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Winner's Curse in Premier League
Evidence from the 2023/2024 summer transfer market

MASTER DISSERTATION

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MASTER IN MANAGEMENT

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ABSTRACT

The Winner’s Curse describes systematic overpayment in competitive bidding due to overestimation, asymmetric information, and financial pressure (Thaler, 1988). This study empirically assesses the Winner’s Curse in football by examining its presence in Premier League transfers, analyzing 84 transactions from the 2023/2024 summer transfer market window. Findings confirm that 63% of transfers involved overpayment, influenced by bidding wars ($p = 0.031$), rivalry ($p = 0.022$), buyers' Champions League qualification ($p = 0.018$), selling performance in the last five seasons ($p = 0.021$), and contract expiration ($p = 0.040$). While Financial Fair Play (FFP) regulations help curb spending, strong governance has no significant effect. These results highlight the Winner’s Curse in football. Given this phenomenon's significant financial implications, clubs must adopt data-driven valuation models and stricter financial oversight to enhance market efficiency.

Keywords:

Winner’s Curse,Premier League , Football Transfers Auction Theory, Bidding Wars, Overpayment

RESUMO

O fenómeno *Winner´s Curse* descreve o pagamento excessivo sistemático em disputas competitivas, resultado de superestimação, informação assimétrica e pressão financeira (Thaler, 1988). Este estudo avalia empiricamente a *Winner´s Curse* no futebol, examinando sua presença em transferências da Premier League, com análise de 84 transações realizadas na janela de transferências do verão de 2023/2024. Os resultados confirmam que 63% das transferências envolveram pagamento excessivo, influenciadas por disputas de lances ($p = 0,031$), rivalidade ($p = 0,022$), classificação do comprador para a Liga dos Campeões ($p = 0,018$), desempenho do vendedor nas últimas cinco temporadas ($p = 0,021$) e expiração de contrato ($p = 0,040$). Embora os regulamentos de Fair Play Financeiro (FFP) ajudem a limitar os gastos, uma governança forte não apresenta efeito significativo. Os resultados evidenciam a presença da Maldição do Vencedor no futebol. Dada a relevância financeira deste fenômeno, recomenda-se que os clubes adotem modelos de avaliação baseados em dados e aprimorem a fiscalização financeira para promover maior eficiência de mercado.

Palavras – chave :

Maldição do Vencedor ,Premier League , Transferências no Futebol, Teoria dos leilões, Guerras de leilão, Sobrevalorização

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To my parents who, although unable to witness this moment, contributed greatly to this outcome by continuously providing an environment rich in experiences, knowledge, and critical thinking.

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1. Introduction

1.1. Background and Rationale

The Winner's Curse is a well-documented phenomenon in auction theory and competitive bidding, where the winning bidder tends to overpay due to overestimation, asymmetry of information, or behavioral biases (Thaler, 1988; Capen et al., 1971; Bazerman & Samuelson ,1983; Varaiya, 1988; Kagel & Levin, 1986; Blecherman & Camerer, 1996; Hong & Shum, 2002; Brander & Egan, 2017; Seifert & Hüttel, 2023). Originally identified in oil lease auctions (Capen et al., 1971), this anomaly has been observed across multiple economic domains, including mergers and acquisitions (Roll, 1986; Varaiya & Ferris, 1987; Varaiya, 1988; Brander & Egan, 2017), real estate markets (Fuerst et al., 2017; Hungria Gunnelin, 2020; Seifert & Huttel, 2023), procurement auctions (Ahmed et al., 2016; Hong & Shum, 2002), and sports economics (Cassing & Douglas, 1980; Blecherman & Camerer, 1996; Eschker et al., 2004; Andreff, 2014).

This phenomenon is particularly relevant in professional football, where market dynamics closely resemble auction settings. While auction theory has been widely studied in economic contexts, its implications in football transfers remain underexplored. In professional football, particularly in the Premier League, the transfer market is a highly competitive environment where clubs frequently engage in bidding wars for top-tier players (Szymanski & Smith, 1997; Dobson & Gerrard, 1999; Franck, 2010, 2018). The economic implications of the Winner's Curse in this context are profound, affecting club financial sustainability, player valuation accuracy, and overall market efficiency. Despite extensive research on player valuation models (Dobson & Gerrard, 1999; Müller et al., 2017; Poli et al., 2021), there remains a critical gap in understanding the systematic overpayment behavior driven by competitive pressure, financial strength, and governance structures.

1.2. Research Problem and Gap

Existing literature on the Winner's Curse in sports economics has primarily focused on bidding for hosting mega-sporting events (Andreff, 2014), acquiring broadcasting rights (Feuillet et al., 2017), signing free-agent players (Cassing & Douglas, 1980; Blecherman & Camerer, 1996), and recruiting foreign basketball players (Eschker et al., 2004).

However, there is a notable scarcity of seminal papers directly correlating the Winner's Curse with football player transfers.

Recognizing this limitation in existing literature, this gap presents an opportunity to quantify the extent to which Premier League clubs systematically overpay for transfers. By employing empirical econometric models, this study aims to analyze the key drivers behind this behavior. This study aims to address this gap by providing a quantitative analysis of transfer premiums (where the premium results from the difference between a player's real value and their theoretical value) in the Premier League's 2023/2024 summer transfer window.~

Accordingly, this dissertation seeks to address the following research question: To what extent is there a systematic tendency towards overpayment in player transfers in the Premier League during the 2023/2024 summer transfer window, and which factors explain the observed transfer premiums?

1.3. Research Objectives

To bridge the identified research gap, this study sets out to achieve three main objectives. Specifically, this study aims to: (1) Quantify the difference between actual transfer fees (Real Value, RV) and estimated market values (Theoretical Value, TV) to determine systematic overpayment trends; (2) Identify key factors influencing transfer premiums, including market competition, contract length, financial strength, and governance quality; and (3) Evaluate the role of UEFA Financial Fair Play (FFP) regulations in mitigating excessive spending.

1.4. Methodological Overview

To systematically investigate the research objectives, this study employs a quantitative research design utilizing econometric modeling techniques. Data are sourced from Transfermarkt (Transfermarkt, 2024), a widely recognized platform for football player valuations, and supplemented with financial and governance reports from Premier League clubs. The key methodological steps include: (1) Descriptive Analysis – Establishing patterns of overpayment across 84 transactions from the 2023/2024 transfer window; (2) Regression Analysis – Applying an Ordinary Least Squares (OLS) regression model to estimate the impact of independent variables (e.g., number of interested clubs, contract length, UEFA Champions League qualification) on transfer premiums; and (3) Hypothesis Testing – Evaluating theoretical expectations of the Winner's Curse using empirical data.

1.5. Summary of Key Findings

The application of the proposed econometric model reveals insightful patterns in transfer market behavior. Preliminary results confirm that Premier League clubs systematically overpay for players, with 63% of transfers involving overpayment. The findings provide key insights into the factors influencing overpayment. Regression analysis highlights that increased competition among clubs significantly raises transfer premiums ($p = 0.031$), as well as rivalry ($p = 0.022$), supporting the auction theory premise that bidding wars escalate prices (Capen et al., 1971; Mead et al., 1983; Bazerman & Samuelson, 1983; Varaiya, 1988; Hong & Shum, 2002). Champions League clubs exhibit higher spending tendencies ($p = 0.018$), aligning with theories of prestige-driven overspending (Dietl et al., 2008; Franck, 2010; Tunaru & Viney, 2010). Clubs with high past selling activity command higher fees ($p = 0.021$), indicating that market experience influences pricing power. Financial Fair Play constraints appear to reduce excessive spending ($p = 0.058$), suggesting that regulatory measures have a moderating effect (Franck, 2018).

1.6. Structure of the Thesis

To provide a coherent narrative, the thesis follows a structured approach, organized as follows: Chapter 2 presents the literature revision, where we analyze the theoretical foundations of the Winner's Curse, its manifestations in economic and sports markets, and mitigation strategies. Chapter 3 describes the methodology, with focus on research design details, data sources, econometric modeling, and hypothesis formulation. Chapter 4 provides the results. In this chapter we present the empirical findings on transfer overpayment trends and key determinants of the Winner's Curse in Premier League transfers. Chapter 5 presents the discussion of main results. In this chapter, we interpret key results in light of existing literature, exploring theoretical and practical implications. Finally, Chapter 6 concludes the paper. This chapter summarizes findings, outlines limitations, and provides recommendations for future research.

1.7. Contribution to the Literature

By empirically validating the presence of the Winner's Curse in Premier League transfers, this study contributes to a broader understanding of irrational market behavior in sports economics. The findings highlight the need for more structured valuation approaches, stricter financial regulations, and enhanced decision-making frameworks to mitigate excessive transfer

spending. This research serves as a foundation for future studies exploring governance mechanisms and behavioral interventions in football's financial landscape.

2. Literature Review

The Winner's Curse is a well-documented anomaly in auction theory and competitive bidding, where the winning participant often overpays for an asset or contract due to overestimation, asymmetric information, and emotional biases (Thaler, 1988; Capen et al., 1971; Bazerman & Samuelson, 1983; Varaiya, 1988; Kagel & Levin, 1986; Blecherman & Camerer, 1996; Hong & Shum, 2002; Brander & Egan, 2017; Seifert & Hüttel, 2023).

First introduced by Capen, Clapp, and Campbell (1971), demonstrated that firms bidding for oil leases frequently overestimated the value due to imperfect information and competition, leading to financial losses. This pioneering study laid the groundwork for exploring similar patterns in other industries, such as financial markets (Roll, 1986; Varaiya & Ferris, 1987; Varaiya, 1988; Brander & Egan, 2017) and sports economics (Cassing & Douglas, 1980; Blecherman & Camerer, 1996; Eschker et al., 2004; Andreff, 2014), illustrating how information asymmetry and competitive pressures often result in suboptimal decisions.

2.1. Broader Implications of the Winner's Curse

While the Winner's Curse was originally identified in auction settings (Capen et al., 1971; Bazerman & Samuelson, 1983 ; Mead et al., 1983), its impact extends far beyond, influencing various sectors including finance (Roll, 1986; Varaiya & Ferris, 1987; Varaiya, 1988; Brander & Egan 2017) , real estate (Fuerst et al., 2017; Hungria Gunnelin, 2020; Seifert & Hüttel, 2023), procurement, and sports. Scholars have observed that in high-stakes environments, the risk of overpayment is amplified by behavioral biases and market dynamics, underscoring the importance of strategic decision-making and accurate valuation models.

Broader implications of the Winner's Curse include: (1) Corporate takeovers and mergers and acquisitions (M&A) – firms frequently overpay for acquisitions due to managerial hubris and information asymmetry, leading to negative shareholder value post-merger (Roll, 1986); (2) Financial markets and IPOs – investors in initial public offerings often overpay due to excessive optimism and market speculation (Varaiya & Ferris, 1987; Varaiya, 1988); (3) Real estate markets – competitive bidding drives prices above rational levels (Fuerst et al., 2017; Hungria Gunnelin, 2020; Seifert & Hüttel, 2023); (4) Procurement and construction bidding –

underestimated costs and competition often result in budget overruns (Ahmed et al., 2016; Hong & Shum, 2002); (5) Sports economics – teams overpay for talent, broadcasting rights, and event hosting (Cassing & Douglas, 1980; Blecherman & Camerer, 1996; Eschker et al., 2004; Andreff, 2014); (6) Behavioral decision-making – cognitive biases influence economic choices (Tversky & Kahneman, 1981; Kahneman, 2003); and (7) Family business management – non-family managers may be overpaid due to cultural dynamics (Chrisman et al., 2014). Each of these areas reveals how the Winner's Curse manifests through cognitive errors, emphasizing the need for better information systems and decision-making frameworks.

This review explores the theoretical underpinnings of the Winner's Curse (Section 2), analyzes empirical evidence across multiple domains (Section 3), examines its impact on sports economics (Section 4), and discusses mitigation strategies (Section 5).

2.1.1. Origin of the Winner's Curse in Auction Theory

The Winner's Curse was first introduced by Capen et al., (1971) in their analysis of oil lease auctions. Their study demonstrated that firms bidding for oil drilling rights often overestimated the actual reserves in the leased tracts. Due to imperfect information and competition, the winner of the auction tended to be the firm with the most over-optimistic valuation. This resulted in systematic overpayment and financial losses, marking the first empirical identification of the Winner's Curse.

Their research laid the foundation for subsequent studies in auction theory, corporate takeovers, and financial markets, showing how asymmetric information and competitive bidding dynamics create systematic inefficiencies (Capen et al., 1971; Cassing & Douglas, 1980; Bazerman & Samuelson, 1983; Varaiya & Ferris, 1987; Thaler, 1988; Eschker et al., 2004).

Understanding the theoretical origins of the Winner's Curse requires an exploration of auction dynamics, including private-value and common-value auctions. Private-value auctions involve assets valued differently by each bidder, while common-value auctions have a single underlying value known after bidding (Kagel & Levin, 1986; Fuerst et al., 2017; Hungria Gunnelin, 2020).

In common-value auctions, bidders rely on their own estimations, which often differ due to information asymmetry. This uncertainty leads to a systemic problem: the bidder who most overestimates the value is most likely to win (Hungria Gunnelin, 2020). As a result, the final price often exceeds the actual worth of the asset, creating a systematic overvaluation problem.

2.1.2. Rationality and Cognitive Biases

Traditional economic models assume that individuals are rational agents who make decisions to maximize expected utility (Samuelson, 1938), but behavioral studies challenge this assumption. Behavioral economists highlight those cognitive biases, such as overconfidence and anchoring, frequently distort rational decision-making, particularly in competitive markets where emotions and pressure exacerbate errors (Tversky & Kahneman, 1974; Roll, 1986).

Thaler (1988) identified two types of the Winner's Curse: (1) winners paying more than the asset's value, resulting in financial loss; and (2) winners realizing the asset is worth less than anticipated, leading to disappointment. This dual perspective enriches the understanding of bidder behavior, offering a nuanced analysis of how misjudgments in valuation can have lasting economic impacts.

Further exploration of this concept has led to refinements in its definition. Cox and Isaac (1984) identify a version A and B of the phenomenon.: A - "Winning bidders will on average, earn unusually low profits on auctioned items" and B - "Winning bid exceeds the winning bidder's a posteriori expected value of the auctioned item".

Both versions contradict the rational bidding hypothesis, suggesting that bidders do not adequately adjust for the risk of overestimation.

Bazerman and Samuelson (1983) analyzed how bounded rationality, and cognitive biases lead to systematic overbidding in auctions, highlighting that bidders often ignore information asymmetry and competitive pressure. Their work emphasizes the importance of behavioral insights in economic models, demonstrating that even well-informed bidders are prone to errors due to psychological influences.

Two key factors contribute to overpayment: the degree of uncertainty regarding the auctioned item's value and the number of bidders, which increases bid dispersion and raises susceptibility to overvaluation.

Their research supports Thaler's (1988) findings that bidders often fail to account for information asymmetry and competitive pressure, leading to irrational pricing.

This study has broad implications, particularly for mergers & acquisitions, procurement, and financial markets, where bounded rationality leads to suboptimal decision-making.

Roll (1986) proposed the Hubris Hypothesis, explaining that corporate acquisitions suffer from the Winner's Curse due to managerial overconfidence. CEOs and executives often believe that they can extract more value from an acquisition than the market predicts, leading to systematic overpayment.

This hypothesis is supported by studies showing that mergers and acquisitions (M&A) frequently destroy shareholder value, with acquiring firms' stock prices declining post-merger (Varaiya & Ferris, 1987; Varaiya , 1988).

Table 2.1 - Rational and cognitive reaction.

Cognitive bias	Definition	Relation with football transfers	Authors
Overconfidence/Hubris	The tendency to overestimate one's own ability to predict or control outcomes, leading to unrealistic assessments of success or accuracy.	Club executives and managers systematically overestimate their valuation skills and their ability to extract future value from a player, similar to overconfident CEOs in M&A who overpay for targets; this amplifies transfer premiums and helps generate the winner's curse in the thesis' Premier League sample.	Roll (1986); Bazerman & Samuelson (1983); Ahmed et al., (2016); Thaler (1988).
Anchoring Effect	The cognitive tendency to rely too heavily on initial information (the "anchor") when making subsequent judgments.	Initial reference points (Transfermarkt values, early asking prices, rival bids, or media rumors) act as anchors; clubs adjust insufficiently away from these anchors under competition, so bidding escalates around an inflated starting point and leads to systematic overpayment (positive $P = RV - TV$) documented in the study.	Tversky & Kahneman (1974); Hungria Gunnelin (2020).

Table developed by the author for this dissertation.

Table 2.1 (Continued)

Cognitive bias	Definition	Relation with football transfers	Authors
Escalation of Commitment	The persistence in investing resources into a failing course of action due to prior investments, sunk costs, or ego involvement.	Clubs continue bidding beyond rational limits in competitive markets to justify earlier spending or to signal dominance — a behavior closely tied to "auction fever."	Bazerman & Samuelson (1983); Ahmed et al., (2016); Van den Bos et al., (2008).
Herding	The inclination of individuals to mimic the actions of a larger group, assuming those actions are rational or successful.	When multiple top clubs signal interest other clubs infer value from others' actions and follow the crowd, creating auction fever and artificially inflating prices above theoretical value, reinforcing the winner's curse documented both in sports and in real-estate/procurement evidence.	Cassing & Douglas (1980); Andreff (2014); Hong & Shum (2002).
Auction Fever	Emotional excitement or stress during competitive bidding leading to impulsive overbidding and reduced rational control.	Emotional arousal in high stakes, time pressured auctions (prestige signings, rivalry, Champions League qualification) shifts clubs from deliberative valuation to affective bidding, raising the probability that the winning bid is the most overoptimistic estimate of player value, a core mechanism behind the observed 63% overpayment rate.	Tversky & Kahneman (1974); Van den Bos et al., (2008).

Table developed by the author for this dissertation.

Table 2.1 (Continued)

Cognitive bias	Definition	Relation with football transfers	Authors
Loss Aversion / Fear Of Missing Out Framing	The psychological tendency to prefer avoiding losses rather than acquiring equivalent gains, leading to risk-seeking in loss frames.	Clubs frame not winning the player as a salient loss (missing out on talent, status, Champions League qualification), so they overbid to avoid this loss.	Thaler (1988); Tversky & Kahneman (1981); Tversky & Kahneman (1989).

Table developed by the author for this dissertation.

2.1.3. Framing Effects and Decision Sciences

Tversky and Kahneman's (1981) work on framing effects illustrates how the presentation of choices influences decision-making. They demonstrated that individuals exhibit risk aversion when options are framed as gains and risk-seeking behavior when framed as losses, particularly in auction settings where perceived risks and gains distort valuations.

Framing refers to how information is presented to decision – makers and how its presentation influence their choices, being influenced by individual's norms and heuristics (mental shortcuts).

A decision frame, consists on the decision maker's perception of acts (available actions or options), outcomes (potential consequences of each act) and contingencies (probabilities and uncertainties associated with outcomes).

The process of framing can be either positive (focuses on gains or benefits) or negative (focuses on losses or risks).

Trough reframing identical decision problems, Tversky and Kahneman demonstrate preference reversals that challenge the expected utility model.

The study presents a common pattern in risk aversion in gains, where individuals prefer certain, smaller gains over probabilistic larger ones (e.g., choosing a sure gain of $200 over a 33% chance to gain $600). Also verifies a risk seeking in losses, where individuals opt for probabilistic larger losses over certain, smaller ones (e.g., choosing a 75% chance to lose $1,000 over a certain loss of $750).

It concludes that bidder's behavior could lead to experience winner's curse in the following scenarios: Loss Aversion – Bidders fear missing out (FOMO) and overbid to avoid the perception of loss; Positive Framing – Bidders framing of a bid as a potential win, may lead to overweight optimistic outcomes, exacerbating overpayment.

Later, Kahneman (2003) distinguishes two modes of thinking and deciding: System 1 vs. System 2 Thinking – Most auction decisions engage fast, emotional (System 1) thinking, rather than slow, rational (System 2) thinking.

These insights explain why even experienced professionals fall prey to the Winner's Curse in auctions, mergers, and high stakes bidding environments.

2.2. Empirical Evidence Across Economic and Financial Domains

2.2.1. Corporate Takeovers and Mergers & Acquisitions (M&A)

Roll (1986) introduce the hubris hypothesis as an explanation for corporate takeovers. Proposes that the decisions of bidding firms are influenced by managerial hubris, leading to overpayment for target firms.

The sample of corporate takeovers indicates that there are no gains in acquisitions, with the hubris hypothesis predicting that, around a takeover:" (a) the combined value of the target and bidder firms should fall slightly, (b) the value of the bidding firm should decrease, and (c) the value of the target should increase."

The hypothesis assumes that financial, product, and labor markets are efficient and that the observed overpayment is due to individual irrationality rather than market inefficiency. Managers' overconfidence and belief that their valuations are more accurate than the market price, leads to decisions that may not align with shareholder interests.

This seminal paper extends the concept of the Winner's Curse from auction theory to corporate takeovers, highlighting how managerial hubris mirrors the optimism bias observed in auction winners.

It also provides behavioral insights, highlighting the role of individual irrationality emphasizing the behavioral underpinnings of the Winner's Curse, showcasing its applicability beyond traditional auction contexts.

Brander and Egan (2017) investigate the winner's curse in private acquisitions, analyzing over 22,000 private and 3,500 public acquisitions in the United States between 1985 and 2015. Unlike public acquisitions, private ones tend to yield positive returns on average, due a minor information asymmetry comparing with public ones. However, 46% of private targets fail to generate positive cumulative abnormal returns. The authors attribute this to factors like information asymmetry, the presence of multiple bidders, and overconfidence among serial acquirers.

Varaiya and Ferris (1987) observed that acquisition proposals most likely to be accepted are those projecting the greatest benefits for the acquirer. This dynamic often results in overvaluation, as evidenced in 58% of their sample.

The process of acquiring a company follows a pattern similar to auctions, where analysts collect public data to evaluate the target's potential value. The challenge lies in obtaining perfect information and achieving unanimous valuation. Information asymmetry remains a

significant issue contributing to the winner's curse, compounded by biases and hubris or overconfidence.

Varaiya (1988) examined why companies tend to pay premiums above market value for acquisitions. One hypothesis is that acquirers pursue expansion strategies based on their extraordinary financial performance. This aligns with Roll's (1986) work, which highlights that acquirers often gain little, if any, when buying other companies. Roll concludes that "companies infected by hubris simply pay too much for their targets."

Mead et al., (1983) extended the analysis of Capen et al., (1971) by examining oil lease auctions in the Gulf of Mexico between 1954 and 1969. They found that only 22% of oil lease acquisitions turned out to be profitable. The majority of firms overestimated oil reserve capacity, leading to systematic overpayment. The Winner's Curse was exacerbated by asymmetric information and competition among bidders.

Their findings confirm that the Winner's Curse is not merely a theoretical construct, but a persistent empirical issue in resource-based auctions. This research also draws parallels to the Winner's Curse in corporate takeovers, where acquirers overestimate the long-term value of assets.

2.2.2. Real Estate Markets

Beyond corporate takeovers, the Winner's Curse manifests in various sectors, including real estate. Hungria Gunnelin (2020) examines Swedish residential real estate auctions, confirming that increased bidder numbers heighten the winner's curse. Fast bidding and "jump bidding" (high initial bids signaling item value) further amplify prices. Brokers often underprice properties to attract more bidders, inducing "auction fever" and emotional herd behavior.

Fuerst et al., (2017) explore the "green winner's curse" in eco-certified office buildings. Despite benefits like tax reliefs and higher investment performance, these buildings sell at premiums of approximately 5% over non-certified properties. Higher bidding offsets these benefits, creating a winner's curse in the eco-friendly real estate sector.

Seifert and Hüttel (2023) investigate farmland auctions in Germany, finding evidence of a common-value component that leads to overbidding and inefficient allocations. To mitigate the winner's curse, they recommend improving market transparency through the publication of auction details and mechanisms to limit valuation uncertainty.

2.2.3. Procurement and Infrastructure Bidding

The Winner's Curse extends beyond traditional auction markets, influencing government and corporate procurement decisions. Ahmed et al., (2016) applies game theory to construction bidding, finding that contractors often submit underestimated bids., resulting in below-normal profits or losses. Defined as a "reverse auction," this occurs when bidders with the most optimistic cost estimates win contracts. Factors such as inappropriate project valuation, heightened competition, and recession-induced losses exacerbate the winner's curse. Learning from past experiences is identified as key to mitigating these effects.

Hong and Shum (2002) investigate the effects of competition and winner's curse in procurement auctions, specifically analyzing how increased competition, impacts equilibrium bidding behavior and procurement costs.

The study uses data from construction procurement auctions held by New Jersey Department of Transportation (NJDOR) between 1989 and 1997 and is divided between Work type A (General Highway), Work type B (Bridge construction/repair) and Work type C (Grading and Paving).

The authors place two questions: "…does an increase in the number of competitors lead a given bidder to bid more or less aggressively, in equilibrium?" and "…does the winning bid rise or fall as competition increases?". (Hong & Shum, 2002)

Procurement auction setting is established and paid by government to firms. These payments correspond to contract work awarded trough low bid auctions. Authors consider that bidder's valuation have both a common value and a private component

The study finds that in auctions with strong common value components (Work type A and B), the winner's curse effect dominates, leading to higher procurement costs as the number of bidders increases—a counterintuitive result regarding common wisdom.

Authors state that contractors proceed into a selective participation, prioritizing larger projects, which attracted more bidders, with a 15% procurement cost increase as the number of bidders rose from 3 to 6. This Effect was less pronounced in road paving contracts, which exhibited stronger private value characteristics.

The findings challenge the conventional belief that more competition always reduces costs., with the authors suggesting that not only limiting the number of bidders may minimize the procurement cost as governments should consider restricting entry or favoring negotiation over competitive bidding scenarios.

Shaffer (1998) explores the phenomenon in the banking sector, examining how rejected loan applicants reapply to other banks, systematically worsening the pool of applicants over time, leading to adverse selection.

The most creditworthy borrowers are approved early, leaving riskier applicants for other banks, with adverse selection being intensified as the number of banks in a market increases, worsening loan loss rates.

In order to mitigate the adverse selection, highlight the role of common filters, as shared databases and standardized credit scoring models, providing consistent evaluations.

The entrance of new banks leads them exposed to a higher proportion of rejected and riskier applicants. Understandably, loan loss rates for these banks are significantly higher than for established institutions. To balance accounting, they experience higher charge off rates during their early years, aligning with the theoretical predictions of the winner's curse.

Shaffer adapts the winner's curse to banking and highlight the suboptimal lending outcomes resultant from informational asymmetry and competition.

2.2.4. Family Business Context

Chrisman et al., (2014) explored how family-owned firms experience the Winner's Curse when hiring non-family managers. Their research identifies two main mechanisms: (1) - Overpayment for talent, where Family firms tend to overbid for external managers, believing that external hires will generate higher returns than family insiders; (2) - Cultural mismatch and performance expectations: Non-family managers face unrealistic expectations, leading to higher turnover rates and suboptimal firm performance.

Their findings show that family firms are not immune to valuation errors and that organizational culture plays a significant role in bidding inefficiencies. This study extends the Winner's Curse beyond traditional auction settings, demonstrating its relevance in corporate governance and human resource management.

2.3. The Winner's Curse in Sports Economics

2.3.1. Free Agency in Baseball

Cassing and Douglas (1980) verified that Major League Baseball teams overpaid for free agents between 1976 and 1979, exceeding their marginal revenue product. The authors argue that

inherent uncertainty in estimating a players marginal revenue product, leads to systematic overbidding.

In an auction dynamic, teams tend to win auctions for players they overvalue, with bidding approaching the upper bound of value distribution when the number of bidders increase, magnifying the risk of overpayment.

Empirical analysis shows that, between 1976 and 1979, 28 out of 44 free agents were paid above their estimated marginal revenue product, in approximately 20%, confirming a consistent pattern of overvaluation in the free agent draft.

The entrance on free agency by the players, depends on two factors: their eligibility and his attitude to risk. To be available for a free agency, a player must have been in a 6-year contract with Major League teams. The players attitude regarding risk will dictate and influence their decision. In a risk averse scenario, the player will prefer the certainty of a multi-year contract; if he feel that is more valued by the current team, the bond with team – mates (psychic cost) ; the desire for playing in a specific team and the uncertainty that comes along a free agency (not only if the player gets injured , but also because he enters in a dimension where he doesn't know if the highest bidder will equal or surpass the purposely he already had). In a risk prone scenario, the player will sell his talent to the highest bidder in a maximization of high rewards (Cassing & Douglas, 1980).

The study raises questions about the efficiency of the free agent market. While free agency increases player mobility, it does not guarantee optimal resource allocation. Instead, overpayment and inefficient bidding outcomes threaten the financial stability of some teams.

Blecherman and Camerer (1996) examined winner's curse manifestation in the 1990 negotiations for free agent baseball players. Through their study of free agents' marginal revenue product (value created through performance) and salary, they concluded that in 25 out of 32 cases, the players were overpaid, demonstrating the occurrence of winner's curse.

2.3.2. International Transfers in Basketball

Eschker et al., (2004) analyzed the Winner's Curse in the National Basketball Association's player market, focusing on the 1996–1997 and 1997–1998 seasons. Their study aimed to identify whether there was a systematic pay gap between domestic and foreign players.

They found that foreign players earned significantly higher salaries compared to domestic players, even when their performance metrics (points, rebounds, efficiency ratings) were similar.

The primary cause of this overpayment was information asymmetry—teams lacked reliable scouting data on international players, leading to inflated salary offers.

However, over time, as teams improved their scouting and analytical capabilities, the Winner's Curse effect diminished.

Their findings provide empirical validation that the Winner's Curse occurs not only in traditional auctions but also in professional sports contracts. They highlight how teams adjust their valuation strategies as more information becomes available, which aligns with broader theories on learning effects in bidding environments.

2.3.3. Broadcasting Rights and Sports Event Hosting

Feuillet et al., (2017) verified the occurrence of winner's curse in football broadcasting rights bidding processes, particularly in France and the UK. The increasing interest in football broadcasting among TV channels has led to fierce competition, consistent with the winner's curse phenomenon. However, they noted that both Sky (UK) and Canal Plus (France) experienced success during their monopoly periods, highlighting the advantages of being "first movers." They concluded that winner's curse in broadcasting rights is more likely to affect later entrants who must challenge established powers with extremely high investments.

Andreff (2014) considers winner's curse "a major concept in sports economics" while identifying several contexts where it can occur, such as : (1) The organization of mega sports events (such as the Olympic Games, where cities bid against each other through the International Olympic Committee, with winners facing heavy infrastructure investments and cost overruns); (2) The bidding process to attract sports franchises (where franchise owners seek the best proposal from cities to host their teams, often leading municipalities to allocate resources that ultimately increase local taxes); (3) The acquisition of broadcasting rights (presenting the dilemma of bidding too low and losing potentially lucrative deals, or bidding too high and risking low or nonexistent returns); (4) Free agency (where players sell their talent to the highest-bidding club, which expects certain performance levels that, if unmet, lead to winner's curse) and (5) The recruitment of superstar players or coaches (whose scarce talent

and image monopoly, combined with commercial interests, can jeopardize team budgets and club financial stability).

2.4. Mitigation Strategies for the Winner's Curse

The Winner's Curse persists across various industries due to information asymmetry, cognitive biases, and valuation errors. However, multiple strategies have been proposed to reduce overvaluation risks and improve decision-making processes. These strategies generally fall into three categories: (1) Enhancing Market Transparency and Information Sharing; (2) Bid Adjustment and Strategic Learning or (3) Behavioral and Psychological Interventions.

2.4.1. Enhancing Market Transparency and Information Sharing

Objective: Reduce information asymmetry and support bidders in forming more accurate value estimates.

Thaler (1988) suggested that information asymmetry is a core driver of the Winner's Curse. By improving access to data, bidders can better estimate true asset values.

Seifert and Hüttel (2023), studied German farmland auctions and recommended that publishing auction details, historical price data, and valuation mechanisms can reduce uncertainty.

Mead et al., (1983), found that 22% of oil leases in the Gulf of Mexico (1954–1969) were profitable, showing how imperfect information led to systematic overpayment. They argued that disclosing more geological data could mitigate the Winner's Curse.

Eschker et al., (2004) verified that National Basketball Association's teams overpaid for foreign players due to lack of scouting data, but as teams improved their analytics and scouting networks, the pay gap decreased.

Greater transparency in auctions, financial markets, and sports contracts can significantly reduce the risk of overvaluation.

2.4.2. Bid Adjustment and Strategic Learning Objective

Objective: Help bidders adjust their valuation strategies by incorporating past bidding experiences and market conditions.

Kagel and Levin (1986) conducted laboratory auctions and found that inexperienced bidders were more susceptible to the Winner's Curse. However, with repeated exposure, they learned to adjust their bids downward, reducing overpayment risks.

Bazerman and Samuelson (1983) demonstrated that bidders systematically fail to account for the risk of overestimation. They recommended that bidders adopt more conservative bidding models, especially in highly uncertain environments.

Ahmed et al., (2016) analyzed reverse auctions in construction bidding, where contractors frequently underestimated project costs. They found that learning from past bidding errors helped firms adjust their pricing strategies, improving profitability.

Hong and Shum (2002) studied procurement auctions and showed that selective participation (avoiding low-margin projects) improved contractor profitability. They suggested that governments limit the number of bidders to prevent aggressive underbidding.

Experience and structured learning reduce susceptibility to overbidding. Firms should implement structured bidding strategies based on historical performance.

2.4.3. Behavioral and Psychological Interventions

Objective: Reduce the cognitive biases and emotional influences that cause irrational overbidding.

Tversky and Kahneman (1981, 2003) found that bidders often engage in fast, emotional decisions rather than deliberate, logical reasoning. To combat this, they suggested: "Cooling-off periods" (before making large financial decisions) and using decision aids to prompt critical thinking.

Van den Bos et al., (2008) showed that auction fever and emotional bidding distort rational valuation. Their research found that human bidders behaved more rationally when competing against AI-driven pricing models.

Chrisman et al., (2013) studied family businesses and showed that hiring decisions were often influenced by emotional biases, leading to overpayment for non-family managers. They suggested structured executive hiring frameworks to prevent subjective decision-making.

Bergemann et al., (2020) proposed a common value posted price auction model, where assets are sold at pre-determined price thresholds, preventing emotional overbidding.

Human biases contribute significantly to overpayment. Implementing structured decision frameworks can prevent emotional overbidding (Thaler, 1988; Bazerman & Samuelson, 1983).

2.4.4. Structural Auction and Pricing Mechanisms

Objective: Design better auction rules and bidding processes that limit overpayment.
Roll (1986) introduced the Hubris Hypothesis, showing that overconfident managers systematically overpay in mergers. He suggested implementing independent valuation audits before approving high-stakes acquisitions.

Seifert and Hüttel (2023) recommended price ceilings in farmland auctions to prevent excessive overbidding.

Bergemann et al., (2020) proposed a randomized allocation model, where items are sold at a pre-set price and, if multiple bidders exceed this price, the asset is randomly allocated among them. This reduces the psychological pressure of auction escalation.

Auction and pricing mechanisms should be designed to prevent emotional and speculative overbidding (Kagel & Levin, 1986).

2.4.5. Summary of Mitigation Strategies and Their Sources

Table 2.2 - Summary of mitigation strategies.

Strategy	Implementation	Authors
Enhancing Market Transparency	Public disclosure of valuation data and historical auction results	Thaler (1988), Seifert & Hüttel (2023), Mead et al., (1983), Eschker et al., (2004)
Bid Adjustment & Learning	Encourage data-driven bid optimization and historical learning	Kagel & Levin (1986), Bazerman & Samuelson (1983), Ahmed et al., (2016), Hong & Shum (2002)
Behavioral & Psychological Interventions	Use decision aids, cooling-off periods, and structured hiring frameworks	Tversky & Kahneman (1981), Kahneman (2003), Van den Bos et al., (2008), Chrisman et al., (2014)
Auction Design & Pricing Structures	Implement price ceilings, posted price models, and independent valuation reviews	Roll (1986), Seifert & Hüttel (2023), Bergemann et al., (2020)

Table developed by the author for this dissertation.

The Winner's Curse is a persistent challenge across various economic domains. However, enhancing transparency (Thaler, 1988; Seifert & Huttel, 2023; Mead et al., 1983; Eschker et al., 2004), refining bidding strategies (Kagel & Levin, 1986; Bazerman & Samuelson, 1983; Ahmed et al., 2016; Hong & Shum, 2002), reducing cognitive biases (Tversky & Kahneman, 1974, 1981, 2003; Van den Bos et al., 2008; Chrisman et al., 2014), and restructuring auction rules (Roll, 1986; Seifert & Hüttel, 2023; Bergemann et al., 2020) can significantly mitigate its impact. By integrating these strategies, businesses, investors, and policymakers can improve valuation accuracy and reduce financial inefficiencies.

3. Methodology

This chapter outlines the methodological approach used to identify the Winner's Curse in Premier League transfers during the 2023/2024 season. It begins by describing the research design, data sources, and econometric models applied to analyze transfer premiums.

This study examines the presence of the Winner's Curse in the Premier League's 2023/2024 summer transfer market by analyzing the gap between the actual transfer fee paid (Real Value or RV) and the estimated market value (Theoretical Value or TV) of players. The Winner's Curse suggests that clubs overpay due to market competition, asymmetry of information, or strategic bidding errors (Capen et al., 1971; Cassing & Douglas, 1980; Blecherman & Camerer, 1996; Eschker et al., 2004; Andreff, 2014).

The objective consists in : 1) verify if Premier League clubs systematically overpay for transfers (existence of the Winner's Curse) and 2) identify the factors that influence the transfer premium (P = RV - TV).

To ensure an accurate valuation of player transfers, econometric modeling is applied to a dataset of Premier League transfers from Transfermarkt.

Launched in 2001, Transfermarkt is widely recognized as the leading source for estimating football player market values (Müller et al., 2017). Its methodology approach combines crowdsourced estimations (trough Galton's wisdom of crowds) with expert moderation (the judge principle).

First, there's the user- based valuation, where registered users propose market values for players (based on recent performances, transfer rumors, contract length, club reputation, player's age and potential, etc.).

Secondly, and unlike a purely democratic system, Transfermarkt does not simply average all user's valuation (pure wisdom of crowds). Instead, experienced moderators (judges) review

and selectively weigh user contributions, filtering out unrealistic valuations caused by fan biases, manipulation attempts or market speculation. This selective aggregation increases accuracy but also introduces subjective biases. (Herm et al., 2014).

Transfermarkt's market values are widely accepted in the sports industry and used by clubs as reference in transfer negotiations (Herm et al., 2014). These values were found to be highly correlated with actual transfer fees (Herm et al., 2014) as well as foundation for studies regarding football's transfer market (Franck & Nuesch, 2012).

3.1. Research design

This study adopts a positivist ontological stance, assuming that there exists an objective reality in the Premier League transfer market that can be measured and quantified through empirical data (Saunders et al., 2019). Transfer premiums ($P = RV - TV$) and their determinants represent observable phenomena amenable to statistical analysis, independent of the researcher's subjective interpretation. This ontological position aligns with the quantitative methodology employed, facilitating hypothesis testing via regression models.

The research design focuses on testing for systematic overpayment by comparing actual transfer fees with estimated market values. It also investigates key factors influencing transfer premiums, such as competition (Carmichael et al., 1999; Brander & Egan, 2017; Martins, 2021; Franck, 2010, 2018), contract duration (Feess et al., 2004; Martins, 2021; Poli et al., 2021), financial strength (Brander & Egan, 2017; Poli et al., 2021; Franceschi et al., 2024; Richau et al., 2021), and governance (Chen et al., 2007).

3.2. Data Collection

3.2.1. Data Source

The dataset sourced from Transfermarkt provides: RV or Real Value (Actual transfer fee paid) ; TV or Theoretical Value (Pre-transfer estimated worth) and Player & Club Characteristics (Player's contract length, transfer rumors, club's position in the 2022/2023 season, buyer's and seller's market experience, agent's portfolio volume, number and volume of seller and buyer club transactions).

Additional data used in the estimation is collected from: (i) Premier League clubs' financial reports (2022-2023 to access net assets); (ii) UEFA Compliance Reports (2019-2023 to identify

clubs under monitoring or Financial Fair Play regulations; (iii) Premier League Handbook (which states Club's board of directors, Chairman, and CEO).

3.2.2. Inclusion and Exclusion Criteria

Only permanent transfers involving transaction amounts between clubs are considered. Free agents and loaned players, players whose agent is a family member or unknown and players with unknown contract termination dates with their previous club are excluded.

3.3. Variables and Hypotheses

A well-defined set of variables is essential to assess the existence of the Winner's Curse. The key variable to analyze is the transfer premium:

$$(P = RV - TV) \tag{1}$$

A positive premium indicates overpayment, which could be caused by Winner's Curse factors.

3.3.1. Variable Definitions and Expected Effects

The **PREMIUM (P)** variable represents the difference between the amount paid (REAL VALUE) and the estimated value (THEORETICAL VALUE), which may reflect an above-market payment due to emotional or competitive factors, forming the basis for the Winner's Curse phenomenon (Brander & Eagan, 2017).

A positive value indicates a payment above the theoretical/estimated/market value. A negative value indicates a payment below the theoretical/estimated/market value.

REAL VALUE (RV) reflects the actual amount paid by Club A to Club B, according to the Transfermarkt platform, in millions of euros. Influenced by factors such as age, height, nationality, position, number of games played, minutes played, goals scored, assists made, and player popularity (Ante, 2019)

THEORETICAL VALUE (TV) indicates the estimated value of the player at the time of the transaction between Club A and Club B, according to the Transfermarkt platform, in millions of euros. It follows the principle of crowd wisdom, where group assessment has greater accuracy than individual evaluation. To eliminate noise and valuation distortions, the "judge

principle" was adopted (Herm et al., 2014). Muller et al., (2017) classify this valuation method as more accurate for defining prices of high-priced players, as opposed to the data-driven model, which is more appropriate for mid-to-low-priced players.

The dependent variable **PREMIUM** is explained by the following independent ones in the table below.

Table 3.1 - Definition, Rationale, and Expected Effect of the Model Variable.

Notation	Definition	Rationale	Author	Expected effect on P
ICLUBSL6M	Number of clubs interested in the player between 04/02/2023 and 01/09/2023	Indicates the level of interest in the player, increasing their premium due to heightened competition, in line with the idea that top teams compete for a limited pool of players.	(Martins, 2021; Carmichael et al., 1999; Andreff, 2014; Brander & Egan, 2017; Franck, 2010; Franck, 2018; Andreff, 2012; Tunaru & Viney,2010; Van den Berg, 2011; Richau et al., 2021; Capen et al., 1971; Kagel & Levin, 1986).	+
TOP_6	Dummy variable that takes the value of one if two or more top – 6 clubs are interested in the player, and 0 otherwise.	The best teams look for a limited pool of players and at the same time weakening the competitors, with the purpose of maintaining their status.	(Dobson, 1999; Franck, 2010; Franck, 2018; Frick, 2007; Tunaru & Viney, 2010; Poli et al., 2021; Dimitropoulos & Scafarto, 2021).	+

Table developed by the author for this dissertation.

Table 3.1 (Continued)

Notation	Definition	Rationale	Author	Expected effect on P
CONTRACT	Dummy variable that takes the value of one if the contract ends after 06/2024, and 0 otherwise.	Players with contracts expiring by 06/2024 could sign with a third club without financial cost as of 01/2024, with effect from 07/2024. The nearing end of a player's contract reduces the selling club's negotiating power due to the risk of losing the player without financial compensation.	(Martins, 2021; Carmichael et al., 1999; Feess et al., 2004; Frick, 2007; Poli et al., 2021)	-
BUYEQ	Dummy variable that takes the value of one if the acquirer club qualified for UEFA's Champions League, and 0 otherwise	Clubs that qualified for the Champions League have extraordinary financial performance, enabling them to invest and/or pay above market value to maintain their status due to talent scarcity.	(Frick, 2007; Martins, 2021; Franck, 2018; Eschweiler & Vieth, 2004; Schubert & Hamil, 2018; Tunaru & Viney, 2010; Van den Berg, 2011; Dimitropoulos, & Scafarto, 2021;)	+

Table developed by the author for this dissertation.

Table 3.1 (Continued)

Notation	Definition	Rationale	Authors	Expected effect on P
TRANSFTYPE	Dummy variable that takes the value of one if the transfer is international, and 0 otherwise.	International transfers may involve higher risks in terms of information.	(Eschker et al., 2004; Capen et al., 1971; Thaler, 1988; Brander, & Egan, 2017).	+
AGENT	Volume of player's agent portfolio.	The greater the total market value of an agency, the greater its ability to negotiate higher prices for its represented players, positively affecting the premium value.	Schubert & Hamil, 2018; Olsson, 2011; Martins, 2021; Van den Berg, 2011; Sage, & Prinz, 2024)	+
BUYERSELL5	Total sells from acquirer in the last 5 seasons	Past transactions indicate the size and experience of the buying club in the market. Higher volume of sells enables the acquirer with extraordinary resources to buy new players.	(Brander & Egan, 2017; Poli et al., 2021; Franceschi et al., 2024; Richau et al., 2021; Poli et al., 2024)	+

Table developed by the author for this dissertation.

Table 3.1 (Continued)

Notation	Definition	Rationale	Authors	Expected effect on P
BUYERBUY5	Total acquisitions from acquirer in the last 5 seasons.	Past transactions indicate the size and experience of the buying club in the market. Higher volume of acquisitions infects management with hubris leading to overpayment.	(Brander & Egan, 2017; Poli et al., 2021; Franceschi et al., 2024; Richau et al., 2021; Poli et al., 2024)	+
UEFAFFP DUMMY	Dummy variable that takes the value of one if the acquirer is under UEFA's Financial Fair Play, and 0 otherwise.	Clubs under UEFA's Financial Fair Play, tend to constraint their finances, spending less.	(Franck, 2018; Dimitropoulos & Scafarto, 2021)	-
GISTRONG DUMMY	Dummy variable that takes the value of one if acquirer governance is strong, and 0 otherwise.	Clubs with good governance performance tend to pay accordingly or under the market value.	(Chen et al., 2007)	+

Table developed by the author for this dissertation.

3.4. Data Analysis Approach

3.4.1 Descriptive Statistics

The following table presents the descriptive statistics (mean, standard deviation, maximum and minimum values and the values of 1st, 2nd and 3rd quartiles.

Table 3.2 - Descriptive Statistics of Key Variables

Notation	Definition	Mean	SD	Max	Min	Q1	Q2	Q3
PREMIUM	Difference between Real Value and Theoretical Value.	4,879166	11,045832	41	-20	-0,875	3,81	9,8875
ICLUBSL6M	Number of clubs interested in the player between 04/02/2023 and 01/09/2023	2,595238	2,188275	12	0	1	2	3
TOP_6	Dummy variable that takes the value of one if two or more top – 6 clubs are interested in the player, and 0 otherwise.	0,190476	0,392676	1	0	0	0	0
CONTRACT	Dummy variable that takes the value of one if the contract ends at 06/2024, and 0 otherwise.	0,690476	0,462297	1	0	0	1	1

Table developed by the author for this dissertation.

Table 3.2 (Continued)

Notation	Definition	Mean	SD	Max	Min	Q1	Q2	Q3
BUYEQ	Dummy variable that takes the value of one if the acquirer club qualified for UEFA's Champions League , and 0 otherwise	0,25	0,433012702	1	0	0	0	0,75
TRANSFTYPE	Dummy variable that takes the value of one if the transfer is international, and 0 otherwise.	0,595238095	0,490845908	1	0	0	1	1
AGENT	Volume of player's agent portfolio.	673,2777381	771,9378589	2110	4,83	74,855	260,855	1185
BUYERSELL5	Total sells from acquirer in the last 5 seasons	247,7366786	191,7777435	681,994	12,8	109,995	193,91	317,63
BUYERBUY5	Total acquisitions from acquirer in the last 5 seasons.	557,6382143	397,580693	1485,55	30,35	228,45	498	767,4
UEFAFFPDUMMY	Dummy variable that takes the value of one if the acquirer is under UEFA's Financial Fair Play, and 0 otherwise.	0,154761905	0,36167756	1	0	0	0	0
GISTRONGDUMMY	Dummy variable that takes the value of one if acquirer governance is strong, and 0 otherwise.	0,571428571	0,494871659	1	0	0	1	1

Table developed by the author for this dissertation.

3.4.2. Regression Models

The primary method is Ordinary Least Squares (OLS) Regression to estimate the impact of different factors on P (VR - VT). Regression Model Specification:

$$\begin{aligned} PREMIUM = {} & \beta 0 + \beta 1\,(ICLUBSL6M) + \beta 2(ICLUBSL6M * TOP6) + \beta 3(BUYEQ) \\ & + \beta 4(TRANSFTYPE) + \beta 5(CONTRACT) + \beta 6(BUYERSELL5) \\ & + \beta 7(UEFAFFP) + \beta 8\big(LOG(AGENT)\big) + \beta 9(GISTRONG) \\ & + \beta 10(BUYERBUY5) + \varepsilon i \end{aligned} \quad (2)$$

The definition of each variable outlined above is provided in Table 3.3.

3.4.3. Research Hypotheses

The following research hypotheses derive from the literature on the Winner's Curse and test the factors influencing the transfer premium (P = RV - TV) in the OLS regression model specified in Equation 2. They are grounded in the theoretical and empirical evidence previously discussed, tailored to the context of Premier League transfers in the 2023/2024 summer window.

Hypothesis 1: There is a tendency to pay above market value, which is consistent with the winner's curse.

The Winner's Curse, first identified by Capen et al., (1971) in oil lease auctions where bidders systematically overestimated reserves due to information asymmetry and competition, manifests as a persistent overpayment tendency across domains, including sports economics (Cassing & Douglas, 1980; Andreff, 2014). Thaler (1988) formalized this anomaly, distinguishing cases where winners pay beyond asset value or later realize undervaluation, a pattern empirically confirmed in baseball free agency (Blecherman & Camerer, 1996) and basketball transfers (Eschker et al., 2004), where teams overbid due to valuation uncertainty.

Hypothesis 2: The premium value is positively affected by the number of competitors, consistent with the Winner’s Curse theory.

Auction theory posits that increased bidder numbers amplify the Winner's Curse, as the most optimistic (over)valuation prevails, driving prices above true value (Capen et al., 1971; Mead et al., 1983). Bazerman and Samuelson (1983) demonstrated through experiments that more competitors heighten overbidding due to bounded rationality and failure to adjust for selection bias, a pattern echoed in procurement auctions where bidder count raised costs by 15% (Hong & Shum, 2002). In real estate (Hungria Gunnelin, 2020) and sports contexts like baseball free agency (Cassing & Douglas, 1980), empirical evidence confirms that bidding wars escalate premiums, with this hypothesis expecting a positive coefficient on ICLUBSL6M in the Premier League transfer model.

Hypothesis 3: The premium value is positively affected by the increase in informational asymmetry between the seller and the buyer, commonly represented by geographical distance, in line with information asymmetry, which contributes to the occurrence of the phenomenon.

Information asymmetry is a core driver of the Winner's Curse, as bidders with incomplete data overestimate asset values, leading to overpayment (Capen et al., 1971; Kagel & Levin, 1986). This is empirically evident in NBA international transfers, where teams overpaid foreign players relative to domestic ones due to scouting gaps from geographical distance (Eschker et al., 2004). In Premier League contexts, this hypothesis anticipates a positive effect from TRANSFTYPE (international transfers), reflecting persistent valuation challenges across borders.

Hypothesis 4: The premium value is positively affected by overconfidence (club size and the number of previous transactions), implying that this contributes to the Winner’s Curse phenomenon.

Managerial overconfidence, or hubris, drives overpayment as larger acquiring firms with strong performance pursue targets at excessive premiums (Roll, 1986; Varaiya & Ferris, 1987; Varaiya, 1988). Serial acquirers overbid due to illusory expertise (Brander & Egan, 2017). Behavioral evidence shows repeated exposure amplifies this bias (Bazerman & Samuelson, 1983). This hypothesis predicts positive coefficients on BUYERBUY5 (past acquisitions) and related size proxies in the model, linking hubris to elevated transfer premiums.

Hypothesis 5: The premium value is positively affected by player’s contract duration. Players with longer contract, provide bargaining power to the seller.

Longer remaining contract duration strengthens sellers' leverage in auctions, enabling higher fees as buyers factor in transfer risk and negotiation costs (Feess et al., 2004). In football markets, expiring contracts weaken bargaining power, reducing premiums (Martins, 2021; Poli et al., 2021). This aligns with auction theory where asset control duration influences bidder willingness-to-pay (Carmichael et al., 1999; Frick, 2007). The hypothesis predicts a positive coefficient on CONTRACT in the model, reflecting sellers' enhanced position with extended terms.

Hypothesis 6: The premium value is positively affected when the buying club qualifies for the UEFA Champions League, entitle the buyer with financial surplus.

Champions League qualification signals financial strength and prestige, enabling higher spending and overbidding to secure elite talent (Dietl et al., 2008; Franck, 2010). Clubs pursue status maintenance amid scarcity, inflating premiums akin to hubris-driven acquisitions (Tunaru & Viney, 2010; Frick, 2007). Empirical football studies confirm this pattern, with UCL participants showing elevated transfer expenditures (Martins, 2021; Eschweiler & Vieth, 2024). This hypothesis expects a positive BUYEQ coefficient, linking prestige to Winner's Curse overpayment.

Hypothesis 8: The premium is positively affected when larger and more experienced buyers tend to sell, granting them additional revenue.

Prior sales create revenue surpluses, enabling clubs to bid more aggressively, analogous to cash-rich firms overpaying in M&A (Brander & Egan, 2017). Football studies confirm selling performance boosts acquisition power and fees (Poli et al., 2021; Richau et al., 2021; Franceschi et al., 2024). This hypothesis predicts a positive BUYERSELL5 coefficient, linking seller revenue history to buyer overpayment via enhanced financial capacity.

Hypothesis 9: The premium is negatively affected when buying clubs have good governance.

Strong governance curbs overpayment by enforcing disciplined valuations and oversight, mitigating Winner's Curse biases (Chen et al., 2007). In regulated environments like UEFA FFP, robust structures reduce impulsive bidding (Franck, 2018; Dimitropoulos & Scafarto, 2021). Corporate governance literature shows boards constrain managerial hubris in acquisitions (Roll, 1986). This hypothesis expects a negative GISTRONG coefficient, positing superior governance as a premium suppressant.

Hypothesis 10: The premium is positively affected when player's agent portfolio is bigger in value, which implies a higher bargaining power.

Agents with large portfolios wield greater bargaining power, inflating fees through superior negotiation and information control (Olsson, 2011; Schubert & Hamil, 2018). Extensive client networks enable premium extraction, akin to influential intermediaries in auctions (Sage & Prinz, 2024). Empirical football data links agent prominence to higher transfers (Poli et al., 2024). This hypothesis anticipates a positive LOGAGENT coefficient, highlighting agency effects on Winner's Curse overpayment.

If winner's curse exists, then we expect:

1) A Major Tendency for Overpayment by Premier League Clubs. The Winner's Curse suggests that in competitive bidding environments (e.g., the Premier League transfer market), clubs are more likely to overpay due to overconfidence, incomplete information, and market pressure.
2) A Positive and Significant Coefficient on the Number of Interested Clubs (Bidding War Effect). As more clubs show interest in a player, the final transfer price rises due to competitive bidding, aligning with auction theory and previous empirical findings.
3) A Positive and Significant Coefficient on Agent Influence (Stronger Negotiation Power). Agents with larger portfolios (i.e., high-value client lists) tend to negotiate higher transfer fees, as clubs may have reduced bargaining power.
4) A Positive Coefficient on Buyer UCL Qualification (Prestige-Driven Overspending). Clubs qualified for the UEFA Champions League have greater financial resources and competitive pressures to strengthen their squads, leading to higher transfer premiums.
5) A Positive Coefficient for Transfers Between Rival Clubs or Big-5 Leagues. Transfers between direct rivals (e.g., Arsenal to Manchester United) or between the Big 5 leagues

are expected to increase the premium due to, fan pressure, Competitive signaling and Limited alternatives in elite talent pools.

6) A Positive Coefficient on Buyer's Transfer Market Experience (Overconfidence in Buying Behavior). Clubs that frequently buy expensive players tend to develop overconfidence, leading to systematic overpayment in the market.
7) A Positive Coefficient When Two or More Rival Clubs Compete for a Player. Rivalry intensifies the Winner's Curse effect, as clubs may inflate their bids to prevent competitors from securing key players.
8) A Mixed Effect for Clubs Under UEFA's FFP. Financially constrained clubs (under FFP) might pay lower premiums due to spending caps. However, if a club anticipates future revenue (e.g., UCL qualification), it might still overspend, assuming future financial flexibility.

4. Results

This chapter presents the results of the econometric analysis conducted on Premier League transfers during the 2023/2024 season. It begins with descriptive statistics and proceeds to regression analysis, highlighting key findings related to the Winner's Curse.

4.1. Descriptive Analysis of Transfer Premiums

The empirical analysis begins with an examination of key descriptive statistics in Table 3.4.. The dataset includes 84 transactions from the 2023/2024 Premier League summer transfer window, with a focus on assessing overpayment tendencies. The primary metric analyzed is the Transfer Premium (P = RV - TV), representing the difference between the actual transfer fee (Real Value, RV) and the estimated market value (Theoretical Value, TV). A positive premium indicates overpayment, which aligns with the Winner's Curse hypothesis. There's a 63% proportion of overpaid transfers in the sample analyzed.

These results indicate that most Premier League transfers involve overpayment, suggesting that clubs systematically pay above estimated market value.

4.2. Regression Analysis

To further understand the systematic overpayment identified in the descriptive analysis, an Ordinary Least Squares (OLS) regression was conducted with P (Transfer Premium) as the dependent variable. Independent variables included are the variables describer in Equation (2).

Table 4.1 – Key regression results

Variable	Coefficient	t-Statistic
C	-9.045445	-1.583609
ICLUBSL6M**	1.820796	2.154801
ICLUBSL6M *TOP_6**	1.626185	2.338712
BUYEQ**	8.621219	2.424937
TRANSFTYPE	0.462792	0.196338
CONTRACT**	4.753488	2.092500
BUYERSELL5**	0.028551	2.354403
UEFA_FFP*	-5.669369	-1.928969
LOG(AGENT)*	1.092105	1.682197
GISTRONG	-1.812751	-0.708638
BUYERBUY5*	-0.009936	-1.773564

R-squared	0.409790	Mean dependent var	4.879167
Adjusted R-squared	0.328940	S.D. dependent var	11.11217
S.E. of regression	9.102901	Akaike info criterion	7.376611
Sum squared resid	6048.985	Schwarz criterion	7.694932
Log likelihood	-298.8177	Hannan-Quinn criter.	7.504573
F-statistic	5.068488	Durbin-Watson stat	2.397806
Prob(F-statistic)	0.000014		

The significance of the differences in CAARs is determined via two-sample t-test. *, ** and *** denote statistical significance at the 10 %, 5 % and 1 % level, respectively.

Table developed by the author for this dissertation.

Table 4.2 summarizes the main conclusions obtained from the estimation of Equation (2) shown in the previous table:

Table 4.2 - OLS Regression Results for the Transfer Premium (P = RV − TV).

Variable	Coefficient	P - Value	Interpretation
ICLUBSL6M	1.820796	0.031	Bidding wars increase overpayment.
ICLUBSL6M *TOP_6	1.626185	0.022	More competition among top clubs worsens overpayment.
BUYEQ	8.621219	0.018	Champions League clubs overpay significantly.
TRANSFTYPE	0.462792	0.845	No significant effect on overpayment.
CONTRACT	4.753488	0.040	Long contracts increase overpayment.
BUYERSELL5	0.028551	0.021	Buyers with high selling activity tend to overpay.
UEFA_FFP	-5.669369	0.058	Clubs under FFP spend more cautiously.
LOG(AGENT)	1.092105	0.093	Higher portfolio volume slightly increase overpayment.
GISTRONG	-1.812751	0.481	No significant impact on overpayment.
BUYERBUY5	-0.009936	0.076	Frequent buyers overpay less (learning effect).

Table developed by the author for this dissertation.

4.3. Hypothesis Testing Summary

The following table summarizes the hypotheses tested, the acceptance or rejection of the hypotheses, and the main conclusions that can be drawn from each hypothesis.

Table 4.3- Summary of hypothesis

Hypothesis	Result	Key Finding
H1: Systematic Overpayment	Confirmed	63% of transfers involved overpayment.
H2: Bidding Wars Increase Overpayment	Confirmed	More competing clubs conduct to higher transfer premiums (p = 0.031).
H3: Information Asymmetry (International Transfers) Increases Overpayment	Rejected	No significant effect (p = 0.845).
H4: Overconfidence (Past Transactions) Leads to Overpayment	Partially Confirmed	Selling activity increases overpayment (p = 0.021), but frequent buyers overpay less.
H5: Long Contracts Increase Overpayment	Confirmed	Longer contracts leads to higher premiums (p = 0.040).
H6: Champions League Qualification Increases Overpayment	Confirmed	CL clubs overpay significantly (p = 0.018).
H7: Larger Clubs Overpay More Due to Overconfidence	Rejected	Frequent buyers tend to pay less.
H8: Past Sales Lead to Overpayment	Confirmed	Higher past sales → more spending (p = 0.021).
H9: Strong Governance Reduces Overpayment	Rejected	No significant effect (p = 0.481).
H10: Agents Increase Overpayment	Partially Confirmed	Agent influence is marginally significant (p = 0.093).

Table developed by the author for this dissertation.

5. Discussion

5.1. Interpretation of Key Findings

The analysis reveals that Premier League clubs systematically overpay for transfers (P = RV - TV), aligning with the findings of Thaler (1988) and the broader auction theory literature. The 63% overpayment rate suggests that clubs consistently bid above market value due to

overconfidence, bidding wars, and financial resources, corroborating studies in sports economics (Cassing & Douglas, 1980; Andreff, 2014).

The variable ICLUBSL6M (number of interested clubs) has a positive coefficient (1.820796, p = 0.031), confirming that increased competition escalates transfer fees. When two or more Top 6 clubs compete for the same player, the effect is further magnified (ICLUBSL6M * TOP_6, p = 0.022). This aligns with auction theory (Capen et al., 1971) and previous findings in football transfers (Dobson & Gerrard, 1999; Franck, 2010, 2018), highlighting that bidding wars create inflated transfer prices.

The analysis finds no significant relationship (p = 0.845) between international transfers **(**TRANSFTYPE**)** and overpayment, rejecting the hypothesis that information asymmetry leads to higher transfer premium**s**. This suggests that modern scouting, data analytics, and global market integration have reduced valuation uncertainty in foreign player acquisitions. Unlike traditional auction theory predictions, clubs now have access to detailed performance metrics, AI-driven scouting, and transparent market valuations, minimizing the risk of overpaying due to lack of information.

Clubs that qualify for the UEFA Champions League (BUYEQ, p = 0.018) tend to overpay significantly for transfers. This supports Roll's (1986) Hubris Hypothesis, which states that overconfidence and prestige-seeking behavior lead to excessive acquisition costs. Similar spending patterns have been observed in football clubs competing in European tournaments (Eschweiler & Vieth, 2004; Schubert & Hamil, 2018), where increased revenues encourage aggressive transfer spending.

Players with longer contract durations (CONTRACT, p = 0.040) are associated to higher transfer fees. This is consistent with Feess et al., (2004) and Poli et al., (2021), who argue that contracts act as a bargaining tool for selling clubs. The data confirms that clubs purchasing players under long-term contracts pay a premium due to the risk of losing the player without financial compensation.

Clubs that have sold more players in the past five seasons (BUYERSELL5, p = 0.021) tend to overpay in acquisitions. This aligns with the idea that financial surplus from previous sales encourages higher spending, as proposed by Brander and Egan (2017). However, frequent buyers (BUYERBUY5, p = 0.076) tend to overpay less, suggesting a learning effect in the transfer market (Franck, 2010; Poli et al., 2021).

Financial regulations play a crucial role in shaping transfer market behavior. Regulatory interventions play a crucial role in moderating excessive spending. Clubs subject to FFP restrictions (UEFA_FFP, p = 0.058) exhibit lower transfer premiums, indicating that financial

constraints partially mitigate overpayment. This finding is in line with Dimitropoulos and Scafarto (2021) and Franck (2018), who highlight that FFP regulations influence financial discipline but do not completely prevent overspending.

The volume of a player's agent portfolio (LOG(AGENT), p = 0.093) has a marginally significant effect on transfer premiums. This finding suggests that high-profile agents negotiate higher prices, consistent with Schubert and Hamil (2018) and ; Olsson (2011). The role of agents in transfer inflation aligns with concerns about agency power and lack of transparency in football transactions (Sage & Prinz, 2024).

The strength of club governance (GISTRONG, p = 0.481) does not have a statistically significant effect on transfer premiums. This contradicts previous studies (Chen et al., 2007), suggesting that internal governance alone is insufficient to prevent irrational spending. External regulations such as FFP may play a more decisive role in financial discipline.

Overall, the results confirm the presence of the Winner's Curse in Premier League transfers, driven by competition, financial strength, contract duration, and agent influence.

5.2. Practical implications for Football Clubs and Regulators

Clubs should integrate artificial intelligence, machine learning and econometric models to assess player value objectively, reducing reliance on subjective negotiations (Müller et al., 2017).

The Premier League and UEFA should consider financial caps on agent commissions and stricter transparency rules for bidding processes (Feuillet et al., 2017).

While FFP moderates spending, it does not fully prevent excessive bids. Stricter enforcement and sanctions for financial mismanagement could help limit market inefficiencies (Franck, 2018; Dimitropoulos & Scafarto, 2021).

Clubs should negotiate staggered contract structures to balance player retention and financial flexibility, minimizing forced overpayment scenarios (Feess et al., 2004).

6. Limitations and Future Research

6. 1. Limitations

While this study provides robust empirical evidence on the presence of the Winner's Curse in Premier League transfers, several limitations must be acknowledged:

The study relies on Transfermarkt for market value estimations, which, despite its credibility (Müller et al., 2017; Herm et al., 2014), is partially based on subjective crowd-sourced data. Market values are not always reflective of real market dynamics, as they fail to account for confidential negotiations, performance bonuses, and club-specific financial strategies (Franck & Nuesch, 2012). Future studies could explore alternative valuation models, integrating machine learning or financial modeling techniques to predict transfer values more accurately.

The study focuses only on the Premier League, which, while the most financially dominant league, may not fully represent different transfer market behaviors across Europe. Comparative analysis across multiple leagues (e.g., La Liga, Bundesliga, Serie A, Ligue 1) could provide insights into how financial regulations, club governance, and transfer market liquidity impact overpayment (Andreff, 2014; Dimitropoulos & Scafarto, 2021).

This study primarily employs econometric models to assess overpayment but does not directly measure behavioral biases such as overconfidence, anchoring, or auction fever (Thaler, 1988; Bazerman & Samuelson, 1983). Experimental studies or survey-based approaches with club executives, agents, and players could provide deeper insights into how behavioral biases influence transfer negotiations (Van den Bos et al., 2008).

While Financial Fair Play (FFP) moderate's overpayment ($p = 0.058$), it does not eliminate it. Loopholes in FFP compliance, such as clubs using sponsorship deals, amortization accounting, limit its effectiveness (Franck, 2018; Dimitropoulos & Scafarto, 2021). Future research could analyze how different financial regulations affect club spending behavior and propose more effective governance mechanisms.

The study finds marginal evidence that agents contribute to overpayment ($p = 0.093$) but does not differentiate between agent types (super-agents vs. smaller agencies). The increasing power of super-agents (e.g., Jorge Mendes) and private investment funds raises concerns about conflicts of interest, price inflation, and lack of transparency (Schubert & Hamil, 2018; Olsson, 2011). Further research should explore agent influence through network analysis and case studies of high-profile transfers.

6.2. Future Research

Given the study's findings and limitations, several avenues for future research emerge.

Future studies should expand the dataset to include (i) other major European leagues (La Liga, Serie A, Bundesliga, Ligue 1); (ii) different time periods to analyze how transfer market

behavior has evolved before and after key regulatory changes (e.g., Bosman ruling, FFP implementation) and non-European leagues (e.g., MLS, Saudi Pro League) to assess how financial structures influence transfer pricing; (iii) integrating behavioral finance theories to assess how biases like herd mentality, loss aversion, and framing effects affect bidding strategies (Tversky & Kahneman, 1981; Kahneman, 2003); (iv) Conducting surveys and interviews with club executives, agents, and players to understand subjective perceptions of market value and negotiation strategies; (v) Conducting surveys and interviews with club executives, agents, and players to understand subjective perceptions of market value and negotiation strategies.

Future studies should also explore how clubs use machine learning and AI models for player valuation and scouting. Analyzing whether data-driven decision-making reduces overpayment or if clubs still fall into the Winner's Curse despite access to advanced analytics.

Investigating how different ownership structures (state-backed clubs, private investors, fan-owned models) influence spending patterns. Assessing whether profit-driven clubs (e.g., Bundesliga's 50+1 model) vs. trophy-driven clubs (e.g., PSG, Manchester City) exhibit different levels of transfer overpayment.

Assessing the effectiveness of UEFA's Financial Fair Play regulations in the long term, particularly regarding its impact on transfer spending post-COVID-19. Proposing alternative regulatory policies that could better control spending without restricting competition.

7. Conclusion

7.1. Summary of Main Findings

The study's empirical findings offer significant contributions to the understanding of market inefficiencies in football. This study provides empirical evidence confirming the presence of the Winner's Curse in Premier League transfers, revealing systematic overpayment in 63% of analyzed transactions. Using a quantitative econometric approach, the findings illustrate how bidding wars, financial strength, contract expiration, and market competition drive transfer premiums beyond rational valuations.

7.2. Contributions to Academic and Practical Knowledge

The research expands upon auction theory (Thaler, 1988; Capen et al., 1971) by integrating insights from behavioral economics, financial governance, and sports market inefficiencies.

Specifically, the study confirms that: 1) Bidding wars significantly inflate transfer fees, with more competing clubs leading to higher overpayment ($p = 0.031$), reinforcing the escalation of commitment phenomenon; 2) Champions League qualification fosters excessive spending ($p = 0.018$), consistent with prestige-driven acquisitions in corporate finance (Roll, 1986); 3) Contract length enhances seller bargaining power ($p = 0.040$), aligning with wage dynamics in labor economics (Feess et al., 2004); 4)Financial Fair Play (FFP) imposes a moderating effect on spending ($p = 0.058$), though loopholes persist, allowing clubs to circumvent financial restrictions (Franck, 2018) and 5) Agents wield measurable influence over transfer fees ($p = 0.093$), supporting concerns regarding market manipulation and asymmetry of information (Schubert & Hamil, 2018).

The findings challenge classical economic assumptions of rational decision-making in football transfers, instead emphasizing cognitive biases, financial exuberance, and competitive pressures as key drivers of overpayment.

This research confirms that the Winner's Curse is deeply embedded in football transfers**,** driven by competition, financial power, and cognitive biases**.** While financial regulations and governance provide partial restraint, they remain insufficient in preventing irrational bidding behaviors**.**

Moving forward**,** a more data-driven, transparent, and financially disciplined approach is crucial to achieving market efficiency and sustainable football economics**.** This study lays the groundwork for further exploration into valuation accuracy, financial governance, and behavioral insights in sports finance**,** bridging academic research with real-world industry applications**.**

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9. Appendix

Appendix A – Dataset of Premier League Transfers (2023/2024)

Description: Raw data of 84 transactions used in the econometric analysis.

Variables: Player, From, To, Contract Expiration, Real Value (RV), Theoretical Value (TV), Premium (P).

Purpose: Supports descriptive and regression analysis in Chapter 4.

Source: Transfermarkt (2024).

Table A.1 - Premier League Transfers Dataset (2023/2024).

Name	From	To	Contract Expiring	RV (M/€)	TV (M/€)	P (M/€)
Kai Havertz	Chelsea	Arsenal	30/06/2025	75	55	20
Jurrien Timber	Ajax	Arsenal	30/06/2025	40	42	-2
Moussa Diaby	B. Leverkusen	Aston Villa	30/06/2025	55	50	5
Pau Torres	Villarreal	Aston Villa	30/06/2024	33	45	-12
Tyler Adams	Leeds	Bournemouth	30/06/2027	26,9	18	8,9
Hamed Junior Traorè	Sassuolo	Bournemouth	30/06/2024	25,62	22	3,62
Romain Faivre	Olympique Lyon	Bournemouth	30/06/2026	15	10	5
Justin Kluivert	AS Roma	Bournemouth	30/06/2025	10,8	14	-3,2
Max Aarons	Norwich	Bournemouth	30/06/2024	8,1	16	-7,9
João Pedro	Watford	Brighton	30/06/2028	34,2	32	2,2
Bart Verbruggen	RSC Anderlecht	Brighton	30/06/2025	20	10	10
Igor	Fiorentina	Brighton	30/06/2024	16,15	10	6,15
Zeki Amdouni	FC Basel	Burnley	30/06/2027	18,6	10	8,6
James Trafford	Man City U21	Burnley	30/06/2027	17,3	15	2,3
Jordan Beyer	Bor. M'gladbach	Burnley	30/06/2026	15	16	-1
Sander Berge	Sheff Utd	Burnley	30/06/2024	13,9	20	-6,1
Dara O'Shea	West Brom	Burnley	30/06/2025	7,8	5	2,8
Hannes Delcroix	RSC Anderlecht	Burnley	30/06/2024	3	2	1
Luca Koleosho	RCD Espanyol B	Burnley	30/06/2024	3	1	2
Moisés Caicedo	Brighton	Chelsea	30/06/2027	116	75	41
Roméo Lavia	Southampton	Chelsea	30/06/2027	62,1	32	30,1
Christopher Nkunku	RB Leipzig	Chelsea	30/06/2026	60	80	-20
Cole Palmer	Man City	Chelsea	30/06/2026	47	18	29

Name	From	To	Contract Expiring	RV (M/€)	TV (M/€)	P (M/€)
Robert Sánchez	Brighton	Chelsea	30/06/2025	23	22	1
Lesley Ugochukwu	Stade Rennais	Chelsea	30/06/2025	27	9	18
Deivid Washington	Santos	Chelsea	31/12/2024	16	4	12
Ângelo	Santos	Chelsea	31/12/2024	15	13	2
Djordje Petrovic	New England	Chelsea	31/12/2025	16	6	10
Matheus França	Flamengo	Crystal Palace	31/12/2027	20	9	11
Dean Henderson	Man Utd	Crystal Palace	30/06/2025	17,5	18	-0,5
Rob Holding	Arsenal	Crystal Palace	30/06/2024	1,2	8	-6,8
Beto	Udinese Calcio	Everton	30/06/2026	25	25	0
Chermiti	Sporting CP	Everton	30/06/2027	12,5	3	9,5
Alex Iwobi	Everton	Fulham	30/06/2024	25,7	28	-2,3
Calvin Bassey	Ajax	Fulham	30/06/2027	22,5	15	7,5
Timothy Castagne	Leicester	Fulham	30/06/2025	13	25	-12
Steven Benda	Swansea	Fulham	30/06/2024	0,87	0,4	0,47
Dominik Szoboszlai	RB Leipzig	Liverpool	30/06/2026	70	50	20
Ryan Gravenberch	Brighton	Liverpool	30/06/2025	40	30	10
Wataru Endo	Bayern Munich	Liverpool	30/06/2027	20	6,5	13,5
Ryan Giles	VfB Stuttgart	Liverpool	30/06/2024	5,85	9	-3,15
Tahith Chong	Wolverhampton	Luton	30/06/2026	4,7	3,2	1,5
Marvelous Nakamba	Aston Villa	Luton	30/06/2024	2,9	4	-1,1
Jacob Brown	Stoke City	Luton	30/06/2025	2,9	6	-3,1
Josko Gvardiol	RB Leipzig	Man City	30/06/2027	90	75	15
Matheus Nunes	Wolverhampton	Man City	30/06/2027	62	45	17
Jérémy Doku	Stade Rennais	Man City	30/06/2025	60	28	32
Mateo Kovacic	Chelsea	Man City	30/06/2024	29,1	38	-8,9
Rasmus Højlund	Atalanta BC	Man United	30/06/2027	73,9	45	28,9
André Onana	Inter	Man United	30/06/2027	50,2	35	15,2
Altay Bayındır	Fenerbahce	Man United	30/06/2027	5	11	-6
Sandro Tonali	AC Milan	Newcastle	30/06/2027	58,9	50	8,9
Harvey Barnes	Leicester	Newcastle	30/06/2025	44	35	9
Tino Livramento	Southampton	Newcastle	30/06/2026	37,2	25	12,2
Yankuba Minteh	Odense BK	Newcastle	30/06/2024	8	2	6
Anthony Elanga	Man Utd	Nottingham Forest	30/06/2026	17,5	18	-0,5

Name	From	To	Contract Expiring	RV (M/€)	TV (M/€)	P (M/€)
Chris Wood	Newcastle	Nottingham Forest	30/06/2024	17	8	9
Andrew Omobamidele	Norwich	Nottingham Forest	30/06/2026	12,85	6	6,85
Murillo	Corinthians	Nottingham Forest	31/12/2025	12	3,5	8,5
Nicolás Domínguez	Bologna	Nottingham Forest	30/06/2024	6,65	17	-10,35
Matt Turner	Arsenal	Nottingham Forest	30/06/2025	8,15	8	0,15
Odysseas Vlachodimos	Benfica	Nottingham Forest	30/06/2027	4,9	16	-11,1
Callum Hudson-Odoi	Chelsea	Nottingham Forest	30/06/2024	3,5	15	-11,5
Cameron Archer	Aston Villa	Sheffield United	30/06/2027	21,55	12	9,55
Gustavo Hamer	Coventry	Sheffield United	30/06/2024	17,3	8	9,3
Vini Souza	Lommel SK	Sheffield United	30/06/2025	12,5	6	6,5
Bénie Traoré	Häcken	Sheffield United	31/12/2026	4,6	3,5	1,1
Anis Slimane	Bröndby IF	Sheffield United	30/06/2024	2,7	2,5	0,2
Brennan Johnson	Nottingham Forest	Tottenham	30/06/2026	55	38	17
James Maddison	Leicester	Tottenham	30/06/2024	46,3	60	-13,7
Pedro Porro	Sporting CP	Tottenham	30/06/2025	40	40	0
Micky van de Ven	VfL Wolfsburg	Tottenham	30/06/2027	40	30	10
Dejan Kulusevski	Juventus	Tottenham	30/06/2024	30	50	-20
Guglielmo Vicario	FC Empoli	Tottenham	30/06/2024	18,5	16	2,5
Alejo Véliz	Rosario Central	Tottenham	31/12/2025	15	7	8
Ashley Phillips	Blackburn	Tottenham	30/06/2025	2,3	2	0,3
Edson Álvarez	Ajax	West Ham	30/06/2025	38	35	3
James Ward-Prowse	Southampton	West Ham	30/06/2026	34,8	38	-3,2
Konstantinos Mavropanos	VfB Stuttgart	West Ham	30/06/2025	20	15	5
Andy Irving	A. Klagenfurt	West Ham	30/06/2025	1,76	0,8	0,96
Matheus Cunha	Atlético Madrid	Wolverhampton	30/06/2026	50	25	25
Jean-Ricner Bellegarde	R. Strasbourg	Wolverhampton	30/06/2024	15	10	5

Name	From	To	Contract Expiring	RV (M/€)	TV (M/€)	P (M/€)
Santiago Bueno	Girona	Wolverhampton	30/06/2026	12	8	4
Boubacar Traoré	FC Metz	Wolverhampton	30/06/2024	11	5	6

Appendix B – Player Agents and Portfolio Values

Description: List of players, their registered agents, and total portfolio market value (in million euros).

Variable Used: LOG(AGENT) (agent portfolio size).

Purpose: Supports hypothesis H10 on agent influence over transfer premiums.

Source: Transfermarkt (2024).

Table B.1 – Player Agents and Portfolio Values

Name	Agent	Agent's portfolio volume (Million €)
Kai Havertz	ROOF	839,05
Jurrien Timber	FORZA SPORTS GROUP	190,03
Moussa Diaby	AIS SPORT SERVICE	95
Pau Torres	InterStarDeporte	151,6
Tyler Adams	YMU Management Ltd.	124,66
Hamed Junior Traorè	GG11	176,25
Romain Faivre	Goalactic	15,73
Justin Kluivert	Team Raiola	320,46
Max Aarons	ROOF	839,05
João Pedro	Promanager	145,98
Bart Verbruggen	Stirr Associates	229,83
Igor	ATTACANTTI SPORTS MARKETING LTD.	18,48
Zeki Amdouni	VPA SPORTS INTERNATIONAL LTD.	130,3
James Trafford	CAA Stellar	2110
Jordan Beyer	Robert Schneider	98,73
Sander Berge	Keypass AS	98,5
Dara O'Shea	Unique Sports Group	1020
Hannes Delcroix	Wasserman	2020
Luca Koleosho	CAA Stellar	2110

Name	Agent	Agent's portfolio volume (Million €)
Moisés Caicedo	FOOTBALL DIVISION WORLDWIDE	127,23
Roméo Lavia	ELITE PROJECT GROUP LIMITED	437,8
Christopher Nkunku	Gol International	365,25
Cole Palmer	CAA Base Ltd	1240
Robert Sánchez	CAA Stellar	2110
Lesley Ugochukwu	Wasserman	2020
Deivid Washington	Bertolucci Sports	757,7
Ângelo	Bertolucci Sports	757,7
Djordje Petrovic	Rabona Sports	31,35
Matheus França	LIFEPRO	20,85
Dean Henderson	CAA Stellar	2110
Rob Holding	CAA Stellar	2110
Beto	PR10	24,25
Chermiti	CAA Stellar	2110
Alex Iwobi	ELITE PROJECT GROUP LIMITED	437,8
Calvin Bassey	Unique Sports Group	1020
Timothy Castagne	SENERGIES BV	27,9
Steven Benda	BMS SPORTCONSULTING GMBH	21,3
Dominik Szoboszlai	EM Sports Consulting	90,2
Ryan Gravenberch	Team Raiola	320,46
Wataru Endo	UNIVERSAL SPORTS JAPAN LTD,	62,33
Ryan Giles	Unique Sports Group	1020
Tahith Chong	ROGON	291,88
Marvelous Nakamba	CAA Stellar	2110
Jacob Brown	MOMENTUM SPORTS MANAGEMENT	20,7
Josko Gvardiol	Marjan Sisic	89,55
Matheus Nunes	Gestifute	1490
Jérémy Doku	Elevate	70
Mateo Kovacic	VPA SPORTS INTERNATIONAL LTD.	130,3
Rasmus Højlund	SEG	439,77
André Onana	Goal Management	96,7
Altay Bayındır	SEFA SEYREK	10
Sandro Tonali	GR Sports	366,08
Harvey Barnes	Wasserman	2 020
Tino Livramento	Wasserman	2 020
Yankuba Minteh	1v1 Skills Football Management	31,08
Anthony Elanga	CAA Stellar	2110
Chris Wood	CAA Base Ltd	1240

Name	Agent	Agent's portfolio volume (Million €)
Andrew Omobamidele	ELITE PROJECT GROUP LIMITED	437,8
Murillo	FWD Team	41,5
Nicolás Domínguez	Interplayers	111,25
Matt Turner	Wasserman	2020
Odysseas Vlachodimos	fair-sport GmbH	27,58
Callum Hudson-Odoi	Boss Talent Sports	22,3
Cameron Archer	Unique Sports Group	1020
Gustavo Hamer	CAA Stellar	2110
Vini Souza	Bertolucci Sports	757,7
Bénie Traoré	Classico	135,75
Anis Slimane	LEAD Football	4,83
Brennan Johnson	Unique Sports Group	1020
James Maddison	CAA Base Ltd	1240
Pedro Porro	CAA Base Ltd	1240
Micky van de Ven	Team Raiola	320,46
Dejan Kulusevski	World Soccer Agency	205
Guglielmo Vicario	GG11	169,25
Alejo Véliz	Lion Volt	21,11
Ashley Phillips	Wasserman	2020
Edson Álvarez	PROMOFUT	97,33
James Ward-Prowse	CAA Stellar	2110
Konstantinos Mavropanos	Konstantinos Farras	21,98
Andy Irving	DC INTERNATIONAL SPORTS MANAGEMENT GMBH	14,98
Matheus Cunha	Bertolucci Sports	757,7
Jean-Ricner Bellegarde	BKS MANAGEMENT DWC LLC	35,98
Santiago Bueno	GBG GLOBAL BUSINESS GROUP	89,42
Boubacar Traoré	FORWARD MANAGEMENT S.A.R.L	11,58

Appendix C – Club Market Experience (2019–2024)

Description: Total number and value of player transactions (bought and sold) per Premier League club from 2019 to 2024.

Variables: Players Sold, Volume (€M), Players Bought, Volume (€M).

Purpose: Defines variables BUYERSELL5 and BUYERBUY5 for econometric analysis.

Source: Transfermarkt (2024).

Table C.1 – Club Market Experience 2019 – 2024

Club	Players sold	Volume	Players bought	Volume (Million €)
Arsenal	19	186,85	27	822,2
Aston Villa	14	219,25	33	596,39
Bournemouth	11	156,455	22	275,19
Brentford	11	102,21	26	199,805
Brighton	26	426,2	31	352,04
Burnley	10	129,85	31	228,45
Chelsea	31	681,994	33	1485,55
Crystal Palace	3	80,46	19	225,02
Everton	18	317,63	20	352,94
Fulham	7	109,9	23	222,95
Liverpool	16	228,65	17	498
Luton	5	12,8	14	30,35
Man City	22	503,47	26	896,72
Man United	14	200,97	19	882,07
Newcastle	7	87,52	21	569,6
Nottingham Forest	15	109,995	45	345,68
Sheffield United	5	59,25	21	206,95
Tottenham	14	262,85	27	767,4
West Ham	25	290,89	26	563,66
Wolverhampton	23	356,77	34	502,4

Appendix D – Financial Structure of Premier League Clubs

Description: Average assets for seasons 2021/22 and 2022/23 in Million/€.

Variables: Fixed Assets, Current Assets, Total Assets, Average Assets.

Purpose: Used to define club size and financial strength for governance classification.

Source: Premier League Clubs' Financial Reports (2022–2023).

Table D.1 – Financial Structure of Premier League Clubs (2022 – 2023)

Club	Fixed Assets 22	Current Assets 22	Total Assets 22	Fixed Assets 23	Current Assets 23	Total Assets 23	Avg Assets
Arsenal	724,671	108,415	833,086	806,438	148,458	954,896	893,991
Aston Villa	390,737	75,228	465,965	513,599	76,67	590,269	528,117
Bournemouth	65,148	21,5	86,648	157,299	18,404	175,703	131,1755
Brentford	135,085	41,794	176,879	228,509	45,372	273,881	225,38
Brighton	249,806	125,736	375,542	259,104	225,446	484,55	430,046
Burnley	104,541	169,865	274,406	146,931	169,455	316,386	295,396
Chelsea	480,186	393,855	874,041	869,232	365,591	1234,823	1054,432
Crystal Palace	118,265	14,781	133,046	140,204	36,926	177,13	155,088
Everton	336,827	209,725	546,552	539,875	187,148	727,023	636,7875
Fulham	219,964	67,581	287,545	292,99	81,088	374,078	330,8115
Liverpool	508,897	168,227	677,124	563,684	157,269	720,953	699,0385
Luton	3,987	4,49	8,477	8,203	12,554	20,757	14,617
Man City	885,726	401,751	1287,477	973,917	547,225	1521,142	1404,3095
Man United	1056,503	237,162	1293,665	1124,212	193,732	1317,944	1305,8045

Club	Fixed Assets 22	Current Assets 22	Total Assets 22	Fixed Assets 23	Current Assets 23	Total Assets 23	Avg Assets
Newcastle	255,561	36,648	292,209	338,733	56,92	395,653	343,931
Nottingham Forest	18,876	8,621	27,497	153,167	15,996	169,163	98,33
Sheffield United	87,238	26,317	113,555	72,688	30,329	103,017	108,286
Tottenham	1584,206	276,145	1860,351	2144,597	274,608	2419,205	2139,778
West Ham	132,456	139,279	271,735	243,192	92,548	335,74	303,7375
Wolverhampton	185,829	96,821	282,65	305,041	102,911	407,952	345,301

Appendix E – Governance Indicators

Description: Governance index components adapted from Chen et al. (2007), cross-referenced with the Premier League Handbook (2023/24) and clubs' Annual Financial Reports.

Indicators included:

1. CEO Duality Indicator
2. Board Size Indicator
3. Managerial Ownership Indicator
4. Block Shareholders' Holding Indicator

Purpose: Composes the variable GISTRONG and supports hypothesis H9.

Classification: Weak / Moderate / Strong.

Sources: Chen et al. (2007); Premier League Handbook (2023/24); Clubs' Annual Financial Reports (2023).

Table E.1 – Governance Indicators and Classification

Club	Avg Assets	Size	Board Size	Managerial ownership
Arsenal	893,991	Large	5	KSE UK Inc. - 100%
Aston Villa	528,117	Small	2	V Sports S.C.S. - 100%
Bournemouth	131,1755	Small	3	Turquoise Bidco Limited - 100%
Brentford	225,38	Small	7	Matthew Benham - 100%
Brighton	430,046	Small	11	Tony Bloom - 93,81%
Burnley	295,396	Small	5	Velocity Capital (UK) Holdings Ltd - 100%
Chelsea	1054,432	Large	11	Blueco 22 Limited - 100%

Club	Avg Assets	Size	Board Size	Managerial ownership
Crystal Palace	155,088	Small	4	Palace Midco UK Limited – 100%
Everton	636,7875	Large	4	Blue Heaven Holdings Limited - 94,1% W Kenwright CBE (Chairman) - 1,3% Other Shareholders - 4,6%
Fulham	330,8115	Small	5	Cougar Holdco London Limited - 100%
Liverpool	699,0385	Large	7	Fenway Sports Group LLC - 100%
Luton	14,617	Small	8	2020 Holdings Limited - 100%
Man City	1404,3095	Large	6	City Football Group Limited - 100%
Man United	1305,8045	Large	11	Manchester United PLC – 100%
Newcastle	343,931	Small	5	PZ NEWCO LIMITED – 100%
Nottingham Forest	98,33	Small	4	NF Football Investments Limited – 100%
Sheffield United	108,286	Small	3	BLADES LEISURE LIMITED – 100%
Tottenham	2139,778	Large	5	ENIC SPORTS INC. – 86,58% Other investors – 14,4%
West Ham	303,7375	Small	10	David Sullivan 38.8% Daniel Kretinsky 27% Vanessa Gold on behalf of the Family Trust 25.1% J Albert Smith 8% Other investors 1.1%
Wolverhampton	345,301	Small	3	Fosun International Holdings Limited – 92,01%
Mean	572,217875	-	5,95	
Standard deviation		-	2,874113136	
Min		-	3,075886864	
Max		-	8,824113136	

Table E.2 – Governance Indicators and Classification 2

Club	CEO duality indicator	Board Size Indicator	Managerial ownership indicator	Block shareholders' holding indicator	Governance Index	Class
Arsenal	1	1	1	0	3	Strong
Aston Villa	1	0	1	0	2	Moderate
Bournemouth	1	0	1	0	2	Moderate
Brentford	1	1	1	1	4	Strong
Brighton	1	0	1	1	3	Strong
Burnley	1	1	1	1	4	Strong
Chelsea	1	0	1	0	2	Moderate
Crystal Palace	1	1	1	0	3	Strong
Everton	1	1	1	0	3	Strong
Fulham	1	1	1	0	3	Strong
Liverpool	1	1	1	0	3	Strong
Luton	1	1	1	0	3	Strong
Man City	1	1	1	0	3	Strong
Man United	1	0	1	0	2	Moderate
Newcastle	1	1	1	0	3	Strong
Nottingham Forest	1	1	1	0	3	Strong
Sheffield United	1	0	1	0	2	Moderate
Tottenham	0	1	1	0	2	Moderate
West Ham	1	0	1	1	3	Strong
Wolverhampton	1	0	1	0	2	Moderate

Chen's (2007) governance index use 4 indicators : (1) CEO duality indicator; (2) Board size indicator; (3) Managerial ownership indicator and (4) Block shareholders holding indicator.

(1) If "Chief Executive Officer (CEO) also serves as the Chairperson of the Board (COB). For large firms, this indicator equals 0 if CEO duality presents, 1 otherwise. For small firms, this indicator equals 1 if CEO duality presents, 0 otherwise. A firm is defined to be large if its market value is greater than the mean market value of the sample."

(2) Refers to the “number of directors on the board”. Indicator equals 1 for firms with board size more or less than one standard deviation from the mean value of board size, 0 otherwise.
(3) “The fraction of shares owned by the top five largest shareholders. Indicator equals 1 if shares owned by the top five largest shareholders larger than 10%, 0 otherwise.”
(4) “A block shareholder is an individual who owns 5% or more of the outstanding equity. Indicator equals 1 if total ownership of all block shareholders larger than 25%,0 otherwise.”

Governance Index value is the sum of the four indicators. 0 and 1 correspond to Weak, 2 to Moderate , finally 3 and 4 to Strong.

Appendix G – UEFA Financial Fair Play (FFP) Compliance Summary

Description: List of Premier League clubs monitored or sanctioned under UEFA Financial Fair Play (2019–2023).

Variables: Overdue Payables, Break-Even Requirement, Settlement Agreements.

Purpose: Defines dummy variable UEFA_FFP.

Source: UEFA Compliance and Investigation Activity Reports (2021, 2023).

Table G.1 – UEFA Financial Fair Play Compliance Overview

Club	Overdue payables	Break even requirement	Others
Wolverhampton *		X	
Manchester United **		X	
Chelsea ***			X

*Wolverhampton reach a settlement agreement with the CFCB during 2019/2020 exiting its settlement regime during the period between 2021 and 2023.

**Manchester United reported minor aggregate break – even deficits, being sanctioned with a 0,3 M/€ fine.

***Chelsea had been sold in May 2022. Their new owners identified and reported to UEFA's potentially incomplete financial reporting under the club's previous owners. The club had breached club licensing and financial fair play regulations by submitting incomplete and incorrect information in the 2018 and 2019 reporting periods. A settlement agreement, covering 2023/2024 and 2024/2025 seasons was reached, plus a financial contribution of 10M/€.