UNIVERSITY OF TURKU
Turku School of Economics

Private Equity Investments in Professional Sports: Effects on Capital Structure and Franchise Value

Evidence from European top five football leagues from 2015 to 2025

Department of Accounting and Finance

Master's thesis

Author:
Niko Saarinen

Supervisor:
D.Sc. Antti Fredriksson

5.6.2026

Turku

Student's statement regarding the use of Artificial Intelligence (AI) for preparing and/or writing this thesis:

☐ **I have not used any AI-based tools.**

☒ **I have used AI-based tools**. Their use is documented in the Appendix. The AI tools were used in a way that complies with academic integrity guidelines.

The originality of this thesis has been checked in accordance with the University of Turku quality assurance system using the Turnitin Originality Check service.

Master's thesis

Subject: Accounting and Finance
Author: Niko Saarinen
Title: Private Equity Investments in Sports: Effects on Capital Structure and Valuation
Supervisor: D.Sc. Antti Fredriksson
Number of pages: 102 pages + appendices 2 pages
Date: 5.6.2026

Abstract

This thesis examines how private equity (PE) investment affects the capital structure and valuation of professional sports franchises, using European professional football as the empirical environment. The study analyses financial data from clubs competing in the top five European leagues, meaning the Premier League, La Liga, Serie A, Bundesliga, and Ligue 1, over the period 2015 to 2025. The data includes 675 club-year observations across 76 clubs, of which 28 received private equity investment during the sample period.

The theoretical framework discusses the classical financial theories, including private equity theories, capital structure theories, and valuation theories, and discusses their applicability in the context of professional sports, where win-maximising objectives, regulatory constraints, and limited investment/exit opportunities create an institutional environment that differs substantially from traditional corporate settings. Three empirical methods are combined: comparative ratio analysis, two-way fixed effects panel regression models, and Difference-in-Differences estimation.

The results consistently show that PE ownership is not associated with statistically significant changes in leverage, franchise valuation, or operating profitability once club-level fixed effects, period trends, and control variables are accounted for. Raw comparisons suggest that PE-backed clubs carry higher debt and command higher valuations, but these differences disappear in the regression and Difference-in-Differences estimation, indicating that they reflect the selection of larger, more commercially developed clubs by PE investors and the general increase of football franchise values across the sample period, rather than ownership-driven effects. No evidence is found for leverage accumulation over the ownership period, for PE-driven value creation, or for improvements in operating margins.

The findings support the interpretation that PE investors in European football utilise minority equity stakes and growth-capital structures in their investments, leaving capital structure broadly unchanged and generating returns through industry exposure rather than through the financial engineering and operational restructuring, which is typical for traditional leveraged buyouts. The results of this thesis contribute to the literature of sports finance and private equity by demonstrating that traditional PE theories are not directly transferable to professional sports without accounting for industry-specific limitations.

Keywords: private equity, professional sports, capital structure, franchise value, profitability, European football

Pro gradu -tutkielma

Oppiaine: Laskentatoimi ja rahoitus
Tekijä: Niko Saarinen
Otsikko: Private Equity -sijoitukset urheiluliiketoiminnassa: vaikutukset pääomarakenteeseen ja arvostukseen
Ohjaaja(t): KTT Antti Fredriksson
Sivumäärä: 102 sivua + liitteet 2 sivua
Päivämäärä: 5.6.2026

Tiivistelmä

Tässä pro gradu -tutkielmassa tarkastellaan, miten private equity -sijoittaminen vaikuttaa urheiluorganisaatioiden pääomarakenteeseen ja arvostukseen. Empiirisenä ympäristönä tutkielmassa toimii eurooppalainen ammattijalkapallo, ja tutkimuksessa analysoidaan Euroopan viiden suurimman jalkapallosarjan, eli Premier Leaguen, La Ligan, Serie A:n, Bundesligan ja Ligue 1:n, seurojen taloudellista dataa vuosilta 2015–2025. Aineisto koostuu 675 seura-vuosi havainnosta 76 eri seurassa, joista 28 on ollut private equity -sijoituksen kohteena tarkastelujakson aikana.

Tutkielman teoreettinen viitekehys käsittelee klassisia rahoitusteorioita, joihin sisältyvät pääomasijoittamisen teoriat, pääomarakenteen teoriat sekä arvonmäärityksen teoriat. Näiden teorioiden soveltuvuutta arvioidaan urheiluliiketoiminnan näkökulmasta, missä taloudellisten voittojen sijaan tavoitellaan urheilullista menestystä, erilaiset säännöt ja sääntelyt rajoittavat liiketoiminnallisia toimia sekä rajalliset sijoitus- ja poistumismahdollisuudet poikkeavat merkittävästi private equity -sijoitusten perinteisestä kohdeympäristöstä. Empiirisessä analyysissä yhdistetään vertaileva tunnuslukuanalyysi, kaksisuuntainen kiinteiden vaikutusten paneeliregressio sekä erotusten erotus -estimointi kausaalivaikutusten tutkimiseksi.

Tutkielman tulokset osoittavat, että private equity -omistajuus ei ole tilastollisesti merkitsevässä yhteydessä velkaantuneisuuden muutoksiin, arvon muutoksiin taikka käyttökatemarginaalin muutoksiin, kun seurakohtaiset kiinteät vaikutukset, ajalliset trendit sekä kontrollimuuttujat on otettu huomioon. Pelkkien tunnuslukuvertailujen perusteella private equity -sijoituksen saaneilla seuroilla olisi enemmän velkaan ja korkeampi arvo kuin vertailuryhmässä, mutta nämä erot häviävät regressio- ja erotusten erotus -analyyseissä. Tämä viittaa siihen, että havaitut erot selittyvät private equity -sijoittajien taipumuksella sijoittaa valmiiksi suurempiin ja menestyneempiin organisaatioihin, sekä yleisellä jalkapalloseurojen arvonnousulla tarkastelujakson aikana, eikä private equity -omistuksesta johtuvilla vaikutuksilla. Tämä tutkimus ei myöskään löydä tilastollista näyttöä velkaantumisen kasvusta omistusjakson aikana, private equity -sijoittajien aikaansaamasta arvonluonnista eikä käyttökatemarginaalin paranemisesta.

Nämä tulokset tukevat tulkintaa, jonka mukaan private equity -sijoittajat hyödyntävät urheilusijoituksissaan vähemmistöosakkuuksia kasvupääomarakenteita mukaillen, ja jättävät pääomarakenteen pääosin ennalleen kerryttäen tuottoja toimialalle osallistumisen kautta pikemminkin kuin perinteisillä vipuvaikutukseen perustuvilla rahoitusjärjestelyillä taikka operatiivisella uudelleenjärjestelyllä. Tämän tutkielman tulokset täydentävät urheiluliiketoiminnan ja pääomasijoittamisen teoreettista viitekehystä osoittamalla, että perinteiset pääomasijoitusteoriat eivät ole suoraan siirrettävissä urheiluliiketoiminnan kontekstiin ilman toimialakohtaisten erityispiirteiden huomioimista.

Avainsanat: private equity -sijoittaminen, pääomasijoittaminen, urheiluliiketoiminta, pääomarakenne, arvostus, tuloksellisuus, Eurooppalainen jalkapallo

TABLE OF CONTENTS

FIGURES

TABLES

1 Introduction

1.1 Background and Motivation

Finance topics in the professional sports industry have become more significant than ever in recent years, as the revenues and valuations of major professional sports teams have grown substantially, which has been driven by the rapid growth of media rights, commercialisation, and sponsorship markets. According to Houlihan Lokey (2024, 14) and Kearney (2025), the global sports market is currently valued at over $400 billion, and it is projected to exceed $600 billion by year 2030. The world's 100 most valuable professional sports franchises are currently estimated to be worth at least $2 billion, with the Dallas Cowboys being the highest valued at approximately $12.8 billion (Sportico: Sports Franchise Valuations Interactive Database). As the market has evolved, professional sports have become a coveted asset class, with also institutional investors, including private equity firms and funds, interested.

Behind the increasing attraction of professional sports as an investment asset is a combination of rising valuations, the need for liquidity on the original market, and room for operational improvement and efficiencies (Le & Lynn 2020). Professional sports market can provide stable, uncorrelated, and non-cyclical returns due to for example loyal fan bases, steady revenue streams, and strong brand equity, which can provide protection during economic downturns (Reynolds 2024; Kearney 2025). This is supported, for example, by the historical performance of the Ross-Arctos Sports Franchise Index (RASFI), which shows that from Q1 1961 to Q1 2024, the RASFI index has delivered an annualised return of 13.09% with a volatility of 8.47%, exceeding the U.S. equity market's 10.54% annualised return and 18.82% volatility over the same period. Together with an attractive correlation profile, the long-term market performance of RASFI supports the argument of the industry's resilience in times of economic distress. (Arctos Insights & U. Michigan Ross 2024).

However, these potential returns and investment opportunities are only lately started to be utilised by private equity entities. The ownership of professional sports franchises has traditionally been the domain of wealthy individuals, families, communities, and, on rare occasion, corporate entities. Private equity investors first became significantly involved in professional sports in 2006, when CVC Capital Partners acquired a majority stake in Formula 1 for an estimated $1.7 billion. Later that same year, Colony Capital, Butler Capital and Morgan Stanley purchased a majority stake of French football team Paris Saint-Germain. From that point onward, private equity involvement in

the sports industry has started to grow steadily, although it remained mainly limited to European markets at first. (Idar Lee 2016; Coffey 2024; Reynolds 2024.)

In the United States, it wasn't until 2019 that private equity investors were allowed to invest in the major professional sports leagues. That year, the MLB (Major League Baseball) was first to allow minority private equity investments in its franchises. Since then, all major sports leagues in the United States have adopted similar rules, with MLS (Major League Soccer) and NWSL (National Women's Soccer League) allowing private equity investments in 2020, NBA (National Basketball Association) and NHL (National Hockey League) in 2021, and, most recently, NFL (National Football League) in 2024. (Reynolds 2024; Houlihan Lokey 2024, 24.) The opening of the U.S. professional sports market to private equity investment has led to an increase in the number of private equity investment deals, as currently 74 of the 154 teams in top five U.S. major sport leagues (NFL, NBA, MLB, NHL and MLS) have some form of private equity connections (PitchBook 2025).

Two main questions rise for discussion: why didn't private equity get involved in professional sports earlier, and why have the players in the sports market been so opposed to private equity investments? One of the braking forces until the 2000s was that the sports teams were simply too small for the private equity industry to care about, and private equity was focused on other markets (Coffey 2024). Once the professional sports market started to grow, the reluctancy to enter the market continued because of unfamiliarity of the industry. The professional sports industry includes unique risks and considerations such as sport performance, player injuries, and emotional equity, which could impact the performance of the investment, and private equity entities didn't have the knowledge to manage these. However recently, private equities have partnered with sports professionals to provide the qualifications to deal with these exceptional challenges presented by sports. (Browndorf 2021, 339–340.)

As was in the U.S. professional sports market, in many cases, the ownership rules restricted the involvement of private equity investors for a long time, and the relaxation of these restrictions grew the attention of professional sports investments for private equity investors. These rules were created to protect the sports teams and leagues from unwanted effects of private equity investment, that could contradict with the purposes of professional sports. The main challenge for the cross section of private equity and professional sports comes from the conflicting purposes: the nature of private equity investments are typically short-term investments with focus on quick financial profits and returns, while the interest of sports teams and fans are long-term with focus on sport

performance. Critics of private equity involvement in sports are often concerned that the investment can affect the competitive spirit of sports and turn the attention too focused on financial profit. (Reynolds 2024.)

Another big concern of the fans, teams and leagues has been the habit of private equity investors involving debt financing in their investments by utilising leveraged buyouts (LBOs). Critics are concerned that involving debt financing might increase the financial burden on the sports franchises potentially leading to financial instability of the franchise, and the cost of repaying and maintaining debt financing used in the deal could instead be invested directly into improving the team. (Foley & Lardner LLP 2020; Reynolds 2024.)

As we can see, the entry of private equity investors into professional sports franchises is still a relatively recent and highly relevant topic. Due to the recency of this phenomenon, there is only a limited amount of academic research done on the subject, especially concerning the financial implications of such investments. Several uncertainties still remain regarding how private equity participation influences the financial structure, stability, and performance of professional sports organisations, which this thesis aims to examine. The main objective of this thesis is to examine how private equity investment affects the financial position of professional sports franchises, and thus contributing to a better understanding of the broader financial effects and potential implications of private equity involvement in the professional sports industry.

1.2 Research Question and Objectives

This thesis examines the financial effects of private equity investment in professional sports franchises, using data from European professional football franchises, while at the same time contributing to a growing but still limited discussion of private equity investments in professional sports. In this thesis, the term ‘franchise’ is used to refer to a professional sports club as a commercial and financial entity, reflecting all the operations the club engages in also outside of the sports event. The focus is primarily on the financial impacts of the private equity investments, focusing on the effects to capital structure and valuation. The main research question of this thesis is:

> *How does private equity investment affect the capital structure and valuation of professional sports franchises?*

To examine this topic as comprehensively as possible, the main research question is divided into two sub-questions:

1. *How does private equity investment affect the capital structure and debt profile of professional sports franchises?*
2. *How does private equity investment affect the valuation and long-term financial performance of professional sports franchises?*

The first sub-question aims to examine what happens to the capital structure of the professional sports franchise following private equity investment. More specifically, it analyses whether private equity investment changes the capital structure of the franchise by, for example, increasing debt levels through leveraged buyouts. This question addresses one of the most important financial concerns of private equity investments in sports, as fans and franchise stakeholders have expressed their concern over the investment methods of private equity entities. Additionally, this sub-question aims to discuss whether possible changes in capital structure affect the franchises' financial risk profile, potentially making them more vulnerable to financial instability, such as during economic downturns.

The second sub-question focuses on whether private equity ownership leads to changes in the estimated valuation of the franchise. It examines if private equity ownership creates measurable financial value for the franchise, and if the long-term financial impacts of private equity involvement beyond immediate valuation changes, such as financial performance and profitability, increase the valuations in long-term. By linking these outcomes to the changes in capital structure and debt profile (examined in the first sub-question), this thesis aims to discuss the main financial effects of private equity investments on professional sports franchises comprehensively, and assess the overall value-creation potential of private equity investments in the sports industry.

This thesis aims to considers both the perspective of the private equity entity and the professional sports franchise, by providing valuable insights of private equity investments to investors, franchise managers and stakeholders, as well as fans. The thesis seeks to contribute to academic discussion by providing statistical evidence on whether private equity investments are connected to the capital structure and valuation of influenced sports franchises. At the same time, this thesis will also evaluate whether traditional finance theory can be applied in the context of professional sports by comparing the theoretical expectations to the empirical evidence gathered.

It is important to note that this thesis does not aim to assess team performance, sporting outcomes, or operational management in detail. While these factors can be influenced by financial performance of the franchise, and are mentioned also in parts of this thesis to support discussion,

the research and conclusions remain purely financial. Furthermore, this thesis is not a predictive investment guide, and should not be used as such. It is an academic discussion which does not provide investment advice or any forecasts on returns and valuations.

1.3 Research Methods, Scope, and Limitations

This thesis combines theoretical, comparative, and empirical approaches to address the key research questions. The research is designed to connect established finance theories with the relatively new phenomenon of private equity investment in professional sports.

The theoretical examination provides the conceptual framework around the analysis. It draws from corporate finance and private equity literature to interpret how private equity investment may influence capital structure, and valuation in general, and then applying it to professional sports industry. This thesis aims to comprehensively go over the existing related literature and research, however acknowledging that the existing literature and research in the topic is limited within professional sports. Thus, the theoretical examination requires the application of existing theories from the general finance studies to the professional sports industry. The objective is to advance understanding of these mechanisms in professional sports, contributing to greater interpretation of the research questions and the results.

The empirical analysis aims to identify whether private equity ownership is associated with measurable financial changes in the capital structure and valuation of sports franchises, using data from European professional football franchises. The comparative part of the thesis aims to identify the differences between professional sports franchises that have received private equity investment from those that have not, as well as observing financial changes within the same franchises before and after private equity investment. Together with each other, these analyses test the theoretical expectations using a real-world data and aim to validate or challenge the theoretical expectations using quantitative evidence.

The main empirical methods used in the empirical and comparative analysis include descriptive analysis, comparative ratio analysis, panel regression analysis, and Difference-in-Differences analysis. These methods were selected because they allow a comprehensive overview and assessment of how private equity investment affects the financial characteristics of professional sports franchises by describing and comparing key financial ratios between the private-equity-owned and non-private-equity owned franchises, testing whether private equity ownership has a

statistically significant effect on capital structure or valuation, and measuring the effects prior and post private equity investment.

The empirical analysis will utilise quantitative data sourced primarily from the Orbis Europe (Moody's Analytics 2026) database, and is complemented by secondary sources of data. The data, data sources and methodological choices for the empirical analysis will be described more in depth in Chapter 4.

The scope of this thesis is limited to European professional football franchises, and empirical testing will be done with teams from the top five European football leagues (Premier League (England), La Liga (Spain), Bundesliga (Germany), Serie A (Italy), and Ligue 1 (France)). These franchises are extremely relevant for this thesis as they represent the most commercially significant sports organisations in Europe, as well as highest sporting standards of their respective sport. Furthermore, the valuations of the franchises in these leagues are significant, meaning that private equity entities are interested in them. As discussed earlier, private equity was not interested in professional sports at first because the franchises were too small for private equity investors to care about, and thus it is beneficial to limit the scope on the most valuable franchises in the world. Each of these leagues has seen documented private equity involvement or interest, which makes them relevant for this research.

One of the influences on the scope of the thesis was the availability of public financial data. The financial data of the selected franchises are available relatively well for research purposes. It should also be noted that financial reporting standards may vary across countries and leagues, and some privately owned clubs may report only a limited financial information. Therefore, the dataset does not fully include every variable for every franchise, and the dataset does not include every franchise from above leagues, as the available data was incomplete. Also, in some cases, like the valuation data, the data is based on external estimates rather than disclosed market transactions, which may introduce measurement unreliability (for example, differences in valuation methods and models).

There are several limitations that needs to be considered when interpreting the results of the empirical testing and this thesis. Differences in structures, financial regulation, and revenue models between leagues may affect how comparable the results are between leagues, how well the results can be generalised to other professional sports. For example, the presence of cost caps, differences in league revenue distribution, or variation in the rules and restrictions of the private equity investments and ownership, can significantly influence club finances and how private equity owners can operate inside the club. In order to provide as comparable statistical data as possible, the testing

scope has been limited to European football franchises, which in nature operate in similar markets in compared to one another.

Since private equity investments into professional sports is a relatively new phenomenon, the available data may capture mainly early-stage effects rather than long-term impacts, which means that the long-term conclusions may not be fully reliable. With these limitations in mind, the thesis aims to provide well-reasoned and appropriately cautious conclusions. All limitations regarding the data and methods will be described more in depth in Section 4.4.

1.4 Structure of the Thesis

This thesis is organised into an introduction chapter, four treatment chapters, and a conclusion chapter, and all of these together contribute to a comprehensive understanding of how private equity investment affects the financial position of professional sports franchises.

Chapters 2 and 3 develop the theoretical foundation of the thesis. Chapter 2 presents the core theoretical frameworks, reviewing relevant literature and theories on private equity investments, ownership and capital structure theories, and valuation theory. Chapter 3 applies the theoretical discussion specifically to the professional sports industry by examining the economic characteristics of professional sports franchises, league structures and regulations. It also further discusses how these specialities affect capital structure, valuation, and private equity investment theories, and builds the expectations for the empirical tests.

Chapters 4 and 5 focus on the empirical and comparative analysis. Chapter 4 explains in detail the design of the quantitative research, including detailed description of data, variables and models used in the analysis. Chapter 5 presents the detailed results of the empirical analyses, as well as the interpretation of the results considering the theoretical expectations. Finally, Chapter 6 summarises the main findings and evaluates their implications for the research questions. It discusses how the results align with the existing finance and sports economics theories and highlights the contributions of this thesis for academics and industry stakeholders. It also reflects on the limitations of the research and proposes directions for future research.

The structure of this thesis has been designed to logically guide the reader from theoretical foundations to empirical analysis, providing continuing connection between the research questions and the results, where Chapters 2 and 3 provide the theoretical foundation to answer the research questions, while Chapters 4 and 5 empirically test these theories, and finally, Chapter 6 evaluates the answers to the research questions combining findings of all previous chapters.

2 Theoretical Framework

2.1 Theoretical Foundations of Private Equity Investments

This section introduces the theoretical foundation behind private equity (PE) investments and entities. It explains how PE firms operate, how investments are structured, and through what mechanisms private equity creates value. It also examines the role of leverage in the deals as well as risks and critiques associated with the investments. Understanding these mechanisms is essential for interpreting how PE ownership may affect the financial characteristics of a sports franchise.

2.1.1 Overview of Private Equity Investments and Entities

The term private equity generally refers to an asset class that provides capital to companies that operate outside the public markets. The most common types of private equity include venture capital, growth capital, buyout capital, mezzanine capital, and distressed debt. (Baker et al. 2015, 3; Gilligan & Wright 2020, 1–2.) However, the term private equity is often used to refer specifically to the market where institutional PE entities operate focusing on buyouts and growth capital. This definition separates private equity investments from the private debt instruments, and align private equity investments towards more mature companies with later-stage involvement, on contrary to venture capital, which is used to describe investments into companies in their early stages. (Gilligan & Wright 2020, 2.) This thesis will use this more specific definition of private equity which includes only buyout capital and growth capital, as the sports franchises that remain attractive to PE investors are mostly established, major franchises, which have established revenue streams, brand value, and physical assets, that make them more suited to buyout and growth capital than early-stage venture capital. Also, the focus will be on equity investments over debt instruments so that the ownership effects can be discussed.

In relation to the definition of private equity, the private equity firms are defined as institutional investors who buy stakes in private companies, as opposed to companies that have been listed on the public markets. They then aim to make profit by later selling these stakes for more than they initially invested in them. The profits are generally produced from capital growth, meaning the investors actively manage the acquired companies and aim to create value. (Gilligan & Wright 2020, 5–6.) The typical structure of a private equity fund is a limited partnership, where there is at least one general partner (GP), and at least one limited partner (LP). GPs are the managers of the PE fund, who are responsible selecting and managing the investments, whereas LPs are the investors in the fund, who provide a majority of the capital but have limited liability and no operational control

over the fund. GPs usually invest a small capital commitment (typically one to two percent) to the fund, which serves as an incentive for good performance together with other performance-based compensations, like carried interest. As GPs are fully responsible on the management of the investments, they usually have extensive knowledge in their investment area and proven ability to find opportunities to add value to their investments. (Nykyforovych Borysoff et al. 2024, 23–24; Kaplan & Strömberg 2009, 123–124.) The extensive knowledge requirement is especially relevant in investments to professional sports industry, where financial and operational dynamics, as well as the regulations and business culture differ a lot from traditional industries.

The typical lifecycle for a PE investment is around ten years, with some extensions up to a few years possible, depending on the fund (Nykyforovych Borysoff et al. 2024, 23; Kaplan & Strömberg 2009, 123). During this time the GPs follow a structured process where they look for investment opportunities, make the investments, manage the investments in order to create value through improvements, and finally exit the investments to return the capital to LPs (Folus & Bourton 2015, 215). However, it is worth noting that GPs have started to consider possibilities for even longer-term investments with different kinds of secondary market deals, where GPs shift their investments from the old funds into new funds (Shi 2022). This means that private equity funds are able and interested to invest into markets with less liquidity, and supports the growing interest in professional sports teams as potential investments for PEs, even though the exit opportunities in the market have traditionally been limited due to limited number of buyers and limited exit strategies (for example, it's very difficult for a PE investor to simply take a football club public). By shifting the investment between funds, the GPs can now utilise the full potential of their sports investment, while looking for the optimal time to exit the investment.

What motivates the LPs to invest in private equity investments is the high returns that PE funds aim to generate in order to compensate the illiquidity and risk associated with PE investments. However, the existing research of the actual returns the PE funds have been able to make has provided mixed results of the superiority of the returns compared to for example the stock market. For example, Kaplan and Schoar (2005) find that PE investors earn slightly less than compared to investing in the S&P 500 index net of fees, but if comparing the gross of fees returns, PE investors slightly outperform the S&P 500 index. Phalippou and Gottschalg (2009) examine similar results, finding that the PE investments net-of-fees return is lower than the S&P 500 index by 3% per year, and gross-of-fees return is higher than the S&P 500 by 3% per year. On the other hand, Harris et al. (2014) find that the PE returns have outperformed the S&P 500 also net of fees. The disagreement between these studies is partly explained by methodological differences. Kaplan and Schoar (2005)

and Phalippou and Gottschalg (2009) use the Venture Economics dataset, which is based on voluntary reporting from PE firms and investors, while Harris et al. (2014) use a newer dataset from Burgiss that is sourced from institutional investors, which they argue gives a more accurate picture of PE returns. The studies also use different methods to treat unrealised fund values and risk adjustments, which explains why the results are not consistent. For this reason, conclusions about PE returns should be interpreted with some caution, particularly when general findings are applied to a specific context like professional sports.

Putting aside the mixed results on net-of-fees results in the existing research, the agreeing view between the studies is that the gross-of-fees returns outperform the public markets, which indicates that the GPs can actually create some value within their investment processes. This makes the empirical examination of valuation effects in Chapter 5 especially relevant.

2.1.2 Private Equity Investment Process

As described in Section 2.1.1, the private equity investment process consists of looking for investments, making the investments, managing the investments, and exiting the investments. In this section, I will explain this process more in detail, by looking at how the investments are chosen, what are the ways they are managed, and how they can be exited.

PE firms look for investment opportunities through a process known as deal sourcing, which can happen either directly or through intermediaries. Direct deal sourcing means that PE investors directly approach investment targets or hear of the opportunity through their own network, in contrast to intermediaries, such as investment banks, who often offer the deals to multiple PE investors causing competition. PE investors consider direct deal sourcing a key driver of value creation, because they allow lower entry prices. In practice, the deal sourcing process is very selective, as the average PE investor only investigates around 15 out of every 100 opportunities in detail. When selecting the investments, PE investors consider the business model and competitive position of the target company as the most important factors. Other important factors they consider are the quality of the management team, their own ability to create value, and the valuation of the target company. Interestingly enough, the industry and the portfolio fit of the target company are considered less important, suggesting that PE investors focus more on company-specific indicators than industry-level factors. (Gompers et al. 2016, 463–464.) These observations from Gompers et al. help explain why professional sports have become more attractive to PE investors in recent years. Sports franchises often have strong brand recognition, loyal fanbases, and significant commercial growth potential, which can make them attractive to the PE investors from the business

model perspective, even though they operate in an industry where PE involvement has been traditionally minimal.

Related to the deal sourcing and selection procedure, the PE investors go through a due diligence process in order to ensure that they know exactly what kind of investment they are getting into. The process aims to identify the potential risk related to the investment as well as what the possible return opportunities look like. It includes for example understanding the operations, financials, environment, and structure of the organisation. (Sharma & Prashar 2015.) A good due diligence is very important because, as was seen previously by Gompers et al. (2016), the PE investors prefer to focus on the company-specific indicators as they look for potential investments, meaning that in order to actually find value creating potential in these, the due diligence process must be extensive.

Once the investment is done, the investors are trying to manage their investments in order to create as much value as possible before exiting the investment. The value creation is typically done by applying financial, operational, and governance changes into the acquired firms. These changes can include for example optimising management incentives and leverage levels, introducing cost-cuts and productivity improvements, or changing the management and acquiring board seats. (Kaplan & Strömberg 2009, 130–132.) Gompers et al. (2016, 465) find that the growth in the underlying business value and operational improvements are considered the primary return drivers for PE investors, where as leverage and investment timing are seen as lower return drivers, which suggests that PE investors are more focused on actually improving the businesses than simply relying on financial engineering or buying cheap and selling high. For sports, this could indicate that the investors could be motivated by the opportunity to grow the value of the team, whether it means focusing on improving the operational performance or sporting performance, rather than extracting returns for themselves by leverage or other ways of harming the main reasons of existence of sports teams. The value creation mechanisms in private equity investments and their implications are discussed more in Section 2.1.4.

When the investment period begins to arrive to its maturity, the investor starts to look for an exit. The most common exit strategies include selling the investment to a strategic buyer, selling to another PE fund in a secondary buyout, or doing an initial public offering (IPO), where the underlying investment is listed on a public stock exchange. Sale to a strategic buyer, meaning a non-financial buyer such as company or individual with interests in the industry, is generally the preferred exit strategy because it offers quick and efficient process with usually the highest sale price. Secondary buyouts are the next most common exit strategy, also offering fast sales and

flexibility in the structure of the sale. IPOs follow these, but are slightly less common due to their higher costs and longer processes. In addition to these three most common exit strategies, other less common strategies, such as recapitalisation or selling to the management exists. (Kaplan & Strömberg 2009, 128–130; Folus & Bourton 2015, 218–221.) If the investment has not gone as planned, the exit could happen by declaring bankruptcy. However, Kaplan and Strömberg (2009, 129) find that the annual default rate of in private equity investments was lower than average default rate of all U.S. corporate bonds issuers. In professional sports, exit options are considerably more limited than in traditional PE investments. The small number of potential buyers, league ownership requirements, and reputational considerations associated with sports ownership make exits more complex and time-consuming than in traditional industries, and IPOs remain extremely rare (see discussion in Section 3.3). This highlights the relevance of continuation funds discussed in Section 2.1.1 as a potential mechanism for extending holding periods until suitable exit conditions emerge. The limited exit options may also affect how PE investors behave during the holding period. If the most realistic exit is selling to another financial investor at a higher valuation, the PE investor may focus more on growing the club's valuation rather than quickly extracting cash out of the club.

2.1.3 Growth Capital and Leveraged Buyouts (LBOs)

As discussed earlier, private equity investments can take many forms depending on the target company, investment structure, and return strategy of the investment. For the purpose of this thesis, two deal types are more relevant than others: leveraged buyouts (LBOs) and growth capital. LBOs are relevant because they represent the classical PE investment structure that also raises the most concern in professional sports with debt-loading potential. Growth capital represents the minority investment possibility of the private equity investments, as the presence of minority PE positions in the market alongside majority stakes suggests that not all PE investors seek full control. For example, the league restrictions or the general unwillingness of existing owners to sell full control may restrict majority investments. Next these deal types are introduced more deeply, as understanding the differences between these is important for the evaluation of how PE investments are done in professional sports.

In LBO, the private equity fund uses a relatively large portion of debt to finance the deal with only a small portion coming from equity. The typical portion of the debt can be between 60 to 90 percent, and is provided by a bank or an investment bank. The deal is usually constructed in a way that the PE investor acquires a majority stake in the investment, and then restructures the capital structure of

the investment to the same structure that was used in the acquisition. (Kaplan & Strömberg 2009, 121, 124; Rauch & Umber 2015, 66, 71.)

One of the ideas behind the debt financing is to increase the equity returns. This can be done via tax shield effects, where the tax-deductible interest expenses shield some of the firm's cash flow from being paid as taxes, contributing to a higher overall free cash flow to the firm. Another reason for the debt financing is that while the company pays off the debt back to the lenders, the equity stake of the deal becomes more valuable over time, which also increases the equity returns. (Rauch & Umber 2015, 66–67.) Kaplan and Strömberg (2009, 130–131) also argue that higher leverage is used as a management control by applying pressure on them to not waste any money so that they can make the interest and principal payments for the loans. However, Kaplan and Strömberg also argue that excessive leverage also carries significant risks, where the debt could become a burden if mandatory interest and principal payments leave the company without any financial flexibility.

In professional sports, the risks of excessive leverage could be very significant if realised because the revenues of sports clubs are highly dependent on sport performance and thus can experience some volatility based on the results. Mandatory debt payments in these circumstances could force the clubs to cut from investing in the sport performance, which would damage fan relationship and club reputation, or in the worst case drive this behaviour into a cycle, where cutting from sport performance leads to even bigger financial problems and even less focus on sports. This directly reflects the concern of overleveraging associated with LBOs that the professional sports business has with PE investments, and what motivates the first research sub-question of this thesis, which examines whether PE ownership affects the capital structure of professional sports organisations. If PE investors in sports were using a LBO styled financing, it would be expected to observe significantly higher leverage ratios in PE-backed clubs relative to non-PE clubs, which is tested in Chapter 5.

Growth capital represents a different kind of investment structure from LBOs. It refers to the middle ground between early-stage venture capital and full acquisitions of LBOs, where the investment target is already an established company but needs equity financing to drive growth and expansion. Rather than acquiring a controlling stake through debt financing, the growth capital investors typically acquire minority stakes while providing fresh equity funding without restructuring the target company's capital structure by increasing debt. (Ritter 2015, 482, 484–485.) However, because the investments are typically minority positions, the problem for the investor is that they do not have the same level of operational control as the majority owner has. Thus, they would need to

rely on different rights they negotiate as part of the deal, such as board seats and information rights, if they want to actively influence and grow their investment. This would include a risk for the investors, as if the invested business starts to develop in the wrong direction, they might have difficulties with being able to make changes and turn it around.

Given the characteristics of both growth capital and LBO, growth capital is likely to be the more applicable PE investment structure in the context of professional sports. With professional sports leagues in many countries having ownership restrictions and approval requirements, as well as the general unwillingness from existing owners to fully sell the clubs (see discussion in Section 3.3), PE investors in theory could be more likely to enter the market via minority investors. In theory, this could also be the more accepted PE investment type to professional sports by general public. If PE investors provide fresh equity rather than financing the deal with debt, the common public concern of overloading the teams with debt may not be fully relevant in this context. A minority growth capital investor may not have the same control to restructure the clubs leverage levels as a majority LBO investor would.

The data this thesis uses, as described in Section 5.1, shows that the median PE investment stake in the PE deals of the top five European football leagues is approximately 45%, with average stake of 50%, which suggests that both minority and majority positions are present in the market. This makes the financial effect of the PE ownership difficult to predict from theory alone, which directly motivates the first research sub-question of this thesis and the empirical analysis in Chapter 5.

2.1.4 Value Creation Mechanism in Private Equity

As briefly introduced in Section 2.1.2, the private equity investors usually apply a series of managing activities in order to create value for the underlying company that will realise as returns when exiting the investment. The activities can be categorised in financial, governance, and operational changes (Kaplan & Strömberg 2009, 130). Understanding the value creation mechanisms of PE investments is very important in relation of the value part of this thesis, and is necessary for the evaluation of PE ownership effects on the professional sports franchises, contributing directly to the second research sub-question, which focuses on whether there is measurable valuation impact associated with the PE investment.

Financial engineering refers to the actions done via the financial structure of the company and relate closely to two main topics: management incentives and leverage. The PE investors want the management to be as committed to the value creation process as possible, so they usually require

the management to make an equity investment into the company as well as give the management an equity upside through performance related stock and option incentives. The idea is to tie the management into an illiquid equity upside or downside, which reflects the performance of the management and reduces the management incentive to drive short-term results over long-term value creation. (Kaplan & Strömberg 2009, 130–131.) Gompers et al. (2016, 461–462) find that PE investors allocate on average 17% of company equity to management and employees, with CEOs receiving approximately 8% on average. With leverage, the PE investor tries to optimise the capital structure of the company. The leverage serves as an incentive to the management to not waste any money as interest and principal payments must be met. (Kaplan & Strömberg 2009, 131.) The leverage also creates value through increasing equity returns via tax shield effects and debt payoffs, as discussed in Section 2.1.3 (Rauch & Umber 2015, 66–67). Considering the deal type, financial engineering is most effective in majority LBO context, where PE investors have the control over the capital structure of the investment company.

Governance engineering refers to the improvements PE investors make to the control and management structures of their portfolio companies. Jensen and Meckling (1976, 305, 308) argue that the separation of ownership and control in companies creates agency costs, which are situations where managers act in their own interests rather than in the interests of owners. PE investors try to limit these agency costs by controlling the boards of the investment companies and being actively involved in the governance of the company. In addition to that, the PE investors are not afraid to replace poorly performing management when necessary. (Kaplan & Strömberg 2009, 131–132.) Gompers et al. (2016, 461–463) support this by showing that PE investors typically take around three board seats in their investment companies and end up replacing the senior management team in around 50% of investments. Governance engineering could be one of the most potential ways for a PE investor to create value in a sports franchise, which have historically been informal and family-owned with limited professional management. By bringing professional board structures and management incentives, PE investors could create significant value in the commercial and financial management of the club. However, the effectiveness of the governance engineering is also related to the ownership stake, as a minority PE investor may find difficulties in applying certain activities if the majority owner restricts. This means that the effectiveness of the governance engineering may be more limited in practice than theory suggests.

Operational engineering refers to the actions that lead into direct improvements in the company's business operations. These might include for example cost-cuts, productivity improvements, strategy changes or operational repositioning. The PE investors use their own knowledge and

experience from the industry and from previous operating improvement projects to appropriately assess the necessary actions, which is why many PE funds focus on specific industries. (Kaplan & Strömberg 2009, 132.) Acharya et al. (2013) show evidence that PE investors can create value through operational improvements, more specifically finding that PE ownership is associated with average EBITDA margin improvements. This directly motivates the association of profitability with value improvement in the second research sub-question, and motivates the empirical analysis of profitability with EBITDA margin in Section 5.3.4.

Gompers et al. (2016, 465–466) find that PE investors consider growth in the business value as a return driver in 100% of their deals, and operational improvements in 97% of their deals, making these the two highest ranked return drivers. However, the multiple arbitrage and leverage rank lower at 76% and 65%, which supports the view that PE investors are more focused on actually improving the businesses rather than relying on financial engineering or market timing. The same study examines the expected sources of value creation from PE investors pre-investment, finding that improving the management incentives is expected to create value in 61% of deals, improving corporate governance in 47% of deals, increasing revenue in over 70% of deals, and reducing costs only in 36% of deals. These figures show that revenue growth and operational improvement are more important in PE investors' pre-investment value creation strategy than cost-cutting or capital structure adjustments. For professional sports, this is a meaningful observation, as it would suggest that PE investors entering sports industry could primarily target commercial growth and operational improvements rather than aggressive debt loading or cost reductions.

2.1.5 Risks, Constraints, and Critiques of Private Equity

One of the most common critiques of private equity investments is short-termism, which suggests that PE-backed firms prioritise short-term financial gains over long-term investment. The critics argue that PE is essentially about cutting jobs, stripping assets and driving up the exit returns coming in short-term. However, even though some investments do utilise these kinds of shock activities to deal with underperforming companies, PE deals vary in terms of strategies and timelines, and thus it would be too simplistic to apply this criticism into majority of PE deals. (Gilligan & Wright 2020, 282.) As discussed in Section 2.1.4, the empirical evidence from Gompers et al. (2016, 465) also supports this view, as PE investors rank growth in the underlying business value and operational improvements as more important return drivers than leverage or financial engineering. Lerner et al. (2011) further find that the level of patenting does not decline after PE investments, which suggests that innovation activity is not sacrificed under PE ownership,

and is inconsistent with the strict short-termism critique. From the employment side, Kaplan and Strömberg (2009, 133–134) note that the political costs of excessive job and wage cuts would be greater than the potential operating improvements, and the empirical evidence rather suggests that employment still grows, but at slower rate compared to similar non-PE firms.

Another widely discussed concern is over-leveraging. Critics argue that PE investments are often completed with too high debt levels that result in significant risks for wider stakeholders, such as employees and creditors, who are not able to benefit from the increased rewards associated with the increased risk levels. (Gilligan & Wright 2020, 284.) However, the empirical evidence is mixed. Kaplan and Strömberg (2009, 129) find that the annual default rate of private equity investments was lower than average default rate of all U.S. corporate bonds issuers. In more recent studies, Ayash and Rastad (2021) find that the 10-year bankruptcy probability for LBO invested firms is 19.9% compared to 2.0% for the control group, which supports the over-leveraging critique. On the other hand, Hotchkiss et al. (2021) find that once the leverage at the time of borrowing is controlled for, PE-backed firms are not more likely to default than other firms with similar capital structures, which suggests that the higher bankruptcy rates may reflect the higher leverage itself rather than something specific about PE ownership. They do however note also that as PE investors typically use higher leverage in the acquisitions, these firms are in general at a greater risk of default.

Both of these critiques are relevant for the professional sports context. The short-termism concern is meaningful because sports clubs usually depend on long-term investments such as youth academies, stadium infrastructure, and squad development, especially for the generation of sporting results. A PE investor who is looking to maximise their value in under ten years, may not have the proper incentives to develop these kinds of aspects, and could leave the club without future plan when exiting. It is also important to note that while the evidence from Lerner et al. (2011) regarding patenting might be a useful indicator for innovation in technology-intensive industries, it may not be a totally comprehensive indicator in more service-based industries such as professional sports, which give the critique more relevancy in this context. The over-leveraging concern is relevant because the revenues and cash flows are influenced by for example sporting performance, which makes them sensitive for high debt levels. Alaminos and Fernández (2019) show that high leverage and low liquidity are among the most important predictors of financial distress in European football clubs, which confirms the relevancy of the concern in professional sports. These concerns directly motivate the research questions of this thesis and the empirical analysis in Chapter 5.

Beyond these two financial critiques, the agency conflicts between PE owners and broader stakeholders such as fans, leagues, and local communities are also a meaningful concern worth noting, and is discussed in more detail in the context of agency theory in Section 2.2.5.

2.2 Capital Structure Theories and Ownership Considerations

This section focuses on capital structure theories and ownership considerations. It presents and evaluates the classical theories that explain why firms choose specific combinations of debt and equity, including Modigliani-Miller Framework, trade-off theory, pecking order theory, and agency theory. This section also discusses the determinants of capital structure. These theories directly support the first research sub-question of this thesis by providing theoretical foundation for analysing how private equity involvement affects leverage, financial risk, and overall capital structure decisions.

2.2.1 Introduction to Capital Structure

Capital structure refers to the mix of debt and equity that a firm uses to finance its operations and investments (Myers 2001; Brealey et al. 2023, 459). Debt is money the firm borrows and has to pay back, usually with interest and before paying to equity holders, like bank loans and bonds. Equity is money invested in the firm in exchange for ownership, and equity holders get whatever is left over after debt holders are paid. Different capital structure theories try to explain whether there is an optimal balance between debt and equity financing, and what kind of things affect it and financing decisions in general. The decision between debt and equity financing is an important topic in corporate finance because it is directly linked to topics like cost of capital, financial risk, and valuation. In theory, debt financing is less expensive than equity financing because interest payments are tax deductible and debt holders require lower returns due to lower risk. However, too much debt can increase the financial risks of the company as interest and principal payments must be made regardless of the performance of a company.

Despite extensive research, Myers (2001) argues that there is no universal theory of the debt-equity choice and no reason to expect one, but rather many useful conditional theories that each focus on a different aspect of the financing decision. This thesis will focus on those theories that provide the most relevant theoretical base for examining capital structure effects of PE investments in the professional sports franchises. The Modigliani-Miller framework, introduced in Section 2.2.2, provides the theoretical starting point by examining capital structure under perfect market conditions, where the choice between debt and equity has no material effect on the value of the

firm. This is extended with the trade-off theory in Section 2.2.3 by considering the balance between the tax benefits of debt and the costs of financial distress. Next, the pecking order theory in Section 2.2.4 focuses on how information asymmetries between managers and outside investors shape financing decisions. Finally, the agency theory in Section 2.2.5 examines how conflicts of interest between owners and managers, and between owners and creditors, influence capital structure decisions. While these theories differ in their assumptions and focus, they can also be seen as complementary approaches that explain different aspects of firms' capital structure decisions.

Capital structure is particularly relevant for this thesis because private equity ownership has historically been associated with significant changes in leverage, especially in the context of LBOs discussed in Section 2.1.3. Professional sports franchises are also an interesting setting for testing capital structure theories, as they operate with financial structures that are particularly sensitive to changes in leverage due to dependence on for example sporting performance and broadcasting cycles (see discussion of revenue and result volatility in Section 3.2). The theoretical frameworks introduced in the following subsections directly support the first research sub-question of this thesis and provide the foundation for interpreting the empirical findings in Chapter 5.

2.2.2 Modigliani-Miller Framework

The Modigliani-Miller theorem, introduced by Modigliani and Miller (1958), is the foundation of modern capital structure theory. In their original paper, Modigliani and Miller argue that under perfect market conditions, the value of a firm does not depend on its capital structure. This result is achieved within strict market assumptions, like no taxes, no transaction costs, equal information between managers and investors, and the ability of all investors to borrow and lend at the same interest rate as firms. (Modigliani & Miller 1958.) These assumptions are not realistic in practice, but the purpose of the theorem is not to describe the real world, but rather give a baseline that helps to identify which factors actually matter for capital structure decisions, and where later theories can build on (Myers 2001).

The main result of the Modigliani-Miller theorem is known as Proposition I, which states that the total value of a firm is determined by its assets and operating cash flows, not by how these assets are financed, i.e., the capital structure of the firm. The idea behind Proposition I is that in a perfect market, investors can adjust their own portfolios to replicate or undo any financing choice made by the firm: for example, if an investor wants more leverage than a firm provides, they can borrow money and use the money to buy more shares, and if they want less leverage, they can hold both shares and bonds of the firm, so the bonds cancel out the firm's debt. Because of this ability of

investors to create their own preferred leverage level at the same cost as the firm, the firm-level financing decisions cannot create or destroy value. (Modigliani & Miller 1958.)

Modigliani and Miller (1958) also introduce Proposition II, which examines what happens to the cost of equity when a firm uses debt in its capital structure. Proposition II states that the expected return required by equity holders rises linearly with the firm's debt-to-equity ratio. The idea behind this is that when a firm takes on more debt, the equity of the firm becomes more risky as debt holders get paid their interest before the equity holders get anything. To compensate for this higher risk, equity holders demand a higher return. In this sense, Proposition II is the same result as Proposition I, just shown from a different angle, where the benefits of using cheaper debt is cancelled by the demand of higher equity returns, which keep the overall cost of capital of the firm constant no matter how much debt is used. (Modigliani & Miller 1958; Brealey et al. 2023, 466–467.)

Since the assumption of no taxes is unrealistic, Modigliani and Miller extended their framework to include the effects of corporate income taxes already in their 1958 paper but later returned to this question with corrections in Modigliani and Miller (1963), which includes the final version Modigliani-Miller theorem with taxes. The idea comes from tax benefits of the debt: in most countries, interest payments on debt are tax-deductible for the firm, while payments to equity holders such as dividends are not. This means that when a firm uses debt, part of the firm's cash flows is shielded from corporate tax, and this saving has value. As a result, the value of a firm that uses debt to finance its assets and operations is no longer equal to the value of an identical firm with no debt, as Proposition I would predict, but is instead higher due to the value of the interest tax shield. Thus, the conclusion of Proposition I changes in an important way: capital structure is no longer irrelevant for firm value, and using debt actually creates value through the tax shield. This would suggest that firms should finance themselves with as much debt as possible to maximise their value. (Modigliani & Miller 1963; Brealey et al. 2023, 486–490.) However, Modigliani and Miller (1963) themselves note that extreme conclusion of aiming for 100% debt rate is not realistic, as in practice there are several other factors, such as the limitations imposed by lenders and the need for financial flexibility, that prevent firms from using maximum levels of debt. These additional considerations are important to the theories discussed in the following sections.

The Modigliani-Miller theorem is directly relevant to the discussion of private equity investments, where the use of debt was identified as one of the main characteristics of the classical PE investment structure. As discussed in Section 2.1.3, leveraged buyouts typically include large

amounts of debt financing. According to Modigliani and Miller Proposition I, in a world without taxes, this debt financing should not increase the value of the target company. However, once corporate taxes are introduced in the Modigliani and Miller (1963) framework, debt financing becomes more attractive because interest payments create tax savings through the interest tax shield, which can increase the value of the target firm and improve the equity returns of PE investors. This idea connects directly to the discussion of financial engineering in Section 2.1.4, where the tax shield effect was identified as one of the main ways in which PE investors can create value through leverage. The Modigliani-Miller theorem with taxes therefore provides the theoretical foundation for why PE investors might prefer LBOs and the use of debt in the PE investment strategies.

Applying this framework to professional sports raises important questions. On one hand, the Modigliani-Miller theorem with taxes predicts that PE-backed franchises should carry higher debt levels than non-PE franchises, as PE investors would have an incentive to add debt to the club's capital structure in order to maximise the tax shield benefits. On the other hand, professional sports clubs and investments differ from typical corporate targets in several important ways that may limit the applicability of Modigliani-Miller theorem, for example the common nature of minority investments discussed in Section 2.1.3 could indicate that the restructuring of club’s capital structure can be difficult and tax shield benefits could remain unobtained. These are important notes that will be considered together with other capital structure theories in following sections and Section 3.4 to build the expectations about what should happen to the capital structure of professional sports clubs after PE investment, as well as interpreting the empirical results in Chapter 5.

2.2.3 Trade-off Theory

Trade-off theory examines a key continuation from the Modigliani-Miller framework discussed earlier by examining the question of why do firms not finance themselves almost entirely with debt, if the tax shield is so valuable. The theory was formally introduced by Kraus and Litzenberger (1973), who added corporate taxes and bankruptcy penalties into a valuation model and showed that the market value of a levered firm is the sum of its unlevered value and the present value of tax savings, minus the present value of expected bankruptcy costs. The main idea is that when a firm adds more debt, it generates more of the interest tax shield, but at the same time faces a higher probability of being unable to meet its debt obligations, and thus experiences financial distress. The firm reaches its optimal capital structure when borrowing one more unit of debt brings as much

extra tax benefit as it brings extra distress cost, so that no further gain in firm value is possible (Brealey et al. 2023, 504). Trade-off theory therefore builds on the tax logic of Modigliani-Miller framework but solves its main weakness: rather than predicting that firms should hold as much debt as possible, it suggests a clear optimal debt level.

In order to comprehensively understand the trade-off happening, it is necessary to look more closely at what financial distress means in this context. Financial distress is not necessarily the same as bankruptcy: it refers to any situation in which a firm has difficulties meeting its obligations to creditors, and the associated costs rise whether or not formal bankruptcy takes place. Direct costs are the legal and administrative expenses of the bankruptcy process itself, such as lawyer and court fees, whereas indirect costs include the agency, monitoring and contracting costs that erode firm value when creditworthiness is in doubt. (Myers 1984, 580; Brealey et al. 2023, 492–497.) Two predictions come out of this: first, firms with more volatile cash flows should use less debt, because for them the probability of ending up in distress is higher at every debt level, and second, firms whose value is mostly tied to intangible assets and future growth opportunities should also borrow less than firms with tangible assets that have active second-hand markets, since intangible assets tend to lose much more of their value when a firm is in trouble (Myers 1984, 580; Myers 2001, 91).

The trade-off theory described so far is the static version of the theory. Here the firm is assumed to have one optimal debt ratio, which comes from the balance between tax benefits and distress costs, and if there were no frictions the firm would simply stay at this point. In practice this is not what happens because changing the capital structure is costly, so a firm rather moves toward its target little by little, and random events keep pushing it away again. The theory therefore does not say that every firm sits exactly at its optimum all the time but rather that the actual debt ratios should be scattered around the target level. (Myers 1984, 577.) A good example of this mixed evidence is the study by Fama and French (2002, 23–25), who tested whether leverage moves back towards a target debt ratio. They found that firms seem to adjust towards a target debt ratio, which supports the trade-off theory, but the speed of adjustment is slow with only about 7-18% per year. They also pointed out that such slow adjustment speed is difficult to interpret, because a pecking-order world (introduced in Section 2.2.4) without any target can produce data that looks similar, because firms' cash flows are correlated over time. Their conclusion was therefore cautious: the evidence on moving back towards the target can be read as support for the trade-off theory, but it does not clearly rule out the alternative explanations. There are also other problems that trade-off theory cannot answer and this is part of the reason why the alternative theories in the following subsections were developed. For example, the trade-off theory predicts that more profitable firms should carry

more debt, because they have more income to shield from taxes and a lower risk of distress, but Fama and French (2002, 20–22) found the opposite. They observed that more profitable firms consistently had less debt, which would suggest a failure of the trade-off model, and would rather be what the pecking order theory would predict.

Trade-off theory connects naturally to private equity and professional sports. Building from the discussion in Section 2.2.2 where relevance of Modigliani-Miller framework was discussed, the same ideas hold: PE investors typically use LBOs in which a large share of the purchase price is financed with debt, and one of the motivations for this is the interest tax shield. Now, while a PE owner moves the firm towards the optimal side of the Modigliani-Miller framework by adding debt, the higher leverage also increases the probability of financial distress and raises the expected costs. For a normal PE target, with stable cash flows and tangible assets, the expected distress costs may remain low enough that high leverage is still considered the optimal solution, but for a professional sports team, where cash flows and assets can experience variation in value from season to season (see discussion Sections 3.2), the expected distress costs may be very high and thus bring the optimal leverage level lower. Alaminos and Fernández (2019) show evidence that the best predictors for football clubs are low liquidity, high leverage and poor sporting performance. However, it is interesting to note that they also show that the clubs in their sample operate with high leverage levels (Total Liabilities / Total Assets), which would contradict the prediction that high financial distress costs should hold leverage down. However, this measure includes all liabilities, not only financial debt, including operating items such as transfer fees owed to other clubs and wages payable that are typical in the sports franchises. This is why debt ratios in this thesis are calculated by using the financial debt amounts separated from total liabilities in order to capture the true PE effects on financial debt.

With all these things in mind, trade-off theory may in fact predict a lower additional leverage in PE-backed football clubs than in typical private equity targets because the financial distress costs build up quickly in football. If this reasoning is correct, the prediction from the Modigliani-Miller framework with taxes, that PE-backed clubs should carry higher leverage, may be weakened or even offset once distress costs are taken into account. This could provide an explanation if private equity ownership shows no clear effect on leverage at all, and together with the Modigliani-Miller framework it motivates the first research question and whole empirical examination of the real-world PE ownership effects on the capital structure of professional sports franchise.

2.2.4 Pecking Order Theory

The pecking order theory offers a different way of thinking about financing choices than the trade-off theory, where instead of balancing the tax benefits and distress costs of debt to find an optimal debt ratio, it argues that firms follow a financing hierarchy: they prefer internal funds first, then debt, and only issue equity as a last resort (Myers 1984, 581; Brealey et al. 2023, 508). Even though some empirical evidence was observed already a bit before Myers (1984) paper, Myers is considered to have formally introduced the pecking order theory and setting it against the trade-off theory as a competing explanation of financing behaviour. The idea behind this hierarchy comes from asymmetric information, which means that managers know more about the firm's true value and prospects than outside investors do, and it differs from trade-off theory because it doesn't suggest any optimal target debt ratio, as there are now two types equity: internal equity financing at the top of the hierarchy and external equity financing at the bottom. (Myers 1984, 581–585; Brealey et al. 2023, 505–508.)

The asymmetric information problem behind the financing hierarchy is modelled by Myers and Majluf (1984). They assume that managers act in the interest of existing shareholders and know more about the true value of the firm than the market does, and if managers know the firm is undervalued and issuing new shares would mean selling them too cheaply, a large enough loss could make the managers skip a profitable investment instead of issuing underpriced shares. The investors on the other hand understand this logic and think that a firm that chooses to issue equity to the market is more likely to be overvalued than undervalued, so the announcement of a stock issue is treated as bad news and the share price falls. (Myers & Majluf 1984, 188–189, 203.) This is what makes equity the most expensive and least preferred source of external finance, whereas debt does not suffer from the same problem, because the value of debt barely changes when the asymmetric information is revealed, and thus sends a much weaker negative signal. Internal funds avoid the problem completely, since no security has to be sold and no signal is given at all. (Myers 1984, 584–585; Brealey et al. 2023, 505–508.)

The pecking order theory gives a clear prediction about profitability that was already mentioned in Section 2.2.3 as a problem for the trade-off theory. Because profitable firms can finance their investments from internal funds, they have less need for external debt and equity, so the theory predicts that more profitable firms should borrow less, and thus carry less debt in their capital structure (Brealey et al. 2023, 508). This is exactly what Fama and French (2002, 20–22) found in their study: more profitable firms consistently had lower leverage, which fits the pecking order

theory but contradicts the trade-off theory. However, Fama and French (2002, 27–28) also points out the main weakness of the pecking order theory: the firms with least leverage, mostly small growth firms, make the largest issues of equity instead of getting debt to finance their investments. This is the opposite of what the pecking order predicts, because under the theory equity should be the last resort and these firms should turn to debt first. The finding is important because together with the problems noted with trade-off theory, it shows that neither of the theories clearly wins, and that neither of the two cannot be treated as a universal description of financing behaviour as discussed in Section 2.2.1.

It is worth also discussing if the prediction that more profitable firms carry less debt also holds when the financier is a private equity owner. The mechanism behind the theory is the information asymmetry between managers and outside investors, however the PE owner is much closer to an informed insider than to an uninformed market that the theory assumes because of their due diligence and active involvement in the firm (see Sections 2.1.2 and 2.1.4). This weakens the asymmetric information argument that usually makes the equity financing expensive, and makes pecking order theory more difficult to adopt to PE investments. However, this thesis argues that the profitability prediction itself does not really depend on who the owner is, because a more profitable firm can finance its investments with its own money and therefore borrows less, no matter if it is owned by private equity or not. The profitability prediction of the pecking order can therefore still hold for PE-backed firms, and a negative relationship between profitability and leverage would then fit the theory, although this alone would not prove that the asymmetric information is what actually causes it. This relationship between profitability and leverage is examined in the capital structure regressions in Section 5.3, where EBITDA margin enters as a profitability control.

The pecking order theory also has some difficulties fitting into the professional sports area, as operating losses and funds quickly invested into sporting performance (see discussion in Section 3.2) can limit the internal equity the clubs have available to really show evidence supporting pecking order theory. However, the owners are usually reluctant of issuing equity to outsiders (see discussion in Section 3.3), which could support the hierarchy conclusions of pecking order theory debt versus external equity, but cannot provide any evidence of asymmetric information being the driver of these preferences. Despite its explanatory problems in the areas of private equity and professional sports, the pecking order theory is still relevant theoretical framework for evaluating any capital structure research results and frameworks.

2.2.5 Agency Theory

Agency theory approaches capital structure from a different angle than the previous theories, as it is not exclusively a capital structure theory, but still an important theory to be applied to capital structure decisions as well as for example ownership considerations, which are important for this thesis. While the pecking order theory in Section 2.2.4 focuses on the information differences between managers and outside investors, agency theory highlights the conflicts of interest that arise when the ownership and the control of a firm are separated (Jensen & Meckling 1976, 305). Jensen and Meckling (1976, 308) define an agency relationship as a situation where one party (the principal) hires another (the agent) to run things for them, and hands that person the power to make decisions on their behalf. They argue that since both parties are looking out for their own interest, the agent cannot be expected to always act in a way that is the principal's best interest. Agency costs are the costs or reductions in firm value that come because of these conflicts, which includes the costs of monitoring managers or intervening when things go wrong, the guarantees managers give from their own resources, and the value that is still lost because owners and managers can rarely be perfectly aligned (Jensen & Meckling 1976, 308; Brealey et al. 2023, 556). In this thesis, two conflicts are especially relevant: the conflict between owners and managers, and the conflict between owners and creditors. Both of these can be reduced through governance mechanisms and through the use of debt, which is the reason why agency theory is directly relevant for the capital structure decision.

The first and more important conflict for this thesis is the conflict between owners and managers. A famous example of this conflict is the free cash flow problem described by Jensen (1986). Managers who control large amounts of cash have an incentive to spend or invest it rather than pay it out to the owners, because keeping the resources inside the firm increases their own power and the size of the firm they manage. This problem is strongest in firms that produce more cash than they can productively reinvest in good investment opportunities, and thus can also be referred to as the free cash flow problem. The main question here is: how to make the managers pay the cash out instead of investing it into projects that fail to cover the cost of capital or letting it disappear into organisational inefficiency. (Jensen 1986, 323; Brealey et al. 2023, 558.) Jensen (1986, 324) argues that debt can help to solve this problem, because when a firm takes on debt, the managers commit themselves to pay out future cash flows, as failing to pay the interest and repay the loan gives creditors the power to force the firm into bankruptcy, which then forces the managers and the organisation to be more efficient. This is an important note for this thesis, as it could indicate that debt is not only a way to gain tax benefits or to finance the firm, as discussed in the previous

theories, but also a governance mechanism that disciplines and controls the managers. As will be discussed later in this section, this controlling role of debt is also central to how private equity investors use leverage in their portfolio companies.

The second conflict of agency theory that will be discussed is the conflict between owners and the creditors of the firm. This conflict creates what is called the agency costs of debt, and these costs pull in the opposite direction to the controlling benefit of debt that was discussed above (Jensen 1986, 324). The reason is that once a firm has risky debt, the shareholders and the creditors no longer want the same things, because the shareholders get the upside when risky decisions go well, while the creditors are the ones who suffer the most when things go badly (Jensen & Meckling 1976, 334). Also, Myers (1977, 149, 152–154) shows a second form of this problem, where a firm with risky debt that acts in the interest of its shareholders will, in some situations, pass up valuable investment opportunities that would have a positive net present value, because a part of the gain from the investment would go to the creditors instead of the shareholders. It is also noteworthy that these agency costs of debt are the same kind of indirect costs that were already introduced as part of the financial distress costs in Section 2.2.3, which is where agency theory and the trade-off theory meet.

Agency theory connects naturally to private equity investments, because in many ways a PE investment can be seen as a bundle of activities that are designed to reduce the agency costs discussed above. As described in Section 2.1.4, private equity investors reduce the conflict between owners and managers through governance engineering: they take control of the board, monitor the management closely, and tie the management to the firm through equity ownership and performance-based incentives (Kaplan & Strömberg 2009, 131–132; Gompers et al. 2016, 461–463). These actions target exactly the owner-manager conflict that agency theory describes, by aligning the interests of the management with those of the owners and reducing the freedom of managers to act in their own interest. The controlling role of the debt is central here, and suggests that PE investors use debt not only for its tax advantages, as the Modigliani-Miller framework in Section 2.2.2 would suggest, but also because debt creates controls on the management. Jensen (1986, 325) notes that many of the benefits of leveraged buyouts seem to come from this controlling role of debt, and that the typical buyout targets are firms with stable cash, which is exactly where the free cash flow problems and agency costs are most probable.

The professional football setting also adds conflicts that go beyond the standard owner-manager and owner-creditor conflicts. As noted in Section 2.1.5, a further conflict can arise between the private

equity owners and the wider stakeholders of the club, such as the fans, the leagues, and the local communities, whose interests are not always aligned with the return-driven goals of the investor. In fact, these wider stakeholders often care more about improving the sports performance of the club or otherwise improving the sport and community around it, which is likely conflicting with the owner's preference of getting returns, which connects to the broader question of whether owners themselves want to maximise wins or profits, discussed in Section 3.2. A different but related conflict becomes important once ownership is concentrated, as it often is in professional sports. Ruta et al. (2020, 20–21) point out that while a concentrated ownership structure reduces the owner-manager conflict, it creates a second type of agency conflict, this time between the controlling owner and the minority shareholders, which can lead to value being transferred from the minority owners to the controlling one. This conflict is especially relevant for this thesis, because private equity investments in football are also minority positions rather than full buyouts, which places the private equity investor on the weaker side of this kind of conflict. Agency theory therefore brings the discussion of capital structure to a clear prediction for this thesis. If debt works as a discipline and control mechanism, as argued above, it would then predict that the PE investors have a reason to use more debt than non-PE owners, because it helps the investor to control the management.

2.3 Valuation Theory

This section presents the main valuation frameworks used in corporate finance and private equity, providing the theoretical foundation for understanding how franchise value is measured and how PE ownership may influence it. These frameworks directly support the second research sub-question of this thesis, which examines whether PE investment is associated with measurable changes in franchise valuation.

2.3.1 Introduction to Valuation

Valuation refers to the process of estimating the value of an asset, it is central to investment decisions, because a rational investor should not pay more for an asset than it is worth (Damodaran 2012, 1). Valuation is directly relevant to private equity investments, where the value of a company at the time of entry and again at the time of exit is what ultimately determines the return the investor earns, as discussed in Section 2.1.2. For a PE investor, then, valuation is the basis on which the success of the whole investment is measured.

Valuation is not a purely objective or mechanical exercise, but rather an estimate that requires subjective views of the future of the company. Even though the models that are used are

quantitative, the inputs they require still depend on judgment, and the final value carries assumptions of whoever performs the valuation. This is why there is in general no single correct way to value a firm, but rather many different models and approaches that highlight different assumptions. (Damodaran 2012, 2, 11.) Damodaran (2012, 11) classifies the valuation approaches into three different approach styles: discounted cash flow valuation, which estimates the value of a firm from its expected future cash flows, relative valuation, which estimates firm value by comparing the firm to similar firms using some common financial variable, and contingent claim valuation, which is meant for the valuation of option-like assets. This thesis focuses on the two approaches that are most relevant for private equity and for professional sports franchises: discounted cash flow valuation and relative valuation, whereas option pricing models is left outside the scope of this thesis. An important thing to note is that these approaches do not necessarily compete with each other, but rather can be used together to complement each other in practical settings (Kaplan & Ruback 1995, 1092). For sport-specific cases this complementary effect can be crucial when trying to value their specialties.

The two approaches are developed in the rest of this section. Section 2.3.2 examines the traditional valuation approaches built on discounted cash flows, including their extension to the leveraged buyout setting used by private equity investors, while Section 2.3.3 turns to multiples-based valuation. While some discussion on sport specific connections is already started during the sections, the full application of these frameworks to the sports setting is examined more closely in Chapter 3. Together these valuation frameworks directly support the second research sub-question, which examines whether private equity investment is associated with measurable changes in franchise valuation, and they provide the theoretical foundation for interpreting the empirical valuation results in Chapter 5. It is also important to note that no valuation work is performed in this thesis, and it only examines changes in publicly available valuations produced by well-recognised sports valuation sources, as described in Chapter 4, and thus the theoretical part focuses on the understanding where value and valuations come from rather than specifically explaining the mechanical valuation calculations.

2.3.2 Traditional Valuation Approaches

Discounted cash flow (DCF) valuation estimates the value of a firm as the present value of the cash flows that the firm is expected to generate in the future, and serves as foundation needed to understand the other approaches (Damodaran 2012, 11–12). When talking about the valuation of a firm, these expected cash flows are usually considered as the free cash flows of the firm, meaning

the cash the firm has available to return to its investors after it has paid for all the investments that its growth requires, and they are discounted using the weighted average cost of capital (WACC), which combines the cost of equity and the after-tax cost of debt (Brealey et al. 2023, 519, 523–524; Damodaran 2012, 383). Because the WACC includes the after-tax cost of debt, the discount rate reflects the capital structure of the firm, which suggests that the valuation is directly connected to the capital structure theories discussed in Section 2.2. Kaplan and Ruback (1995, 1062) also note that the WACC has to be recomputed when the leverage of the firm changes over time, which makes the approach more demanding to apply if the capital structure is not stable.

The empirical evidence has supported the reliability of DCF in practice: for example, Kaplan and Ruback (1995, 1059, 1070–1071) find that DCF-based valuations of their sample of highly leveraged transactions come within 10% of the actual market values on average, and perform at least as well as valuations based on other approaches. This result is especially relevant for this thesis, as the sample studied by Kaplan and Ruback consists of leveraged buyouts and recapitalisations, which are highly relevant to the private equity setting examined here. However, the accuracy of a DCF valuation depends heavily on its underlying assumptions. A large part of a firm's value usually comes from the terminal value, which is the combined value of all the cash flows after the determined forecast period, and often provides majority of the total value (Brealey et al. 2023, 524). As a result, even small changes in the assumptions, such as the cash flow growth rate, the discount rate, or the terminal value can have a large impact on the estimated value. Kaplan and Ruback (1995, 1072) show this by varying the terminal value growth rate and the equity risk premium, which leads to a distribution of their value estimates. This sensitivity is especially relevant for professional sports clubs, where cash flows depend on volatile factors such as sporting performance and broadcasting cycles (see discussion in Section 3.2), which makes the future cash flows hard to predict and can weaken the reliability of the DCF approach.

In private equity, the DCF approach is usually extended into a leveraged buyout (LBO) model, which also takes into account the debt used to finance the acquisition, the interest and principal payments that follow from it, and the value that the firm is expected to have at exit. The high leverage in a buyout affects the valuation quite directly. Since the large amount of debt makes the equity riskier, the cost of equity has to be raised to reflect this, and as the firm pays the debt down during the holding period, both the cost of equity and the overall cost of capital keep falling. This means that LBOs cannot really be valued with one fixed cost of capital, but rather with a discount rate that changes from year to year. (Damodaran 2012, 732.) This is essentially the same issue as the one mentioned earlier, where the WACC has to be recomputed as the leverage changes. Also, in

LBOs, the exit value is usually estimated by applying a valuation multiple to the firm's figures at the time of sale, which represents the terminal value in DCF approach, and in fact, the whole process work quite similarly: in DCF approach the cash flows are only forecasted in detail for a limited number of years, after which a terminal value is used to capture the value of all the cash flows beyond that point, whereas in a LBO the investor estimates the cash flow for a few year, after which they exit and estimate this exit value as an valuation multiple. As a conclusion, the same uncertainty affects the terminal value in a DCF and the valuation multiple LBO valuation, which ties the multiples-based valuation discussed in the next section together to the DCF approach discussed here.

2.3.3 Multiples-Based Valuation

Relative or multiples-based valuation estimates the value of a firm by comparing it to similar firms, using the ratio of value to a common financial variable such as earnings, EBITDA, or revenue, instead of estimating the value from the firm's own discounted cash flows. The valuation process thus has two parts: the prices of firms first have to be standardised into multiples of a common variable such as earnings, book value, or sales, and then comparable firms have to be found. (Damodaran 2012, 453.) Multiples are commonly used in practice because they make it easier and efficient to understand the idea behind a company's valuation, and they can serve both as a substitute for and as a complement to a more comprehensive discounted cash flow valuation (Liu et al. 2002, 136). Multiples are also especially important for privately held firms, which do not have an observable market price for their equity, so their value has to be estimated by comparing them either to the transaction prices of similar private businesses or to the market prices of comparable listed firms (Damodaran 2012, 667, 695). This is directly relevant to private equity investments and professional sports franchises, which are both typically privately held and only rarely listed on a stock exchange, and whose valuations therefore often consist of comparison-based estimates rather than observable market prices.

The choice of which variable to use in the valuation matters, because the empirical evidence shows that not all multiples perform equally well. Liu et al. (2002) find that, across a large sample of firms, multiples based on forward earnings perform the best, multiples based on historical earnings perform better than those based on book value, and multiples based on sales perform the worst, and that this ranking holds quite consistently across different industries. They also find that the valuation errors of sales-based multiples are not only the largest on average but also the most widely dispersed, which means that revenue multiples tend to be the least reliable of the commonly

used multiples for firms in general. At first sight, this would suggest that a revenue-based multiple is a poor choice, but this thesis argues that professional sports clubs are an important exception to this general ranking. The reason for this is that the earnings and EBITDA of sports franchises are often influenced by tendency of the franchises to maximise sporting success rather than profit, and reinvest much of their revenue into winning, which largely affects the profits of even large and valuable clubs (see discussion in Section 3.2). When earnings are affected like this, an earnings-based multiple becomes less useful because the earnings no longer show the club's real ability to generate profit. This relates to a broader point made by Damodaran (2012, 542), who notes that, unlike earnings and book value, which can become negative and therefore meaningless, revenue multiples remain available and usable, which is one of the main reasons analysts turn to them. Revenue, in this sense, is a more stable and comparable measure of the overall size and earning potential of a sports franchise, and for this reason it can be seen as a more relevant basis for valuing franchises than earnings, even though the general evidence ranks revenue multiples poorly for ordinary firms, which motivates the use of value-to-revenue multiple as one of the measures of franchise value in the empirical testing of this thesis.

It is also worth noting that the more comprehensive form of the revenue multiple is the one based on the enterprise value rather than only on the value of equity. Damodaran (2012, 543) explains the difference between the price-to-sales ratio, which divides the market value of equity by revenue, and the value-to-sales ratio, which divides the value of the whole firm by revenue, and points out that the value-to-sales ratio is more consistent because it relates the value of the operating assets to the same revenues that those same assets generate, and is therefore not affected by differences in leverage between firms. This is relevant for this thesis, as the franchise values used correspond to the value of the whole club rather than only its equity, which makes the value-to-revenue multiple the appropriate form to use when clubs differ in how much debt they carry.

This view is supported by Sánchez et al. (2024), who use a market value to sales ratio to value clubs in their study, precisely because revenues are the most relevant value driver for clubs and are highly correlated with their market value. In their results, revenue and the book value of equity are the two financial variables that have a significant influence on the market value of a club. At the same time, they find that earnings are not a relevant factor of market value, which supports the point made earlier of concentrating on revenues rather than earnings in the sports industry. Furthermore, Sánchez et al. also find that the valuations of clubs are driven mainly by financial variables rather than subjective or emotional preferences, which suggests that clubs are, in valuation terms, closer to ordinary corporations than just emotional assets. It should be however noted that their analysis is

based on a relatively small sample of only sixty club acquisitions, which the authors themselves point out as a limitation, and so their results should be interpreted with some caution.

Like all valuation approaches, multiples-based valuation also has its limitations. First, because a multiple is quick and easy to apply, it can ignore real differences between the firms in risk, growth, or cash flow potential, leading to estimates that are not truly comparable. Second, since multiples are based on the current prices of other firms, they also carry the mood of the market, so a club can end up looking too valuable when comparable firms are overpriced and too cheap when they are underpriced. (Damodaran 2012, 454.) These limitations are especially relevant for the valuations used in this thesis, which are produced by external sports-valuation sources rather than by the thesis itself, and therefore depend on the methods and comparison groups chosen by those sources, as discussed in Section 4.4.

3 Sport-Specific Framework and Expectations Development

3.1 Introduction to Professional Sports Industry

The previous chapter set out the theory of private equity, capital structure, and valuation as it applies to firms in general. However, professional sports franchises differ from normal firms in many important ways, both in the objectives that they pursue and in the markets in which they operate, which means that these theories cannot be simply applied to them without some considerations and possible adjustments. This chapter examines these sport-specific characteristics and evaluates how they change the way the financial theories presented in Chapter 2 apply to professional sports, in order to develop a combined theoretical framework and expectations that are tested in the empirical part of this thesis.

The discussion is organised around the two research sub-questions of this thesis: how private equity investment affects the capital structure and debt profile of professional sports franchises, and how it affects their valuation and long-term financial performance. The chapter first sets out the economic nature of professional sports franchises and the institutional environment in which they operate, and then works through the consequences of these features for the capital structure and then for the valuation and profitability of franchises, in order to build the context around the research sub-questions. After this it brings the different elements together into a combined framework from which the theoretical expectations are derived. The term 'expectation' is preferred over 'hypothesis' because, as it will be shown, the theoretical reasoning does not lead to a single directional prediction but rather to competing possibilities depending on which mechanisms dominate in the sports context, making it inappropriate to draw formal directional hypotheses.

3.2 The economic nature of professional sports franchises

One of the most important specialities of the economics of the professional sports is the joint-product nature of the leagues. This means that unlike normal firms, a professional sports franchise cannot produce its sellable product alone, because matches and competitions require opposing teams, so the league as a whole is the product and clubs are mutually dependent on one another. Thus, a sports club does not benefit from eliminating its rivals and establishing a monopoly position, in the way normal firms benefit from defeating competitors, because the competition requires a degree of competitive balance between teams. However, monopolistic characteristics and goals are not completely irrelevant in professional sports, but can rather be applied to the leagues rather than the clubs. In this view, the league can be considered as the firm unifying the individual

firms to create the sellable joint-product of sports competitions, where individual franchises part of the collectible making it happen. In this way, the leagues compete from customers against other leagues, or sports against other sports, but the league structure within one market can have similar position as a traditional monopoly. (Neale 1964.) In practise, this joint-product behaviour can be seen with leagues introducing salary caps and spending rules or media revenue sharing in order to balance the competition between teams, as discussed in Section 3.3.

Furthermore, just the existence of other teams is not necessarily enough to make the competition interesting for the fans, but the teams need to be able to provide close enough competition so that the results stay unpredictable. This is the catch of sports, and it can be referred as the theory of the uncertainty of outcome. Uncertainty of outcome is important because the spectators, i.e. the customers of the sports franchises, prefer closer balanced competition, where they can experience excitement, to less balanced competition, where they already know the outcome, and thus the closer the competition between the competitors is, the bigger the interest for the events is, bringing leagues and clubs more revenue. The uncertainty of outcome can be seen in different levels: within a single match, within an entire season, or across multiple seasons. Within a single match, outcome uncertainty means that both of the competitors are at a similar sporting level prior to the match and they both have a reasonable possibility of winning. Seasonal outcome uncertainty means that the winner of the season is not known in advance and there are multiple clubs with a reasonable chance of winning the league. Multi-seasonal outcome uncertainty means that there is no single team that is likely to win the league repeatedly for many consecutive years. (Cairns et al. 1986, 5–6.) Knowles et al. (1992, 77) find in their study that the uncertainty of outcome is an important determinant for the amount of attendance in their sample of Major League Baseball games, which supports the theory of the uncertainty of outcome. The theory of uncertainty of outcome thus provides a direct reasoning why sports franchises need also other franchises to be successful: so that they can offer the most interesting product possible to the customers.

Cairns et al. (1986, 4) argue that the unusual economic characteristics shown by Neale (1964) are real but the unusualness is often overstated, since similar joint co-operatives between independent firms exist also elsewhere in business, like in agriculture and fishing. Thus, they argue that this gives the economics of sport its analytical value, since insights drawn from it apply to a wide range of economic activity. This thesis treats these unusual economic characteristics as important to understand because they might affect the way empirical evidence of PE investments in sports is interpreted, and generalising these results outside of sports would have to be treated very cautiously.

For each individual franchise, the uncertainty of outcome in the league is only a partial determinant of attendances while its own success is also significant, and this is why the franchises still have incentives to strengthen themselves, even if it costs for the league's overall uncertainty and attendances (Cairns et al. 1986, 5). Also, the fans and other stakeholder of specific franchises want to see their team win. This brings us to one of the core specialities of professional sports franchises: their main objective should be to maximise sports performance. Before explaining this point further, it is important to note that sporting success enters this thesis only as a financial motive that shapes how clubs spend, finance themselves, and are valued, and not as a sporting outcome that the thesis itself measures or tries to explain, which remains outside its scope as stated in Section 1.2. In other words, the interest here is not in why or how clubs win, but in what the pursuit of winning does to their financial behaviour.

It has often been argued that owners of professional sports franchises do not appear to behave like the profit-maximising owners assumed in standard economic theory. According to Sloane (1971), football clubs are better understood as a utility-maximisers rather than pure profit-maximisers, because the profit-maximisation assumption does not match the behaviour observed in practice. He argues that the clubs maximise their utility function in which sport success, attendance, and the health of the league are considered alongside the recorded profits, and thus the main objective of sports clubs could in fact be to achieve sporting success while still remaining financially stable. Sloane considers that the reason why the owners accept this is that they invest in sports franchises for other reasons than financial return, such as prestige, the urge for power, and group identification, which is why many clubs do not pay dividends and why investors are willing to fund clubs that made continuous losses. Even though Sloane specifically considered football clubs, the same idea applies to sports franchises in general.

Garcia-del-Barrio and Szymanski (2009, 57–59, 64) provide empirical evidence on the win-maximising behaviour described above. They use performance data of clubs in the Spanish and English football leagues from 1994 to 2004 to compare whether the clubs' behaviour represents win-maximisation or profit-maximisation more, and find that their behaviour is much more closely approximated by win-maximisation subject to a zero-profit budget constraint. The size of the gap is significant: the Spanish clubs in their sample finished on average around twelve league places higher than a profit-maximising strategy would suggest, and the English clubs around sixteen places higher, while both groups were relatively close to the position suggested by win-maximization. The financial consequence of this behaviour is the key point for this thesis. Because clubs pursue sporting success rather than profit, additional revenue is not kept as earnings but is rather reinvested

into sport performance in the pursuit of better results, meaning that rising revenues are matched by similar or even larger rises in spending, causing profits remain small or negative. However, the investors generally do not want to lose their invested capital, which is why zero-loss target can be assumed. (Nielsen & Storm 2017, 155.)

These features connect directly to the valuation and capital structure arguments developed later in this chapter. The reinvestment of revenue into sport performance is the reason why earnings and EBITDA of franchises are a poor estimate for their underlying value, since they can deliberately spend it on playing talent, which can increase their sporting success and thus market value. The win-maximising motive also shapes financing behaviour, as the same pursuit of success that produces operating losses limits the internal funds clubs can rely on for interest payments, while on the other hand, owners who invest for reasons other than financial return are typically reluctant to sell their control to outside investors.

It would be misleading, however, to treat all sports franchises as identical win-maximisers in every scenario, as recent evidence points to significant diversity in strategy between clubs and even within the same club over time. Terrien et al. (2017, 124–125, 134), who studied French football teams, find that clubs are spread fairly evenly across profit-oriented, break-even, and loss-making strategies, and that individual clubs often switch between these strategies from one season to the next as their circumstances change. They also argue that the resulting losses are frequently intentional and accepted by the controlling shareholder rather than the product of bad luck alone. The results suggest that every club does not always maximizes wins regardless of cost, but rather that the pursuit of sporting success strongly influences their financial behaviour, enough that profit-maximisation cannot be assumed as the default in professional sports as it would be for an ordinary firm.

Beyond the reinvestment behaviour described above, a further specific feature of professional sports is that the revenues and financial results of clubs are considerably more volatile than in many normal firms. This volatility is closely tied to sporting performance and the investments for it, as a large part of a team’s income depends on their results in the competitions. For example, in football financial losses often occur when the sporting performance does not meet the expectations, and they can vary considerably from one year to the next because of changes in transfer activity (UEFA 2026, 53). The main drivers of this seasonal volatility include qualification for or elimination from international competitions, promotion and relegation between divisions, and the cycles of broadcasting and prize income, which are discussed further in the context of the league system in

Section 3.3. At the same time, the revenues of clubs have proven relatively resilient to wider economic conditions, as for example total revenue across European top-division football grew by on average more than €1.3 billion per year between 2015 and 2025, continuing to rise even through the disruption of the pandemic (UEFA 2026, 3, 10). This combination of revenue that varies with sporting and competitive outcomes but is not very sensitive to the general economy gives the cash flows of professional sports franchises an unusual risk profile compared with normal firms. The same unusual variability is also visible in the data used in this thesis, where both the franchise values and the financial results of clubs differ widely across clubs and over time, as shown in the descriptive statistics in Section 5.1.

3.3 League structure and regulation as a moderating context

The previous section established how professional sports franchises behave in economic situations. That behaviour does not arise from nothing, but is strongly shaped by the way the leagues around them are organized. Next, these important structural differences between league systems are discussed more in depth.

The biggest difference between different leagues is usually the distinction between open and closed leagues. The open leagues can also be referred to as the European models and closed leagues as North American models simply because that is where the named models are used more often, however there are also exceptions to this rule. The North American model is called closed because the same teams compete every season with no promotion or relegation and they are often seen as local monopolies protected by strong entry barriers. Closed leagues use a range of measures to level competition between clubs, such as a reverse-order-of-finish draft, limits on player mobility, and redistributing income from television rights (Nielsen & Storm 2017, 4). European leagues are organized in the opposite way. They are open, connected through a system of promotion and relegation in which the lowest-ranked teams in a division are replaced at the end of each season by the highest-ranked teams from the division below that (Garcia-del-Barrio & Szymanski 2009, 48). Sánchez et al. (2024, 592, 601) describe this as a pyramidal system, in which participation in the best competitions is related to prior sporting performance, compared to the closed North American model in which league membership is fixed and new competitors are admitted only by the existing franchise holders.

This structural difference offers one explanation for differences in franchise behaviour. It can be commonly assumed that franchises that operate in closed leagues lean more towards profit maximisation, whereas franchises in open leagues lean towards win maximisation. The difference

can be explained by the level of competition the leagues have, as the competition and risk of relegation in open leagues encourage franchises to invest in sporting performance. (Terrien et al. 2017, 123.) The open league system works through three channels that work as incentives to spend whatever is necessary for sport success: threat of relegation, which would mean a sharp loss of revenue, uneven distribution of league revenue, meaning that best performers get more money, and existence of additional prizes, such as qualifications for valuable tournaments, which brings even more revenues and prize money (Nielsen & Storm 2017, 161.).

In the closed leagues, the same rules that are in place to balance the sporting competition between franchises, are often made also to protect the financial stability of the franchises. For example, an important reason for rules like salary caps and revenue sharing is to limit the economic competition between the franchises and help to generate financial profits by, for example, limiting the spending possibilities (Garcia-del-Barrio & Szymanski 2009, 65). This structural difference also shapes the preferences of the investors who enter professional sports, as Sánchez et al. (2024, 592, 604) argue that profit-seeking owners would favour a closed system on the North American model precisely because it reduces revenue variability and the associated financial risk. This connects directly to the private equity investors, who primarily would like to receive returns for their investment. It could suggest that PE investors would preferer closed league markets, where they could operate more towards maximising profits, however this thesis cannot evaluate this further from an empirical point of view as the data used is from open leagues, but it's important to note for the generalisation of the results, and it can offer an interesting future research position.

Beyond the structure of the competition itself, leagues also regulate who is allowed to own a club. According to UEFA, 27 European top divisions have formal ownership eligibility tests for new investors, while many others have restrictions on the legal form that a club may take. Club ownership is also more often private than listed, as only around three per cent of European clubs are listed on a stock exchange, which means that exits through public listings are rare. Partly for these reasons, and also because suitable acquisition targets are limited and investors have become more selective, private capital has increasingly entered football through minority stakes and structured equity rather than through full acquisitions. (UEFA 2026, 66–68.) Together, these ownership rules and the limited pool of potential buyers make both entry and exit more complicated for private equity investors in professional sports than in many conventional industries.

In many cases the open league structures have adopted some rules like salary caps or financial regulations in order to restrict the overspending of the franchises and balance the economic

competition between teams. One of the best examples of this kind of regulation is the Financial Fair Play (FFP) framework introduced by UEFA in European football. The FFP framework was introduced in 2011 to counter the alarming rise of net losses and negative net equity that created an increasing threat to the financial stability of European football system. The central idea behind it is the break-even requirement, which requires clubs to keep their relevant expenses (excluding long-term investments in stadiums, youth academies and community projects) broadly in line with their relevant income during a multi-season monitoring period, subject to a limited acceptable deviation that may be covered by equity injections. The rules also target excessive overdue payables and debt capital in order to improve the long-term financial sustainability of European football. Sanctions for breaking the regulations range from fines and withheld prize money to transfer bans and exclusion from UEFA competitions. (Pieper 2017, 167–168; Birkhäuser et al. 2019, 114.) Thus, the FFP framework operates as a regulatory ceiling on the over-investment behaviour identified in Section 3.2, where win-maximising clubs face an incentive to spend more than they are capable of, as well as a direct regulatory moderator of club capital structure limiting the financing of the losses through excessive debt.

The FFP framework has also raised some critique. The first critique is that the sanctioning actions can actually deepen rather than ease the financial difficulty that a negative shock has already caused for the franchise if they are for example penalized by being denied access to further revenues (Terrien et al. 2017, 135). This can lead to negative circle where the struggling club never gets out of the financial difficulties it has. Second critique suggests that clubs may respond to the rules without genuinely changing their underlying behaviour by for example using accounting techniques to give the appearance of compliance rather than actually improving their financial outcome (Nielsen & Storm 2017, 160). Third critique suggests that the FFP rules can actually reduce competition and strengthen the position of already established elite clubs (Terrien et al. 2017, 135). Birkhäuser et al. (2019, 127–130) provide empirical evidence on this by showing that FFP is associated with greater competitive imbalance by performing a difference-in-differences analysis dataset of more than 300 clubs across the five major countries in European football. This happens because a club-specific break-even rule leaves high-revenue clubs with the most room to spend which means that smaller clubs may never have the money to compete for the bigger revenue streams.

Before finishing off with this section, it is beneficial to discuss shortly about the cost structure of professional sports franchises. It is widely considered that player wages are the largest cost item in sports franchises, especially in open league structures where salary caps are not introduced, which

supports the view that clubs invest in their sports performance. For example, Garcia-del-Barrio and Szymanski (2009, 52) argue that in a simplistic way it is spending on playing talent, like on wages, relative to rivals that determines success the clubs have in terms of league position. They do note that in practise, it is not that simple because sport performance can be affected by number of things like luck, injuries to key players, and loss of form, thus it is not always that the highest paid team or player that performs the best. However, wages are an important signal on the level the teams and players are expected to perform at and thus are a relevant when considering investment to sport performance. The importance of player wages in the franchises' cost structure can be seen in UEFA figures: in 2024 the total player wage-to-revenue ratio was at 47% in European top-division football clubs with some countries reporting even higher wage-to-revenue ratios. The cost pressure is not limited to players but also non-player wages keep growing year-on-year with the total non-player wage-to-revenue ratio being at 18% in 2024. (UEFA 2026, 36–37.)

The financial importance of this cost structure can be seen in two main ways. First, wage costs are relatively fixed, meaning that if the revenues fall, the franchises cannot easily reduce the costs similarly than was discussed in Section 2.1.3 with interest and principal payments of debt. Thus, sports franchises already have an increased risk of financial distress due to the mismatch between volatile revenue and fixed wage costs, meaning that commitments to fixed debt payments could further increase the risks in an already risky environment. Second, a cost structure that systematically consumes a high share of revenue depresses profitability, which is why earnings in this industry are an unreliable estimate for performance and why the empirical chapters favour a revenue-based valuation approach rather than an earnings-based valuation approach, as discussed in Section 2.3.3.

3.4 Implications for capital structure

As discussed so far in Sections 3.2 and 3.3, sports franchises can differ in significant ways from normal firms. Next, the aim is to evaluate how the sport-specific topics fit into the traditional corporate finance theories and the research context of this thesis. In order to keep the structure of this thesis more clear, the combined framework will be discussed in close relation to the two research sub-questions, where this section focuses on the first sub-question and Section 3.5 focuses on the second sub-question. The first sub-question examines how private equity investments affect the capital structure and debt profile of professional sports franchises. The main fundamental theory applied for this research sub-question therefore is discussed in Sections 2.1 and 2.2.

The trade-off theory, discussed in 2.2.3, suggests that a firm balances the tax advantages of debt against the expected costs of financial distress, leading to an optimal level of leverage. In professional sports, the expected costs of financial distress are higher because cash flows and revenues of the franchises are volatile and depend heavily on sporting success. Alaminos and Fernández (2019) show that the best predictors for financial distress for football clubs are low liquidity, high leverage and poor sporting performance. Together with the volatile revenues and cash flows, the potential costs in the case of financial distress could be substantially higher than in other stable industries. Thus, from the perspective of trade-off theory, higher expected distress costs in sports suggests that the optimal level of debt in which franchises would operate should be lower compared to more stable environments.

The win-maximisation behaviour of sports franchises drives this reasoning further. With substantial investments into sporting performance instead of leaving the earnings in the equity or using them to pay off debt, the franchises are left with thin financial buffers, which results in a situation where high debt levels may become difficult to sustain. This effect is strengthened by the significant share of committed wage expenses from the revenue, which limits the financial flexibility they have. This does not mean that football clubs cannot operate with leverage, since many clubs clearly do, as Alaminos and Fernández (2019, 9) also note. Instead, the financial structure of the industry creates a pressure for the franchises to operate their leverage sustainable as the consequences of overleveraging may turn out to be quite severe.

Pecking-order theory, discussed in Section 2.2.4, offers another perspective. It suggests that firms prefer internal financing first, then debt, and external equity only as a last resort. In sport context, the adaptation of this can have mixed views. On one hand, this preference hierarchy may be even stronger because the existing club owners can be reluctant to give up control to outside investors, thus preferring other financing to external equity financing. On the other hand, as all earnings are used to improve sports performance, the franchises rarely have the sufficient internal funds to finance their operations, which guides them towards debt. This raises a question whether this should be considered as internal funds being used as first preference prior to debt financing, which would support pecking order theory, or as a lack of internal funds within the industry causing the preference hierarchy to be unobservable. In both cases one conclusion remains: the internal funds are not enough to finance the operations in many cases, and the franchises turn into debt as the next choice. At the same time, the potential financial-distress costs from trade-off theory limit how much they can take on debt. Additionally, the pecking-order prediction that firms with better profitability

have less debt loses its value in sports industry as the profits are deliberately consumed. As a result, the overall effect on leverage becomes less straightforward to predict from a theoretical perspective.

A third perspective comes from agency theory, discussed in Section 2.2.5. From this point of view, debt can serve a disciplining function to control management, as the obligation to meet regular interest and principal payments reduces the free cash flow available and forces a more careful use of the firm's resources. In professional sports, this argument is particularly interesting because of the win-maximising behaviour. From the agency perspective, debt could in principle counteract this behaviour by limiting the resources available for over-investment. However, agency theory also points in the opposite direction, as the agency costs of debt between owner and creditor can offset the disciplining benefits. At the same time, this disciplining role of debt is in tension with the elevated distress costs discussed above: the same leverage that might impose discipline also raises the risk of financial distress.

For a PE investor, important questions arise. As discussed in Section 2.1.3, the classic LBO investment model uses a considerable amount of debt to finance the buyout, and if this model was to be transferred directly to professional sports, the clear prediction would be that private equity entry raises leverage and the debt levels in the franchises. However, as discussed above, this may not simply be the optimal investment strategy, especially if the investor wants to protect their investment from the potential financial-distress costs. Given also the limited entry and exit options of sports industry, a straightforward replication of the LBO strategy may not be the preferred investment strategy, but the investors could rather be tempted to enter the market as growth capital investors acquiring minority stakes in the franchises. If this would be the case, PE investment would not likely cause any significant effects on the capital structure because their ability to reshape the capital structure would be significantly limited and rely on the approval of the majority investor.

Given the contextual discussion, there is no single confident prediction that could be drawn from the theory, but instead, a set of competing possibilities can be concluded:

> Expectation 1a. *If the traditional leveraged-buyout logic dominates, private equity -backed franchises would be expected to operate with higher leverage than comparable franchises without private equity ownership, reflecting the use of debt to discipline management and increase investor returns.*
>
> Expectation 1b. *If the sport-specific constraints, such as elevated distress risk, limited exit opportunities, minority stake sizes, and regulatory limits on external*

funding, dominate, then private equity entry would be expected to leave leverage level broadly unchanged, reflecting the strong incentives not to over-leverage.

It is important to note that this means that finding no clear difference in leverage between PE-backed and non-PE-backed clubs would still be a meaningful result, suggesting that the unique financial characteristics of the sports industry overweight the use of debt.

Another useful expectation concerns timing. Changes in capital structure under private equity ownership are unlikely to happen immediately, as operational and financial restructuring typically takes place over several years. Because of this, any leverage effects may emerge gradually rather than directly at the time of investment:

Expectation 1c. *If private equity reshapes capital structure only as its involvement matures, any association with capital structure would be expected to strengthen with the length of the ownership period rather than appearing instantly.*

3.5 Implications for valuation and profitability

In a similar way the capital structure theory was discussed above, this section applies the sport-specific topics to the fundamental theoretical frameworks discussed in Sections 2.1 and 2.3, in relation to the second research sub-question. The second sub-question examines how private equity investments affect the valuation and long-term financial performance of professional sports franchises.

While discounted cash flow valuation, discussed in Section 2.3.2, is considered the traditional valuation method and is widely used in firm valuation, it is not the best suited method for sports franchises. This is because sports franchises frequently generate negative or highly volatile cash flows, which would lead the DCF model estimates to be unreliable. Therefore, the valuations rely on multiples valuation, discussed in Section 2.3.3. Additionally, it is important to note that the unstable and bias earnings and profits are unreliable valuation determinants in multiples valuation also. Due to this, it is more beneficial to tie the value of the franchises to their revenues, and use revenue-based multiples in the valuation, because revenue offers a more stable and meaningful base for the value. This same treatment can be seen for example in Rohde and Breuer (2016a, 9) who use revenues excluding transfer fees as their measure for financial success due to the win-maximising nature of European football clubs and the availability of data. This motivates the value-to-revenue ratio used in the empirical part of this thesis as a secondary value variable.

From a value building perspective, this raises an important question that if revenue is considered to be a determinant for the franchise value, then what is it that drives revenue. This thesis has previously argued that revenue is affected by the sporting performance, because of for example prize money generation and performance driven league revenue distribution. Rohde and Breuer (2016a, 9, 12–14) also show that sporting performance has a significant influence on the financial success in terms of revenue, but they also show that the brand value is another important driver. In their study the brand value is the portion of a football club's total value that cannot be explained by its tangible assets, purchased player assets, or other identifiable intangible assets. It represents the economic value associated with the club's brand, reputation, fanbase, and commercial strength. This suggests that if the owner of the franchise would like to maximise the value of the team, they should focus on maximising the revenue which comes from sport performance and brand value, which in turn suggest that the win-maximisation strategy could be the one that actually aims to create value in professional sports.

This raises another important question from the PE investor point of view. As discussed in Section 2.1.4, one of the PE investor's value creation mechanisms was to improve profitability through operational engineering. However, because win-maximising behaviour tends to use all available revenue to sporting performance, meaning costs are generally higher the more they invest in sporting performance, the value creation in sports investments usually happens through revenue improvements rather than cost-cutting. Thus, operational engineering is still a viable value creating mechanism, but its focus should be shifted to maximise revenue through maximising sporting performance and commercial success, as well as development of the brand and revenue-generating infrastructure. Profitability improvements could be achieved through governance engineering and management discipline, but in theory it would be secondary benefit, and could be again invested directly to value-maximising activities. This does not mean that the PE investors should never assume the role of profit-maximiser, but rather that if the investor is strategizing the investment fully dependent on profitability maximisation, the franchise may run into trouble as its sport performance drops and the revenue generation drops.

However, as the effects of the PE investors are considered, it is important to remember the constraints of the industry. The lack of investors makes the exiting more difficult, which means that the investors could be looking for the exit opportunity for a longer time than they would have like. This restricts the way the investor can extract value from the investment, for example, it cannot rely on making any short-term value extraction plans that would harm the long-term value in case they cannot find a suitable buyer in time before the negative effects would kick in. Related to this, as the

initial investment might happen through minority stakes due to low investment opportunities and possible league restrictions, the PE investors may not be fully capable to implement the actions needed for value creating activities. Another constraint from the industry is the general acceptancy of the owner's actions by the wider stakeholders. As discussed in Section 2.1.5, the interests of private equity owners can differ from the fans, the leagues and the local communities that surround the franchise, especially if the owner decides to act in profit-maximising strategy in the expenses of sporting performance. This can limit the actions that a PE owner is able to take, as profit-maximising actions can damage fan engagement and the reputation of the club leading to loss in revenue and long-term value of the franchise.

Given the contextual discussion, there is again no single confident prediction that could be drawn from the theory, but instead, a set of competing possibilities:

> Expectation 2a. *If private equity owners successfully apply revenue-side value creation, private equity -backed clubs would be expected to display higher valuations than comparable clubs, with the difference building through revenue and revenue growth rather than through earnings.*
>
> Expectation 2b. *If the constraints on football investment, such as limited exit opportunities, and minority stakes, dominate, any valuation difference would be expected to be modest or non-existent, or to emerge only gradually as the ownership period lengthens.*
>
> Expectation 2c. *If professional sports franchises follow the win-maximising characteristic, private equity entry would not be expected to raise profitability, even if private equity was to found to be associated with higher revenue and valuation.*

All of the expectations stated in this section, as well as Section 3.4, motivate the research questions this thesis examines and are empirically viewed in Chapter 5. These expectations will return in Section 5.5, where the results of the empirical tests are interpreted.

4 Data and Research Methodology

4.1 Research Design

This thesis uses a quantitative research approach to examine how the private equity (PE) investment affects the financial characteristics of sports franchises in European football. The theoretical framework presented in Chapters 2 and 3 provides the theoretical expectations about the PE ownership effects on capital structure and valuation, while the empirical analysis tests whether these expectations are supported by the data. The overall goal is to measure these financial effects and draw conclusions based on the statistical evidence.

The empirical testing is done with a panel dataset of 76 professional football organisations across five European leagues, observed over a period from 2015 to 2025. Panel data is well suited for this type of research because it allows the financial changes to be observed within the same organisation over time, rather than only comparing different clubs at one single point in time (Wooldridge 2020, 427). This is especially important for this research, since it is possible that the financial effects of ownership changes appear over time rather than immediately after the ownership changes because the bigger structural changes usually take time to implement. Especially in the sports context, where sports performance is a key driver for valuation, the actions turn into results in the competitions and then to increases in value, cannot happen immediately.

The main method used in the analysis is the Difference-in-Differences (DiD) approach (see Wooldridge 2020, 434–437, and Section 4.3), which compares the changes of the PE-backed clubs after the investment to the changes in non-PE clubs over the same period. This method is chosen over a simple cross-sectional comparison because it considers the pre-existing differences between the two groups, reducing the risk that any observed financial differences would simply reflect the type of club PE investors tend to target rather than the actual effect of PE ownership. The reliability of the DiD approach depends on the parallel trends assumption, which requires that PE-backed and non-PE clubs would have followed similar financial trends if the investment had not happened. This assumption is formally tested using a Wald test, with the results presented in Section 5.4. Causal interpretations should therefore be understood as conditional on this assumption holding. An event study method was also considered for the analysis, but it was not used because the PE investments entered the sample at different points in time across different clubs, making it difficult to define a clear and consistent event window. Thus, the DiD approach is more suitable because it can treat the different entry times.

The control group consists of organisations that never received PE investment during the sample period, together with pre-investment observations from clubs that later became PE-backed. These pre-investment observations are included because they represent the financial characteristics of the clubs before any PE-related effects. Post-investment observations from the same clubs are assigned to the treated group. Two specific cases required additional methodological decisions. First, AFC Bournemouth received PE investment in two separate events during the sample period (2015 and 2022). In this study, the second investment event is treated as a continuation of PE ownership rather than a new, independent treatment, and the Post-indicator remains equal to 1 throughout. Second, eight observations in the dataset correspond to periods after documented PE exit, which are included in the PE group rather than returned to the control group, because the financial changes introduced during PE ownership are unlikely to disappear immediately upon exit.

The empirical results in Chapter 5 is structured into four sections. Section 5.1 presents descriptive statistics for the full sample, including summary statistics, time trends, and the distribution of PE investments across leagues and years. Section 5.2 compares the PE-backed and non-PE organisations across four dimensions (valuation, capital structure, profitability, and growth), using mean comparison tests to identify whether statistically significant differences exist between the two groups. Section 5.3 then moves to panel regression analysis, where the relationship between PE ownership and each financial dimension is estimated while controlling for club-level fixed effects, time effects, and organisational size, providing a more reliable test of the relationships identified in Section 5.2. Finally, Section 5.4 presents the formal Difference-in-Differences estimations and evaluates the parallel trends assumption, in order to assess the credibility of the causal interpretations.

4.2 Description of Data and Data Sources

The dataset used in this thesis is constructed from multiple publicly available sources. All financial statement data, including revenue, EBITDA, total debt, total assets, and equity, is collected from Orbis Europe (Moody's Analytics 2026), which is a financial database that covers financial information on European companies. Orbis Europe also provides ownership information, which is used to identify PE-backed organisations and determine when the PE investment happened. To improve reliability, the data is complemented by Pitchbook (2025b), a private equity focused database that was used to verify PE ownership details. In cases where Pitchbook did not provide complete coverage, publicly available information such as merger and acquisition news and press releases was used to confirm PE investment events. If different sources provided conflicting

information on the timing of an investment, the earliest documented date of ownership change was used, so that a conservative approach of attributing the Post-indicator to the year in which the PE ownership is first observed was used.

Franchise valuation data is collected from multiple public sources, including Sportico (2025a, 2025b), Pitchbook (2025b), and Forbes (2025), all of which regularly publish valuation estimates for professional sports franchises. Where multiple sources provide valuations for the same club and year, the most recent and detailed estimate was chosen. It should be noted that franchise valuations are less standardised than financial statement data, as different sources may use different valuation methods. The data limitations are evaluated more in Section 4.4.

The total debt variable used throughout the analysis is constructed only from the reported financial debt, i.e. the sum of short-term financial debt and long-term financial debt, and excludes operating liabilities such as transfer fees payable, wages payable, and other trade payables. This is important in the professional football context because the reported total liabilities typically include large operating items that are not directly comparable to financial borrowing and thus would affect the leverage interpretations in a false way. The issue was noted Section 2.2.3 in discussion related to the findings of Alaminos and Fernández (2019).

The sample includes professional football organisations from the five largest European leagues (Premier League, La Liga, Bundesliga, Serie A, and Ligue 1), for which a detailed financial statement data was available in Orbis Europe for more than one year during the sample period. The franchises that did not have a detailed financial statement, or if they only had a single year of available data, were excluded from the analysis because the over-time analysis of causal effects requires multiple observations so that the effects can be seen. No minimum size or revenue limits were applied, so that the sample reflects the natural variation in club size.

The sample period covers the years from 2015 to 2025. One reason for choosing this period is that the PE investment activity in European football started to increase more noticeably from 2014 onward, as is also visible in the data presented in Section 5.1. This makes the period from 2015 onwards the most relevant window for studying PE ownership effects. Additionally, the Orbis Europe data extraction was limited to a ten-year historical window, making 2015 the earliest practical starting point for the dataset. Together these two factors make 2015 a reasonable starting point for the analysis. The final sample consists of 76 organisations and 675 organisation-year observations, of which 28 organisations received PE investment at some point during the sample period, resulting in 129 PE-backed observations. The remaining 48 organisations and 546

organisation-year observations form the control group. A full breakdown of the sample is presented in Table 2 in Section 5.1.

4.3 Construction of Variables and Specification of Applied Models

Table 1 summarises all variables used in the thesis, including their definitions, how they are measured, and where the data comes from. The table covers all variables used across the descriptive analysis, comparative testing, and regression models presented in Chapter 5.

Table 1 - Definition and measurement of variables

Variable	Definition	Measurement	Source
Debt Ratio	Share of total assets financed through debt	Total debt / Total assets	Constructed from Orbis Europe data
DID	Difference-in-Differences indicator capturing the effect of active PE ownership	Treated x Post	Constructed
EBIT (€M)	Operating profit after depreciation and amortisation	Revenue - Operating expenses - D&A	Orbis Europe
EBITDA (€M)	Operating profit before depreciation and amortisation	Revenue - Operating expenses	Orbis Europe
EBITDA Margin	Operating profitability before financing and accounting adjustments	EBITDA / Revenue	Constructed from Orbis Europe data
Franchise value (€M)	Estimated market value of the sports franchise	Public valuation estimation	Sportico, Pitchbook, Forbes
ln(FranchiseValue)	Natural logarithm of franchise value	ln(Franchise value)	Constructed from Value data
ln(Revenue)	Natural logarithm of annual revenue	ln(Revenue)	Constructed from Orbis Europe data
LT Debt ratio	Share of total debt due beyond one year	Long-term debt / Total debt	Constructed from Orbis Europe data
Net Debt (€M)	Total debt net after cash holdings	Total debt - Cash	Constructed from Orbis Europe data
Net Leverage	Debt level relative to operating cash flow capacity	Net Debt / EBITDA	Constructed from Orbis Europe data
Operating Margin	Operating profitability after depreciation and amortisation	EBIT / Revenue	Constructed from Orbis Europe data
Revenue (€M)	Total annual operating revenue	Reported revenue	Orbis Europe
Revenue growth %	Year-on-year percentage change in revenue	(Revenue t - Revenue t-1) / Revenue t-1	Constructed from Orbis Europe data
ROA	Return generated on total asset base	Net income / Total assets	Constructed from Orbis Europe data
ST Debt ratio	Share of total debt due within one year	Short-term debt / Total debt	Constructed from Orbis Europe data
Total debt (€M)	Total interest-bearing debt obligations	Short term financial debt + long term financial debt	Orbis Europe
Valuation growth %	Year-on-year percentage change in franchise value	(Value t - Value t-1) / Value t-1	Constructed from Value data
Value / Revenue	Franchise valuation relative to annual revenue	Franchise value / Revenue	Constructed from Value data and Orbis Europe data
Years since PE	Number of years since PE investment entry	0 for non-PE and pre-investment observations, counts upward from 1 during active PE ownership	Constructed

Two important self-constructed variables require some additional explanation. The DID-indicator is created as the interaction between two variables: Treated and Post. Treated is a binary variable equals 1 for all organisations that received PE investment at any point during the sample period, and

0 for organisations that never received PE investment. Since the treatment status itself does not change over time, the Treated variable is time-invariant. The Post variable, in contrary, is time-varying binary variable, and equals 1 for all years during and after PE investment for treated organisations, and 0 for all other organisation-year observations, including the pre-investment years of clubs who later became PE-backed. The DID-indicator therefore equals 1 only for observations in which an organisation is both a treated club and in a post-investment year, capturing the change in financial characteristics associated with active PE ownership. The Years since PE variable is coded as 0 for all non-PE observations and for the pre-investment observations of subsequently PE-backed organisations, and starts counting upwards by one for each additional year after PE investment. It is included in all regression models to test whether PE effects accumulate over time rather than appearing immediately, as discussed in Expectation 1c in Section 3.4 and Expectation 2b in Section 3.5.

The distribution of all variables is examined using the Jarque-Bera test (Jarque & Bera 1980), which tests whether a variable is normally distributed. A statistically significant result indicates that the variable is not normally distributed, which affects how variables are transformed before entering the them into the regression models and how the comparative tests in Section 5.2 are interpreted. The Jarque-Bera test results are presented in Table 3 in Section 5.1, and are used to justify the logarithmic transformations applied to franchise value and revenue in the regression models.

The mean comparison analysis in Section 5.2 presents two statistical tests side by side for each variable. The standard t-test (see Wooldridge 2020, 735–738) is used to test whether the means of the PE and non-PE groups differ statistically under the assumption of equal variances between the groups. Since the two groups in this sample differ substantially in size, the equal variance assumption is often rejected, and the Satterthwaite-Welch t-test is therefore also reported and used as the preferred test alongside the standard t-test. The Satterthwaite-Welch test (Welch 1947) eliminates the equal variance assumption and produces more reliable results in these circumstances. Both tests are presented for transparency, but conclusions in Section 5.2 are primarily drawn from the Satterthwaite-Welch results.

The regression analysis in Section 5.3 estimates four sets of regression models using panel data. All models include organisation-level fixed effects (α_i) (see Angrist & Pischke 2009, 221–227) because club-specific characteristics such as market size, league, ownership history, and fanbase are likely correlated with both PE investment decisions and financial outcomes. The equations below represent the two-way fixed effects added in second and third specification, which also includes

time fixed effects (γ_t) to explain common shocks affecting all clubs in a given year (see Angrist & Pischke 2009, 221–227), such as the impact of the COVID-19 pandemic on revenues in 2020 and 2021, changes in broadcasting rights values, or broader macroeconomic conditions. The basic, cross-section only specification, leaves out γ_t in its equation. In order to correct the heteroskedasticity and serial correlation within the clubs over time, White cross-section clustered standard errors are applied in the preferred third specification, which does not change the regression equation itself (see Wooldridge 2020, 460–461).

The general form of the regression models is:

$$Y_{it} = \alpha_i + \gamma_t + \beta_0 + \beta_1 DID_{it} + \beta_2 YearsSincePE_{it} + \beta_k X_{it} + \epsilon_{it} \quad (1)$$

where Y_{it} is the dependent variable for organisation i in year t, DID_{it} is the Difference-in-Differences indicator, $YearsSincePE_{it}$ captures whether PE effects build up over time, X_{it} is the set of control variables, and ϵ_{it} is the error term.

Baseline capital structure model:

$$DebtRatio_{it} = \alpha_i + \gamma_t + \beta_0 + \beta_1 DiD_{it} + \beta_2 YearsSincePE_{it} + \beta_3 \ln(Revenue)_{it} + \beta_4 EBITDAmargin_{it} + \epsilon_{it} \quad (2)$$

This model tests whether PE ownership is associated with changes in overall leverage, using debt ratio as the primary capital structure measure. Debt ratio is used as the primary dependent variable because it is one of the most commonly used indicators of leverage in corporate finance research. The model includes ln(Revenue) as a control for organisational size, since larger firms often have greater access to debt markets and more stable cash flows, both of which may influence the leverage decisions. EBITDA margin is included as a profitability control because it reflects the operating performance and the organisation's ability to manage its debt obligations.

Alternative leverage models:

$$NetLeverage_{it} = \alpha_i + \gamma_t + \beta_0 + \beta_1 DiD_{it} + \beta_2 YearsSincePE_{it} + \beta_3 \ln(Revenue)_{it} + \beta_4 EBITDAmargin_{it} + \epsilon_{it} \quad (3)$$

$$STDebtRatio_{it} = \alpha_i + \gamma_t + \beta_0 + \beta_1 DiD_{it} + \beta_2 YearsSincePE_{it} + \beta_3 \ln(Revenue)_{it} + \beta_4 EBITDAmargin_{it} + \epsilon_{it} \quad (4)$$

These models use net leverage and short-term debt ratio as alternative dependent variables to check whether the baseline capital structure results hold across different ways of measuring leverage. Net leverage shows debt relative to operating cash flow, and the short-term debt ratio shows how much

of the total debt is due within one year. Same control variables (ln(Revenue) and EBITDA margin) are selected as in the baseline capital structure model.

Valuation models:

$$\ln(FranchiseValue)_{it} = \alpha_i + \gamma_t + \beta_0 + \beta_1 DiD_{it} + \beta_2 YearsSincePE_{it} + \beta_3 \ln(Revenue)_{it} + \beta_4 EBITDAmargin_{it} + \beta_5 DebtRatio_{it} + \epsilon_{it} \quad (5)$$

$$Value/Revenue_{it} = \alpha_i + \gamma_t + \beta_0 + \beta_1 DiD_{it} + \beta_2 YearsSincePE_{it} + \beta_3 \ln(Revenue)_{it} + \beta_4 EBITDAmargin_{it} + \beta_5 DebtRatio_{it} + \epsilon_{it} \quad (6)$$

These models test whether PE ownership is associated with higher franchise valuations. Ln(franchise value) is the primary measure and value to revenue is included as an alternative that controls for organisational scale. The models include ln(Revenue) as a control for organisational size, and EBITDA margin is included as a profitability control. Debt ratio is included in the valuation models to test whether a club's level of debt has any effect on its franchise valuation.

Profitability Model:

$$EBITDAmargin_{it} = \alpha_i + \gamma_t + \beta_0 + \beta_1 DiD_{it} + \beta_2 YearsSincePE_{it} + \beta_3 \ln(Revenue)_{it} + \beta_4 DebtRatio_{it} + \epsilon_{it} \quad (7)$$

This model tests whether PE ownership is associated with changes in operating profitability. The model includes ln(Revenue) as a control for organisational size, while the Debt ratio is used as a control for capital structure, since both factors can influence profitability outcomes.

Section 5.4 presents a Difference-in-Differences estimation using the EViews 14 dedicated DiD estimator as an additional analysis to the panel regressions in Section 5.3. The main focus of this section is to formally test the parallel trends assumption that the DiD approach relies on. The parallel trends assumption states that without PE investment, PE-backed and non-PE clubs would have followed similar financial trends over time. If this assumption does not hold, meaning that the two groups were already developing different directions before PE investment took place, the DiD coefficient cannot be interpreted to reflect the causal effect of PE ownership. (Angrist & Pischke 2009, 221–227). The assumption is tested using a Wald test based on the following auxiliary regression (EViews 2025):

$$Y_{i,g,t} = \alpha_i + \gamma_t + \delta D_{g,t} + \theta Tr * D_{i,g,t} + \epsilon_{i,g,t} \quad (8)$$

where $Y_{i,g,t}$ is the dependent variable for organisation i in group g at time t, α_i and γ_t are organisation and time fixed effects, $D_{i,g,t}$ is the treatment indicator, Tr is a linear trend term, and θ captures

whether PE-backed and non-PE clubs were already on different financial paths before PE investment happened. The null hypothesis is $H_0 : \theta = 0$, meaning no pre-existing trend difference exists between the two groups. Failing to reject this hypothesis supports the validity of the DiD approach used throughout Section 5.3. The results for the Wald test are presented in Table 17 in Section 5.4 alongside the DiD coefficients.

4.4 Limitations of the Data and Methodology

The biggest limitations of data relate to the availability of it. Due to PE investments being a relatively new area in professional sports and European football, there is a limited amount of data available, that can be used in the testing. As discussed more in Section 5.1 the PE related observations represent only 129 observations out of the 675 total sample observations. This limits the statistical reliability of the PE effect testing, meaning that real PE effects could be existing while not showing up in the testing. The data availability limit is also present in the financial statement data available through Orbis Europe. As European football clubs are mainly privately owned, some of the smallest clubs do not publish their financial statements or the data is not complete. Due to this the 76 observed organisations observed does not fully represent the 96 organisations that competed in the top five European football leagues in the 2025/2026 season. The data is most incomplete from Bundesliga and Ligue 1, meaning that the average financial figures for these two leagues are likely higher than true league averages, and thus the league-level comparisons should be treated with this in mind.

In order to get reliable results despite the limited data available, this thesis uses multiple dependent variables, multiple model specifications, and two different estimation methods (panel regression in Section 5.3 and Difference-in-Differences estimation in Section 5.4). This means that the consistency of the results can be examined, which strengthens the credibility of the finding if the results show consistency.

Franchise valuation data is a second data limitation, as unlike the financial statement data, which is audited and follows standardised accounting rules, the franchise valuations are estimates based on different valuation methodologies. Different sources may weight different factors like revenue multiples, brand value, and market differently, which introduces may result in differences in valuation models. That said, franchise valuations from Sportico, Forbes, and Pitchbook represent the most known and agreed valuation estimates for private sports organisations that are not publicly listed and therefore have no absolute market price. The use of multiple sources and selection of the

most detailed estimate for each club-year observation reduces the risk of a single valuation model driving the results, but is not eliminated entirely.

A further issue relates to the timing mismatch between valuation data and financial statement data. Franchise valuation estimates from Sportico, Forbes, and Pitchbook are typically published once a year, often at a point that does not align with the financial year-end of the clubs in the sample. Where the publication date of a valuation estimate differs from the financial year-end of the club, the estimate is assigned to the closest fiscal year. This may cause some timing inaccuracies in the dataset but it best represents the available data.

From the methodological side the biggest concern is a selection bias. As discussed in Section 2.1.2, PE investors do not randomly choose which clubs to invest in, but rather do extensive research for the investments and target organisations that they believe are the best investments. This means that PE-backed and non-PE clubs are not directly comparable, and observations of financial differences between them may reflect the type of club that attracts PE investment rather than the actual effect that the PE ownership has on the club. Although the selection bias cannot be fully eliminated, this thesis addresses it by using the two-way fixed effects models in regressions and the Difference-in-Differences approach in the causal effect testing, to truly focus on the changes around the PE investment rather than cross-sectional differences clubs.

A specific issue related to the Difference-in-Differences approach is the parallel trends assumption that it relies on. As discussed in Section 4.3, the DiD-estimator requires that PE-backed and non-PE clubs would have followed the same financial trends without PE investment. Even though the parallel trends assumption is tested in Section 5.4, it is technically impossible to know what would have happened to the PE-backed clubs without PE-involvement. By this limitation, there could be instances where the causal effects observed through Difference-in-Differences approach may reflect the pre-existing trends the investment-receiving clubs already had or there could be totally unrelated events that happen during the PE-investment that is falsely interpreted as PE ownership effect. However, in practice, these false results are made unlikely due to the research design which tests the parallel trends assumption and adds period fixed effects in the regressions, and due to the different timing of the PE investments which makes it very unlikely that any external unrelated event happened at exactly the right time to affect these clubs precisely when they received PE investment and not affect the control group.

The DiD -coefficients in Section 5.4 are also estimated with the standard two-way fixed effects DiD-estimator. In more recent literature this two-way fixed effects DiD-estimator has been argued

to produce biased results in staggered DiD environments, i.e. environments where treatment happens at different points in time across different organisations, when the treatment effects differ across groups (see Callaway & Sant'Anna 2021). In this thesis, the DiD variable adopts this staggered DiD design as PE investments entered the sample at different points in time across different clubs rather than in a single treatment date. A possible solution to deal with this possibility of biasness would be to use a specific staggered DiD-estimator designed by Callaway and Sant'Anna (2021). However, this method requires a balanced panel dataset, which this thesis does not have due to the missing financial statement data for some clubs as described earlier, and thus the DiD testing is done with the standard two-way fixed effects DiD-estimator. While this choice should be viewed as a limitation, it does not invalidate the results. The main findings remain consistent across different models, suggesting that the conclusions are unlikely to be driven solely by the two-way fixed effects created bias. However, future research could revisit this question by using a more complete dataset that would allow staggered DiD method to be applied.

Variable bias is also one concern considering the variable selection for the regression equations. Despite controlling for size, profitability, and leverage, there are likely other factors affecting the club finances that are not included in the models. One obvious example in the professional sports business, is the sporting performance of the teams, which can significantly affect for example revenue generations, but is deliberately excluded from the scope of this thesis, as the focus remains in the financial side. However, it is important to note that sporting performance, like winning a title, qualifying for European competitions, and relegations, can have that significant effect on revenues and valuations that is not directly included in the models. That said, the use of organisation-level fixed effects in the models, which also considers general sporting quality, can partly decrease the concern. While it cannot capture the year-to-year variation in sporting performance, it ensures that the DID-coefficient is not affected by permanent differences in sporting quality between PE-backed and non-PE clubs.

Finally, the findings are limited to how broadly they can be applied in the general professional sports industry as the testing is done only on European professional football level. This will be discussed more in Section 5.5 and Chapter 6 when interpreting and evaluating the results.

5 Empirical Results

5.1 Descriptive Analysis

This thesis uses a panel dataset of professional sports organisations to examine how private equity (PE) ownership relates to the financial performance and capital structure of those franchises. Since PE investments in the top five European leagues are still relatively limited, the sample includes all clubs for which sufficient financial data was available during the observation period instead of applying additional selection criteria. The final dataset, summarised in Table 2, consists of 76 organisations operating across five biggest European football leagues (Premier League, La Liga, Bundesliga, Serie A, and Ligue 1), and covers the period from 2015 to 2025. The dataset contains 675 organisation-year observations, providing a panel structure that allows analysis of financial performance and structural changes over time.

Table 2 - Sample overview

Category	Number
Number of Organisations:	76
Number of Leagues:	5
Time period start:	2015
Time period end:	2025
Number of Observations:	675
Number of PE-backed Organisations:	28
Number of Non-PE-backed Organisations:	48
Number of PE-backed Observations:	129
Number of Non-PE-backed Observations:	546

Of the 76 organisations included in the sample, 28 teams have received private equity investment at some point during the observation period, while the remaining 48 organisations serve as a control group with no private equity backing. This structure allows the comparison between PE-backed and non-PE-backed teams, allowing the analysis to show potential differences in financial structure and performance associated with private equity involvement. Because private equity investments occur at specific points in time rather than throughout the entire sample period, the number of observations is distributed unevenly between the two groups. In total, the dataset contains 129 PE-backed team-year observations, representing years in which organisations were under private equity ownership, and 546 non-PE-backed team-year observations, belonging either to organisations that never received private equity investment or representing periods before such investment occurred. This roughly 1:4 ratio of PE to non-PE observations is worth noting, as the relatively smaller PE group limits the statistical power of the regression analyses presented in Section 5.3, and makes detecting significant treatment effects more difficult.

Table 3 presents the descriptive statistics for the key financial variables used in the analysis, including mean, median, standard deviation, minimum and maximum values, as well as skewness, kurtosis, and Jarque-Bera test results. All monetary figures are expressed in millions of euros (€M). Three themes emerge from these statistics that are directly relevant for the later analysis: the extreme scale differences across organisations, the generally poor and volatile profitability of the sample, and the moderate but widely dispersed debt levels.

Table 3 - Descriptive statistics

Variable (€M)	Observations	Mean	Median	Std. dev.	Min	Max	Skewness	Kurtosis	Jarque-Bera	p-value
Franchise Value	675	621.33	180.00	1,098.68	0.50	6,792.99	2.72	10.26	2,314.23	**0.000*** **
Revenue	675	192.96	120.52	199.60	0.82	1,103.26	1.65	5.31	457.36	**0.000*** **
EBITDA	675	29.44	15.53	56.50	-330.16	388.24	1.07	9.12	1,181.39	**0.000*** **
EBIT	675	-16.05	-3.88	57.31	-505.00	264.15	-1.56	13.92	3623.80	**0.000*** **
Total Debt	675	98.96	36.00	181.56	0.00	1,784.29	3.80	22.08	11,861.52	**0.000*** **
Net Debt	673	65.12	18.54	148.23	-231.50	1,473.46	3.53	21.95	11,472.85	**0.000*** **
Debt Ratio	675	0.26	0.21	0.25	0.00	2.18	2.10	12.85	3,224.37	**0.000*** **
Net Leverage	673	1.46	0.27	37.99	-440.73	741.24	8.84	246.47	1,671,030.00	**0.000*** **
Operating Margin	675	-0.18	-0.06	0.56	-6.77	1.54	-4.39	40.59	41,913.45	**0.000*** **
EBITDA Margin	675	0.04	0.14	0.50	-6.70	2.01	-5.64	62.29	102,454.00	**0.000*** **
Value / Revenue	675	2.26	1.72	1.78	0.33	21.14	3.14	23.55	12,991.43	**0.000*** **

Financial variables are measured in millions of euros (€M). Jarque-Bera statistics and corresponding p-values are reported to test for normality. *** p<0.01, ** p<0.05, * p<0.10.

Relating to the scale, the average franchise value across all observations amounts to €621.33 million, while the median is considerably lower at €180.00 million. A standard deviation of €1,098.68 million, nearly twice the mean, reflects a strongly right-skewed distribution in which a small number of elite clubs, such as Manchester City, Real Madrid, and Bayern Munich, drive the overall average above the typical organisation, and the skewness statistic of 2.72 and excess kurtosis of 10.26 confirm this formally. The Jarque-Bera statistic of 2,314.23 ($p < 0.001$) decisively rejects normality, which directly motivates the logarithmic transformation of franchise value applied in the regression models of Section 5.3.

A similar pattern holds for average annual revenue, where skewness of 1.65 and kurtosis of 5.31 reflect a distribution pulled rightward by a small number of elite clubs with revenues far exceeding the typical organisation, again confirmed by the Jarque-Bera test ($p < 0.001$). The standard deviation of €199.60 million exceeds the mean of €192.96 million and median of €120.52 million, indicating that variation in operating scale across organisations is as large as the scale itself. Logarithmic transformation is therefore applied to revenue as a control variable in the regression models for the same reason. This result also raises an interpretive consideration for the comparative analyses: if PE investment is focused among the largest and most commercially powerful clubs,

observed differences between PE and non-PE organisations may partly reflect club tier rather than ownership structure alone.

Profitability figures also highlight the unusual economics of professional sports. The average EBITDA across the sample is €29.44 million, but the range of -€330.16 million to €388.24 million, combined with a skewness of 1.07 and kurtosis of 9.12 (Jarque-Bera $p < 0.001$), indicates that extreme operating outcomes, both losses and profits, are common across the sample. EBIT averages -€16.05 million across the full sample, meaning that after depreciation, which in football includes amortisation of player registrations, the average organisation runs at an operating loss. These values are consistent with the theoretical discussion in Section 3.2, which highlighted the win-maximising rather than profit-maximising orientation of many European football clubs, where investments in sporting performance often exceed what revenue alone can sustain. Most critically, EBITDA margin has extreme distributional properties, with a kurtosis of 62.29 and a Jarque-Bera statistic of 102,454 ($p < 0.001$). This degree of non-normality, driven by a handful of organisations with severe margins in either direction, means that average profitability comparisons between PE and non-PE organisations in section 5.2.3 should be interpreted cautiously even after the Welch variance correction is applied.

The capital structure variables show that debt levels differ substantially across clubs. Total debt averages €98.96 million with a median of €36.00 million, again indicating a right-skewed distribution driven by a small number of highly indebted organisations. The debt ratio, defined as total debt divided by total assets, averages 0.26, with a median value of 0.21, suggesting that the typical organisation finances roughly 20-25% of its asset base through financial debt, which is a relatively conservative position. However, the maximum debt ratio of 2.18 indicates that certain organisations operate with extremely high debt level relative to their asset base.

Net leverage, defined as net debt divided by EBITDA, raises particular attention: while the median of 0.27 appears modest, the mean of 1.46 and a standard deviation of 37.99 are driven by organisations with near-zero or negative EBITDA, for which the ratio becomes mathematically extreme and economically uninformative. This instability makes net leverage an unreliable primary measure across this sample, which in turn motivates the use of the debt ratio as the main leverage variable in the baseline regression models, with net leverage retained as a robustness check in Section 5.3.2.

Finally, the value-to-revenue multiple averages 2.26, with a median value of 1.72. This indicates that, on average, franchises are valued at around two times their annual revenue. However, the relatively large standard deviation of 1.78, together with the value range from 0.33 to 21.14, demonstrates that valuation multiples differ substantially across organisations. These differences are likely caused by variations in brand strength, market size, sporting success, and long-term growth expectations.

To complement the overall descriptive statistics, it is useful to examine how the key financial indicators evolve across the observation period. Table 4, as well as Figures 1 and 2, present the annual averages for franchise value, revenue, and debt ratio from 2016 to 2024. Years 2015 and 2025 have been excluded from this table as the financial statement data for these years were significantly incomplete because only a limited number of organisations had already published their 2025 figures, and for those that had already published them, the 2015 data was out of the ten-year data extraction limitation set by Orbis Europe. Including either year would have resulted in bias figures and distorted trend lines.

Table 4 - Yearly averages of key figures

Year	Value	Revenue	Debt Ratio
2016	376.59	131.15	0.26
2017	399.70	152.75	0.24
2018	474.89	181.80	0.20
2019	547.77	204.67	0.21
2020	608.28	183.90	0.24
2021	672.92	183.90	0.28
2022	797.30	210.37	0.32
2023	942.72	250.31	0.28
2024	904.42	264.00	0.27

Franchise valuations rose steadily and substantially across the period, growing from an average of €376.59 million in 2016 to a peak of €942.72 million in 2023, an increase of roughly 150% over seven years. This trend reflects the broader commercialisation of the industry discussed in Chapter 1: expanding media rights revenues, growing global fan bases, and increasing institutional investor interest in sports as an asset class, have made the franchise valuations grow rapidly. A small decline to €904.42 million in 2024 can be observed but it should not be overstated, as it reflects valuation adjustments at the individual club level, most notably clubs experiencing relegation or reputational setbacks, rather than any structural downward trend.

A similar pattern can be observed in average revenue levels. Average revenue increases steadily from €131.15 million in 2016 to €204.67 million in 2019, indicating gradual expansion in the operating scale of the organisations included in the sample. However, a noticeable decline occurs in

2020 and 2021, when average revenue falls to €183.07 million, reflecting the financial impact of the global COVID-19 pandemic, which significantly affected matchday revenues and commercial activities across professional sports leagues. From 2022 onwards, revenues begin to recover and average revenue surpasses the pre-pandemic levels to €264.00 million by 2024, suggesting that the underlying commercial fundamentals of European football remained intact despite the disruption.

In contrast to the strong growth observed in valuations and revenues, the average debt ratio has remained relatively stable across the observation period. The debt ratio starts at 0.26 in 2016, declines slightly to 0.20 by 2018, before rising to 0.32 at its peak in 2022, then returning to 0.27 by 2024. The elevated debt levels around 2021–2023 corresponds directly with the period of pandemic-related revenue loss, consistent with clubs increasing debt financing to counter the revenue shortages rather than undertaking structural changes to their capital structure. The relative stability of the debt ratio across a period of significant valuation and revenue growth is itself a meaningful early finding: it indicates that the financial expansion of European football during this period has been equity-driven rather than leveraged, and that the capital structure of the average club has not materially shifted despite the entry of new institutional investors. This observation, while preliminary, provides an initial signal relevant to the first research sub-question and will be examined more in the regression analysis of Section 5.3.

The graphical representation of the yearly trends can be seen in Figures 1 and 2.

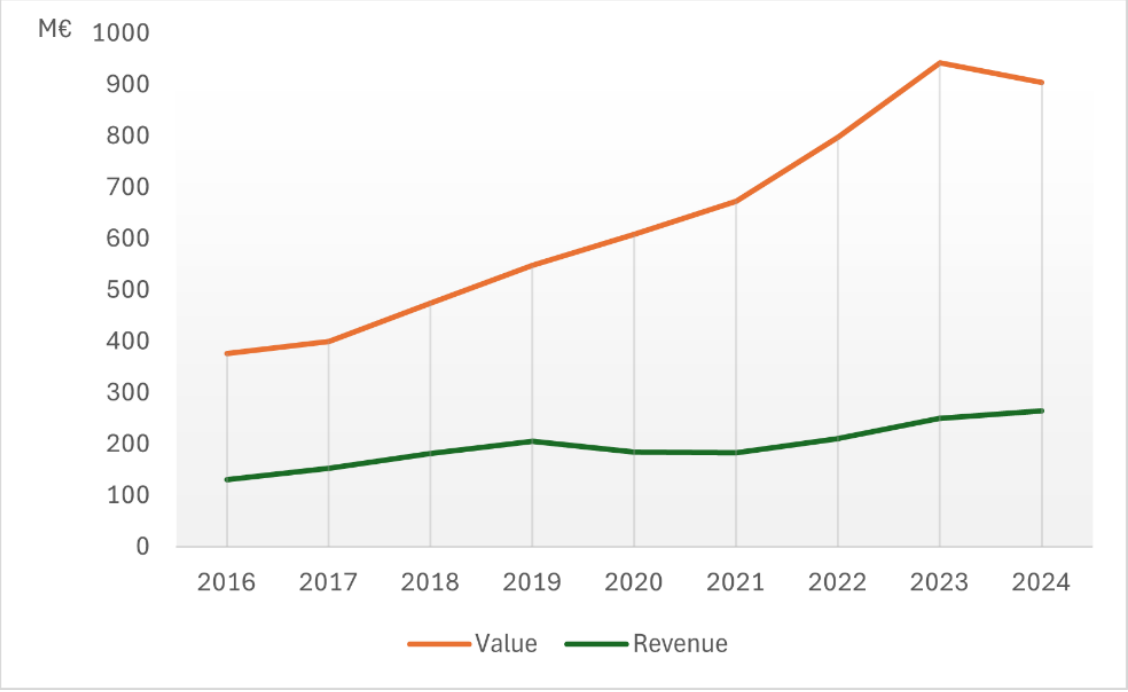

Figure 1 - Franchise value and revenue over time

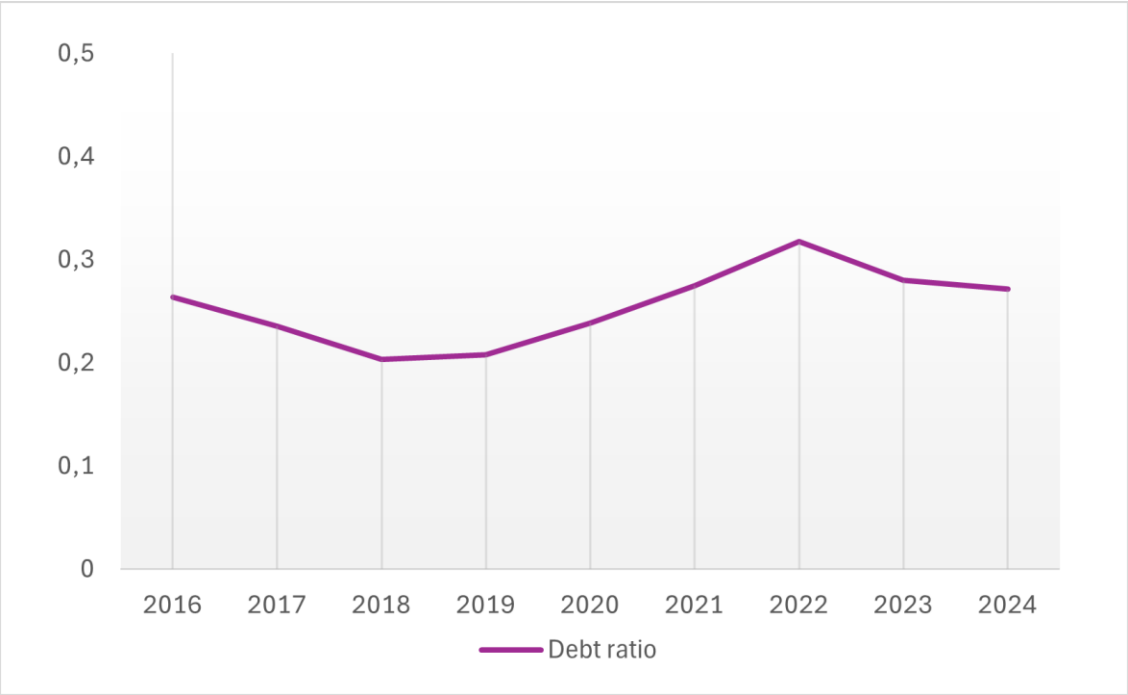

Figure 2 - Debt ratio over time

As shown in Table 5, a total of 29 PE investment entries are observed across the sample period within 28 different franchises (AFC Bournemouth has received two different PE arrivals in 2015 and 2022), distributed across 2014 to 2025. The pattern of entry years reveals that PE activity in European football has been gradually expanding over time, beginning in 2014 and drawing more interest in the 2020s. Even though yearly number of investments are relatively stable, the beginning of 2020 can be seen as divider year for the interest, as prior to that only 10 PE investments were completed, and since that 19 investment were completed. This demonstrates the growing interest PE investments have in the sports business, and suggests a market that has been steadily opening to institutional investment rather than experiencing a sudden influx, consistent with the gradual regulatory relaxation and growing familiarity with the asset class described in Chapter 1.1. The total of 28 PE-backed teams across the total 76 sample organisations means that about 37% of the sample has experienced PE ownership at some point during the observation period, which provides a meaningful treated group for the comparative and regression analyses that follow.

Table 5 - Number of yearly PE investments

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total.
Number of PE investments	1	2	3	2	2	0	3	4	4	3	1	4	29

The average PE ownership stake across these investments is approximately 50%, with median of 45%, which means that the typical PE investment in European football is a minority stake just

below majority control. However, the stake percentages in the sample range from small minority positions of under 10% to full acquisitions of 100%. This variation has governance implications: a 10% minority stake typically provides limited operational influence, while a full control majority stake positions the PE investor as the dominant decision-maker. This should be kept in mind as a potential source of within-PE-group variation when interpreting the aggregate results.

Table 6 presents the distribution of organisations and PE investments across the five leagues included in the sample. The data reveals differences in financial scale between leagues, as well as a notably uneven distribution of PE investment. The Premier League has the highest average valuation and revenue, with average franchise values of €1,205.49 million and average revenues of €286.87 million, which is roughly three times the revenue of the average La Liga club and nearly double that of Serie A. The Bundesliga has a similar valuation tier to the Premier League on a per-club basis at €689.74 million average franchise value, though with considerably fewer clubs in the sample. These scale differences directly motivate the use of logarithmic transformations and organisation-level fixed effects in the regression models, as failing to account for them would risk conflating league-level financial differences with ownership effects.

Table 6 - Leagues specific statistics

	Organisations	PE-backed	PE%	Average Value	Average Revenue	Average Debt Ratio
Premier League	20	10	50%	1,205.49	286.87	0.33
Bundesliga	10	1	10%	689.74	257.60	0.22
Serie A	19	9	47%	317.91	157.31	0.19
La Liga	18	3	17%	317.24	97.51	0.30
Ligue 1	9	5	56%	355.27	141.37	0.20

It is important to note that the Bundesliga and Ligue 1 figures should be interpreted with caution, as the samples for these leagues are incomplete. Smaller clubs in both leagues do not publish public financial statements, meaning that the organisations included in the sample are toward the larger, more commercially developed clubs within the leagues. As a result, the average valuation and revenue figures for these two leagues are likely inflated compared to the true league averages, and the number of organisations represented, 10 for the Bundesliga and 9 for Ligue 1, understates the full size of each league. This data availability constraint is a characteristic limitation of working with European football financial data as discussed in Section 4.4.

The distribution of PE investment also varies between leagues. Ligue 1 has the highest PE-backing rate at 56%, followed by the Premier League at 50% and Serie A at 47%, while La Liga stands at just 17% and the Bundesliga at 10%. The PE investment activity in Ligue 1 is particularly notable

given that it has relatively modest average valuations of €355.27 million, suggesting that PE investors in that league may have a different investment rationale, potentially targeting undervalued clubs with growth potential rather than established elite franchises. The near-absence of PE investment in the Bundesliga likely reflects the league's unique 50+1 ownership rule, which requires that member clubs retain majority voting rights in the teams (see Bundesliga: Explaining the Bundesliga's 50+1 rule), effectively limiting the control rights that PE investors typically seek. These structural differences across leagues reinforce the importance of interpreting the aggregate regression results with caution.

5.2 Comparative Ratio Analysis

This section compares the financial characteristics of PE-backed and non-PE organisations across four aspects: valuation, capital structure, profitability, and growth. For each variable, the PE group includes all observations during and after private equity ownership (n=129), including 8 observations where PE has already exited, reflecting the documented longevity of financial changes introduced during PE ownership. The non-PE group comprises all remaining observations (n=546), including pre-investment periods of subsequently PE-backed organisations, which are in the control group because these clubs were not under the effects of PE ownership during those years. Mean differences between the two groups are tested using both the standard t-test and the Satterthwaite-Welch t-test, with the Satterthwaite-Welch t-test preferred where group variances differ significantly, which is a common feature of this sample as documented in Section 5.1.

5.2.1 Valuation Comparison

Table 7 presents the results of the valuation comparison between PE-backed and non-PE organisations. Three valuation measures are examined: raw franchise value in millions of euros, the natural logarithm of franchise value, and the value-to-revenue multiple.

Table 7 - Results for valuation comparison

Variable	PE mean (Std. Dev.)	Non-PE mean (Std. Dev.)	Diff.	t-stat	p-value	Welch t-stat	Welch p-value
Franchise value (€M)	1,074.81 (1,551.88)	514.19 (931.14)	560.62	-5.317	**0.000*** **	-3.939	**0.000*** **
ln(Franchise value)	19.81 (1.46)	18.93 (1.54)	0.88	-5.913	**0.000*** **	-6.108	**0.000*** **
Value / Revenue	2.61 (1.71)	2.17 (1.79)	0.44	-2.545	**0.011** **	-2.619	**0.010*** **

PE group includes all observations with POST=1 (n=129), including 8 post-exit observations. Non-PE group includes all remaining observations (n=546), including pre-investment periods of subsequently PE-backed organisations. Standard deviations in parentheses. Satterthwaite-Welch t-test corrects for unequal group variances. *** p<0.01, ** p<0.05, * p<0.10.

The results provide consistent and statistically significant evidence that PE-backed organisations have higher valuations across all three measures. PE-backed organisations have a mean franchise value of €1,074.81 million, compared to €514.19 million for non-PE organisations, a difference of €560.62 million that is highly significant under both the standard t-test ($t = -5.317$, $p < 0.001$) and the Satterthwaite-Welch test ($t = -3.939$, $p < 0.001$). The Welch correction is particularly relevant here given that the standard t-test assumes equal variances between the two groups, which in the data is €931.14 million for non-PE versus €1,551.88 million for the PE group, and the Satterthwaite-Welch t-test corrects these unequal variances between groups. The logarithmic transformation confirms this finding while controlling for the skewness documented in Section 5.1. The mean ln(FranchiseValue) of PE-backed organisations is 19.81, compared to 18.93 for non-PE organisations, a difference of 0.88 that is again highly significant under both tests ($t = -5.913$ and Welch $t = -6.108$, both $p < 0.001$).

The value-to-revenue multiple provides perhaps the most analytically meaningful result of the three measures, as it tests valuation relative to current revenue and therefore controls for differences in organisational scale. PE-backed organisations have a mean multiple of 2.61 compared to 2.17 for non-PE organisations, a difference of 0.44 that is statistically significant at the 5% level under the standard t-test ($t = -2.545$, $p = 0.0112$) and statistically significant at the 1% level the Satterthwaite-Welch test ($t = -2.619$, $p = 0.0095$). This result suggests that the market values PE-backed organisations are beyond what their current revenue base alone would justify, potentially reflecting investor expectations of improved operational efficiency, stronger governance, or enhanced growth prospects associated with PE ownership.

The results of all three measures tell a consistent story: PE-backed organisations are valued significantly higher than their non-PE counterparts, both in absolute terms and relative to their revenue. However, it is important to note that this comparison does not establish causality on its own. PE investors may systematically target larger and more commercially developed clubs, meaning that the valuation differences may partly reflect selection effects rather than value created by PE ownership itself. This is addressed more in the regression analysis of Section 5.3, where organisation-level fixed effects are used to control for time-invariant club characteristics.

5.2.2 Capital Structure Comparison

Table 8 presents the results of the capital structure comparison between PE-backed and non-PE organisations. Five measures are examined: debt ratio, net leverage, short-term debt ratio, long-term debt ratio, and total debt in absolute terms.

Table 8 - Results for capital structure comparison

Variable	PE mean (Std. Dev.)	Non-PE mean (Std. Dev.)	Diff.	t-stat	p-value	Welch t-stat	Welch p-value
Debt ratio	0.30	0.25	0.06	-2.255	**0.025****	-1.997	**0.048****
	(0.29)	(0.24)					
Net leverage	-3.29	2.58	-5.87	1.580	0.115	2.077	**0.039****
	(25.41)	(40.35)					
ST Debt ratio	0.35	0.35	-0.01	0.161	0.872	0.178	0.859
	(0.32)	(0.37)					
LT Debt ratio	0.65	0.65	0.01	-0.161	0.872	-0.178	0.859
	(0.32)	(0.37)					
Total debt (€M)	148.34	87.29	61.05	-3.463	**0.001*****	-2.937	**0.004*****
	(221.37)	(168.95)					

PE group includes all observations with POST=1 (n=129), including 8 post-exit observations. Non-PE group includes all remaining observations (n=546), including pre-investment periods of subsequently PE-backed organisations. Standard deviations in parentheses. Satterthwaite-Welch t-test corrects for unequal group variances. *** p<0.01, ** p<0.05, * p<0.10.

The results provide mixed but partially significant evidence regarding differences in capital structure between PE-backed and non-PE organisations. PE-backed organisations show a higher mean debt ratio of 0.30 compared to 0.25 for non-PE organisations, a difference that is statistically significant at the 5% level under both the standard t-test ($t = -2.255$, $p = 0.025$) and the Satterthwaite-Welch test ($t = -1.997$, $p = 0.048$). Similarly, PE-backed organisations carry higher total debt in absolute terms, with a mean of €148.34 million compared to €87.29 million for non-PE organisations, a difference of €61.05 million that is highly significant under both tests ($t = -3.463$, $p < 0.001$ and Welch $t = -2.937$, $p = 0.004$). These findings suggest that PE-backed organisations operate with higher leverage both in relative and absolute terms compared to their non-PE counterparts.

However, these results should be interpreted with caution. As documented in Section 5.2.1, PE-backed organisations are significantly larger in terms of revenue and franchise value than non-PE organisations. Since larger organisations typically carry higher absolute debt levels to finance their asset bases, the observed differences in debt ratio and total debt may partly or fully reflect differences in organisational scale rather than PE ownership effect. This is an important limitation of the raw mean comparisons and is directly addressed in the regression analysis in Section 5.3.1, where organisation-level fixed effects and ln(Revenue) controls separate the ownership effect from scale differences.

Net leverage shows no significant difference under the standard t-test ($t = 1.580$, $p = 0.115$), though the Satterthwaite-Welch test gives a significant result at the 5% level ($t = 2.077$, $p = 0.039$). Given the extreme non-normality of net leverage documented in Section 5.1, this difference between the

two tests is not surprising and reflects the sensitivity of the measure to outlier observations rather than a meaningful difference between groups. As discussed in Section 5.1, net leverage is an unreliable measure for this sample due to the near-zero and negative EBITDA values, and this is clearly visible in the standard deviations of 25.41 and 40.35 for the PE and non-PE groups.

Neither the short-term nor the long-term debt ratio shows any statistically significant difference between PE-backed and non-PE organisations, with both measures producing identical test statistics ($t = 0.161$ and $t = -0.161$, $p = 0.872$ for both). This suggests that while PE-backed organisations may carry more debt overall, the maturity structure of that debt does not differ significantly from non-PE organisations, meaning that PE investors do not appear to systematically shift clubs towards either shorter- or longer-term debt.

5.2.3 Profitability Comparison

Table 9 presents the results of the profitability comparison between PE-backed and non-PE organisations. Four measures are examined: EBITDA margin, operating margin, return on assets, and absolute EBITDA in millions of euros.

Table 9 - Results for profitability comparison

Variable	PE mean (Std. Dev.)	Non-PE mean (Std. Dev.)	Diff.	t-stat	p-value	Welch t-stat	Welch p-value
EBITDA margin	0.05	0.04	0.01	-0.146	0.884	-0.181	0.857
	(0.37)	(0.53)					
Operating margin	-0.22	-0.18	-0.05	0.826	0.409	1.048	0.296
	(0.40)	(0.60)					
ROA	-0.08	-0.08	0.00	-0.080	0.936	-0.121	0.904
	(0.19)	(0.40)					
EBITDA (€M)	36.55	27.76	8.79	-1.590	0.112	-1.353	0.178
	(69.12)	(53.02)					

PE group includes all observations with POST=1 (n=129), including 8 post-exit observations. Non-PE group includes all remaining observations (n=546), including pre-investment periods of subsequently PE-backed organisations. Standard deviations in parentheses. Satterthwaite-Welch t-test corrects for unequal group variances. *** p<0.01, ** p<0.05, * p<0.10.

The results are clear: no statistically significant differences in profitability are found between PE-backed and non-PE organisations across any of the four measures. EBITDA margin is almost identical between the two groups, with PE-backed organisations averaging 0.05 and non-PE organisations averaging 0.04, with a difference of 0.01 that is not significant under both the standard t-test ($t = -0.146$, $p = 0.884$) and the Satterthwaite-Welch test ($t = -0.181$, $p = 0.857$). For operating margin, PE-backed organisations are averaging -0.22 compared to -0.18 for non-PE organisations, a difference that is also insignificant under both tests ($p = 0.409$ and $p = 0.296$). The mean return on assets is identical between groups at -0.08 for both, with no significant difference

detected. Finally, while PE-backed organisations generate higher absolute EBITDA on average, €36.55 million compared to €27.76 million for non-PE organisations, this difference of €8.79 million also falls short of statistical significance under both tests ($p = 0.112$ and $p = 0.178$).

The absence of significant profitability differences is itself a meaningful finding. It suggests that PE ownership is not associated with measurable improvements in operating efficiency or profitability during the ownership period, at least at the level of aggregated mean comparisons. This is consistent with the unique economics of professional sports discussed in Section 3.2, where win-maximising behaviour means that revenue gains are reinvested into sport performance rather than retained as profit. PE investors entering this environment may find that the standard way of improving margins through cost-cutting limited by the competitive dynamics of professional sports.

It is worth also noting that the higher absolute EBITDA among PE-backed organisations (€36.55M vs €27.76M) together with an essentially identical EBITDA margin suggests that PE-backed clubs generate more operating profit in absolute terms because they are bigger organisations rather than because they operate more efficiently. This is consistent with the scale differences documented in Sections 5.1 and 5.2.1, and reinforces the importance of margin-based measures when comparing profitability across organisations of different sizes. As with the capital structure comparison, these results should be interpreted within caution due to the extreme non-normality of profitability variables documented in Section 5.1. The regression analysis in Section 5.3.4 examines these relationships more precisely while controlling for organisation-level fixed effects and time trends.

5.2.4 Growth Comparison

Table 10 presents the results of the growth comparison between PE-backed and non-PE organisations. Two measures are examined: revenue growth and valuation growth, both expressed as year-on-year percentage changes.

Table 10 - Results for growth comparison

Variable	PE mean (Std. Dev.)	Non-PE mean (Std. Dev.)	Diff.	t-stat	p-value	Welch t-stat	Welch p-value
Revenue growth	0.22	0.26	-0.04	0.475	0.635	0.538	0.591
	(0.71)	(0.88)					
Valuation growth	0.22	0.20	0.02	-0.465	0.642	-0.498	0.619
	(0.46)	(0.52)					

PE group includes all observations with POST=1 (n=129), including 8 post-exit observations. Non-PE group includes all remaining observations (n=546), including pre-investment periods of subsequently PE-backed organisations. Standard deviations in parentheses. Satterthwaite-Welch t-test corrects for unequal group variances. *** p<0.01, ** p<0.05, * p<0.10.

The results show no statistically significant differences in growth rates between PE-backed and non-PE organisations across either measure. Revenue growth is a little lower among PE-backed organisations at 0.22 compared to 0.26 for non-PE organisations, but the difference is clearly insignificant under both the standard t-test ($t = 0.475$, $p = 0.635$) and the Satterthwaite-Welch test ($t = 0.538$, $p = 0.591$). Valuation growth is in contrast slightly higher among PE-backed organisations at 0.22 compared to 0.20 for non-PE organisations, but this difference is again insignificant under both tests ($p = 0.642$ and $p = 0.619$).

The absence of significant growth differences adds an important distinction to the valuation premium documented in Section 5.2.1. While PE-backed organisations have higher absolute valuations, they do not appear to grow faster than non-PE organisations in either revenue or valuation terms. This suggests that the valuation premium associated with PE ownership reflects a difference in baseline levels rather than a growth differential, meaning that the market prices PE-backed clubs higher, but both groups grow at broadly similar rates over time. This is an important distinction from the typical PE value creation framework, where higher valuations are often explained by faster growth, driven by improvements in operations and increases in revenue.

The standard deviations within both groups are large relative to the mean differences, which means that growth rates vary considerably within each group regardless of PE ownership status. This large variation within groups fits the wider financial differences across European football clubs discussed in Section 5.1, and suggests that factors specific to individual clubs, like sporting performance, league position, transfer activity, and commercial partnerships, drive growth more than ownership structure alone. Because the individual factors drive growth so much, the absence of statistically different results here does not automatically rule out the existence of a real PE growth effect, but it rather means that no statistically detectable difference exists at these sample sizes.

Together, the results in whole Section 5.2 are consistent and tell a clear story: PE-backed organisations are valued significantly higher than non-PE organisations, but show no meaningful differences in profitability or growth rates, and mixed evidence on capital structure. This pattern suggests that the market views PE involvement as a signal of quality or better governance, rather than as a direct cause of stronger financial performance. The regression analyses in Section 5.3 examine these relationships more precisely by controlling for organisation-level fixed effects, time trends, and scale differences that the mean comparisons in this section cannot address.

5.3 Regression Analysis

This section examines the effect of private equity ownership on the capital structure, valuation, and profitability of professional sports organisations using panel regression analysis. The main variable of interest is the DID indicator, which is constructed by interacting a treatment dummy (equal to 1 for organisations that received PE investment during the sample period) with a post dummy (equal to 1 for all years during and after PE investment for treated organisations). This variable captures the change in financial characteristics associated with PE ownership within each club, after accounting for club-level differences and common time trends within the regressions.

Four sets of models are estimated: debt ratio as the primary capital structure measure, net leverage and short-term debt ratio as alternative leverage measures, ln(FranchiseValue) and value to revenue ratio as valuation measures, and EBITDA margin as the profitability measure. Each model also includes years since PE variable to test whether PE effects build up over time rather than appearing immediately. Control variables differ by model depending on what is theoretically relevant, ln(revenue) controls for organisational size in all models, EBITDA margin is included in the capital structure models and the valuation models, and debt ratio is included in the profitability model.

Each model is estimated using three specifications to test the reliability of the results. The first uses cross-section fixed effects only, controlling for time-invariant club characteristics such as league, history, and market size. The second adds period fixed effects to account for common shocks affecting all clubs in a given year, such as macroeconomic conditions or industry-wide trends. The third applies clustered standard errors on top of the two-way fixed effects to correct for heteroskedasticity and serial correlation within clubs over time. This last specification is treated as the preferred model throughout the section, and conclusions are primarily drawn from it.

5.3.1 Baseline Capital Structure Model

Table 11 presents the regression results for the baseline capital structure model, where debt ratio is used as the dependent variable. The DID coefficient is statistically insignificant across all three specifications. In the cross-section fixed effects model the coefficient is 0.005 ($p = 0.865$), turning slightly negative at -0.027 in both the two-way and clustered specifications ($p = 0.358$ and $p = 0.452$). The result suggest that private equity ownership does not have a statistically significant effect on the debt ratio of the organisations in the sample. This finding is relevant in the context of the common concern that PE investors use debt to finance their acquisitions in sports, as the evidence here does not support that view. Also, the years since PE variable is insignificant across all

specifications, indicating that debt structure does not change the longer PE has been involved with a club. This further supports the conclusion that PE ownership does not affect capital structure, either immediately or over time.

Table 11 - Regression results for debt ratio

Dependent variable:	Cross-section FE		Two-way FE		Clustered SE	
Debt ratio	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)
DID	0.005	0.170	-0.027	-0.920	-0.027	-0.782
	(0.028)	(0.865)	(0.029)	(0.358)	(0.034)	(0.452)
ln(Revenue)	-0.037	-2.731	-0.063	-4.059	-0.063	-4.582
	(0.013)	**(0.007***)**	(0.016)	**(0.000***)**	(0.014)	**(0.001***)**
EBITDA margin	-0.063	-3.217	-0.042	-2.127	-0.042	-1.477
	(0.019)	**(0.001***)**	(0.020)	**(0.034**)**	(0.028)	(0.171)
Years since PE	0.005	0.751	-0.003	-0.368	-0.003	-0.364
	(0.007)	(0.453)	(0.007)	(0.713)	(0.007)	(0.724)
Constant	0.939	3.780	1.431	4.985	1.431	5.593
	(0.248)	**(0.000***)**	(0.287)	**(0.000***)**	(0.256)	**(0.000***)**
Cross-section FE		Yes		Yes		Yes
Period FE		No		Yes		Yes
Clustered SE		No		No		Yes
Observations		675		675		675
R^2		0.627		0.650		0.650

Coefficients reported with standard errors in parentheses and t-statistics with p-values in parentheses. Cross-section FE controls for time-invariant club-level characteristics. Two-way FE additionally controls for common time shocks affecting all clubs in a given year. Clustered SE applies White cross-section (period cluster) standard errors to correct for heteroskedasticity and serial correlation within clubs over time, and represents the preferred specification. Years since PE is coded as 0 for all non-PE observations and pre-investment periods of subsequently PE-backed organisations, and counts upward from 1 during active PE ownership. *** p<0.01, ** p<0.05, * p<0.10.

For the control variables, ln(Revenue) is negative and statistically significant across all three specifications, with a coefficient of -0.063 ($p < 0.001$) in the preferred clustered model. This indicates that larger organisations tend to operate with lower debt ratios. These result also helps explain the difference found in Section 5.2.2, where PE-backed organisations appeared to carry higher debt ratios in the raw comparison, but now that organisational size is controlled for, this difference disappears, confirming that the earlier result reflected a size effect rather than a PE ownership effect.

EBITDA margin shows a negative relationship with debt ratio, significant in the cross-section and two-way fixed effects models ($p = 0.001$ and $p = 0.034$), suggesting that more profitable organisations rely less on debt financing. This is consistent with pecking order theory, according to which profitable firms prefer internal financing over external debt. However, the relationship loses significance in the preferred clustered specification ($p = 0.171$), indicating that this result is not

fully reliable in this sample. The model explains approximately 65% of the variation in debt ratios across the sample, as reflected by the R^2 of 0.650 in the preferred specification.

5.3.2 Alternative Leverage Measures

Tables 12 and 13 present the regression results using net leverage and short-term debt ratio as alternative dependent variables, providing a more detailed picture of how PE ownership relates to different dimensions of capital structure.

The net leverage results in Table 12 show no significant PE ownership effect across any of the three specifications. The DID coefficient is -4.394 (p = 0.494) in the cross-section fixed effects model, and remains at -4.466 in both the two-way and clustered specifications (p = 0.509 and p = 0.307). While the negative coefficient indicates lower net leverage for PE-backed organisations, the result is far from statistically significant and should not be interpreted as meaningful. The overall explanatory power of the net leverage models is modest, with R^2 values between 0.172 and 0.186, and none of the control variables reach significance in any specification. This is largely consistent with the distributional problems of net leverage documented in Section 5.1, where extreme kurtosis and a very large standard deviation indicated that the variable is heavily influenced by clubs with near-zero or negative EBITDA. Given these limitations, the net leverage results are best treated as an additional check rather than a primary finding.

Table 12 - Regression results for net leverage

Dependent variable:	Cross-section FE		Two-way FE		Clustered SE	
Net Leverage	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)
DID	-4.394 (6.413)	-0.685 (0.494)	-4.466 (6.764)	-0.660 (0.509)	-4.466 (4.152)	-1.076 (0.307)
ln(Revenue)	2.370 (3.040)	0.780 (0.436)	2.156 (3.583)	0.602 (0.548)	2.156 (2.818)	0.765 (0.462)
EBITDA margin	-2.496 (4.378)	-0.570 (0.569)	-2.382 (4.522)	-0.527 (0.599)	-2.382 (1.781)	-1.338 (0.211)
Years since PE	1.889 (1.552)	1.217 (0.224)	1.820 (1.627)	1.119 (0.264)	1.820 (2.093)	0.869 (0.405)
Constant	-42.572 (55.937)	-0.761 (0.447)	-38.570 (66.362)	-0.581 (0.561)	-38.570 (53.607)	-0.720 (0.488)
Cross-section FE		Yes		Yes		Yes
Period FE		No		Yes		Yes
Clustered SE		No		No		Yes
Observations		673		673		673
R^2		0.172		0.186		0.186

Coefficients reported with standard errors in parentheses and t-statistics with p-values in parentheses. Cross-section FE controls for time-invariant club-level characteristics. Two-way FE additionally controls for common time shocks

affecting all clubs in a given year. Clustered SE applies White cross-section (period cluster) standard errors to correct for heteroskedasticity and serial correlation within clubs over time, and represents the preferred specification. Years since PE is coded as 0 for all non-PE observations and pre-investment periods of subsequently PE-backed organisations, and counts upward from 1 during active PE ownership. *** p<0.01, ** p<0.05, * p<0.10.

The short-term debt ratio results in Table 13 similarly show no significant PE ownership effect. The DID coefficient is -0.026 (p = 0.536) in the cross-section fixed effects model, declining slightly to -0.047 in the two-way and clustered specifications (p = 0.290 and p = 0.373). The negative direction is consistent across specifications, suggesting that PE-backed organisations may carry marginally less short-term debt, but the result does not reach statistical significance in any model. One notable observation is the years since PE variable, which is marginally significant at the 10% level in the cross-section fixed effects model (p = 0.093). This could suggest that short-term debt increases slightly the longer PE has been involved with a club, but the result disappears entirely in the two-way and clustered specifications and should therefore not be considered as a reliable finding.

Table 13 - Regression results for short-term debt ratio

Dependent variable:	Cross-section FE		Two-way FE		Clustered SE	
ST Debt Ratio	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)
DID	-0.026	-0.620	-0.047	-1.060	-0.047	-0.932
	(0.043)	(0.536)	(0.045)	(0.290)	(0.051)	(0.373)
ln(Revenue)	-0.016	-0.757	-0.039	-1.499	-0.039	-1.395
	(0.022)	(0.450)	(0.026)	(0.135)	(0.028)	(0.193)
EBITDA margin	0.040	1.057	0.037	0.948	0.037	0.874
	(0.038)	(0.291)	(0.039)	(0.344)	(0.042)	(0.403)
Years since PE	0.017	1.681	0.013	1.224	0.013	1.716
	(0.010)	**(0.093*)**	(0.011)	(0.222)	(0.008)	(0.117)
Constant	0.651	1.625	1.072	2.235	1.072	2.075
	(0.401)	(0.105)	(0.480)	**(0.026**)**	(0.517)	**(0.065*)**
Cross-section FE		Yes		Yes		Yes
Period FE		No		Yes		Yes
Clustered SE		No		No		Yes
Observations		638		638		638
R^2		0.624		0.637		0.637

Coefficients reported with standard errors in parentheses and t-statistics with p-values in parentheses. Cross-section FE controls for time-invariant club-level characteristics. Two-way FE additionally controls for common time shocks affecting all clubs in a given year. Clustered SE applies White cross-section (period cluster) standard errors to correct for heteroskedasticity and serial correlation within clubs over time, and represents the preferred specification. Years since PE is coded as 0 for all non-PE observations and pre-investment periods of subsequently PE-backed organisations, and counts upward from 1 during active PE ownership. *** p<0.01, ** p<0.05, * p<0.10.

The R^2 of 0.624 to 0.637 is consistent with the baseline model, suggesting similar overall explanatory power. Overall, the results across both alternative leverage measures align with the findings in Section 5.3.1, concluding that there is no evidence of PE ownership significantly

affecting the capital structure of professional sports organisations, regardless of how leverage is measured.

5.3.3 Valuation Models

Tables 14 and 15 present the regression results for the valuation models, using ln(FranchiseValue) and value-to-revenue ratio as dependent variables. These models examine whether PE ownership is associated with higher organisational valuations after controlling for club-level characteristics and time effects.

The results in Table 14 show a positive and significant DID coefficient in the cross-section fixed effects model (0.217, $p < 0.001$), indicating that PE-backed organisations have higher franchise values than non-PE organisations after controlling for club-level fixed effects. However, once period fixed effects are introduced in the two-way specification, the coefficient drops to 0.053 and becomes statistically insignificant ($p = 0.369$). The preferred clustered specification confirms this, with a coefficient of 0.053 ($p = 0.276$). This pattern suggests that the valuation premium observed in the cross-section model can be explained by common time trends affecting all clubs simultaneously, such as the growth-trend of sports franchise values shown in Section 5.1, rather than a PE ownership effect specifically.

Table 14 - Regression results for ln(FranchiseValue)

Dependent variable:	Cross-section FE		Two-way FE		Clustered SE	
ln(FranchiseValue)	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)
DID	0.217 (0.059)	3.642 **(0.000***)**	0.053 (0.059)	0.899 (0.369)	0.053 (0.046)	1.152 (0.276)
ln(Revenue)	0.858 (0.028)	30.275 **(0.000***)**	0.713 (0.032)	22.490 **(0.000***)**	0.713 (0.060)	11.971 **(0.000***)**
EBITDA margin	-0.398 (0.041)	-9.724 **(0.000***)**	-0.336 (0.040)	-8.471 **(0.000***)**	-0.336 (0.073)	-4.606 **(0.001***)**
Debt ratio	0.057 (0.086)	0.665 (0.506)	-0.065 (0.083)	-0.780 (0.436)	-0.065 (0.106)	-0.611 (0.555)
Years since PE	0.033 (0.014)	2.288 **(0.023**)**	0.000 (0.014)	0.026 (0.979)	0.000 (0.012)	0.031 (0.976)
Constant	3.160 (0.524)	6.026 **(0.000***)**	5.924 (0.591)	10.023 **(0.000***)**	5.924 (1.100)	5.385 **(0.000***)**
Cross-section FE		Yes		Yes		Yes
Period FE		No		Yes		Yes
Clustered SE		No		No		Yes
Observations		675		675		675
R^2		0.958		0.963		0.963

Coefficients reported with standard errors in parentheses and t-statistics with p-values in parentheses. Cross-section FE controls for time-invariant club-level characteristics. Two-way FE additionally controls for common time shocks

affecting all clubs in a given year. Clustered SE applies White cross-section (period cluster) standard errors to correct for heteroskedasticity and serial correlation within clubs over time, and represents the preferred specification. Years since PE is coded as 0 for all non-PE observations and pre-investment periods of subsequently PE-backed organisations, and counts upward from 1 during active PE ownership. *** p<0.01, ** p<0.05, * p<0.10.

Ln(Revenue) is positive and highly significant across all three specifications, with a coefficient of 0.713 ($p < 0.001$) in the preferred clustered model. This confirms that organisational size is the significant driver of franchise valuations, where larger clubs command substantially higher values regardless of ownership structure. EBITDA margin shows a negative and significant relationship with franchise value across all specifications ($p \leq 0.001$ in all models), which likely reflects the win-maximising behaviour of football clubs discussed in Section 3.2, where clubs that invest heavily in sport performance reduce their margins but simultaneously increase their sporting success and market value.

The years since PE variable is positive and significant in the cross-section fixed effects model (0.033, $p = 0.023$), suggesting that franchise values increase during PE ownership. However, this result disappears completely once period fixed effects are added ($p = 0.979$ and $p = 0.976$), indicating that the accumulation of value during PE ownership is driven by the general upward trend in sports franchise valuations rather than PE-specific value creation. The model explains approximately 96% of the variation in franchise values across the sample, reflecting the strong influence of club-level fixed effects and revenue size.

The value-to-revenue results in Table 15 follow a similar pattern to the ln(FranchiseValue) model. The DID coefficient is positive and significant in the cross-section fixed effects model (0.444, $p = 0.005$), but declines to 0.162 and becomes insignificant in both the two-way ($p = 0.316$) and clustered specifications ($p = 0.128$). This again suggests that the valuation premium associated with PE ownership in the cross-section comparison reflects broader market trends rather than a real ownership effect.

Ln(Revenue) shows a negative and significant relationship with the value to revenue ratio across all specifications (-0.528, $p < 0.001$ in the preferred model), meaning that larger clubs actually trade at lower revenue multiples than smaller clubs. This makes sense: although top clubs have very high revenues and valuations, their valuations do not increase at the same rate due to diminishing returns. EBITDA margin is again negative and significant across all specifications (-1.623, $p = 0.007$ in the preferred model), consistent with the franchise value model finding that clubs investing in sport performance at the expense of profitability command higher market valuations relative to their revenue.

Table 15 - Regression results for value to revenue ratio

Dependent variable:	Cross-section FE		Two-way FE		Clustered SE	
Value / Revenue	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)
DID	0.444	2.839	0.162	1.004	0.162	1.660
	(0.156)	**(0.005***)**	(0.161)	(0.316)	(0.097)	(0.128)
ln(Revenue)	-0.273	-3.664	-0.528	-6.130	-0.528	-4.896
	(0.074)	**(0.000***)**	(0.086)	**(0.000***)**	(0.108)	**(0.001***)**
EBITDA margin	-1.734	-16.124	-1.623	-15.034	-1.623	-3.422
	(0.108)	**(0.000***)**	(0.108)	**(0.000***)**	(0.474)	**(0.007***)**
Debt ratio	0.163	0.724	-0.019	-0.082	-0.019	-0.077
	(0.225)	(0.469)	(0.227)	(0.934)	(0.242)	(0.940)
Years since PE	0.089	2.359	0.034	0.877	0.034	0.916
	(0.038)	**(0.019**)**	(0.039)	(0.381)	(0.037)	(0.381)
Constant	7.200	5.226	12.059	7.503	12.059	6.136
	(1.378)	**(0.000***)**	(1.607)	**(0.000***)**	(1.965)	**(0.000***)**
Cross-section FE		Yes		Yes		Yes
Period FE		No		Yes		Yes
Clustered SE		No		No		Yes
Observations		675		675		675
R^2		0.777		0.790		0.790

Coefficients reported with standard errors in parentheses and t-statistics with p-values in parentheses. Cross-section FE controls for time-invariant club-level characteristics. Two-way FE additionally controls for common time shocks affecting all clubs in a given year. Clustered SE applies White cross-section (period cluster) standard errors to correct for heteroskedasticity and serial correlation within clubs over time, and represents the preferred specification. Years since PE is coded as 0 for all non-PE observations and pre-investment periods of subsequently PE-backed organisations, and counts upward from 1 during active PE ownership. *** p<0.01, ** p<0.05, * p<0.10.

Years since PE is positive and significant in the cross-section model (0.089, p = 0.019) but insignificant once period fixed effects are introduced (p = 0.381 in both two-way and clustered specifications), similar to the franchise value finding. Overall, the valuation results suggest that while PE-backed organisations appear to have higher valuations in the cross-section model, this finding does not hold once time trends are controlled for, indicating that the valuation premium is more likely driven by the general rise in sports franchise values over the sample period than by PE ownership itself.

5.3.4 Profitability Model

Table 16 presents the regression results for the profitability model, where EBITDA margin is the dependent variable. The model examines whether PE ownership has an effect on the operating profitability of professional sports organisations after controlling for club-level and time fixed effects.

Table 16 - Regression results for EBITDA margin

Dependent variable:	Cross-section FE		Two-way FE		Clustered SE	
EBITDA margin	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)	Coeff. (Std. error)	t-stat. (p-value)
DID	-0.082	-1.375	-0.009	-0.139	-0.009	-0.160
	(0.059)	(0.170)	(0.062)	(0.890)	(0.053)	(0.876)
ln(Revenue)	0.231	8.623	0.286	9.271	0.286	4.398
	(0.027)	**(0.000***)**	(0.031)	**(0.000***)**	(0.065)	**(0.001***)**
Debt ratio	-0.273	-3.217	-0.184	-2.127	-0.184	-1.817
	(0.085)	**(0.001***)**	(0.087)	**(0.034**)**	(0.101)	**(0.099*)**
Years since PE	-0.004	-0.302	0.013	0.887	0.013	0.972
	(0.014)	(0.763)	(0.015)	(0.375)	(0.014)	(0.354)
Constant	-4.141	-8.330	-5.206	-9.027	-5.206	-4.252
	(0.497)	**(0.000***)**	(0.577)	**(0.000***)**	(1.224)	**(0.002***)**
Cross-section FE		Yes		Yes		Yes
Period FE		No		Yes		Yes
Clustered SE		No		No		Yes
Observations		675		675		675
R^2		0.592		0.613		0.613

Coefficients reported with standard errors in parentheses and t-statistics with p-values in parentheses. Cross-section FE controls for time-invariant club-level characteristics. Two-way FE additionally controls for common time shocks affecting all clubs in a given year. Clustered SE applies White cross-section (period cluster) standard errors to correct for heteroskedasticity and serial correlation within clubs over time, and represents the preferred specification. Years since PE is coded as 0 for all non-PE observations and pre-investment periods of subsequently PE-backed organisations, and counts upward from 1 during active PE ownership. *** p<0.01, ** p<0.05, * p<0.10.

The DID coefficient is negative across all three specifications, suggesting a possible negative relationship between PE ownership and EBITDA margin. However, the result is statistically insignificant in all models: the coefficient is -0.082 ($p = 0.170$) in the cross-section fixed effects model, -0.009 ($p = 0.890$) in the two-way fixed effects model, and -0.009 ($p = 0.876$) in the preferred clustered specification. The near-zero coefficient in the two-way and clustered models indicates that once common time trends are considered, there is no relationship between PE ownership and profitability. This is consistent with the mean comparison findings in Section 5.2.3, where no significant profitability differences were found between PE-backed and non-PE organisations. Years since PE variable is also insignificant across all specifications ($p = 0.763$, 0.375, and 0.354), suggesting that profitability does not change depending how long the PE has been involved with a club. This result rules out the possibility that PE investors noticeable improve or worsen operating margins over the ownership period, which is consistent with the mean comparison findings in Section 5.2.3 and with the win-maximising framework in Section 3.2.

Ln(Revenue) is positive and highly significant across all three specifications, with a coefficient of 0.286 ($p < 0.001$) in the preferred clustered model. This confirms that larger organisations generate higher EBITDA margins. The debt ratio shows a negative and significant relationship with

EBITDA margin in all three specifications (-0.184, p = 0.099 in the clustered model), suggesting that more indebted organisations have lower operating profitability.

Overall, the profitability model provides no evidence that PE ownership significantly affects the EBITDA margin of professional sports organisations. The R^2 of 0.613 in the clustered specification indicates that the model explains around 61% of the variation in profitability, with organisational size being the dominant explanatory factor.

5.4 Difference-in-Differences Analysis

Table 17 presents the results of the Difference-in-Differences (DiD) estimation across five dependent variables examined in the testing. Net leverage, which was included as an alternative leverage measure in Section 5.3.2, is excluded from the DiD analysis due to the severe distributional problems documented in Section 5.1, and parallel trends test requires a reasonably well-behaved dependent variable to produce meaningful results. The primary purpose of this section is to provide two things: first, a second independent estimation of the PE ownership effect using the EViews 14 dedicated DiD estimator to complement the panel regressions of Section 5.3, and second, a formal test of the parallel trends assumption that the DiD approach used throughout Section 5.3 requires. The parallel trends test results are reported at the bottom of the table for each dependent variable.

Table 17 - Results for Difference-in-Difference estimations

Dependent variable:	Debt ratio	ST debt ratio	ln(FranchiseValue)	Value / Revenue	EBITDA margin
DID coefficient	-0.030	-0.032	0.054	0.202	0.007
Std. error	0.038	0.033	0.089	0.221	0.060
t-stat	-0.788	-0.968	0.605	0.915	0.121
p-value	0.431	0.334	0.546	0.360	0.904
Observations	675	638	675	675	675
R^2	0.650	0.636	0.963	0.790	0.613
Parallel trends test:					
Wald statistic	0.805	0.977	0.078	1.111	-1.717
p-value	0.421	0.329	0.938	0.267	**0.086***

DID coefficients estimated using cross-section cluster-robust standard errors, together with same covariates as estimated in regressions in Section 5.3. The parallel trends Wald test evaluates whether PE-backed and non-PE organisations followed statistically similar financial trends prior to PE investment, and is estimated without additional covariates. Years since PE is excluded from the parallel trends test as it is defined only for the post-investment period. *** p<0.01, ** p<0.05, * p<0.10.

The DID coefficients in Table 17 are consistent with the preferred clustered specification regression reported in Section 5.3. None of the five dependent variables show a statistically significant PE ownership effect, the coefficients range from -0.032 for short-term debt ratio to 0.202 for value to

revenue, and all p-values are well above the significance thresholds. This consistency across two different estimation approaches strengthens the overall conclusion that PE ownership does not have a statistically significant effect on the financial characteristics of professional sports organisations in this sample.

Regarding the parallel trends assumption, the Wald test results provide support for the credibility of the DiD identification strategy. For debt ratio, short-term debt ratio, ln(FranchiseValue), and value to revenue, the parallel trends p-values are 0.421, 0.329, 0.938, and 0.267, all well above significance thresholds. This means that for these four variables, PE-backed and non-PE organisations were following statistically identical financial trends before PE investment occurred, which is precisely what the DiD approach requires. The results from Section 5.3 for these variables can therefore be considered credible in terms of causal interpretation.

The one exception is EBITDA margin, where the parallel trends test gives a Wald statistic of -1.717 and a p-value of 0.086, which is marginally significant at the 10% level. This suggests weak evidence that PE-backed and non-PE organisations were already becoming different in profitability before PE investment took place. The reason for this could be that PE investors selectively target clubs that are showing early signs of financial strain, like modest and declining EBITDA margins, because financial distress might have created attractive entry prices and provides PE investors with an operational improvement possibilities. This would be consistent with the deal sourcing behaviour discussed in Section 2.1.2, where PE investors focus on companies with operational inefficiencies rather than already well-run businesses. Importantly, since the EBITDA margin DID coefficient is already insignificant in Section 5.3 (coeff. -0.009, $p = 0.876$), the marginal parallel trends concern does not change the substantive conclusion. However, it does introduce some uncertainty about whether the DiD estimate for profitability captures a true ownership effect or a pre-existing pattern: if PE-backed clubs were selected partly because their margins were depressed before investment, any movement towards normal margin levels would show up as a positive DID coefficient even without any genuine PE-driven improvement.

Overall, the parallel trends tests support the reliability of the DiD approach for the capital structure and valuation variables, while highlighting some limitations in the profitability analysis. Combined with the regression results in Section 5.3, the findings consistently indicate that PE ownership does not produce statistically significant changes in the financial characteristics of professional sports organisations across the variables examined in this thesis.

5.5 Discussion and Interpretation of Findings

The first research sub-question asks how private equity investment affects the capital structure and debt profile of professional sports franchises. Three competing expectations were developed in Section 3.4: that PE-backed clubs would carry higher leverage if the traditional LBO logic dominates (Expectation 1a), that leverage would remain mainly unchanged if sport-specific constraints dominate (Expectation 1b), and that any leverage effect would strengthen gradually over time rather than appearing immediately at entry (Expectation 1c).

The raw mean comparison in Section 5.2.2 initially seemed to support Expectation 1a. PE-backed organisations showed a statistically higher debt ratio (0.30 versus 0.25, $p = 0.048$), and also carried significantly more total debt in absolute terms (€148 million versus €87 million, $p = 0.004$). If this would have been trusted blindly, the evidence would have been consistent with the classical leveraged buyout model, where private equity investors finance acquisitions with debt and then restructure it into the target company's capital structure. However, this interpretation does not survive the regression estimation. Once organisation-level fixed effects, time effects, and size and profitability controls are introduced, the DID coefficient on debt ratio becomes statistically insignificant (-0.027, $p = 0.452$). This suggests that the higher leverage observed in the raw comparison is more likely explained by the fact that PE investors tend to target larger clubs, which naturally operate with higher debt levels, rather than by PE ownership itself increasing leverage. The DiD estimation gives a similar statistically insignificant result (-0.030, $p = 0.431$). The alternative regression models also support this overall conclusion as the neither net leverage nor the short-term debt ratio shows a statistically significant association with PE ownership, which aligns with the debt ratio results.

The evidence therefore clearly supports Expectation 1b over Expectation 1a. Rather than increasing leverage in line with LBO logic, PE investment in European professional football appears to leave the capital structure of the target club mainly unchanged. This outcome contrasts with the broader LBO literature, where for example Kaplan and Strömberg (2009) argued that LBO investment often raise the debt levels of target companies, and the empirical evidence from Boucly et al. (2011) that show the that LBO targets increase their target leverage by approximately 2.6 percentage points post-LBO. This outcome is however consistent with the theoretical reasoning developed in Section 3.4, which identified that for example high potential financial distress costs, minority stakes, and regulatory frameworks can limit the possibilities and willingness of increasing the debt levels. Another good evidence supporting this view is the median PE ownership stake of approximately

45% in this sample, which suggests that the investors would operate more like growth capital investors than LBO acquirers. Minority ownership stakes likely limit the ability of PE investors to implement major financial or operational changes within clubs.

Regarding Expectation 1c, the years since PE variable remains consistently insignificant across all capital structure models as well as in the DiD estimation. This would rule out the possibility of a gradual leverage effect that accumulates during the ownership period. The absence of this over-time effect therefore supports the conclusion that the PE investor does not try to change the capital structure, not immediately nor progressively over time.

From the strict theoretical side, the trade-off theory looks to best describe the empirical evidence supported sports context. The result is consistent with the trade-off theory prediction that high expected distress costs in professional sports lower the optimal leverage level and limit the value that can be generated from interest tax shields. As Alaminos and Fernández (2019) show, high leverage is one of the primary predictors of financial distress in European football, which reinforces this theoretical expectation that clubs would not benefit from highly leveraged structures that are typical for normal LBO targets. From the agency theory perspective, the disciplining role of debt would have predicted a higher leverage under PE ownership as a way of controlling managerial discretion but the fact that no such increase is observed, suggests that other preferences drive the investors' capital structure decisions more. Similar reasoning can be applied to the pecking order theory, as no evidence was found that would indicate that profitability improvements under PE ownership reduced the need for external debt, primarily because no profitability improvements are found in the first place.

Continuing further, the second research sub-question asks how private equity investment affects the valuation and long-term financial performance of professional sports franchises. Based on the theoretical discussion in Section 3.5, three expectations were developed: that PE-backed clubs would display higher valuations if revenue-side value creation is successful (Expectation 2a), that valuation differences would be modest or absent if industry constraints dominate (Expectation 2b), and that profitability would not be expected to increase under PE ownership given the win-maximising character of European football (Expectation 2c).

The raw mean comparisons in Section 5.2.1 presented statistically significant valuation premium for PE-backed organisations across all three measures. PE-backed clubs have a mean franchise value of approximately €1,075 million compared to €514 million for non-PE clubs ($p < 0.001$), and their mean value-to-revenue multiple is 2.61 versus 2.17 for non-PE clubs ($p = 0.010$). The significance

of the value-to-revenue multiple is especially noteworthy because it controls the differences in organisational scale and therefore implies that the market gives a higher valuation to PE-backed clubs, more than their current revenue alone would justify. This result would be consistent with Expectation 2a, if interpreted on its own. However, the regression analysis in Section 5.3.3 tells again a different story. If only club-level fixed effects are included, the DID coefficient on logarithmic franchise value is positive and significant (0.217, $p < 0.001$), initially suggesting a genuine ownership effect. But, once period fixed effects are added to control for common time trends affecting all clubs simultaneously, the coefficient drops to 0.053 and becomes insignificant ($p = 0.276$). The same pattern holds for the value-to-revenue model, ending with statistically insignificant DID coefficient in the preferred model. The years since PE variable, which was positive and significant in both cross-section models, also becomes insignificant once the time fixed effects are introduced, and removes any evidence of gradual value accumulation under PE ownership. The DiD estimation supports the same results with a DID coefficient of 0.054 ($p = 0.546$) for logarithmic franchise value and 0.202 ($p = 0.360$) for value-to-revenue ratio.

The disappearing of the valuation effect once time trends are controlled for is a very important finding. It suggests that the valuation premium observed in the raw comparison and in the simple cross-section model is not explained by PE ownership itself, but rather by the general increase in European football franchise values over the sample period, which is driven by expanding media rights revenues, growing global fan bases, and rising investor interest from institutional investors. The growth comparison in Section 5.2.4 strengthens this interpretation. Year-on-year valuation growth rates are statistically similar between PE-backed and non-PE organisations (22% versus 20%, $p = 0.619$). Together these results suggest that the valuation premium observed in raw mean comparison and the simplest regression models reflect a pre-existing difference in valuation, where a reason likely is PE investors target larger and more commercially developed clubs in the first place. The overall valuation evidence therefore aligns more closely with Expectation 2b than with Expectation 2a. The structural characteristics of the sports industry, including limited exit opportunities, minority stake structures, the regulatory environment, and the difficulty of extracting value through conventional PE mechanisms without damaging the club's sporting performance, appear to limit PE investors from generating measurable valuation improvements.

Turning to profitability, the evidence is consistent across all estimation methods, finding no significant difference in EBITDA margin between PE-backed and non-PE organisations. The DID coefficient on EBITDA margin is -0.009 ($p = 0.876$) in the preferred clustered specification, and the years since PE variable is similarly insignificant ($p = 0.354$). The DiD estimation produces a DID

coefficient of 0.007 (p = 0.904). There is therefore no evidence that PE investment improves the operating profitability of professional sports organisations. This result is consistent with Expectation 2c and with the theoretical arguments developed in Section 3.5. As discussed there, the win-maximising behaviour of European football clubs means that revenue improvements, rather than being retained as profit, are systematically reinvested in sporting performance, keeping margins thin or negative. A PE investor entering this environment cannot simply rely on the kind of operational cost-cutting strategies that often improve profitability in traditional investments. In European football, competitive success is closely tied to financial spending, and aggressive cost reductions can weaken the sporting performance, which may then lead to lower league positions, reduced prize revenues, weaker commercial income, and declining fan engagement. This evidence is again in contrast with the broader LBO literature, where for example Kaplan and Strömberg (2009) argues that the LBO investors tend to use operational engineering to improve the target company's profitability. However, the evidence aligns more with the empirical evidence found by Rohde and Breuer (2016b), who find that private majority investors in English football increase team investment at the cost of lower profits, which aligns directly with the win-maximising behaviour. Although this thesis does not find statistically significant profit lowering effect like Rohde and Breuer (2016b), the general direction that PE investment does not improve profits, like in traditional LBO literature, is the same.

However, it is important to discuss the limitations of the results immediately. First, the low amount of data, especially for the PE-backed observations, means that the analysis is attempting to identify ownership effects from a relatively limited number of treated observations distributed across different leagues, ownership structures, and time periods. Statistical power therefore becomes an important concern. A true PE ownership effect may exist but remain undetected because the number of PE-backed observations is too small. A second limitation concerns the private equity investments themselves. This analysis treats PE ownership as a single category, but in reality, the investments differ in terms of ownership stakes, governance influence, investment horizon, and strategic objectives. Some PE investors acquired full ownership control, while others purchased small minority stakes with limited operational influence, and some investors focused on long-term strategic growth, whereas others may have pursued more passive financial exposure to the sports industry. Combining these fundamentally different investment structures into a single PE variable may weaken the ability of the models to identify meaningful effects. It is therefore possible that certain types of PE ownership materially affect club finances while others do not, causing the

average estimated effect to appear insignificant. Thus, it must be understood that the findings of this thesis should be interpreted in caution.

6 Conclusions and Implications

6.1 Summary and Evaluation of the Findings

The objective of this thesis was to examine how private equity (PE) investment affects the capital structure and valuation of professional sports franchises with empirical evidence of the effects on the European professional football clubs between 2015 and 2025. The theoretical part first examined the fundamental theories related to private equity investments, capital structure and valuations. After this the theories were further discussed in the context of professional sports. After theoretical discussion, the potential effects were tested in empirical analysis, which combined comparative ratio analysis panel regression models, and Difference-in-Differences (DiD) estimation.

The first research sub-question examined whether PE investment affects the capital structure and debt profile of professional sports franchises. Even though the raw comparative results initially suggested that PE-backed clubs could operate with somewhat higher leverage levels than non-PE clubs, this relationship disappeared once club-level fixed effects, period effects, and control variables were introduced into the regression models. The preferred regression models and the DiD approach both found no statistically significant relationship between PE ownership and debt ratio, short-term debt ratio, or net leverage. The years-since-PE variable was similarly insignificant across all leverage models, indicating that no gradual increase in leverage appears over the ownership period either.

These findings are important because they directly challenge one of the most common concerns of private equity investment in professional sports: the fear that PE investors use leveraged buyout structures that overload clubs with financial debt and run the club to financial difficulties. While traditional private equity theory often associates PE ownership with leverage-based value creation, the empirical evidence of this thesis suggests that these mechanisms are not strongly present in the context of European football clubs. Instead, the findings support the interpretation that PE investors in sports operate more often through growth-capital type of structures and minority investments, leaving the debt levels broadly untouched.

The second research sub-question examined whether PE investment affects franchise valuation and long-term financial performance. Again, the raw comparisons showed that PE-backed clubs had significantly higher franchise valuations and higher value-to-revenue multiples than non-PE clubs. However, the regression analysis and Difference-in-Differences estimations once again showed that

these valuation effects disappear once common time trends and club-specific fixed effects are considered. Similarly, no statistically significant relationships were observed between EBITDA margin PE ownership.

These results imply that the valuation premium observed in the simple comparisons is more likely explained by selection effects and overall market development than by PE ownership itself. PE investors appear to target clubs that are already larger and high-valued. At the same time, the entire European football market has experienced substantial growth in franchise valuations due to expanding media rights revenues and growing international fan bases. The profitability findings also provide an important finding. The lack of PE effect on profitability suggests that PE investors do not apply strict profitability improvements in the expense of sport performance but rather adopt the same win-maximising position as other club owners. This directly challenges a second common concern of private equity investment in sports: the fear that PE investors would strip the clubs out of all cash and profit that they can generate, and do it in the expense of sport performance.

Although this thesis provides new evidence regarding the financial effects of private equity investment in professional football, several limitations should be acknowledged when interpreting the results. The first major limitation concerns the availability and quality of data. The lack of PE-backed observations, and the inclusion of minority stake investment which lack the necessary control for producing meaningful effects, means that the statistical power could become an important concern in the empirical sample. A true PE ownership effect may exist but remain undetected because of these limitations. Building from the lack of data, the observation period is rather short, especially for clubs which received PE investment in the latter half of the observation period. This means that that the data may primarily capture short-term or medium-term effects rather than the full long-term consequences of PE ownership. Another limitation is the quality of data. Especially the franchise valuation data relies on external valuation estimates, as well as the sourcing of the author, which means that some degree of measurement error or inconsistency likely remains.

From the methodological side, selection bias remains an important methodological challenge. PE investors do not randomly choose the investment targets, but instead select clubs that already have desirable financial and commercial characteristics, whatever it is the investor is looking for. Although the use of fixed effects and Difference-in-Differences methods helps reduce this problem, it cannot eliminate it entirely. There may still exist unobservable factors that affect the outcomes of this thesis but rather occur because of selection bias. Also, the scope limitation to the top five

European football leagues should also be acknowledged. While these leagues represent the most commercially significant football markets in Europe, and the theoretical discussion has aimed to include as generic view of sports franchise possible, the findings may not generalise directly to smaller football leagues, other sports, or other geographical markets such as North America. Institutional structures, ownership rules, revenue distribution systems, and competitive dynamics differ substantially across sports and countries.

To conclude the results in one answer to the main research question, this thesis finds that private equity ownership itself does not affect the capital structure or valuation of the sports franchises in the examined sample. It must be understood that the findings of this thesis should be interpreted as evidence of no statistically detectable average PE ownership effect within this sample and methodology, rather than a definitive proof of PE ownership never having any effects on the finances of a sports franchise. The results are and remain valuable, but they should be viewed as a part of a broader and still-developing research area rather than as a final conclusion on the long-term financial impact of private equity in European football.

6.2 Theoretical and Practical Contributions and Suggestions for Future Research

This thesis contributes to the existing literature in several theoretical and practical ways. From a theoretical perspective, the thesis extends the discussion of private equity ownership into the context of professional sports, an area where academic research remains relatively limited despite the rapid growth of institutional investment activity in the industry. One of the main theoretical contributions of this thesis is demonstrating that traditional private equity theories cannot be directly applied to professional sports without considering the unique institutional and economic characteristics of the industry. In standard private equity literature, leverage and financial engineering are often considered central mechanisms of value creation but the empirical findings of this thesis suggest that these mechanisms are significantly limited in European football. This thesis also provides an interesting discussion about whether the traditional finance theories are applicable to the professional sports industry and what kind of topics should be then considered.

From a practical perspective, this thesis provides useful insights for several stakeholder groups within the sports industry. For fans, club owners, and managers, the findings suggest that PE investment should not automatically be interpreted as a threat to financial stability through excessive leverage nor as a threat to the sport’s competitive standards. For leagues and regulators, the findings suggest that existing governance and financial regulation frameworks may have an effective moderating role for the unwanted effects of PE investment. And finally for the private

equity investors themselves, the findings imply that value creation in professional sports likely requires different strategies than in traditional industries. One of the aims of this thesis is to provide an introduction of this interesting cross-section of private equity investments and professional sports and it thus serves anyone interested in the topic.

There are a lot of interesting future research possibilities where this topic could be expanded. First, future studies could examine the longer-term ownership effects once more historical data becomes available. This would help to determine the real long-term effects of the investments, especially if they emerge gradually over time. Second interesting direction could examine the relationship between PE ownership and sporting performance. While this thesis intentionally focused on financial outcomes, sporting success remains a central driver of club value and organisational behaviour in football, which would offer a more comprehensive understanding of PE involvement in sports. Third, future examination could compare PE ownership effects across different sports and league systems. For example, comparing European football with North American closed-league franchise systems could provide valuable insights because the institutional environments differ substantially from one another. One more interesting direction could be to conduct a qualitative case-study to complement the quantitative research, where interviews with club executives, investors, league officials, and supporters could provide a deeper understanding of how PE investors operate within sports organisations and how different stakeholder groups see institutional investment in professional sports.

References

Acharya, Viral V. – Gottschalg, Oliver F. – Hahn, Moritz – Kehoe, Conor (2013) Corporate Governance and Value Creation: Evidence from Private Equity. *The Review of Financial Studies*, Vol. 26 (2), 368–402.

Alaminos, David – Fernández, Manuel Ángel (2019) Why do football clubs fail financially? A financial distress prediction model for European professional football industry. *PloS one*, Vol. 14 (12), Article e0225989.

Angrist, Joshua D. – Pischke, Jörn-Steffen (2009) *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press, Princeton.

Arctos Insights – U. Michigan Ross (2024) Ross-Arctos Sports Franchise Index (RASFI): Sports Asset Class Returns Over the Long-Term. <https://michiganross.umich.edu/sites/default/files/uploads/Inst-Cntrs/RASFI/files/Arctos%20Insights%20White%20Paper%20-%20Introduction%20to%20RASFI%20Sports%20Asset%20Class%20Returns%20Over%20the%20Long%20Term%20vF_0.pdf>, retrieved 7.11.2025.

Ayash, Brian – Rastad, Mahdi (2021) Leveraged buyouts and financial distress. *Finance Research Letters*, Vol. 38, Article 101452.

Baker, H. Kent – Filbeck, Greg – Kiymaz, Halil (2015) Private Equity: An Overview. In: *Private Equity: Opportunities and Risks*, eds. Baker, H. Kent – Filbeck, Greg – Kiymaz, Halil, 3–15. Oxford Academic, New York.

Birkhäuser, Stephan – Kaserer, Christoph – Urban, Daniel (2019) Did UEFA's financial fair play harm competition in European football leagues? *Review of Managerial Science*, Vol. 13, 113–145.

Boulcy, Quentin – Sraer, David – Thesmar, David (2011) Growth LBOs. *Journal of Financial Economics*, Vol. 102 (2), 432–453.

Brealey, Richard A. – Myers, Stewart C. – Allen, Franklin – Edmans, Alex (2023) *Principles of Corporate Finance*. 14th ed. McGraw Hill, New York.

Browndorf, Chase (2021) A New Kind of Pitch: The Rise of Sports Dedicated Private Equity Funds nd the Future of the Single Entity Defense. *Jeffrey S. Moorad Sports Law Journal*, Vol. 28 (2), 335–368.

Bundesliga: Explaining the Bundesliga's 50+1 rule. <https://www.bundesliga.com/en/faq/what-are-the-rules-and-regulations-of-soccer/50-1-fifty-plus-one-german-football-soccer-rule-explained-ownership-22832>, retrieved 3.6.2026.

Cairns, J. – Jennett, N. – Sloane, P.J. (1986) The Economics of Professional Team Sports: A Survey of Theory and Evidence. *Journal of Economic Studies*, Vol. 13 (1), 3–80.

Callaway, Brantly – Sant'Anna, Pedro H.C. (2021) Difference-in-Differences with multiple time periods. *Journal of Econometrics*, Vol. 225 (2), 200–230.

Coffey, Brendan (2024) Sports Grow From Private Equity Afterthought to Booming Market. Sportico. <https://www.sportico.com/business/finance/2024/when-did-private-equity-start-investing-in-sports-teams-1234779117/>, retrieved 2.11.2025.

Damodaran, Aswath (2012) *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*. 3rd ed. John Wiley & Sons Inc., Hoboken, New Jersey.

EViews (2025) EViews 14 User's Guide: Estimating DiD in EViews. <https://www.eviews.com/help/helpintro.html#page/content%2Fpaneldid-Estimating_DiD_in_EViews.html%23>, retrieved 7.5.2026.

Fama, Eugene F. – French, Kenneth R. (2002) Testing Trade-Off and Pecking Order Predictions About Dividends and Debt. *The Review of Financial Studies*, Vol. 15 (1), 1–33.

Foley & Lardner LLP (2020) A New Game in Town: The Rise of Private Equity and Institutional Investment in Sports. <https://www.foley.com/insights/publications/2020/11/private-equity-institutional-investment-sports/>, retrieved 7.11.2025.

Folus, Didier – Bourton, Emmanuel (2015) Exit Strategies in Private Equity. In: *Private Equity: Opportunities and Risks*, eds. Baker, H. Kent – Filbeck, Greg – Kiymaz, Halil, 215–236. Oxford Academic, New York.

Garcia-del-Barrio, Pedro – Szymanski, Stefan (2009) Goal! Profit maximization and win maximization in football leagues. *Review of Industrial Organization*, Vol 34(1), 45–68.

Gilligan, John – Wright, Mike (2020) *Private Equity Demystified: An Explanatory Guide*. 4th ed. Oxford Academic, Oxford.

Gompers, Paul – Kaplan, Steven N. – Mukharlyamov, Vladimir (2016) What do private equity firms say they do? *Journal of Financial Economics*, Vol. 121 (3), 449–476.

Harris, Robert S. – Jenkinson, Tim – Kaplan, Steven N. (2014) Private Equity Performance: What Do We Know? *The Journal of Finance*, Vol. 69 (5), 1851–1882.

Hotchkiss, Edith S. – Smith, David C. – Strömberg, Per (2021) Private Equity and the Resolution of Financial Distress. *The Review of Corporate Finance Studies*, Vol. 10 (4), 694–747.

Houlihan Lokey (2024) Sports Market Update Fall 2024. <https://cdn.hl.com/pdf/2024/sports-market-update-fall-2024.pdf>, retrieved 2.11.2025.

Idar Lee, Nicole (2016) CVC's Formula One sold to Liberty Media in $8bn deal. Private Equity International. <https://www.privateequityinternational.com/cvcs-formula-one-sold-to-liberty-media-in-8bn-deal/>, retrieved 2.11.2025.

Jarque, Carlos M. – Bera, Anil K. (1980) Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics letters*, Vol. 6 (3), 255–259.

Jensen, Michael C. – Meckling, William H. (1976) Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, Vol. 3 (4), 305–360.

Jensen, Michael C. (1986) Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, Vol. 76 (2), 323–329.

Kaplan, Steven N. – Ruback, Richard S. (1995) The Valuation of Cash Flow Forecasts: An Empirical Analysis. The Journal of Finance, Vol. 50 (4), 1059–1093.

Kaplan, Steven N. – Schoar, Antoinette (2005) Private Equity Performance: Returns, Persistence, and Capital Flows. *The Journal of Finance*, Vol. 60 (4), 1791–1823.

Kaplan, Steven N. – Strömberg, Per (2009) Leveraged Buyouts and Private Equity. *The Journal of Economic Perspectives*, Vol. 23 (1), 121–146.

Kearney (2025) From passion to profit: unlocking value in sports. <https://www.kearney.com/industry/media/article/from-passion-to-profit-unlocking-value-in-sports>, retrieved 2.11.2025.

Knowles, Glenn – Sherony, Keith – Haupert, Mike (1992) The Demand for Major League Baseball: A Test of the Uncertainty of Outcome Hypothesis. *The American Economist*, Vol. 36 (2), 72–80.

Kraus, Alan – Litzenberger, Robert H. (1973) A State-Preference Model of Optimal Financial Leverage. *The Journal of Finance*, Vol. 28 (4), 911–922.

Le, Adam – Lynn, Alex (2020) The new playbook: How private equity fell in love with sport. Private Equity International. <https://www.privateequityinternational.com/the-new-playbook-how-private-equity-fell-in-love-with-sport/>, retrieved 7.11.2025.

Lerner, Josh – Sorensen, Morten – Strömberg, Per (2011) Private Equity and Long-Run Investment: The Case of Innovation. *The Journal of Finance*, Vol. 66 (2), 445–477.

Modigliani, Franco – Miller, Merton H. (1958) The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, Vol. 48 (3), 261–297.

Modigliani, Franco – Miller, Merton H. (1963) Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, Vol. 53 (3), 433–443.

Myers, Stewart C. – Majluf, Nicholas S. (1984) Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, Vol. 13 (2), 187–221.

Myers, Stewart C. (1977) Determinants of corporate borrowing. *Journal of Financial Economics*, Vol. 5 (2), 147–175.

Myers, Stewart C. (1984) The Capital Structure Puzzle. *The Journal of Finance*, Vol. 39 (3), 575–592.

Myers, Stewart C. (2001) Capital Structure. *The Journal of Economic Perspectives*. Vol 15 (2), 81–102.

Neale, Walter C. (1964) The Peculiar Economics of Professional Sports: A Contribution to the Theory of the Firm in Sporting Competition and in Market Competition. *The Quarterly Journal of Economics*, Vol. 78 (1), 1–14.

Nielsen, Klaus – Storm, Rasmus K. (2017) Profits, championships and budget constraints in European professional sports. In: *When sports meet business: capabilities, challenges, critiques*, eds. Ulrik Wagner – Rasmus K. Storm – Klaus Nielsen, 153–166. SAGE Publications, London.

Nykyforovych Borysoff, Maria – Mason, Paul – Utke, Steven (2024) Understanding Private Equity Funds: A Guide to Private Equity Research in Accounting. *Journal of Financial Reporting*, Vol. 9 (1), 21–49.

Phalippou, Ludovic – Gottschalg, Oliver (2009) The Performance of Private Equity Funds. *The Review of Financial Studies*, Vol. 22 (4), 1747–1776.

Pieper, Jan (2017) Financial fair play in European football. In: *When sports meet business: capabilities, challenges, critiques*, eds. Ulrik Wagner – Rasmus K. Storm – Klaus Nielsen, 167–185. SAGE Publications, London.

PitchBook (2025a) Major league investors: Private equity's pro sports ties. <https://pitchbook.com/news/articles/private-equity-sports-investment-dashboard>, retrieved 2.11.2025.

Rauch, Christian – Umber, Marc P. (2015) Leveraged Buyouts. In: *Private Equity: Opportunities and Risks*, eds. Baker, H. Kent – Filbeck, Greg – Kiymaz, Halil, 66–83. Oxford Academic, New York.

Reynolds, William J. (2024) The Rise of Private Equity in Professional Sports. Fire Capital Management. < https://www.firecapitalmanagement.com/fire-capital-blog-posts/the-rise-of-private-equity-in-professional-sports>, retrieved 2.11.2025.

Ritter, Jay R. (2015) Growth Capital-Backed IPOs. *Financial Review*, Vol. 50 (4), 481–515.

Rohde, Marc – Breuer, Christoph (2016a) Europe's Elite Football: Financial Growth, Sporting Success, Transfer Investment, and Private Majority Investors. *International Journal of Financial Studies*, Vol. 4 (2), 12.

Rohde, Marc – Breuer, Christoph (2016b) The Financial Impact of (Foreign) Private Investors on Team Investments and Profits in Professional Football: Empirical Evidence from the Premier League. *Applied Economics and Finance*, Vol. 3 (2).

Ruta, Dino – Lorenzon, Luca – Sironi, Emiliano (2020) The relationship between governance structure and football club performance in Italy and England. *Sport, Business and Management: An International Journal*, Vol. 10 (1), 17–37.

Sánchez, Luis Carlos – Barajas, Angel – Sánchez-Fernández, Patricio (2024) Are football clubs as pieces of art or as regular corporations? An empirical evidence of market valuation of football clubs in the big 5 leagues. *Managing Sport and Leisure*, Vol. 29 (4), 591–610.

Sharma, Manu – Prashar, Esha (2015) Private Equity Due Diligence. In: *Private Equity: Opportunities and Risks*, eds. Baker, H. Kent – Filbeck, Greg – Kiymaz, Halil, 290–308. Oxford Academic, New York.

Shi, Madeline (2022) Continuation funds drive GP-led secondaries wave. <https://pitchbook.com/news/articles/continuation-funds-gps-secondaries-private-equity>, retrieved 9.5.2026.

Sloane, Peter J. (1971) The economics of professional football: the football club as a utility maximiser. *Scottish Journal of Political Economy*, Vol. 18 (2), 121–146.

Sportico (2025) Sports Franchise Valuations Interactive Database. <https://www.sportico.com/feature/most-valuable-sports-franchises-interactive-database-1234866785/>, retrieved 2.11.2025.

Terrien, Mickael – Scelles, Nicolas – Morrow, Stephen – Maltese, Lionel – Durand, Christophe (2017) The win/profit maximization debate: strategic adaptation as the answer? *Sport, Business and Management: An International Journal*, Vol. 7 (2), 121–140.

UEFA (2026) The European Club Finance and Investment Landscape. <https://cdn.vev.design/private/BtTnX3Tn4aZIHco9Lmn27s3YNbm2/1nsbp2-the-european-club-finance-and-investment-landscape-2025.pdf>, retrieved 25.5.2026.

Welch, B. L. (1947) The Generalization of `Student's' Problem when Several Different Population Variances are Involved. *Biometrika*, Vol. 34 (1/2), 28–35.

Wooldridge, Jeffrey M. (2020) *Introductory Econometrics: A Modern Approach*. 7th ed. Cengage Learning, Boston.

Database references

Forbes (2025) The World’s Most Valuable Soccer Teams 2025. <https://www.forbes.com/sites/justinteitelbaum/2025/05/30/the-worlds-most-valuable-soccer-teams-2025/>, retrieved 1.3.2026.

Moody’s Analytics (2026) Orbis Europe. <https://orbiseurope.bvdinfo.com/>, retrieved 1.3.2026.

PitchBook (2025b) Every PE connection to Europe’s top football clubs. <https://pitchbook.com/news/articles/private-equity-european-football-dashboard>, retrieved 1.3.2026.

Sportico (2025a) Sports Franchise Valuations Interactive Database. <https://www.sportico.com/feature/most-valuable-sports-franchises-interactive-database-1234866785/>, retrieved 1.3.2026.

Sportico (2025b) World's 50 Most Valuable Soccer Clubs 2026 Ranking. <https://www.sportico.com/feature/soccer-teams-football-club-ranking-list-1234721408/>, retrieved 1.3.2026.

Appendices

Appendix 1 Explanation of the use of Artificial Intelligence (AI)

I have used generative AI tools to support different stages of my thesis process. The tools used, their purpose, and the methods used to verify the outputs are described below. I confirm that I have used AI tools with appropriate care, reported their use in accordance with the official guidelines of Turku School of Economics, and take full responsibility for the contents of this thesis.

1. Tool used: OpenAI ChatGPT (GPT-5)

    - Stage of use: topic ideation, methodology clarification

    - Purpose of use: ChatGPT was used to support brainstorming of the research topic, and to preliminary discuss theoretical frameworks and methodological possibilities to create understanding.

    - Example prompts:
        - "What potential research angles are the with sports investments from a corporate finance perspective?"
        - "How could private equity investment theoretically affect the capital structure of professional sports franchises?"
        - "What methodological approaches are commonly used in finance research when comparing firms with and without private equity ownership?"
        - "What is the difference between panel regression and Difference-in-Differences analysis? Explain in simple terms."

    - Verification of outputs: All AI-generated suggestions and explanations were carefully reviewed and verified by the author. Theoretical interpretations were checked against original academic sources and peer-reviewed literature. Research topic was further developed by researching the topic from reliable and verified sources. Methodological choices were decided after own critical thinking, and verified by existing academic sources.

2. Anthropic Claude AI (Sonnet 4.6, Opus 4.7)

    - Stage of use: literature review support, text editing, technical support in empirical analysis

- Purpose of use: Claude AI was used to create summaries of individual articles to help evaluate the relevance of the article. It was also used to improve grammar and academic writing of individual sentences. Claude was also used as a support in the use of EViews in empirical analysis.

- Example prompts:
    - "Summarise the key findings and theoretical contribution of this article on private equity ownership in sports."
    - "What are the main arguments presented in this paper regarding private equity and firm performance?"
    - "Rewrite this sentence in a more academic style while preserving the original meaning."
    - "How do I run a Difference-in-Differences estimation in EViews?"

- Verification of outputs: No AI-generated text or edits were ever pasted to this thesis without careful review. No new text was generated with AI, only pre-written text was edited, and it was always checked that the original meaning remains. Every article used and referenced in this thesis has been read thoroughly by the author, and every AI-generated summary has been verified. The summaries have only been used to examine relevancy, and no text has been drafted from these. AI also give support in EViews usage. All of the actions that have been performed with EViews have been confirmed from EViews user guide to correspond the wanted actions.

3. Scopus AI

- Stage of use: literature review

- Purpose of use: Scopus AI was used to assist in identifying relevant academic articles and keywords related to private equity, capital structure theory, sports finance, and football club ownership.

- Example prompts: used a number of key words and phrases from the topics of the thesis.

- Verification of outputs: All articles identified through Scopus AI were independently reviewed and evaluated by the author. Original articles were read carefully before inclusion in the thesis. Scopus AI was used only as a support tool for literature discovery and not generate any text.