget;
- Barcelona uses **extraordinary income on future assets**, compromising long-term prospects.

The result is consistent with the FSSI and CGDI evidence in Chapter 3 and anticipates the implications discussed in detail in paragraph 4.4.

4.4 Use of loans and capital gains in the two clubs: implications for FSSI and CGDI

An analysis of Inter and Barcelona’s market operations in the period 2018–2022 reveals two profoundly different models for the use of capital gains and loans, but which share a common function within the framework of economic and financial sustainability. In light of the results that emerged in Chapter 3, in particular through the FSSI and the CGDI, this section assesses how the management of player trading and loans has affected the stability of the two clubs and their ability to comply with regulatory parameters (UEFA, 2023b; LaLiga, 2023b).

4.4.1 Inter: a model based on recurring capital gains and tactical loans

Over the five-year period considered, Inter has systematically resorted to capital gains from transfers to compensate for the structural fragility of its core business. The transactions completed in recent seasons show a strategy based on:

- the transfer of players with very low residual book value, which generate immediate effects on the income statement;
- incoming loans aimed at limiting annual amortization, spreading the cost of the transaction over several time frames;
- outgoing loans aimed at reducing wage costs and developing young or surplus players.

The case of Onana 2023, with an almost full capital gain on the consideration received, perfectly illustrates the role of strategic disposals in the Nerazzurri model.

Inter's high **CGDI** value (> 0.60 on average for 2018–2022) confirms this dependence: the club has limited structural profitability and makes extensive use of capital gains as a compensatory tool. On the one hand, this has allowed the club to comply with the obligations imposed by UEFA agreements during the transition phase; on the other hand, it has exposed the club to future vulnerabilities, as the ability to generate capital gains is cyclical and influenced by market dynamics.

From the **FSSI**'s point of view, Inter shows moderate or low levels of sustainability, with clear penalties in liquidity indicators and the cost/revenue ratio. Dependence on player trading emerges as a critical factor explaining the gap between accounting performance and structural soundness.

4.4.2 FC Barcelona: use of "palancas" and reduction in the role of player trading

For Barcelona, dependence on capital gains from transfers has historically been lower than for Inter, as confirmed by the average CGDI (around 0.21), a low value that reflects the limited role of classic capital gains in the Blaugrana model. As discussed below, this does not imply financial prudence: Barcelona's dependence on extraordinary income is channeled through palancas rather than player trading, a dimension that the CGDI does not capture by construction. However, in recent years, the Catalan club has developed an alternative model based on non-recurring extraordinary income, in particular:

- sales of future television rights,
- sales of holdings in multimedia and retail assets,
- one-off transactions aimed at generating immediate liquidity (so-called palancas).

These measures have allowed Barcelona to temporarily fall within the parameters of **LaLiga Squad Cost Control** and to register new players, but they have increased its financial fragility, as they reduce its future revenue-generating potential. In this sense, the CGDI does not fully capture the criticality of the Blaugrana model, as it measures only the dependence on "classic" capital gains.

A relevant aspect is that, while capital gains have an immediate accounting effect without

compromising future cash flows, palancas generate a high “opportunity cost”, reducing operating income in subsequent financial years. Barcelona’s FSSI reflects this dynamic: relatively high levels of revenue and operating margins are offset by high wage costs, higher debt and a capital structure weakened by extraordinary transactions.

It is important to note that the Capital Gain Dependency Index (CGDI), developed in Chapter 3, measures only the dependence on extraordinary profits from player trading. In Barcelona’s case, however, a significant portion of non-recurring income comes from palancas, i.e., the sale of future rights and commercial assets. Since these transactions do not fall within the scope of capital gains from transfers, the CGDI tends to underestimate the club’s actual dependence on extraordinary revenues. This suggests the need for a complementary index, an “extended CGDI”, that also includes non-operating revenues, making it possible to more accurately assess the sustainability of clubs with atypical financial models such as Barcelona.

4.4.3 Comparison between models and implications for sustainability

Although they use different tools, Inter and Barcelona converge on one point: dependence on non-recurring components to bridge the gap between revenues and operating costs.

- Inter has a profile typical of clubs with low-to-medium FSSI and high CGDI, where sustainability is achieved through market transactions with a high accounting impact.
- Barcelona, despite having a higher FSSI, has a strategy geared towards extraordinary instruments not linked to player trading, with the risk of future erosion of recurring revenues.

The distinction between the two models is crucial:

- **Inter compensates for operational weaknesses through capital gains,**
- **Barcelona monetizes future cash flows to obtain immediate liquidity.**

Both clubs are therefore in a fragile equilibrium, consistent with the profiles that emerged from the joint FSSI–CGDI matrix constructed in the previous chapter.

A further element of differentiation concerns the impact of the new UEFA Squad Cost Ratio (SCR). Italian clubs, including Inter, structurally have a higher wage-to-revenue

ratio than Premier League or Bundesliga clubs, where core revenues, particularly match-day and commercial revenues, are significantly higher. Consequently, with the same wage bill, Inter is closer to the regulatory limits (90% in 2023/24; 80% in 2024/25), suffering structural pressure that clubs such as Bayern, Manchester City or Chelsea absorb more easily. This amplifies managerial vulnerability and makes compliance with the FSR more complex in the medium term.

4.5 Comparison with “virtuous” models and regulatory/managerial implications

A comparison between Inter and FC Barcelona and two models recognized as “virtuous” in Europe, Bayern Munich and Athletic Club, highlights profound structural and managerial differences that have a direct impact on the sustainability profile defined by the FSSI and CGDI indicators. While Inter and Barça share high sporting competitiveness and strong global media exposure, the virtuous benchmarks build their solidity on consolidated organizational and financial principles, characterized by wage discipline, debt control and stable and diversified core revenues.

Bayern Munich is one of the most emblematic cases of economic and financial sustainability in European football. The club has a robust revenue structure, deriving from commercial, matchday and broadcasting activities, a consolidated wage discipline (wages/turnover ratio of around 55–60%) and a negligible level of debt. The German model is reinforced by ownership of the sports facility, managerial stability and limited use of player trading as a short-term lever. It is not surprising, in fact, that Bayern has high FSSI values and a particularly low CGDI.

Athletic Club represents an alternative but equally solid model. The club bases its strategy on the development of the Lezama academy and very limited use of the transfer market. Its strong regional identity and continuous investment in youth development allow it to maintain a consistent cost structure and a stable financial profile, fully in line with LaLiga constraints. Here too, the high FSSI and extremely low CGDI reflect prudent, long-term management.

Inter and Barcelona, although among the most competitive clubs in Europe, have structural weaknesses linked to their dependence on non-recurring components. Inter has historically used capital gains and loans as tools for economic and financial re-balancing.

Sales such as Hakimi, Lukaku and Onana have generated significant margins and contributed to compliance with FSR constraints, but have also increased the degree of dependence on cyclical market dynamics, as reflected in average CGDI values of around 0.60–0.70. Similarly, loans have been used as a lever of flexibility to contain wages and amortization in the short term, while maintaining high structural rigidity in the medium to long term. The case of Barcelona stands out for the growing importance of so-called “palancas”, i.e. transfers of future economic rights (media, commercial or intangible assets) used to obtain immediate liquidity and to comply with the registration parameters imposed by LaLiga. This approach has enabled the club to consistently exceed the high wage and market limits imposed by the LCPD, but has led to increased vulnerability in the long term, with high exposure to the risks of non-collection of receivables and a structural reduction in future core revenue-generating capacity.

Table 4.3: *Comparison of financial sustainability models: Bayern Munich, Athletic Club, Inter, and FC Barcelona*

Aspect	Bayern Munich	Athletic Club	Inter	FC Barcelona
Business model	Diversified, revenue-driven	Academy-based, identity-driven	Market-oriented	Asset monetization-driven
Revenue structure	High recurring revenues	Mostly recurring revenues	Mixed, volatile	Mixed, with non-recurring components
Salary discipline	Strong (55–60% of revenues)	Strong (within LCPD limits)	Rigid, near FSR thresholds	Highly constrained by LCPD
Player trading role	Marginal and strategic	Minimal	Central and systematic	Secondary to palancas
Use of loans	Limited	Very limited	High (cost and amortization smoothing)	Limited
Indebtedness	Negligible	Low	High (MediaCo refinancing)	High and structurally embedded
FSSI level	High and stable	High and stable	Medium-low	Low
CGDI level	Low	Very low	High (0.60–0.70)	Medium
Main financial risks	Low exposure	Limited growth constraints	Market volatility, transfer dependence	Future revenue erosion, credit risk
Strategic horizon	Long-term sustainability	Long-term stability	Short-medium term balancing	Short-term liquidity optimization

The SWOT analysis clearly shows that Inter and Barça have significant sporting and commercial strengths: global brands, recent successes, and the ability to generate international visibility. However, they also have structural weaknesses linked to cost rigidity, the burden of debt, and dependence on non-recurring revenues. Bayern and Athletic, on the other hand, follow organizational logic geared towards internal stability, managerial discipline and technical continuity.

The PESTEL analysis confirms that Inter and Barcelona operate in very stringent regulatory environments (UEFA FSR and LaLiga LCPD) that penalise clubs with a rigid cost structure or low operating margins. Global economic dynamics, including inflation, rising capital costs and transfer market volatility, further amplify these critical issues.

Regulatory and managerial implications

The integration of FSSI and CGDI highlights that Inter and FC Barcelona are in a “hybrid” sustainability area: formally compliant with regulatory requirements, but heavily dependent on extraordinary instruments (capital gains, loans, *palancas*) to maintain economic and financial balance. In contrast, Bayern and Athletic present a model in which sustainability derives from core revenues, wage discipline and stable governance.

From a managerial point of view, three fundamental strategic lines emerge:

1. Reducing dependence on extraordinary components through growth in recurring revenues and containment of labour costs.
2. Strengthening ESG and governance strategies, with greater transparency on financial processes and market operations.
3. More ambitious alignment with UEFA FSR parameters, which will become more stringent in the coming years (SCR at 70% from 2025/26).

These elements consolidate the role of the FSSI as an interpretative tool for sustainability and the CGDI as an indicator of potential vulnerability, offering an integrated reading of the economic and financial dynamics of the clubs analyzed and a basis for the implications developed in Chapter 5. Chapter 4 showed how Inter and FC Barcelona adopt sustainability strategies that are profoundly different from those observed in the virtuous benchmarks. Empirical analysis based on FSSI and CGDI confirms that revenue structure, wage rigidity, governance and the quality of funding sources are determining factors in defining the economic and financial resilience of European clubs.

In this context, the systematic use of capital gains, loans and extraordinary instruments may guarantee room for manoeuvre in the short term, but raises significant questions about future sustainability and the ability to comply with the new UEFA and LaLiga parameters in the long term.

Chapter 5

Critical reflections and future prospects

The fifth chapter aims to broaden the perspective of the analysis conducted in the previous chapters, shifting the focus from the empirical and quantitative dimension to a critical, regulatory and forward-looking reflection. After developing two synthetic indicators in Chapter 3, the FSSI (Football Sustainability Synthetic Index) and the CGDI (Capital Gain Dependency Index), and applying them in Chapter 4 to the cases of Inter and FC Barcelona, it is necessary to examine the structural dynamics that most affect the sustainability of the European football system. Chapter 5 addresses four lines of reflection:

1. the debate on fictitious capital gains and the need to reform accounting control mechanisms,
2. the evolution of the football transfer market towards more sustainable models,
3. possible management alternatives and policy tools useful for strengthening the financial stability of clubs,
4. the emerging role of technology and data analytics, which are redefining the process of player evaluation and the efficiency of player trading.

This section does not merely describe known phenomena, but interprets them in light of the empirical evidence obtained in Chapter 3 and the vulnerabilities that emerged in Chapter 4. The objective is twofold: to understand how regulatory systems and club behavior can converge towards more resilient models and to identify new avenues for research and intervention that can strengthen the financial governance of European football.

5.1 The debate on fictitious capital gains and the need for regulation

The issue of capital gains is one of the most controversial aspects of the economic and financial management of contemporary football clubs. Although such transactions are a fully legitimate item in financial statements, as provided for by IAS/IFRS principles, their growing incidence has generated intense debate, especially in relation to so-called fictitious capital gains, i.e. transactions in which the valuation of players does not reflect real economic substance.

Journalistic investigations in recent years (IRPI Media, 2023) have highlighted how some clubs have made use of cross-trades or reciprocal transfers of young players at inflated values, with the aim of recording immediate income without any actual increase in liquidity. Such practices have a significant impact on accounting representation, generating immediate profits in the face of future financial risks, as the increase in the value of intangible assets also entails higher amortization in subsequent seasons. From a legal point of view, several authors (Giustizia Civile, 2022) emphasize that the problem lies in the intrinsic difficulty of attributing an objective “fair value” to a player’s transfer fee. Market valuations are in fact influenced by intangible elements (sporting potential, technical context, corporate strategy, age, nationality) that escape traditional accounting logic. For this reason, the line between genuine and fictitious transactions is sometimes difficult to define.

In the regulatory sphere, the UEFA Financial Sustainability Regulation (UEFA, 2023b) explicitly recognizes the importance of reducing clubs’ dependence on extraordinary items, such as capital gains and one-off transactions. The new regulatory framework, based on Squad Cost Ratio, gradual capital requirements and liquidity controls, aims to discourage opportunistic behavior and encourage a more sustainable balance between ordinary costs and revenues.

Numerous academic studies confirm that excessive reliance on capital gains is often a symptom of structural imbalances. Peeters and Szymanski (2014), analyzing the effects of Financial Fair Play, highlight how competitive pressure pushes clubs towards aggressive management strategies, with potential distorting effects on both the transfer market and sporting competition. More recently, Hartill (2022) notes that clubs with higher debt or an unsustainable cost-to-revenue ratio tend to rely increasingly on extraordinary transactions

to meet regulatory constraints.

This is the context for the methodological contribution of this work, through the construction of the **Capital Gain Dependency Index (CGDI)**. This indicator allows us to quantitatively measure each club's degree of dependence on capital gains, representing a useful diagnostic tool for assessing the sustainability of market transactions. The integration of CGDI and FSSI has shown that clubs with high dependence on capital gains often have lower levels of structural soundness, empirically confirming the link between economic sustainability and revenue quality.

Overall, the debate on fictitious capital gains highlights the need for a more rigorous regulatory framework, capable not only of sanctioning any abuses, but above all of preventing distortive behavior through greater transparency, uniform metrics and advanced monitoring tools. The most recent literature Rezzi (2023) highlights that financial sustainability cannot be based on artificial accounting results: only core revenues, stable governance and the ability to generate value in the long term can form the basis for a truly sustainable competitive model.

The root cause of fictitious capital gains, however, lies not only in regulatory failure but in a fundamental accounting limitation that precedes any supervisory framework: football player registrations are recorded at historical cost and amortized over the contract duration, with no mechanism for fair value revaluation under IAS 38 (IFRS Interpretations Committee, 2020). This creates a systematic and growing divergence between book value and market value, particularly pronounced for players developed internally, whose carrying amount is zero regardless of their sporting and economic worth, and for players nearing full amortization, whose net book value approaches zero irrespective of their actual market price. In the absence of objective valuation benchmarks, any agreed transfer price between two clubs becomes the sole reference for capital gain computation, opening the door to coordinated overvaluation with no independent verification possible. As documented by Franceschi et al. (2023), market valuations diverge significantly from book values across European clubs, and this gap is precisely what makes fictitious swap transactions economically rational from an accounting perspective: two clubs can simultaneously record large capital gains by agreeing on inflated cross-valuations, with no cash changing hands. A structural solution would therefore require either the introduction of mandatory independent valuations based on objective parameters: age, performance metrics, remaining contract duration, comparable market transactions, or a reform of

IAS 38 to allow periodic fair value adjustments for player registrations, bringing football accounting closer to the mark-to-market logic applied in other asset-intensive industries. Without such reforms, regulatory interventions remain necessarily reactive, capable of sanctioning individual abuses but unable to eliminate the structural conditions that make them systematically possible.

5.2 The evolution of the football transfer market from a sustainability perspective

Over the last ten years, the European football transfer market has undergone a profound transformation, accelerated by three key factors: increasing regulatory pressure, revenue volatility and the structural need to integrate sustainability criteria into sports management. Whereas in the past market dynamics were driven mainly by sporting objectives and financial resources, today the competitiveness of clubs increasingly depends on their ability to combine technical performance with economic and financial solidity.

One of the main elements of this evolution is the growing focus on revenue quality and reducing exposure to extraordinary components, first and foremost capital gains. As noted by Eurosport (2022), the accounting mechanism of capital gains, while perfectly legitimate, has taken on a disproportionate role in recent years compared to its original purpose, becoming a recurring management lever for many clubs. The development of sustainability models, on the other hand, requires that revenues from player trading be considered complementary and not structural, in line with the principles of the new UEFA Financial Sustainability Regulation (UEFA, 2023b).

Post-pandemic research (Strategies for Football Clubs, 2021) has also shown that the transfer market has become less liquid and more polarized: a small number of top clubs, capable of investing even in periods of economic contraction, are contrasted by a growing number of clubs adopting defensive strategies based on loans, targeted renewals and low-cost scouting. In this scenario, sustainability considerations are increasingly influencing market decisions, affecting both investment profiles and risk management.

A further element of change is the growing centrality of intangible assets and human capital. According to Arnau (2021), the economic value of a footballer is no longer defined solely by sporting performance and personal details, but by a set of complex factors, including commercial impact, brand value, fan engagement and growth potential,

which require new evaluation methodologies. This evolution is pushing clubs towards more rational and quantitative approaches, reducing the speculative component and bringing the transfer market closer to the dynamics typical of regulated financial markets.

Sustainability is thus understood not only as a regulatory constraint, but as a long-term strategy: building assets, developing the youth sector, enhancing the brand, and using analytics to minimize investment errors. Quantitative literature is also moving in this direction: Pantuso and Hvattum (2019) demonstrate that optimization models based on financial constraints lead to more competitive and sustainable rosters than purely reactive strategies or those based on individual intuition. At the same time, a growing body of research Sport & Development (2025) emphasizes that football clubs are increasingly called upon to integrate ESG (Environmental, Social, Governance) objectives into their decision-making processes. The transfer market, traditionally perceived as an exclusively sporting arena, is instead becoming a central infrastructure for social responsibility, management fairness and financial transparency. Rules on children's rights, cost limits, revenue allocation and compliance with wage ratios are an integral part of this new framework.

In this context, the indices developed in Chapter 3 take on a crucial interpretative role: the FSSI allows the structural soundness of clubs to be assessed, while the CGDI measures their dependence on extraordinary components. The evolution of the football transfer market from a sustainability perspective can only be fully understood through an integrated reading of these two indicators: clubs with high FSSI values and low CGDI values are those that have been able to adapt best to regulatory and market changes.

Finally, the growing digitalization of the sector, from the use of algorithms for player evaluation to advanced contract management systems and economic rights trading platforms, opens up completely new scenarios for a more transparent, measurable market that is consistent with sustainability objectives. The direction of evolution is clear: the football transfer market is no longer just a trading market, but a complex financial ecosystem that requires governance, control, data and strategic vision.

5.3 Alternative financial management proposals and models

The evolution of the European regulatory framework and the growing complexity of the football market make it necessary to rethink the traditional financial management models

adopted by clubs. The dynamics analyzed in the previous chapters show that sustainability can no longer be based exclusively on revenue growth or capital gains, but must be based on more robust management structures capable of withstanding economic, sporting and regulatory fluctuations. In this perspective, recent literature and the experience of virtuous clubs offer a series of alternative strategies that can guide the evolution of the sector.

A first guideline concerns the **restructuring of the business model**, aimed at maximizing revenue quality and reducing financial volatility. As shown by Rezzi (2023) and the UEFA (2024), the most resilient clubs are those that manage to consistently integrate sporting, commercial, real estate and digital activities within a single framework. This approach brings football closer to advanced industrial sectors, where value depends not only on operational performance but also on the ability to generate stable and diversified cash flows. Bayern Munich, with its own stadium, stable governance and strong commercial integration, is the European benchmark for this model.

A second area of intervention concerns the **adoption of quantitative tools for financial and sporting planning**. Pantuso and Hvattum (2019) demonstrate that multi-objective optimization models, constrained by cost limits and performance projections, allow competitive squads to be built while reducing waste and over investment. The systematic use of data analytics and predictive algorithms makes it possible to anticipate market trends, estimate salary trends, assess the impact of contract expires and reduce dependence on subjective insights or speculative transactions. This perspective is consistent with the indicators introduced in Chapter 3: the FSSI penalizes unbalanced cost structures, while the CGDI signals opportunistic behavior linked to the need to generate capital gains.

A third axis of reform, discussed in the regulatory literature (Peeters and Szymanski, 2014; Hartill, 2022), concerns the **introduction of stricter and smarter control systems**, capable of measuring not only compliance with spending limits, but also the quality of management. The current transition from the now outdated Financial Fair Play to the new Financial Sustainability Regulation (UEFA, 2023b) is a step in this direction. The implementation of dynamic indicators such as the “Squad Cost Ratio”, the monitoring of net financial position and the distinction between operating and extraordinary revenues represent significant progress, but could be complemented by additional tools, including:

- an **official indicator of dependence on capital gains**, similar to the CGDI

developed in this thesis, useful for quickly identifying structurally risky behavior;

- **a financial sustainability rating system**, modeled on those of credit agencies or frameworks such as FoMa-Q Score (HHL Leipzig Graduate School of Management, 2023), capable of integrating accounting, sports, governance and market data;
- **reward mechanisms for virtuous clubs**, with temporary reductions in constraints or incentives for infrastructure growth, to promote long-term behavior.

Finally, a growing body of literature suggests the opportunity to introduce alternative management models at the system level, taking inspiration from more balanced and regulated sports leagues such as the NBA. Several studies (Sport & Development, 2025) highlight that tools such as revenue sharing, strict salary caps, drafts and competitive redistribution mechanisms promote sustainability and a level playing field. Although these tools cannot be immediately replicated in European football, given the multi-level nature of competitions and the ownership structure of clubs, it is plausible to envisage hybrid forms, such as:

- **a soft European salary cap** proportionate to verified operating revenues;
- **a strengthening of the UEFA solidarity mechanism** to re balance the gap between top clubs and mid-table teams;
- **greater centralization of international media rights**, reducing the volatility of cash flows and encouraging long-term planning.

Overall, the alternative models proposed converge towards a vision of football as a regulated industry, based on criteria of economic sustainability and competitive fairness. The integration of the analytical tools introduced in this thesis, in particular FSSI and CGDI, with the recommendations of the literature offers a coherent framework for developing new policies capable of limiting opportunistic behavior, stabilizing the system and reducing asymmetries between clubs and leagues.

5.4 The role of new technologies and data analytics in the transfer market

Over the last ten years, the football transfer market has undergone a radical transformation driven by the introduction of increasingly sophisticated data analysis technologies. The growing availability of event-stream data, optical tracking systems, predictive mod-

els and machine learning algorithms has expanded the level of information available to clubs, intermediaries and federations, directly affecting decision-making processes related to player trading and the economic valuation of footballers.

The first major revolution concerns the transition from descriptive metrics (goals, assists, tackles won) to probabilistic and predictive metrics, which can estimate a player's contribution to the expected value of an action. As illustrated in Soccerment (2023), indicators such as Expected Goals (xG), Expected Assists (xA) and On-Ball Value have made it possible to more accurately quantify a player's actual contribution within the different phases of the game. This transition is also explored in depth by Dello Iacono et al. (2024), who show how the most advanced clubs use proprietary models to map a player's value creation based on the tactical context and the spaces occupied. This makes it possible to identify profiles that are undervalued by the market, optimizing investments and reducing uncertainty in purchasing operations.

Machine learning and the economic evaluation of footballers

A second area concerns the use of machine learning algorithms to estimate the economic value of a footballer. Research by Li et al. (2022) and Oprisor and Cordos (2023) highlights how models based on elastic regressions, gradient boosting and neural networks are able to predict market value with greater accuracy than traditional approaches. Sulimov (2024) proposes a particularly advanced approach combining:

- **performance evaluation models based on possession chains** (possession-chain modeling),
- **latest generation xG models**,
- **CatBoost and Random Forest algorithms** to estimate the expected change in value (gain/loss) in the medium term.

Empirical results show that a player's actual contribution during possession (increased probability of scoring associated with their actions) is one of the most relevant predictors of changes in their market value. This evidence is consistent with the intuition that the market rewards players who are able to generate measurable and replicable competitive advantage.

Strategic implications for clubs and federations

The widespread adoption of data analytics tools is changing the way clubs approach the market:

- **Reduction of information asymmetry**

Clubs are now able to estimate the “true value” of a player with objective data, limiting their dependence on agents and intermediaries.

- **Early identification of talent**

Predictive models identify young players with patterns similar to those of established talents (behavioral clustering), reducing the risk of investment error.

- **Optimization of player trading**

Predictive analysis of a player’s future value enables more scientific buy-low/sell-high strategies (Mittal, 2024).

- **Regulatory support**

Federations and leagues can use algorithms to identify anomalies in transfers, incongruous valuations and possible cases of manipulation of accounting values.

In this perspective, the integration of economic and financial indicators (such as FSSI and CGDI) and data-driven technical indicators provides a more complete view of the sustainability of the transfer market: not only how much a club spends, but how well it spends.

The growing sophistication of analytical tools shows that the football transfer market is evolving towards a model increasingly similar to a regulated financial market, in which:

- information is a strategic asset,
- predictive models drive decisions,
- the ability to correctly evaluate a player generates competitive advantage,
- and sustainability depends on the quality, as well as the quantity, of investments.

For this reason, future UEFA regulatory developments could integrate algorithmic analysis tools into supervisory operations, enhancing transparency and limiting opportunistic behavior.

Chapter 5 highlighted how the sustainability of European football can no longer be interpreted through traditional economic indicators or through formal compliance with

budgetary rules alone. The complexity of the system requires a multi-level approach that integrates accounting, regulatory, strategic and technological aspects.

The debate on fictitious capital gains has shown that the fragility of clubs stems not only from questionable management decisions, but also from a historically permissive regulatory framework, in which certain distortive practices have been able to become entrenched over time. Similarly, the growing dependence on non-recurring income, highlighted by the CGDI, is a structural symptom of a competitive ecosystem in which sporting results continue to take precedence over economic sustainability.

At the same time, the transfer market is evolving towards increasingly data-driven approaches: predictive models, evaluation algorithms and probabilistic metrics are transforming the way clubs estimate the value of players, reducing information asymmetry and introducing elements of greater economic rationality. However, this process does not eliminate the vulnerabilities of the system: if not accompanied by clear rules and stricter controls, it risks amplifying the competitive disparities between clubs with advanced technologies and clubs with limited resources. Overall, the picture that emerges is that of a sector in transition:

- from a model historically based on speculative logic,
- towards a more transparent, regulated structure based on sustainability.

The indices proposed in this thesis, FSSI and CGDI, fit precisely into this path: the former measures structural soundness, while the latter reveals dependence on extraordinary mechanisms. Their combination offers an original contribution to the debate, suggesting concrete structural monitoring tools for federations and supervisory bodies. The chapter therefore closes with a clear understanding: the sustainability of football is not a goal, but a process. It requires regulatory innovation, managerial responsibility and the ability to exploit technological opportunities without distorting the competitive essence of the sport.

Final conclusions

This thesis analyzed the contemporary football transfer market as a complex economic and financial phenomenon, going beyond a purely sporting interpretation and highlighting the inter dependencies between regulation, market strategies and the sustainability of football clubs. Through a progressive approach, the work has shown how the transfer market today represents a central lever of corporate governance, capable of significantly affecting financial balances, sporting competitiveness and the stability of the football system as a whole.

In response to the **first research question**, concerning the regulatory and strategic evolution of the football transfer market over the last thirty years, the analysis in Chapters 1 and 2 highlighted a structural transformation of the system. The pre-Bosman model, characterized by strong contractual constraints and limited player mobility, has given way to a highly liberalized environment in which the economic and contractual rights of athletes play a central role. At the same time, the introduction of supranational regulations, in particular UEFA's Financial Fair Play and subsequent Financial Sustainability Regulations, has gradually shifted the focus from simple freedom of spending to control of economic sustainability, generating new incentives and new areas of potential circumvention.

The **second research question**, concerning the impact of loan transactions and capital gains on club balance sheets, finds a clear answer both in the accounting analysis (Chapter 2) and in the empirical evidence. The results show that these instruments, although formally legitimate, produce profoundly asymmetrical effects over time: immediate improvements in economic performance versus future structural risks. Capital gains, in particular, emerge as a powerful but inherently non-recurring accounting lever, capable of masking operational fragilities without resolving them. Loans, if used systematically, allow costs and amortization to be modulated in the short term, but can compromise planning and financial stability in the medium to long term.

The **third research question**, focused on comparing the management models of Inter and Barcelona, was addressed in Chapter 4 through an in-depth comparative analysis. The two clubs show different trajectories but are united by a structural tension between sporting competitiveness and financial sustainability. Inter made extensive use of capital gains and loans to comply with regulatory constraints during the transitional phase of the FSR, while Barcelona adopted more radical strategies, resorting to extraordinary income outside of player trading (the so-called *palancas*). In both cases, sustainability appears to be partial and heavily dependent on non-structural factors, in stark contrast to the virtuous models analyzed (Bayern Munich and Athletic Club), which are based on core revenues, wage discipline and stable governance.

The **fourth research question**, concerning the effectiveness of UEFA and FIGC regulations in preventing abuse, is one of the central critical contributions of the thesis. The empirical results in Chapter 3 show that the current rules, while improving transparency and reducing some extreme practices, do not eliminate opportunistic behavior, but in some cases indirectly encourage it. The absence of synthetic risk indicators and early warning tools favors formal compliance strategies rather than substantial sustainability. In this sense, the construction of the Football Sustainability Synthetic Index (FSSI) and the Capital Gain Dependency Index (CGDI) represents an original contribution of the thesis: the two indices make it possible to distinguish between real sustainability and apparent sustainability, showing how clubs that are formally “in compliance” may present high risk profiles in the medium term.

Finally, the **fifth research question**, concerning the future prospects for a more sustainable, transparent and fair transfer market, was addressed in Chapter 5. The analysis suggests that strengthening sustainability cannot be based solely on ex post accounting constraints, but requires an integrated approach that includes: composite revenue indicators, structural limits on recurring costs, greater transparency on intangible asset valuations, and systematic use of data analytics and artificial intelligence tools. In this context, the indices proposed in the thesis could complement existing regulations, contributing to more preventive and less reactive regulation.

In conclusion, the thesis demonstrates that the transfer market is not only a place for the exchange of sporting talent, but also a central mechanism for the redistribution of financial risk in modern football. Sustainability does not depend solely on the ability to generate high revenues, but on the consistency between sporting strategy, cost struc-

ture and quality of governance. Through the integration of theoretical, regulatory and empirical analysis, the work provides a critical and systemic reading of the transfer market, offering interpretative tools useful both for academic debate and for the regulatory institutions called upon to govern the future evolution of European football.

Appendix A

PCA procedure for the construction of the FSSI

A.1 Objective of the procedure

This appendix provides a detailed explanation of the procedure used to construct the Football Sustainability Synthetic Index (FSSI) through Principal Component Analysis (PCA). The purpose of PCA is to reduce a set of correlated economic and financial variables into a single synthetic component capable of representing the overall degree of structural sustainability of a club.

A.2 Variables used

The five variables selected are derived from UEFA and academic literature on sustainability models in football:

1. *Equity / Total Assets (E/TA)*: represents the club's capital strength and long-term financial solidity.
2. *Quick Ratio*: measures immediate liquidity and the ability to meet short-term obligations.
3. *Staff Costs / Total Revenues*: captures the incidence of labour costs on total revenues, reflecting cost sustainability.
4. *EBITDA / Total Revenues*: serves as a proxy for the club's capacity for self-financing

through operating performance.

5. *Recurring Revenues / Total Revenues*: measures the degree of dependence on extraordinary income components, such as capital gains.

A.3 Stages of the procedure (methodological description)

The procedure, implemented using a Python environment, consists of the following steps:

1. *Standardization of variables*. All variables were normalized using a z-score transformation, in order to eliminate scale differences and ensure comparability across indicators.
2. *Detection and removal of missing values*. Observations containing missing values in any of the five selected variables were excluded from the analysis.
3. *Estimation of the PCA*. An unrotated Principal Component Analysis was estimated, computing:
 - eigenvalues,
 - the proportion of variance explained by each component,
 - variable loadings on the first principal component (PC1).
4. *Selection of the main component*. The component selected to synthesize the index (PC1) is the one explaining the largest share of total variance.

A.4 Main Results

The main results of the Principal Component Analysis are summarized as follows:

- Eigenvalue of PC1 = 2.165
- Variance explained by PC1 = 42.73%
- Loadings on PC1:
 - +0.556 → Equity / Total Assets
 - +0.505 → Quick Ratio

- $-0.374 \rightarrow$ Staff Costs / Total Revenues
- $+0.523 \rightarrow$ EBITDA / Total Revenues
- $+0.149 \rightarrow$ Recurring Revenues / Total Revenues

A.5 Interpretation

The first principal component (PC1) captures the main dimensions of financial sustainability, namely:

- capital solidity,
- liquidity,
- operating profitability,
- balance between costs and revenues.

Higher values of PC1 correspond to clubs characterized by stronger structural sustainability. Once normalized on a 0–100 scale, this component constitutes the *Football Sustainability Synthetic Index (FSSI)*.

Appendix B

Formulation and calculation of the CGDI

B.1 Purpose of the Indicator

The *Capital Gain Dependency Index (CGDI)* measures the structural dependence of a football club on capital gains generated through player trading activities. The index ranges between 0 and 1, where:

- 0 $\rightarrow$ the club's profitability is almost entirely generated by core operations (low vulnerability);
- 1 $\rightarrow$ the club's profitability depends strongly on capital gains from player trading (high vulnerability).

B.2 Variables Used

The construction of the CGDI is based on the following variables:

- Capital gains (€);
- EBITDA (€).

Before computation, the following data treatments were applied:

- negative capital gains were set to zero in order to avoid distortive effects;
- non-numeric values were removed;

- observations with EBITDA equal to zero were treated separately.

B.3 Index Formula

The Capital Gain Dependency Index is defined as:

$$CGDI = \frac{\text{Net Capital Gains}}{\text{EBITDA} + \text{Net Capital Gains}}$$

An automatic bounding rule was applied:

- values lower than 0 were set equal to 0;
- values greater than 1 were set equal to 1.

B.4 Methodological Procedure

The computation of the CGDI followed these steps:

1. **Conversion to numeric format** Capital gains and EBITDA were converted into numeric values, transforming potential errors into missing values.
2. **Treatment of negative values** Negative capital gains, typically related to accounting impairments or capital losses, were set equal to zero.
3. **Ratio computation** For each club-year observation, the ratio between capital gains and EBITDA was computed.
4. **Handling of boundary cases**
 - if $\text{EBITDA} = 0 \rightarrow \text{CGDI} = 0$;
 - if $\text{Capital Gains} > \text{EBITDA} \rightarrow \text{CGDI} = 1$.

B.5 Example of Empirical Results

Club	Year	Capital Gains	EBITDA	CGDI
Atalanta	2018	€23.9m	€51.7m	0.32
Atalanta	2020	€44.9m	€101.9m	0.31
Manchester City	2022	€139.9m	€217.8m	0.39

B.6 Interpretation

- High CGDI values (e.g. Milan = 1.00; Valencia $\approx$ 0.90) indicate a strong dependence on capital gains.
- Low CGDI values (e.g. Bayern Munich = 0.02; Real Madrid = 0.01) reflect business models mainly based on recurring revenues.

B.7 Usefulness of the Indicator

The CGDI is particularly useful for identifying:

- clubs with *apparent* financial sustainability;
- economically vulnerable business models;
- strategies heavily reliant on intensive player trading;
- risks related to volatility in the transfer market.

Appendix C

Methodological Validation and Robustness of the Indices (FSSI and CGDI)

C.1 Robustness of the PCA Used for the FSSI

The construction of the Football Sustainability Synthetic Index (FSSI) through Principal Component Analysis (PCA) was accompanied by a set of robustness checks, aimed at ensuring the statistical soundness and economic interpretability of the index.

Before applying the PCA, the following conditions were verified:

- the sample included at least five observations per variable;
- no perfect multicollinearity was present among the selected variables;
- the correlation structure among the five indicators was sufficiently strong to justify dimensionality reduction.

The correlation matrix confirmed an adequate level of interdependence between balance-sheet, profitability, and liquidity variables, satisfying the necessary conditions for the application of PCA.

C.1.1 Numerical Results of the PCA

As reported in Appendix A, the PCA produced the following results:

- five eigenvalues, strictly decreasing and none negative;
- the first principal component (PC1) explaining 42.73% of the total variance;
- the second component (PC2) explaining an additional 24.5%, confirming the presence of a meaningful latent structure.

The monotonic decline of eigenvalues is consistent with standard PCA diagnostics. Although PC2 also exceeds the Kaiser threshold (eigenvalue = 1.246), the FSSI is deliberately constructed on PC1 alone: the objective is a single ordinal ranking of financial sustainability, not a multi-component system. PC1 maximizes explained variance and carries a coherent economic interpretation (capital solidity, liquidity, and operating profitability) making it the most appropriate basis for a synthetic index.

The loadings associated with PC1 exhibit a coherent economic structure:

- positive coefficients for liquidity, capital solidity, and operating self-financing capacity;
- a negative coefficient for the incidence of staff costs.

This pattern confirms that PC1 captures a latent dimension that can be meaningfully interpreted as financial sustainability, rather than a purely statistical artifact.

C.2 Robustness of the CGDI

The construction of the Capital Gain Dependency Index (CGDI) presents specific challenges related to the high volatility of player trading activities. Several robustness checks were therefore implemented.

C.2.1 Treatment of Outliers and Extreme Values

To avoid distortions in the index:

- negative capital gains were set equal to zero;
- ratios exceeding unity were capped at 1;
- observations with EBITDA equal to zero were assigned a CGDI value of zero, in line with the economic meaning of the indicator.

These adjustments ensure comparability across clubs and seasons while preserving the interpretability of the index.

C.2.2 Intertemporal Consistency

The intertemporal behavior of the CGDI was examined to verify its consistency over time:

- clubs historically active in player trading (e.g. Milan, Valencia, Juventus) display persistently higher CGDI values;
- clubs characterized by strong commercial and operating revenues (e.g. Bayern Munich, Real Madrid, PSG) exhibit systematically low CGDI levels.

The resulting distribution confirms that the CGDI effectively captures structural dependence on extraordinary revenues rather than temporary accounting fluctuations.

C.3 Coherence Between FSSI and CGDI

In line with economic theory, a coherent relationship emerges between the two indices:

- clubs with high FSSI values tend to exhibit low CGDI scores;
- clubs with low FSSI values show significant dispersion in CGDI.

This relationship was verified through a joint graphical representation (scatter plot), confirming that the two indices measure complementary dimensions of financial sustainability: structural solidity and accounting vulnerability.

C.4 Methodological Limitations and Interpretative Precautions

Despite the robustness of the proposed framework, several limitations should be acknowledged:

- **Dependence on official financial statements:** accounting standards and disclosure quality may vary across clubs, leading to potential measurement biases;
- **Non-linearity of player trading:** capital gains are influenced by exogenous market dynamics and sporting outcomes;

- **Absence of qualitative variables:** governance quality, strategic decision-making, and reputational risk are not captured by the indices;
- **Sample size:** the analysis focuses on a limited number of clubs over a restricted time horizon, allowing for comparative but not exhaustive conclusions.

Notwithstanding these limitations, the joint use of FSSI and CGDI provides a robust, replicable, and analytically meaningful framework for assessing financial sustainability in professional football.

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