Market Reaction to Human Capital Changes in Listed Football Clubs

Master's Thesis Finance

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Abstract

Football has evolved into a multi-billion-euro industry where football clubs operate as major businesses. This study examines whether announcements of player transfers and managerial changes affect the stock prices of 20 listed European football clubs. An event study calculates cumulative abnormal returns (CARs) for 3,445 player transfers and 231 managerial changes spanning the 2010/11 to 2024/25 seasons. In addition, transfer activity is analyzed at the club-country level to capture cross-market differences. The analysis distinguishes between acquisitions, sales, and loan transfers, and further investigates the role of player-specific, transfer-specific, and manager-specific characteristics, as well as the impact of the COVID-19 pandemic. The results show that acquisitions and both incoming and outgoing loan transfers are followed by a positive stock market reaction. In contrast, sales do not exhibit consistent evidence of a stock market reaction. However, investors tend the react more negatively to the sale of an offensive player compared to a player in other positions. High-value acquisitions during the pandemic period are perceived more negatively than those conducted in the post-pandemic phase, suggesting that the market's interpretation of such transfers shifted from viewing them as financially risky to seeing them as signals of confidence. Managerial changes produce no significant stock price impact, regardless of departure type or outperformed club expectations. The results contribute to a better understanding of investor responses to human capital changes in listed football clubs.

Keywords: Football industry, Changes in human capital, Event study, Stock price reactions.

Preface

This thesis is my final assignment for my master's degree in Finance at Tilburg University. It has been a tough but insightful journey. There are a few people I want to thank for helping and supporting me during my thesis. First, I want to thank my supervisor, Prof. Dr. Luc Renneboog, for providing critical feedback. His guidance has been insightful in shaping this master's thesis. Finally, I want to thank my family and friends for their support during this process, even especially in some frustrating moments.

Enjoy reading,

Gijs Banken

Altforst, 2025

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1 Introduction

Today's football clubs function like major corporations. For instance, Real Madrid was valued at €5.91 billion, and the 30 most valuable clubs are valued together at over €63 billion[1]. Currently, listed football clubs face a dual responsibility: maintaining financial health to satisfy investors while achieving sporting success. Human capital plays a central role in meeting this dual objective. Clubs invest heavily in acquiring both players and managers, with the expectation that these individuals will directly contribute to team performance and indirectly to financial returns. The record transfer remains the €222 million paid by Paris Saint-Germain for Neymar Jr. in 2017[2], while the most expensive managerial appointment reportedly involved a €25 million fee for Julian Nagelsmann's move to Bayern Munich[3]. The fees in these deals likely contributed to UEFA's introduction of the Financial Sustainability Regulations (FSR) in 2022 to improve clubs' financial discipline.

Player transfers can significantly influence the financial performance of listed football clubs. A recent example is the return of Cristiano Ronaldo to Manchester United in 2021. Following the announcement, Manchester United's stock prices climbed on the NYSE, eventually closing 5.8% higher that day[4]. The transfer was expected to strengthen the team on the pitch and deliver its commercial value through increased merchandise sales, sponsorship deals, and ticket revenues. This case illustrates how player transfers can impact the stock prices of listed clubs.

In 2020, the COVID-19 pandemic disrupted both the global and football economies. League suspensions and declining revenues forced clubs to adopt a more conservative spending strategy, resulting in a decline in transfer activity. Investors, meanwhile, became increasingly sensitive to signs of financial distress and risk. In this context, transfers and managerial changes may have signaled different implications, leading to different market reactions. Beyond the pandemic, several other factors influence the stock market performance of listed football clubs. Previous studies have shown that match outcomes significantly affect stock prices, with losses and draws typically leading to negative market reactions, while wins tend to generate positive responses (Renneboog & Vanbrabant, 2000; Palomino et al., 2008). Player transfers have also

[1] Source: https://www.forbes.com/sites/justinteitelbaum/2025/05/30/the-worlds-most-valuable-soccer-teams-2025/
[2] Source: https://www.transfermarkt.co.uk/statistik/transfererloese
[3] Source: https://www.teamtalk.com/news/the-most-expensive-football-managers-of-all-time#:~:text=Julian%20Nagelsmann%20%E2%80%93%20%C2%A321.7m,expensive%20manager%20of%20all%20time.
[4] Source: https://economictimes.indiatimes.com/markets/stocks/news/manchester-uniteds-ronaldo-reunion-sends-stock-price-higher/articleshow/85710049.cms?from=mdr

been found to elicit market reactions, although the findings are mixed. Fotaki et al. (2009, 2021), focusing on UK-listed clubs, reported negative market reactions to acquisitions and positive reactions to sales. In contrast, Boido et al. (2023), analyzing European-listed football clubs, found positive investor responses to acquisitions. However, many previous studies excluded sales or considered only UK-listed clubs, and studies analyzing the impact of managerial changes have generally found no significant effects on stock prices (Boido et al., 2023; Fotaki et al., 2009).

This study extends the existing literature by analyzing human capital changes, including acquisitions, sales, loan transfers, and managerial changes, for 20 listed football clubs in Europe from the 2010/11 to the 2024/25 seasons. In total, 3,445 player transfers and 231 managerial changes are examined. The central question is: Do announcements of player transfers and managerial changes trigger stock market reactions in European listed football clubs? To answer this question, an event study is used to calculate CARs for different event types and windows. For the general effect of player transfer and managerial changes, the CAARs will be studied. In addition, an OLS regressions are performed using CARs as the dependent variable to test several hypotheses related to player-specific, transfer-specific, and manager-specific characteristics, as well as the effects of the COVID-19 pandemic.

The variables used in this study are selected based on theoretical relevance and salience theory, which posits that investors respond more strongly to information that receives greater media attention. Player-specific variables include offensive position and international goal-scoring, with an additional analysis of the joint effect between the two. Transfer-specific factors include market value and whether the transfer fee was below the market value. The effects of the COVID-19 period and the post-COVID-19 recovery are captured through time-specific dummy variables, and the market response to offensive players and high-value transfers during the pandemic is also examined. In addition to assessing the general effect of managerial changes, these are further categorized by departure type[5] and performance relative to the club's historical average.

The results indicate that acquisitions are followed by statistically significant positive market reactions, consistent with the findings of Boido et al. (2023) and contrary to earlier studies by Fotaki et al. (2009, 2021). For sales, the results are more aligned with Fotaki et al. (2009, 2021), showing generally positive reactions, although statistical significance is limited. Investor

[5] There are two different departure types, dismissal or left voluntarily.

sentiment toward loan transfers is clearly positive for both incoming and outgoing deals, suggesting recognition of their short-term squad enhancement and financial flexibility, aligning with Fotaki et al. (2009).

In terms of player characteristics, the sale of offensive players results in a more negative reaction compared to the sale of players in other positions. Acquisitions of offensive players, however, yield less significant results, and the combined effect with goal-scoring is not statistically meaningful, for both acquisitions and sales. Transfer-specific variables such as high market value and below-fee deals show limited evidence. During the pandemic, transfers elicited more negative market responses, though statistical support is weak. Interestingly, top-fee acquisitions conducted after the pandemic elicit stronger positive reactions than similar transfers during the pandemic.

For managerial changes, no significant stock market reactions are observed, consistent with prior research (Boido et al., 2023; Fotaki et al., 2009). This includes an absence of significant effects for both departure type and performance relative to the club's historical average. These results reinforce the notion that managerial changes are perceived as symbolic rather than improving sporting performance.

Understanding how the stock market responds to human capital changes is important for several reasons. Listed football clubs must balance sporting ambitions with financial performance. Investors' reactions to transfers and managerial changes may influence how clubs execute these decisions. From an academic perspective, this study adds new insight by incorporating the effects of the COVID-19 pandemic and the post-pandemic period, while also comparing investor responses across countries for acquisitions and sales.

Overall, the findings suggest that acquisitions and loan transfers are followed by positive stock market reactions, while there is limited evidence for sales. Managerial changes do not appear to provoke any stock market reactions. These findings indicate that investors respond to some changes in human capital, with responses differing between acquisitions or sales, and the type of human capital involved.

The remainder of the study is structured in six chapters. Chapter 2 reviews the existing literature on football clubs and their human capital. Chapter 3 outlines the hypotheses derived from the literature. Chapter 4 will present the data and the methodology used in the study. Chapter 5 presents and discusses the results. Chapter 6 provides the conclusion, followed by limitations of this study and recommendations for future research.

2 Literature review

2.1 Efficient Market Hypothesis

According to Fama (1970), an efficient capital market is one in which stock prices fully and instantaneously reflect all available information. In such markets, investors are assumed to act rationally, making decisions based on all relevant data. The Efficient Market Hypothesis (EMH), as proposed by Fama (1970), asserts that because prices already incorporate all known information, it is not possible to consistently achieve excess returns through trading strategies. In essence, price movements in efficient markets are unpredictable and follow a random walk, as new information is rapidly absorbed into market prices.

Malkiel (2003) supports the EMH and argues that active trading strategies, such as stock picking or market timing, are unlikely to yield consistent excess returns after accounting for transaction costs and risks. Instead, investors may be better off adopting passive investment strategies, such as index investing, which aims to replicate the performance of a broad market index. This reflects a core implication of the EMH. However, the theory has faced challenges from behavioral finance, which highlights the role of irrational investors and biases triggered by salient information. Salience Theory will be discussed further in Section 2.2.

The EMH theory can be classified into three categories based on the type of information assumed to be reflected in stock prices:

- **Weak-form:** Stock prices fully reflect all historical market information, including past trading prices, and other relevant market-related information. In the weak form, studying historical prices does not enable investors to earn excess returns. Fama (1970) provided evidence in empirical studies that stock prices follow a random-walk model, which supports the weak form by suggesting that past prices do not contain useful information for predicting future stock prices.
- **Semi-strong form:** In this form, stock prices reflect all publicly available information, including financial statements, news releases, analyst forecasts, and other public disclosures. Markets are assumed to adjust prices rapidly and rationally to new public information (Fama, 1970). However, Ball and Brown (1968) found that stock prices may not fully adjust immediately, which suggests some delay in the price adjustment, and this casts doubt on the perfect semi-strong form.
- **Strong Form:** This form assumes information, both public and private, is fully reflected in stock prices. It implies that even corporate insiders cannot consistently earn excess

returns using private information. However, this assumption is widely considered unrealistic, as numerous studies show that insiders can and do profit from their informational advantage. The strong-form is generally rejected in real-world markets (Malkiel, 2003).

2.2 Salience theory

The EMH assumes that investors make rational, logical and unbiased decisions on all available information. However, this assumption has been widely criticized in the behavioral finance literature. In reality, investors often act irrationally, both by overlooking information but also by misinterpreting it (Palomino et al., 2008).

Salient information refers to information that receives more media attention and is more visible to the public than other types of information. According to the salience theory, such information is processed more rapidly by investors and is incorporated into stock prices more quickly (Palomino et al., 2008). Conversely, less salient information is incorporated more slowly or may be neglected. For example, news related to large firms is typically absorbed into market prices more quickly than news about smaller firms (Engelberg and Parsons, 2011).

The media plays a critical role in shaping investor behavior and market outcomes. Ball and Brown (1968) laid the groundwork for understanding the impact of media attention in the context of earnings announcements. Engelberg and Parsons (2011) further demonstrated how the dissemination of financial information through media channels significantly affects investor reactions. Their findings suggest that media coverage significantly influences stock prices, particularly around earnings announcements, making it a key factor in behavioral finance. Thus, the salience of information, driven largely by media exposure, remains a crucial area of investigation when studying investor behavior and stock market reactions.

2.3 IPO of football clubs

2.3.1 Introduction of IPOs

Historically, football clubs were characterized as undercapitalized, small, and privately owned organizations (Morrow, 1999). However, this perspective has shifted dramatically in recent decades due to the growing commercialization of the sport. For example, in the 2023/24 season, Real Madrid became the first football club to record an annual revenue exceeding €1 billion[6].

[6] Source: https://www.deloitte.com/uk/en/services/consulting-financial/analysis/deloitte-football-money-league.html

Collectively, the top 20 revenue-generating clubs[7] generated €11.2 billion in annual revenue, underscoring football's financial importance in the global market.

The Initial Public Offering (IPO) of football clubs represents a unique intersection of finance, sports, and media. Unlike traditional companies, football clubs are not solely driven by financial performance but also by emotions and sporting successes (Renneboog & Vanbrabant, 2000). Factors such as on-field performance, brand value, and sponsorships play major roles in revenue generation, elements not typically found in traditional organizations (Quansah et al., 2021). These intangible components make the valuation and performance of football clubs distinct from traditional business, presenting a compelling subject for both financial and behavioral literature.

In a traditional corporate context, firms go public for a variety of reasons. According to Ritter and Welch (2002), market timing is a key determinant in IPO decisions. Companies are more likely to go public during bull markets and tend to hold back during bear markets. Other motivations for launching an IPO include raising equity capital for expansion and allowing existing owners to convert their shares into cash (Ritter & Welch, 2002).

2.3.2 Motives for an IPO

Football clubs, as corporate entities, also pursue IPOs. The first IPO for a professional football club occurred in 1983, when Tottenham Hotspur became the first club to go public. Several others followed, and currently, 23 football clubs are listed in Europe, with most of them based in Portugal and Turkey. According to Renneboog & Vanbrabant (2000), one of the primary motivations for football clubs to go public includes raising capital to (1) develop their youth academy, (2) expand stadium capacity, and (3) acquire top players who would otherwise be financially out of reach. Késenne (2014) further argues that the motivations for going public may depend on the type of club owner. He distinguishes between profit-maximizing and win-maximizing owners. Profit-maximizing owners may use IPOs for financial restructuring purposes, such as reducing debt. For example, Manchester United listed 10% of its shares on the NYSE in 2012, primarily to reduce its debt burden. In contrast, win-maximizing owners are more inclined to use IPO proceeds to invest in on-field performance by strengthening the squad, expanding stadium infrastructure, or improving youth development. This aligns with the strategic motivations highlighted by Renneboog and Vanbrabant (2000). While going public

[7] The top 20 revenue generating clubs are called the "Money League clubs".

offers football clubs access to capital markets, it also introduces potential drawbacks that may affect their long-term performance and strategy.

2.3.3 Implications of IPOs

The cost associated with an IPO arises from the obligation to disclose comprehensive financial and operational information to regulators and public investors. These costs can be categorized into two groups: direct costs and indirect costs. The indirect costs are mainly driven by underpricing, which occurs when the offering price is set below the stock's market price on the first day of trading (Loughran & Ritter, 2002; Ritter, 1987). According to Loughran and Ritter (2002), underwriters tend to underprice IPOs for two main reasons. (1) It simplifies the process of attracting investors, reducing marketing expenses. (2) It allows favored institutional clients, who maintain close relationships with underwriters, to benefit from initial price jumps, creating incentives for them to participate in future IPOs. In contrast, direct costs consist of expenses such as underwriting fees, legal and accounting fees, and other administrative costs. These are primarily paid to investment banks and advisors responsible for managing the IPO process (Ritter, 1987).

For football clubs, both types of costs may be higher than for traditional companies. As noted by Ritter and Welch (2002), underpricing is often more pronounced in sectors with high uncertainty, suggesting that the indirect costs for football clubs may be elevated due to the difficulty of valuing intangible assets, such as player contracts, brand value, and fan loyalty. Additionally, football clubs may face higher direct costs, as underwriters often demand higher fees to compensate for the increased complexity and risk involved in valuing these unique assets (Ritter, 1987). Moreover, football clubs are required to comply with industry-specific regulations, such as UEFA's FSR. These impose additional compliance costs and legal complexities during the IPO process, further raising the financial burden of going public (Késenne, 2014).

These high costs reduce the net proceeds available for strategic investments in player acquisitions, stadium expansion, or youth development. Furthermore, the unique shareholder structure of football clubs, often including emotionally invested fans, can result in biased pricing behavior, driven by salience rather than fundamentals (Renneboog & Vanbrabant, 2000). This phenomenon introduces an additional layer of complexity to the valuation and post-IPO performance of football clubs.

2.3.4 Performance of IPOs

While football clubs pursue IPOs for various strategic reasons, the actual impact on their sporting and financial performance remains mixed. From a sporting perspective, Baur and McKeating (2011) found that many clubs experienced a decline in on-field performance after going public. This downturn may be attributed to a diversion of management attention or heightened pressure to meet sporting expectations under public scrutiny. Interestingly, football clubs in lower divisions tend to benefit more from IPOs, as the capital raised can enhance competitiveness by funding player acquisitions or youth development programs (Baur & McKeating, 2011).

From a financial perspective, the evidence is inconclusive. Walters and Hamil (2010) reported that 14 football clubs delisted in the period from 2000 to 2010, primarily because their IPOs failed to generate the expected profitability. These disappointments often led to reduced investor interest, making it difficult for clubs to sustain their listed status. Similarly, Benkraiem et al. (2011) highlighted that many clubs faced persistent issues with liquidity and share price volatility, challenges typically faced by small-cap firms with limited trading volumes (Palomino et al., 2009). In terms of long-term stock performance, Renneboog and Vanbrabant (2000) found that only 4 out of 20 listed clubs in their sample achieved increased stock prices after IPOs. This result underscores the difficulty football clubs encounter in maintaining financial momentum once they are listed.

From a broader economic standpoint, Gerrard (2005) concluded that listed clubs generally report higher economic returns compared to their non-listed counterparts. This suggests that access to capital markets through public listing can enhance a club's financial position. However, the link between financial performance and sporting success remains ambiguous (Gerrard, 2005). According to Késenne (2014), clubs with win-maximizing owners may use IPO proceeds to invest in talent and infrastructure, while profit-maximizing owners might focus on financial restructuring. These divergent strategies can lead to significantly different financial and sporting trajectories following a public listing.

2.4 Human Capital, Transfers, and Financial Regulations

2.4.1 Human capital

Human capital represents a crucial intangible asset that drives competitive advantage and is therefore considered a cornerstone in organizational success (Barney, 1991). Empirical studies demonstrate that investments in human capital strongly predict firms' long-term stock returns

and profitability (Kogan et al., 2017). This aligns with the Resource-Based View (RBV), which posits that firms maintain competitive advantage by possessing resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991).

In traditional organizations, intangible assets are often embedded in internal structures such as R&D capabilities, patents, or organizational routines (Eisfeldt & Papanikolaou, 2013). Football clubs, however, present a unique case. Their primary human capital consists of players and managers who directly influence both sporting and financial outcomes. Unlike conventional firms, where human capital is distributed across roles such as engineers or marketing staff, football clubs rely on a small group of elite individuals. The performance of these individuals is highly visible and subject to continuous public scrutiny, making human capital both a strategic asset and a source of volatility.

The RBV helps to explain why football clubs are willing to invest exorbitant sums in transfers and wages. For football clubs, spending on talent is a direct investment in human capital, expected to deliver both on-field success and commercial returns. However, this theoretical expectation often clashes with real-world uncertainty. Unlike traditional employees, players are evaluated weekly in public settings, making their contributions, or shortcomings, immediately apparent to fans, investors, and the media. This high visibility introduces significant risk. A single injury or a sudden drop in form can drastically reduce a player's value and jeopardize the club's competitive position. For instance, Neymar's €222 million transfer to Paris Saint-Germain in 2017 was justified by his potential to elevate the club's global brand. However, recurring injuries significantly impaired his on-field contributions, undermining the expected return on investment.

In addition to performance risk, behavioral biases and external factors, such as media hype, can lead to distorted valuations. Quansah et al. (2021) highlight that overpayment in football often stems from inflated expectations or reputational pressures, which are less common in traditional business environments. These distortions introduce financial inefficiencies, making it more difficult to assess the true value of human capital in football.

Eisfeldt and Papanikolaou (2013) refer to such intangible resources as organizational capital, noting that firms with fewer tangible assets are often perceived by investors as carrying higher risk. In the context of football, this risk is amplified. Shareholders do not possess ownership over the talent, and players can depart in pursuit of higher salaries or more prestigious

competitions. The broader implications of these risks for financial stability and investor perception will be examined in subsequent sections.

2.4.2 Transfer market

Prior Bosman Verdict (BV)

A major transformation of the European football labor market occurred in 1995 with the BV, named after Belgian footballer Jean-Marc Bosman. Before the BV, the structure and functioning of the transfer market differed significantly from the modern system. The historical transfer system, developed in the late 19th century, was primarily designed to protect clubs' investments in player development. This was especially relevant for smaller clubs that feared losing their best talent to wealthier teams (Simmons, 1997). The pre-Bosman transfer system rested on two main institutional pillars that severely restricted player mobility and distorted market dynamics.

First, clubs maintained control over player registration through the "retain-and-transfer" system. Under this arrangement, even when a player's contract had expired and they declined to renew it, they were still unable to sign with another club without the consent of their current club. This often gave rise to conflicts, especially in cases where clubs refused to release players who expressed a desire to leave. In such cases, UEFA was the only party that was entitled to intervene and set a transfer fee that the buying club was required to pay. If the buying club rejected the fee, the player remained bound to his previous club. In some cases, UEFA imposed such high fees that no club was willing to pay the fee, effectively trapping players at their clubs against their will. Second, strict quotas limited the number of foreign players who could be fielded in competitive games. These quotas further constrained labor mobility across national borders.

These two regulations had significant consequences. They suppressed player wages by limiting bargaining power, inflated transfer fees due to clubs' control over expired contracts, and reduced the inefficient markets and labor mobility (Késenne, 2007).

The Bosman Verdict

The European football transfer underwent a fundamental transformation following the landmark Bosman ruling. After Bosman's contract expired in 1990, he was denied a transfer because no club was willing to pay the fee demanded by his former club. As a result, he remained contractually tied and unable to play somewhere else. Bosman went to court, and after a five-year legal battle, the European Court of Justice delivered its verdict in December 1995.

The court ruled that the existing transfer rules violated Article 48 of the Treaty of Rome, which guarantees the free movement of workers within the European Union. Specifically, the court determined that once a player's contract has expired, no transfer fee should be required for a move to another club inside the European Union. This meant that out-of-contract players were now free to join another club without any restrictions or compensation payments to their former employer (Renneboog & Vanbrabant, 2000).

In addition to abolishing the retain-and-transfer system, the Bosman ruling also struck down foreign player quotas within the EU. These changes significantly reshaped the European football transfer market, enhancing player mobility and increasing the bargaining power of players, especially those nearing the end of their contracts.

Post-Bosman Verdict

The BV triggered profound changes in the dynamics of the European football transfer market, most notably shifting the balance of power from clubs to players. One of the clearest indicators of this shift was the change in player contract lengths. According to Hoehn and Szymanski (1999), contracts of approximately three years were the norm before the BV. Following the ruling, clubs increasingly began offering longer contracts, ranging from five to even ten years, to retain control over player assets and avoid losing them without receiving a transfer fee (Hoehn & Szymanski, 1999). Empirical evidence from Feess et al. (2004) supports this trend, demonstrating a 20% increase in the average contract duration in the Bundesliga, rising from 2.43 to 2.91 years.

In response to the increased risk of losing valuable players without receiving a transfer fee, clubs became more protective of their talent. The adoption of longer contracts allowed clubs to negotiate transfers well before a contract expiration, thereby preserving the player's market value (Renneboog & Vanbrabant, 2000; Simmons, 1997). However, as Pearson (2015) points out that this practice often merely defers conflicts. Players could still force transfers through contract breaches, though such actions could result in financial penalties imposed by FIFA.

Another consequence of the BV was the increase in players' salaries, particularly within Europe's top five leagues[8]. This development underscored the widening financial gap between smaller leagues and the top five competitions. One of the primary causes of this widening gap was the uneven distribution of television rights revenues. For instance, in Italy's Serie A,

[8] The Europe's top five leagues are England, Spain, Germany, Italy, and France.

broadcasting accounted for 55% of total club revenues during the 2002/03 season (Késenne, 2007). The concentration of such income among a few top clubs led to growing criticism over the erosion of competitive balance (Simmons, 1997). Pearson (2015) emphasizes that these financial disparities enabled wealthier clubs to monopolize top talent, further undermining parity within leagues. In response to the unintended consequences of the BV, the transfer system was revised in 2001. A key reform was the introduction of "protected periods" within player contracts, during which a unilateral breach could lead to sporting sanctions. The goal of these measures was to rebalance the power dynamic between players and clubs. In addition, compensation rules were introduced, requiring payments for contract breaches based on the residual contract value and training costs. The reform also restricted transfer activity to two defined periods per season, summer and winter transfer windows, aiming to restore order and predictability to the market (Pearson, 2015).

2.4.3 Financial Fair Play and Financial Sustainability Regulations

In 2010, the FFP was introduced by UEFA to shift the primary focus of football back to on-field performance. Before the FFP, many prestigious clubs were suffering from high levels of debt, with some clubs on the brink of collapse. In several cases, clubs were kept afloat only through substantial financial injections from enormous investors (Müller et al., 2012). The ultimate goal of UEFA was to protect European football clubs' long-term sustainability and viability. The regulations were built on two principles. First, clubs could not have overdue payables. Second, clubs needed to balance their spending with their revenues over a three-year time period. These two principles aimed to prevent expenditures from exceeding income (Peeters & Szymanski, 2014). The implementation of FFP led to significant financial improvements across Europe. UEFA stated that top-tier leagues had a combined net loss of €1.6 billion in 2009. By 2018, this figure had reversed to a net profit of €140 million, partly due to the reduction in overdue payables[9]. However, Martín-Magdalena et al. (2024) argue that although profitability improved, FFP had no significant effect on club solvency.

The outbreak of the COVID-19 pandemic in 2019 posed an unprecedented financial challenge, leading to combined losses of over €7 billion among Europe's top clubs[10]. In response, UEFA introduced the FSR in 2022. Drawing on academic research, the FSR is structured around three key pillars. First, the no overdue payables rule ensures that clubs remain up to date with payments. Second, the football earnings rule, an evolution of the previous break-even

[9] Source: https://www.uefa.com/running-competitions/integrity/financial-sustainability/
[10] Source: https://www.uefa.com/running-competitions/integrity/financial-sustainability/

requirement, permits a cumulative loss of up to €60 million over three years, with additional flexibility granted to clubs demonstrating financial health. Third, the squad cost control rule imposes a cap, limiting spending on player and staff wages, transfers, and agent fees to 70% of a club's total revenues[11].

The Club Financial Control Body (CFCB) is responsible for enforcing FSR compliance[12]. For instance, Olympique Lyonnais was threatened with disqualification from UEFA competitions in the 2024/25 season for failing to meet financial reporting standards. Despite these regulatory advances, clubs continue to exploit legal and accounting loopholes. A recent case, Chelsea reported a pre-tax loss of €106 million and turned this into an overall net profit of €151 million by selling their women's teams to their own club's mother company[13].

2.4.4 Accounting of Human Capital

The recognition of human capital as intangible assets is well established in accounting literature. However, there are differences in how human capital is treated in traditional organizations compared to football clubs. While traditional organizations typically measure intangible assets such as patents or R&D expenditures (Eisfeldt & Papanikolaou, 2013), football clubs are required to assign value to players, whose market value is inherently volatile. Several factors influence these valuations, such as position, contract length, performance metrics (assists and goals), and club-related aspects (Liu, 2025).

According to Amir and Livne (2005), football clubs are required to comply with accounting standards that classify players as intangible assets. A correct valuation is critical, as it directly affects the financial performance of football clubs. An incorrect valuation can distort financials and mislead investors regarding the club's true asset value (Fotaki et al., 2021). Renneboog and Vanbrabant (2000) further emphasize the importance of the accounting method employed by a club. They distinguished between two accounting approaches: the "zero value approach" and the "asset view approach". Under the zero value approach, clubs do not assign value to players on their balance sheet, meaning all transfer income and expenses are directly reflected in the profit and loss statements. In contrast, the assets views require clubs to capitalize transfer fees and amortize them throughout the player's contract, thereby smoothing the financial impact over multiple years. Following the BV, football clubs were required to adjust their accounting

[11] Source: https://www.uefa.com/running-competitions/integrity/financial-sustainability/
[12] Source: https://morgansl.com/en/latest/financial-fair-play-20
[13] Source: https://www.theguardian.com/football/2025/mar/31/premier-league-psr-chelsea-sell-women-team-loophole

method for player assets. Clubs that adopted the asset view approach were forced to write down the book value of player assets to zero (Renneboog & Vanbrabant, 2000). This accounting shift necessitated additional depreciation and significantly affected the financial reporting practices of several clubs.

2.5 Signals influencing the share price

The book value of a football club provides a starting point for its equity valuation. However, the share price of publicly listed football clubs frequently fluctuates due to factors that extend beyond the book value. These fluctuations are largely driven by the release of new public information. This study assumes that the market operates under the semi-strong form of the Efficient Market Hypothesis, wherein all publicly available information is rapidly incorporated into stock prices (Fama, 1970). Consequently, any new piece of information can function as a signal to the market, triggering price adjustments. Football clubs provide a particularly compelling context for examining how new information affects stock prices, especially when compared to traditional publicly traded firms. Football clubs produce market-relevant news on a weekly basis, including match outcomes, player transfers, managerial changes, and the publication of betting odds (Fotaki et al., 2009; Renneboog & Vanbrabant, 2000). This high frequency of publicly available signals makes football clubs uniquely suited for studying the responsiveness of stock prices to new information.

2.5.1 Match performance

Match results serve as clear and publicly observable signals for football clubs, offering a uniquely transparent source of information for investors. Match outcomes are released simultaneously to all market participants, providing an unambiguous result: a win, a draw, or a loss. This combination of transparency and simultaneity helps minimize information asymmetry and facilitates efficient price adjustments, in line with the assumptions of semi-strong form market efficiency (Fama, 1970).

Renneboog and Vanbrabant (2000) examined the relationship between sporting performance and stock returns for football clubs listed in the LSE and the AIM. They found that victories yield an increase of 1% in abnormal returns, while defeats lead to a decline of 1.4%, and draws were associated with a 0.6% decrease on the first trading days. These effects compound over time, with cumulative weekly losses reaching 2.5% after defeats and 1.7% after draws. Furthermore, in high-stakes matches (promotion or relegation matches), there is a stronger market reaction. Promotion victories resulted in an increase of 3.2% abnormal returns, whereas relegation defeats triggered 13.8% losses, highlighting the financial implications of league

outcomes. However, they found that despite the short-term efficiency, football equities underperform market indices in the long term.

Palomino et al. (2008) extended this analysis for UK-listed football clubs, confirming significant CAARs over a three-day period following match results. They reported a positive CAAR of 0.88 per cent for wins, a negative CAAR of 1.01 per cent for losses, and a negative CAAR of 0.33 per cent for draws. Interestingly, the study observed that positive outcomes (wins) were incorporated into stock prices more quickly than negative ones, suggesting asymmetries in how the market processes different types of news.

In contrast, Benkraiem et al. (2009), who analyzed a broader sample of listed European football clubs, confirmed the negative impact of losses and draws but found no statistically significant reaction to wins. They attributed this to the influence of "supporter investors", shareholders with emotional attachments to their club, who may view victories as expected rather than exceptional events, thereby muting the market's response to positive news.

Taken together, these findings affirm that football match outcomes and stock prices are correlated with each other. There is consensus that losses and draws yield negative market reactions. However, the market's inconsistent response to wins suggests that investors' expectations and behavioral biases may moderate the financial impact of positive sporting events.

2.5.2 Betting

Palomino et al. (2008) investigated the relationship between betting odds and the share prices of UK-listed football clubs. Their study focused on the mid-week release of betting odds by bookmakers. Although the betting odds were found to be highly predictive of match results, they did not trigger significant market reactions. This muted market response can be explained through the lens of salience theory. While match results are highly visible events that attract considerable media attention, the publication of betting odds typically receives limited public exposure. As a result, the publication of betting odds may lack the salience required to meaningfully influence investor behavior (Palomino et al., 2008). Nevertheless, this explanation should be interpreted with caution. One possibility is that betting odds do not convey new information beyond what is already incorporated into investors' expectations. Moreover, football clubs' equities are often characterized by high bid-ask spreads, which may hinder effective trading strategies.

2.5.3 Transfers

Football players are widely regarded as the primary assets of football clubs, contributing directly to both financial outcomes and sporting success. Player transfers represent salient events that can influence investor expectations and, consequently, stock prices, particularly when the transfer is expected to effect on-field performance. For instance, acquiring a star player may enhance team competitiveness and increase future revenue potential, potentially leading to positive share price reactions.

Transfers also represent investments in intangible assets, playing a dual role in influencing both the club's book value and its competitive advantage (Fotaki et al., 2009). Beyond on-field performance, high-profile signings can generate additional revenue streams, such as merchandise sales and sponsorship deals. For instance, following Lionel Messi to PSG, the club generated an estimated €720 million from shirt sales, sponsorships, and ticket sales[14]. Consequently, selling key players may weaken team performance and diminish revenue streams, possibly prompting negative market reactions.

Transfers are conceptually comparable to M&A activity in corporate finance, where M&A announcements often lead to stock price movements. In such cases, announcement effects typically generate positive abnormal returns for target firms, due to takeover premiums, while the impact on acquiring firms remains mixed (Martynova & Renneboog, 2008). Similarly, acquisitions involving intangible or knowledge-based assets often result in negative shareholder returns for the acquiring firm, while target firms tend to break even (Gerbaud & York, 2007). These effects are largely attributed to the valuation uncertainty surrounding intangible assets, which makes them difficult to accurately price.

Fotaki et al. (2021) investigated the impact of transfers on the stock price of nine UK-listed football clubs, analyzing the 10 largest sales and 10 largest acquisitions of each club. The selection of high-value transfers was deliberate, as such transfers are most likely to convey meaningful signals to financial markets. Their results revealed a negative market reaction to acquisitions and a positive reaction to sales, which is consistent with patterns typically observed in corporate M&A transactions, where acquiring firms often see neutral to negative returns and the target firm. The results suggest that football clubs tend to overpay for human capital. Two reasons were proposed: (1) Investors appear to systematically misprice human capital

[14] Source: https://www.givemesport.com/88062547-lionel-messi-psg-star-has-reportedly-made-the-club-a-crazy-amount-of-money/

acquisitions, potentially due to the difficulty of quantifying sporting contributions in financial terms. (2) A “winner's curse” effect is observed; competition between clubs for acquiring a player could stir up the price (Fotaki et al., 2021).

Similar results were found by Fotaki et al. (2009), who studied 2,774 transfers between 1997 and 2004 across 15 UK-listed clubs. They confirmed earlier findings that player acquisitions tend to depress shareholder wealth, whereas player sales typically generate positive stock market reactions. These effects are primarily attributed to the overvaluation of human capital by clubs, with shareholders perceiving acquisitions as yielding a curvilinear impact, negative in the short term. Interestingly, the study also reported positive market responses to outgoing player loans.

More recently, Boido et al. (2023), extended this research of Fotaki et al. (2009, 2021) by analyzing 22 listed football clubs across Europe over the period 2006 to 2021. Their findings contrast with previous literature. The results showed that acquisitions generated positive abnormal returns, suggesting positive investor sentiment. Boido et al. (2023) emphasized the revenue-generating potential of signings, supporting the commercial rationale behind high-profile transfers. However, they also reported heterogeneous effects across countries. In particular, UK and Turkish clubs exhibited negative investor responses, consistent with earlier findings (Fotaki et al., 2009; Fotaki et al., 2021).

2.5.4 Managerial changes

The sports industry represents a unique organizational environment where the managerial role attracts significant media attention (Audas et al., 1997). Football managers are subject to intense pressure, often bearing the blame for poor team performance while receiving limited credit for success. This dynamic sets football management apart from corporate leadership roles. Several studies have examined the implications of managerial sackings.

Audas et al. (1997) began by investigating the relation between managerial sackings and team performance. They analyzed a large dataset of 42,626 matches and 633 managerial spells in the English Football Leagues from 1972 to 1993. Their findings revealed two key insights: (1) Managers from lower divisions, despite receiving less media coverage, face a higher turnover ratio. (2) peaks in managerial turnover are found in October, January, and April. Furthermore, Audas et al. (2002) found that clubs that changed their manager often experienced poorer performance following the change. One possible explanation offered is that team owners may prioritize long-term strategic goals over short-term performance improvements.

Other research suggests that managerial changes lead to short-term performance improvements in English football leagues (Wilson et al., 2019). However, the results are mixed. The study by Wilson et al. (2019) does not establish a causal relationship, indicating that managerial changes should not be universally regarded as an effective solution to performance issues.

Fotaki et al. (2009) extended the analysis by investigating the impact of managerial changes on shareholder wealth. Their findings revealed no statistically significant effect on shareholder wealth, suggesting that managerial changes do not influence investors. This supports the notion that managerial changes may be seen as more symbolic actions, "scapegoating", a strategy where management shifts blame for poor performance onto the manager without addressing the underlying issues. This is in line with Wilson et al. (2019), who state that managerial changes should not be seen as a solution to poor performance.

More recently, Boido et al. (2023) analyzed 264 managerial changes across listed European football clubs. Contrary to their expectations, the study found no significant effects of managerial changes on stock prices. The authors were surprised by the result, a possible explanation may lie in the limited ability of new managers to effect immediate change, as they must work with the existing squad. Further research could investigate the influence of ownership changes (Boido et al. 2023).

2.6 Influence of COVID-19

The outbreak of the COVID-19 pandemic in early 2020 triggered a global health crisis with severe economic consequences, leading to a worldwide financial downturn. Global financial markets responded with intense volatility. The S&P 500 fell by 34% in the first five months of 2020, reflecting the extreme uncertainty faced by investors (Ding et al., 2021). The football industry, like many other sectors, was deeply affected.

Unlike previous crises that typically impacted individual clubs or leagues, the COVID-19 pandemic disrupted the entire football ecosystem. As formally recognized by the Dutch government, the acute phase of the pandemic, from 2020 to 2022[15], fundamentally altered the economic landscape of professional football. The pandemic disrupted the three main revenue streams of the football industry, matchday income, broadcasting income, and commercial revenues (Drewes et al., 2020).

[15] Source: https://www.rijksoverheid.nl/onderwerpen/coronavirus-tijdlijn

The financial impact of the COVID-19 pandemic became particularly evident in its aftermath. Data from Deloitte highlights the extent of the industry's recovery, particularly in matchday revenues[16]. Total revenue across Europe's top leagues reached a record €10.5 billion in the 2022/23 season, representing a 14 per cent increase compared to both the previous year and the pre-pandemic period in the 2018/19 season. This underscores the significant disruption caused by the COVID-19 pandemic. Despite revenue shortfalls during the crisis, clubs remained obligated to pay player wages and meet other financial commitments, making the COVID-19 crisis one of the most complex financial challenges in the history of the football industry (Alabi & Urquhart, 2023).

Alabi and Urquhart (2023) conducted the first empirical study examining the relationship between football clubs' financial performance and the impact of the COVID-19 pandemic. Their findings indicate that average transfer profits declined by 15.5 per cent, dropping from €26 million in the pre-pandemic period to €22 million during the pandemic. The study further highlights a deterioration in the overall profitability of top English clubs relative to the pre-COVID-19 era. Notably, transfers frequently resulted in net losses for the selling clubs. This trend is largely attributed to reduced spending power among buying clubs and the urgent need for selling clubs to generate liquidity to meet financial obligations. The authors underscore the necessity for continued research into the post-pandemic financial performance of football clubs.

Recent work of Schreiber and Schiereck (2025) examines the impact of COVID-19 on the stock performance of European football clubs, revealing critical insights into market reactions during the pandemic. Their study, which analyzed 22 listed football clubs using an event study, found significant negative CAARs following the pandemic. The most pronounced market reaction occurred after Italy announced the first national lockdown in Europe on March 9, 2020, with CAARs reaching −9.03% in the event window [−1, 1]. These findings suggest that investors rapidly repriced football stocks in response to the unprecedented uncertainty brought by the pandemic (Schreiber & Schiereck, 2025).

Despite the initial downturn triggered by the pandemic, the STOXX Football Europe Index returned to pre-crisis levels by the start of the 2020/21 season (Schreiber & Schiereck, 2025). This rapid recovery was unexpected, especially as clubs continued to report financial losses. Suggesting that investors in football stocks may be driven by factors beyond pure financial

[16] Source: https://www.deloitte.com/uk/en/services/consulting-financial/research/annual-review-of-football-finance-europe.html

fundamentals, such as emotional attachment. However, the study found a clear “flight to quality” at the beginning of the crisis, indicating that investors were responsive to financial risk and uncertainty rather than blindly loyal to their clubs (Schreiber & Schiereck, 2025). This supports the argument that football stocks are increasingly being treated as traditional financial assets, rather than as fan memorabilia.

3 Hypotheses

This chapter presents the hypothesis derived from the literature review. This study investigates the effect of player transfers and managerial changes on the stock prices of publicly listed football clubs. It integrates theoretical insights from the EMH and Salience Theory. Additionally, the study explores the influence of player-specific, manager-specific, and transfer-specific characteristics, as well as the impact of the COVID-19 pandemic.

3.1 Basis Hypotheses

Fotaki et al. (2009, 2021) found that player sales tend to generate positive market reaction, whereas acquisitions often result in negative investor responses. In contrast, Boido et al. (2023), focusing on European-listed clubs, reported that the acquisitions of players tend to generate positive returns, likely driven by increased revenue or performance improvements associated with key players. Notably, Boido et al. (2023) did not assess sales and loan transfers. Nevertheless, Fotaki et al. (2009) explored loan transfers, finding that these tend to generate positive returns for both the borrowing and lending clubs. For borrowing clubs, this is often a cost-effective way to improve squad depth, while lending clubs benefit from reduced wage burdens and opportunities for player development.

H1: The sale (acquisition) of a player leads to a negative (positive) stock market reaction

H2: Both incoming and outgoing loan transfers lead to a positive stock market reaction

3.2 Player-specific hypotheses

Behavioral finance suggests that investor decisions are often biased and irrational. Investors are influenced by salient information, which tends to have a greater impact on investors' sentiment (Palomino et al., 2008). In football, a player's position plays a critical role in media coverage and public perception. Research shows that offensive players, such as strikers and wingers, receive significantly more media attention than goalkeepers and defenders (Whitlam & Preston, 1998). Therefore, the position of a transferred player may influence how investors respond to the transfer announcement.

Moreover, among offensive players, goal-scoring ability further amplifies media attention and market expectations. According to Liu (2025), goal statistics are a central component of a player's market valuation. Since goals are crucial for match outcomes, players with a high

number of goals are closely associated with both sporting success and commercial gains, such as merchandise and ticket sales.

H3: The sale (acquisition) of an offensive player leads to a more negative (more positive) stock market reaction.

H4: The sale (acquisition) of a high-scoring offensive player leads to a more negative (more positive) stock market reaction.

3.3 Transfer-specific hypotheses

To assess how market value and transfer fees influence stock market reactions, this study employs both an absolute and a relative valuation approach. From an investor's perspective, transfers involving high-profile players are more likely to be perceived as strategic moves. The average market value of the top 500 players is approximately €18 million[17], which serves as a benchmark for identifying high-value transfers. The absolute approach thus captures transfers that are particularly attention-grabbing in the media.

H5: The sale (acquisition) of a high-value player leads to a more negative (more positive) stock market reaction.

The relative approach compares the market value of a player to the actual transfer fee. A sale below a player's market value may signal weak negotiation, financial distress, or a lack of bargaining power on the part of the selling club. Conversely, acquiring a player for less than their market value may indicate value creation and strong negotiation tactics by the buying club, possibly triggering a favorable investor response.

H6: The sale (acquisition) of a player when the market value exceeds the transfer fee leads to a more negative (more positive) reaction.

3.4 Influence of COVID-19

The COVID-19 pandemic had a profound impact on the football industry, disrupting revenue streams and intensifying financial pressures on clubs across Europe (Schreiber and Schiereck, 2025). In this context, player sales may have been seen as efforts to improve liquidity, while acquisitions could be perceived as risky expenditures that diverted resources needed to offset revenue losses. Given that attacking players typically receive more media attention, their transfers could trigger stronger reactions from investors.

[17] https://assets.kpmg.com/content/dam/kpmg/hu/pdf/KPM-The-European-Elite-2021.pdf

H7: The sale (acquisitions) of a player during the COVID-19 pandemic leads to a positive (negative) stock market reaction.

H8: The sale (acquisition) of an offensive player during the COVID-19 pandemic leads to a positive (negative) stock market reaction.

In the post-pandemic period, European football has shown signs of recovery, with rising revenues and restored financial stability. Investor sentiment may have adjusted accordingly, towards high-profile transfers, defined as transfers with a market value above €18 million, may now signal financial strength and ambition rather than reckless spending.

H9: In the post-COVID-19 period, the sale (acquisition) of a high-value player leads to a more positive (more negative) stock market reaction compared to during the COVID-19 period.

3.5 Manager-specific hypotheses

Audas et al. (1997) found that managerial changes often lead to short-term performance declines. From a financial perspective, studies that investigated the impact of managerial changes on the stock price found no significant impact (Boido et al., 2023; Fotaki et al., 2009). However, this study expects a negative investor response, given the financial cost of changes and the perception that they may not resolve underlying issues.

H10: The turnover of a football club's manager leads to a negative stock market reaction.

Investor reactions may also depend on departure type and managerial performance. A voluntary resignation could signal internal instability, whereas a dismissal is often viewed as a corrective action. Similarly, the departure of a manager who outperformed the club's historical average may be interpreted negatively, while the exit of an underperforming manager might be welcomed.

H11: The voluntary departure of a football club's manager leads to a more negative stock market reaction than a dismissal.

H12: The departure of a manager with above-average club performance leads to more negative stock market reaction than a below-average club performance.

4 Data and Methodology

4.1 Data Sources

To examine whether player transfers and managerial changes influence the stock prices of listed football clubs, various datasets are used. The primary data source is the website Transfermarkt[18], containing historic data for football clubs. The website provides information on transfer fees, player characteristics, transfer dates, and managerial changes. When information was missing, the clubs' official websites or the clubs' social media were used. If the required information could not be retrieved from any reliable source, the corresponding player or manager is excluded from the dataset.

It is important to note that the official transfer date listed on Transfermarkt corresponds to the registration date, the point at which the transfer becomes legally effective. This date may differ from the announcement date, which often occurs earlier, particularly in April or May. The official registration windows open on 1 July for the summer period and 1 January for the winter period, which explains the visible clustering of transfers on these dates. Transfers can already be arranged weeks before 1 July and 1 January, but they cannot be officially registered in the FIFA system until those dates. Football clubs often announce these transfers on their social media channels before the registration period begins. Therefore, the announcement by the club is looked up on their official website or social media channels and used as the event date. For some players with a low market value, this information is not available, and those transfers are excluded from this study.

Daily adjusted stock prices are obtained from Refinitiv Workspace. Adjusted stock prices are used to account for dividends and stock splits, ensuring consistency in the historical price data. Club-specific financial characteristics, such as total assets, revenue, and net income, are also retrieved from Refinitiv Workspace to employed as control variables in the regression analysis. These variables provide insight into each club's financial health and are matched with the corresponding season. The benchmark used in this study is the MSCI Europe Mid Cap Index, also sourced from Refinitiv Workspace. This index is chosen because it closely reflects the size and financial profile of the listed football clubs in the sample, which predominantly operate as mid-cap or small-cap firms.

[18] Source: www.transfermarkt.nl

4.2 Data Selection

4.2.1 Club selection

The sample of listed football clubs in this study is based on the STOXX Europe Football Index, which included publicly traded football clubs across Europe and the EU-Enlarged regions. Although the index was stopped in 2020, it serves as a useful reference point for identifying relevant clubs[19].

Manchester United is added to this list, as they are listed on the NYSE, but it is a European club. There are three clubs excluded from the list. FC Copenhagen is excluded because they are part of PARKEN Sport & Entertainment A/S. This company is involved in non-football activities, which can influence the stock prices. FC Teteks Tetovo, a club from the second league of North Macedonia, is excluded due to its relatively small size and the absence of incoming transfer fees on Transfermarkt. Lastly, Ruch Chorzów is excluded because of incomplete data on stock prices, assets, and net income, which makes it impossible to analyze.

Table 1: Overview of listed clubs in the study

This table presents an overview of the listed football clubs included in this study. It lists each club's country of origin, IPO date, and the stock exchange on which the club is or was listed.

Listed Club	Country	IPO Date	Stock Exchange
Aalborg BK	Denmark	11-09-1998	OMX Nordic Exchange Copenhagen
Aarhus GF	Denmark	20-05-1988	OMX Nordic Exhange Copenhagen
A.F.C. Ajax	Netherlands	17-05-1998	Euronext Amsterdam
AIK Fotboll	Sweden	31-07-2006	Nordic Growth Market Stockholm
AS Roma*	Italy	17-05-2000	Borsa Italiana
Besiktas J.K.	Turkey	25-02-2002	Istanbul Stock Exchange
Borussia Dortmund	Germany	31-10-2000	XETRA
Brøndby IF	Denmark	01-01-1987	OMX Nordic Exchange Copenhagen
Celtic F.C.	Scotland	22-12-2005	London Stock Exchange (AIM)
F.C. Porto	Portugal	01-06-1998	Euronext Lisbon
Fenerbahçe S.K.	Turkey	20-02-2004	Istanbul Stock Exchange
Galatasaray S.K.	Turkey	24-02-2002	Istanbul Stock Exchange
Juventus F.C.	Italy	20-12-2001	Borsa Italiana
Manchester United**	England	03-07-2012	New York Stock Exchange
Olympique Lyon	France	08-02-2007	Euronext Paris
S.L. Benfica	Portugal	21-05-2007	Euronext Lisbon
Silkeborg IF	Denmark	01-01-1989	OMX Nordic Exchange Copenhagen
Sporting C.P.	Portugal	02-06-1998	Euronext Lisbon
S.S. Lazio	Italy	01-01-1998	Borsa Italiana
Trabzonspor	Turkey	10-04-2005	Istanbul Stock Exchange

[19] Source: https://www.stoxx.com/document/News/2020/June/Data_Dissemination_Notification_Termination_of_Calculation_and_Disseminaton_STOXX_Football_Index_20200617.pdf

**AS Roma was delisted in 2022 and is excluded from the analysis after that date.*

*** Manchester United is listed in 2012, and is included in the analysis after that date.*

In Table 1, it can be observed that Manchester United became listed on 03-07-2012, therefore, the seasons 2010/11 and 2011/12 are excluded from the analysis for Manchester United. AS Roma was delisted in 2022 and is therefore excluded from the 2022/23 season onwards.

4.2.2 Transfer data

For all the clubs in Table 1, the incoming and outgoing transfers between the 2010/11 and 2024/25 seasons were collected. Transfers with fees below €15.000 are excluded, as such fees often are more symbolic than a realistic transfer fee. Four transfer types are investigated in this study: Acquisitions, Loan Fees in, Loan Fees out, and Sales. For each transfer, player-specific information is collected, including age, transfer fee, playing position, and other relevant characteristics. The COVID-19 period is defined as starting on March 1st, 2020, marking the beginning of the pandemic, and ending on May 1st, 2022, when the Dutch government declared that the critical phase was over[20]. The period from May 1st, 2022, onwards is referred to as post-COVID-19.

From Table 2, it can be concluded that larger clubs tend to engage in a higher number of transfers and spend substantially more per transfer compared to smaller clubs. For example, Manchester United has completed 49 acquisitions with an average transfer fee of €40.92 million, highlighting their financial capacity. In contrast, a smaller club like Silkeborg has completed only 18 acquisitions with a mean fee of €0.25 million, reflecting a more budget-constrained approach to squad building. For other large clubs like Juventus, Borussia Dortmund, and Benfica, we can also observe significant spending on acquisitions, but also substantial income from sales. This pattern is also visible in loan transfers. For smaller clubs, loan transfers with fees are unlikely to occur. However, such fee-free loan transfers are excluded from the analysis.

[20] Source: https://www.rijksoverheid.nl/onderwerpen/coronavirus-tijdlijn

Table 2: Transfer activity by listed club, in the seasons 2010/11 to 2024/25

Transfer activity by listed club, in the seasons 2010/11 till 2024/25. This table presents an overview of transfers for each listed football club in the sample. Transfers are categorized into acquisition, sale, loan fee out, and loan fee in. For each transfer type, both the average transfer fee (in millions of euros) and the number of observations (Obs.) are reported. Only transfers with disclosed fees of €15,000 or more are included.

	Acquisition		**Sale**		**Loan Fee out**		**Loan Fee in**	
Listed Club	**Mean Fee**	**Obs.**	**Mean Fee**	**Obs.**	**Mean Fee**	**Obs.**	**Mean Fee**	**Obs.**
A.F.C. Ajax	7.49	73	12.54	88	0.92	3	1.68	6
AIK Fotboll	0.4	21	1.61	38	0.02	1	0	0
AS Roma	8.61	111	8.1	103	1.08	37	2.04	46
Aalborg BK	0.46	16	1.18	31	0	0	0.1	1
Aarhus GF	0.82	27	1.61	20	0.15	1	0	0
Besiktas J.K.	2.25	87	3.37	33	0.64	12	0.86	26
Borussia Dortmund	14.14	71	14.29	79	0.65	31	2	8
Brøndby IF	0.96	65	1.28	49	0	0	0.27	3
Celtic F.C.	2.88	87	5.9	55	0.15	1	1.15	6
F.C. Porto	6.35	93	14.26	81	1.06	33	1.38	10
Fenerbahce S.K.	4.32	99	6.11	43	1.18	14	1.54	16
Galatasaray S.K.	3.93	103	4.58	50	0.75	45	1.09	35
Juventus F.C.	15.39	125	10.28	122	1.64	57	3.28	34
Manchester United	40.92	49	11.9	48	2.1	10	6.97	5
Olympique Lyon	8.73	66	10.52	91	0.8	13	2.67	14
S.L. Benfica	7.11	110	13.67	121	1.27	39	1.44	12
S.S. Lazio	5.59	79	7.53	49	0.97	23	1.77	11
Silkeborg IF	0.25	18	1.25	22	0	0	0	0
Sporting C.P.	4.39	105	8.71	91	0.65	41	1.16	13
Trabzonspor	1.8	119	2.17	58	0.27	19	0.58	23
Total	136.79	1524	140.86	1272	14.3	380	29.98	269

Table 3 shows a relatively stable volume of transfer activity between the 2010/11 and 2019/20 seasons, reflecting consistent market conditions in the pre-COVID-19 period. However, a noticeable decline occurred in the 2020/21 season. This decline is likely the result of widespread revenue losses among football clubs during the pandemic. Many clubs respond by adopting more conservative transfer policies, including reduced spending and a greater reliance on free transfers or loans. Interestingly, the number of transfers began to recover in the 2021/22 season and reached its highest levels during the 2022/23 to 2024/25 period. This post-pandemic rebound suggests a restoration of the main revenue streams. The increased activity in recent seasons may also reflect delayed transfers that were postponed during the pandemic, as well as a renewed willingness among clubs to invest in their squads.

Table 3: Overview of transfers per season

This table shows the number of transfers per season in absolute terms (Freq.), relative terms (Percentage), and cumulative percentages. It reflects the distribution of 3,445 transfers over 15 seasons. Transfers include acquisitions, sales, and loan transfers involving a fee of at least €15,000. Note that Manchester United is not included in the 2010/11 and 2011/12 seasons, as the club was not yet listed. AS Roma is excluded from the 2022/23 season onwards due to its delisting in 2022.

Season	Freq	Percentage(%)	Cumulative (%)
2010/11	169	4.91	4.91
2011/12	199	5.78	10.69
2012/13	194	5.63	16.32
2013/14	224	6.5	22.82
2014/15	234	6.79	29.61
2015/16	253	7.34	36.95
2016/17	242	7.02	43.97
2017/18	266	7.72	51.69
2018/19	246	7.14	58.83
2019/20	247	7.17	66
2020/21	175	5.08	71.08
2021/22	207	6.01	77.09
2022/23	263	7.63	84.72
2023/24	267	7.75	92.47
2024/25	259	7.52	99.99
Total	3445	100	100

4.2.3 Managerial data

Managerial data is collected for all listed clubs in the sample from the 2010/11 to 2024/25 seasons, except for Manchester United and AS Roma, which are not listed during the full sample period, as stated earlier. The primary source of managerial data is Transfermarkt. However,

since Transfermarkt does not report the type of managerial departure, official club media such as websites, press releases, and social media accounts are analyzed.

A managerial departure is defined as the point when the manager leaves the club. Departures are categorized into two groups: (1) “Voluntarily”, when the manager’s contract expires, the manager joins another club, the manager serves as an interim and is not retained, or chooses to leave of their own accord. (2) “Dismissal”, when the manager’s contract is terminated before its natural expiration, usually due to underperformance. One managerial departure is excluded from the analysis because the manager did not coach any matches.

Table 4: Number of managerial changes per club from seasons 2010/11 to 2024/25

This table summarizes all managerial departures across listed football clubs in the sample period, distinguishing between fired “Dismissal” and voluntary exits "Left voluntarily". For each club, the total number of departures is reported. The data covers the seasons from 2010/11 to 2024/25, based on public announcements. The bottom row shows the total number of departures across all clubs.

Listed Club	Dismissal	Left Voluntarily	Obs.
Trabzonspor	10	12	22
Besiktas J.K.	11	9	20
Fenerbahce S.K.	12	7	19
Sporting CP	8	9	17
Galatasaray S.K.	11	3	14
F.C. Porto	8	4	12
Olympique Lyon	7	5	12
A.F.C. Ajax	4	7	11
AIK Fotboll	7	4	11
Aalborg BK	5	6	11
AS Roma	4	6	10
Borussia Dortmund	4	6	10
Manchester United	5	5	10
S.S. Lazio	4	6	10
Juventus F.C.	6	3	9
Brondby IF	7	1	8
S.L. Benfica	2	5	7
Silkeborg IF	3	4	7
Aarhus GF	5	1	6
Celtic F.C.	1	5	6
Total	124	108	232

Table 4 presents the number of managerial changes per club between the 2010/11 and 2024/25 seasons. These changes are broken down into two types: “Dismissal” and “Left Voluntarily.” Trabzonspor records the highest number of managerial changes (22), followed by Beşiktaş (20) and Fenerbahçe (19). Notably, these three clubs are all based in Turkey, which may indicate a relatively high degree of managerial instability in the Turkish league. In contrast, clubs such as Silkeborg (7) and Celtic (6) experience far fewer changes, suggesting a more stable club

management approach. Across all clubs, a total of 232 managerial departures are recorded. Of these, 124 (53.45%) are classified as dismissals, while 108 (46.55%) left voluntarily. This nearly even distribution highlights that not all managers are dismissed, some choose to leave voluntarily.

***Table 5**: Number of average points earned per club and average number of matches per club*

This table summarizes the average performance of departing managers at each listed club in the sample. Points per Game (PPG) reflects the average number of points earned per match, based on the standard football scoring system: 3 points for a win, 1 for a draw, and 0 for a loss. Matches refers to the average number of matches a manager coached before leaving the club. The figures are based on managerial departures from the 2010/11 through the 2024/25 seasons. The final row shows the overall average across all clubs.

ListedClub	PPG	Matches
Celtic F.C.	2.14	124.17
S.L. Benfica	2.14	115.57
Manchester United	1.93	213.3
Juventus F.C.	1.92	85.78
F.C. Porto	1.91	78.33
Borussia Dortmund	1.85	78.8
S.S. Lazio	1.85	70.3
A.F.C. Ajax	1.82	66.55
Fenerbahce S.K.	1.81	39.47
AS Roma	1.78	58
Besiktas J.K.	1.68	38.75
Sporting C.P.	1.67	42.47
AIK Fotboll	1.65	53.45
Brondby IF	1.6	75
Galatasaray S.K.	1.57	44.64
Olympique Lyon	1.5	69.17
Trabzonspor	1.4	29.5
Aalborg BK	1.37	53.64
Aarhus GF	1.32	84.17
Silkeborg IF	1.31	53.71
Total	1.71	73.74

Table 5 presents the average points per game and average number of matches managed before departure for each club. There is a clear variation in average points per game across clubs. Clubs with a high average points per game, like Benfica (2.14) and Celtic (2.14), indicate strong performance of their managers. In contrast, clubs like Silkeborg (1.31) and Aarhus GF (1.32). However, these differences should be interpreted with caution, as club-specific factors such as league competitiveness, squad quality, and financial resources are likely to influence the on-

field performance. The average across the clubs is 1.73 points per game and 73.98 matches per manager. Notably, the three clubs with the highest points per game have, on average, the most matches for a manager. This pattern suggests that strong on-field performance may contribute to greater managerial stability, as successful managers are more likely to be retained by their clubs.

4.3 Variable Descriptions

In this study, several variables are used. The following tables provide an overview of each variable, including a brief description, its data type, and the range of possible values or categories.

Table 6: Variable description for the players' transfer data.

Variable name	Variable description	Type of variable	Outcomes
Season	Indicates the season in which the transfer took place.	String	From the 2010/11 season up to and including the 2024/25 season.
Player	Identifies the player involved in the transfer..	String	3,455 player transfers are included in the dataset.
Position	Indicates the simplified position of the player.	String	Within the dataset, there are four different positions: attackers, midfielders, defenders, and goalkeepers.
ListedClub	The listed club involved in the transfer.	String	20 different listed clubs are included in the dataset
TransferType	Specifies the type of transfer	String	Within the dataset, there are 4 types of transfers: acquisitions, loan fee in, loan fee out, and sales.
TransferFee	Fee paid or received by the club for the transfer (in euros).	Number	Ranges from €17,000 to €135 million.
MarketValue	The market value of the player at the time of the transfer (in euros)	Number	Ranges from €0 to €150 million
CapsGoals	The number of goals a player scored in international matches	Number	Ranges from 0 to 109
Offensive	Indicates whether the player is an attacker or plays another position (midfielder, defender, or goalkeeper).	Dummy	Equals 1 if attacker, 0 otherwise.
MarketHigherFee	Indicates whether the Market value of a player is higher than the transfer fee paid.	Dummy	Equals 1 if the market value is above the transfer fee, 0 otherwise.
MarketHigher18	Indicates whether the market value of a player exceeds €18 million at the time of the transfer	Dummy	Equals 1 if market value is above €18 million, 0 otherwise.
CovidDum	Indicates whether the transfer took place during the COVID-19 period. The COVID-19 period was from March 1st, 2020, till May 1st, 2022.	Dummy	Equals 1 if the transfer occurred during the COVID period, 0 if outside that period
PostCovidDum	Indicates whether the transfer took place after the COVID-19 period. This period was from March 1st, 2022, until the end of the dataset.	Dummy	Equals 1 if the transfer occurred after the COVID period, 0 if outside that period
Eventdate	Indicates the announcement date of the transfer.	Date	Ranges from December 24, 2009, to March 11, 2025

Table 7: Variable description for the managerial changes data.

Variable name	Variable description	Type of variable	Outcomes
Season	Indicates the season in which the managerial change took place	String	From the 2010/11 season up to and including the 2024/25 season.
Manager	Indicates the manager involved in the managerial change.	String	231 managerial changes are included in the dataset.
ListedClub	The listed club involved in the managerial change.	String	20 different listed clubs are included in the dataset
TypeChange	Indicates the type of managerial departure	String	Two types of managerial departure: “left voluntarily” or “Dismissal”
AveragePointsGame	The average points a manager earned per game. Winning a game gives 3 points, a draw gives 1 point, and a loss gives 0 points.	Number	Ranges from 0 to 3
TotalMatches	Indicates the number of matches a manager had coached	Number	Ranges from 1 to 1499
AvgPointsClub	This variable indicates the average points earned per game by the club	Number	Ranges from 1.31 to 2.14
AboveAvgPerf	Indicates whether the manager outperformed the club’s average points per game.	Dummy	Equals 1 if the manager outperformed the club average, 0 otherwise
Eventdate	Indicates the announcement date of the managerial change.	Date	Ranges from April 24, 2010, to March 23, 2025.

Table 8: Variable description for the club financials data.

Variable name	Variable description	Type of variable	Outcomes
Assets	Total value of the club’s assets.	Number	Ranges from €42,479,000.00 to €11,132,750,000.00
LogAssets	Natural logarithm of the club’s total assets	Number	Ranges from 17.56 to 23.13
Revenue	The annual revenue generated by the club.	Number	Ranges from €29,130,000.00 to €7,952,361,000.00
LogRevenue	Natural logarithm of the club’s total revenue	Number	Ranges from 11.48 to 22.8
ROA	RReturn on Assets (Net Income divided by Assets)	Number	Ranges from -1.39 to 0.51

4.4 Summary statistics

This section presents summary statistics for the main numerical and dummy variables related to player transfers, managerial changes, and club financial characteristics. Categorical variables are excluded from the tables.

Table 9: Summary statistics of managerial data

This table provides an overview of the summary statistics for the player transfers. The variables TransferFee and MarketValue are expressed in Euros (€). The table includes the number of observations (N), mean, median, standard deviation (StDev), first quartile (P25), third quartile (P75), minimum (Min), and maximum (Max) values.

	N	Mean	Median	StDev	P25	P75	Min	Max
TransferFee	3445	6,629,844	2,500,000	11,986,563	750,000	7,000,000	17,000	135,000,000
MarketValue	3445	7,557,994	4,000,000	10,929,479	1,500,000	9,000,000	0	150,000,000
CapsGoals	2022	4.29	1	8.71	0	4	0	109
Offensive	3445	0.34	0	0.47	-	-	-	-
MarketHigherFee	3445	0.6	1	0.49	-	-	-	-
MarketHigher18	3445	0.11	0	0.32	-	-	-	-
CovidDum	3445	0.08	0	0.31	-	-	-	-
PostCovidDum	3445	0.23	0	0.42	-	-	-	-

Table 9 presents the descriptive statistics for the player transfers variables. The average *TransferFee* is around €6.6 million, while the average *MarketValue* is slightly higher, around €7.5 million. This suggests that, on average, players are acquired for somewhat less than their estimated market value. The variable *MarketHigherFee* shows that in 60% of the transfers, the market value exceeds the transfer fee. Only 11% of the player transfers had a *MarketValue* above €18 million. *CapsGoals* shows that the average of international goals scored is 4.29, with a maximum of 109 goals, which is Cristiano Ronaldo. Most players scored limited international goals. It can be concluded that 8% of the transfers took place during the pandemic, and 23% of the transfers after the pandemic.

Table 10: Summary statistics of managerial data

This table provides an overview of the summary statistics for managerial changes. The table includes the number of observations (N), mean, median, standard deviation (StDev), first quartile (P25), third quartile (P75), minimum (Min), and maximum (Max) values.

	N	Mean	Median	StDev	P25	P75	Min	Max
TotalMatches	231	65.85	37	115.26	15	80.5	1	1499
AvgPointsGame	231	1.69	1.76	0.49	1.44	2	0	3
AvgPointsClub	231	1.69	1.68	0.22	1.54	1.85	1.31	2.14
AboveAvgPerf	231	0.59	1	0.49	-	-	-	-
FiredVoluntarily	231	0.53	1	0.5	-	-	-	-

Table 10 presents the descriptive statistics for the managerial data. The variable *TotalMatches* shows that the number of matches coached ranges from 1 to 1,499. The maximum represents an extreme outlier, Sir Alex Ferguson, who managed Manchester United for 26 years. The average number of points earned per game by managers (*AvgPointsGame*) is 1.69, with a median of 1.76. The variable *AvgPointsClub*, which reflects the average points per game earned by each club overall, ranges from 1.31 for Silkeborg IF to 2.14 for S.L. Benfica. This variation underscores substantial differences in club performance levels across the sample. The variable *AboveAvgPerf* indicates that approximately 59% of the managers performed above their club's average. Finally, *FiredVoluntarily* indicates that 53% of the managers were fired.

Table 11: Summary statistics of control variables

This table provides an overview of the summary statistics for control variables. The variables "Assets" and "Revenue" are reported in thousands of euros (x€1000). The table includes the number of observations (N), mean, median, standard deviation (StDev), first quartile (P25), third quartile (P75), minimum (Min), and maximum (Max) values.

	N	Mean	Median	StDev	P25	P75	Min	Max
Assets	297	610,286	331,427	1,097,368	166,071	580,213	42,479	11,132,753
Revenue	297	294,714	141,249	640,328	94,031	290,004	97	7,952,361
ROA	297	-0.08	-0.04	0.22	-0.16	0.03	-1.39	0.51
LogAssets	297	19.63	19.62	0.99	18.93	20.18	17.56	23.13
LogRevenue	297	18.93	18.77	0.98	18.36	19.49	11.48	22.8

The number presented in Table 11 shows, on average, that listed football clubs hold approximately €610 million in total assets and generate about €295 million in annual revenue. Both variables exhibit substantial variation across clubs. Total assets range from a minimum of €42 million to a maximum of €11.1 billion, while revenue spans from just €97,000 to nearly €8 billion. These figures reflect the significant financial disparities between elite and smaller clubs.

The ROA average is –0.08, with values ranging from –1.39 to 0.51. The negative average ROA suggests that, on the whole, football clubs operate at a loss, an outcome commonly observed in the industry. To address skewness in the variables, *Assets* and *Revenue* are log-transformed. The transformed variables *LogAssets* and *LogRevenue* show a narrower range, making them more suitable for use in regression analyses

4.5 Methodology

To test the hypotheses of this study, an event study is conducted to examine how stock prices respond to player transfers and managerial changes. Specifically, calculate cumulative abnormal returns (CARs) are calculated to capture the market's reaction by comparing actual stock returns around the event date to expected returns based on a benchmark model. An event study involves three key steps (De Jong & De Goeij, 2011).

1. Identify the timing of the event.
2. Select an appropriate benchmark to model normal returns.
3. Calculate and analyze the abnormal returns.

The events in this study are player transfers and managerial changes. To determine the timing of these events, announcement dates are used rather than the registration dates listed on Transfermarkt. The announcement date reflects the moment when the information becomes publicly available to the market and is therefore most relevant for capturing the stock market's reaction. However, announcements may occur on non-trading days, such as weekends, public holidays, or evenings after market close. In cases where an announcement occurs during a weekend or public holiday, the next available trading day is designated as the event date (day 0), as it represents the first opportunity for the market to incorporate the new information into the stock price. To capture the potential price impact of such weekend announcements, the event window [-1, 0] is used, where -1 corresponds to the closing price on Friday and 0 corresponds to the closing price on Monday. This setup introduces a potential problem, as weekend announcements may coincide with match results, which can influence stock prices. Nevertheless, this overlap is expected to have a limited impact, as most matches take place outside the transfer windows. For announcements made on trading days after market hours, the announcement date is considered the event date. This choice is justified by the potential information leakage, where rumors are already influencing stock prices on the announcement date.

The abnormal returns are calculated by the realized returns minus the expected returns. The realized returns are derived from the firm's actual stock prices. The expected returns are the returns that would have occurred had the event not taken place.

$$AR_{i,t} = R_{i,t} - NR_{i,t} \quad (1)$$

The realized return is calculated using the following formula, where $P_{i,t}$ is the adjusted closing price on day t, and $P_{i,(t-1)}$ is the price on the previous trading day. The natural logarithm is used because it allows for the aggregation of returns over time.

$$R_{i,t} = \ln\left(\frac{P_{i,t}}{P_{i,(t-1)}}\right) \quad (2)$$

There are four main models for calculating the normal returns: (1) The mean adjusted model, which assumes that the normal returns are the average returns of the estimation window. (2) The market-adjusted model assumes the returns are equal to the return of the market index, which is very unlikely. (3) The CAPM model estimates the expected returns based on the risk-free rate, the market return, and a beta. (4) The market model, regress the firm's historical returns on those of the benchmark to obtain firm-specific alpha and beta coefficients.

As suggested by MacKinlay (1997), the market model will be used because it adjusts for overall market movements while also capturing firm-specific behavior through its estimated beta coefficient. In the market model, a proper benchmark is needed, which is the MSCI Europe Mid Cap Index. The market model is defined as:

$$R_{i,t} = \alpha_{i,t} + \beta_i R_{m_t} + \varepsilon_{i,t} \quad (3)$$

$$NR_{i,t} = \hat{\alpha}_i + \hat{\beta}_i R_{m_t} \quad (4)$$

To calculate the expected returns, the correlation between the listed club's stocks and the benchmark index is estimated over a specific period, known as the estimation window [T1, T2]. This period precedes the event and is used to estimate how the market would have reacted if the event had not taken place. The estimated parameters α_i and β_i are then used to calculate the expected returns during the event window [t1, t2]. A long estimation window [-250, -1] is selected, which represents a full year of trading. This longer window provides more robust parameter estimates for modelling expected returns, as it is likely that multiple events occur in relatively short timeframes, making it difficult to construct clean estimation windows without event contamination. The event windows employed in this study are: [–1, 1], [–3, 3], [–5, 5], [–10, 10], and [–20, 20], as outlined by Fotaki et al. (2009, 2021). In addition, the narrower

windows [–1, 0] and [0, 1], introduced by Boido et al. (2023), are also included in the analysis to capture short-term market reactions.

Stocks of football clubs often experience infrequent trading, which may delay the incorporation of new information into stock prices. To account for this, Dimson betas are used. Lagged market returns variables (t-3, t-2, t-1) are included to capture delayed market reactions to previous information. The lead variable (t+1) is incorporated to adjust for late market responses to current information, such as announcements made after trading hours. Together, the Dimson betas approach allows the model to capture market reactions around the event (t-3, t-2, t-1, t, and t+1) (Dimson, 1979). The adjusted market model becomes:

$$R_{i,t} = \alpha_{i,t} + \beta_{1,i}R_{m(t-3)} + \beta_{2,i}R_{m(t-2)} + \beta_{3,i}R_{m(t-1)} + \beta_{4,i}R_{m_t} + \beta_{5,i}R_{m(t+1)} + \varepsilon_{i,t} \quad (5)$$

$$NR_{i,t} = \hat{\alpha}_{i,t} + \hat{\beta}_{1,i}R_{m(t-3)} + \hat{\beta}_{2,i}R_{m(t-2)} + \hat{\beta}_{3,i}R_{m(t-1)} + \hat{\beta}_{4,i}R_{m_t} + \hat{\beta}_{5,i}R_{m(t+1)} \quad (6)$$

The abnormal returns are calculated using equation (1). By summing all abnormal returns from t_1 up to t_2. This will give the CAR for each event over a certain event window.

$$CAR_i = AR_{i,t_1} + \ldots + AR_{i,t_2} = \sum_{t=t_1}^{t_2} AR_{i,t} \quad (7)$$

Once the abnormal returns are calculated, they can be averaged across the listed clubs for each event day. In this formula, N represents the total number of listed football clubs included in the analysis.

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t} \quad (8)$$

To examine the market reaction to transfers and managerial changes over a given event window, the Average Abnormal Returns (AARs) are accumulated from t1 to t2, to get the CAAR.

$$CAAR = \sum_{t=t_1}^{t_2} AAR_t \quad (9)$$

When multiple events occur close together, as is often the case with transfers and managerial changes, the assumption that each abnormal return is independent may no longer hold. This is known as event clustering, which can increase the risk of Type 1 errors, rejecting the null hypothesis incorrectly. To account for event clustering, Brown and Warner (1980) propose the Crude Dependence Adjustment (CDA), which modifies the standard t-test to check if returns are different from zero by accounting for cross-sectional dependence. Rather than assuming independence across events, their method estimates the variance of abnormal returns using the time-series standard deviation of the AAR across the event window. The t-test is as follows:

$$TS = \frac{AAR_t}{\bar{s}} \approx N(0,1) \quad (10)$$

For CAARs, the t-test will be:

$$TS_{\text{CAAR}} = \frac{1}{\sqrt{T}} \cdot \frac{CAAR}{\bar{s_2}} \approx N(0,1) \quad (11)$$

Where the standard deviation is calculated as:

$$\bar{s_2} = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N}(CAR_i - CAAR)^2} \quad (12)$$

4.5.1 Translation to hypotheses

H1, H2, and H10 are tested using CAARs, while hypotheses H3 to H9, H11, and H12 are examined through an Ordinary Least Squares (OLS) regression model with CARs as the dependent variable. This approach allows for an analysis of how different independent variables, such as player-specific, transfer-specific, managerial-specific characteristics, and COVID-19, influence market responses. An important assumption of the OLS model is homoskedasticity, which means that the variance of the error term remains constant across all observations. When this assumption is violated, there is heteroskedasticity, and the estimated standard errors may become biased. This can lead to invalid t-tests and misleading conclusions about statistical significance. To correct for this, robust standard errors will be used in the regression models. Country fixed effects are included to control for differences in how investors in different countries may respond to new information. Season fixed effects are also included to control for that shareholders may respond differently to new information across seasons.

The general equation looks as follows:

$$CAR_{it} = \alpha_o + \beta_1 X_{1,it} + \gamma_{1,i} + \gamma_{2,i} + \varepsilon_{i,t}$$

Where,

α_o	=	constant
β_1	=	the coefficient of the independent variable
$X_{1,it}$	=	the value of the independent variable at it
$\gamma_{1,i}$	=	country fixed effects
$\gamma_{2,i}$	=	time fixed effects
$\varepsilon_{i,t}$	=	error term

For some hypotheses, the joint effect of the independent variables on the dependent variables is tested. This equation looks as follows.

$$CAR_{it} = \alpha_o + \beta_1^{'} X \ + \beta_2^{'} Y + \beta_3^{'} X * Y + \gamma_{1,i} + \gamma_{2,i} + \varepsilon_{i,t}$$

Where,

β_3 = capturing the joint effect of the two interacting variables

5 Results

In this chapter, the results related to the hypotheses will be discussed. First, the general effect of transfers on the stock prices is examined. Second, the player-specific and transfer-specific characteristics are presented to discuss the associated hypotheses. Third, the impact of COVID-19 is considered. This is followed by an analysis of the impact of managerial changes on the stock prices. Additionally, the combined effect of different independent variables is explored. Finally, a robustness analysis is conducted to verify whether the findings hold under different conditions.

5.1 General effect of player transfers

To evaluate the first two hypotheses, the general effect of the player transfers on stock prices is examined. To analyze the effects, the CAAR is reported for four transfer types across seven event windows. The results are shown in the following table:

H1: The sale (acquisition) of a player leads to a negative (positive) stock market reaction

H2: Both incoming and outgoing loan transfers lead to a positive stock market reaction

Table 12: Cumulative average abnormal returns (CAARs) for each transfer type

*The table presents the CAARs for each transfer type across seven different event windows. The CAARs are shown for four different transfer types: Acquisition, Loan in, Loan out, and Sale. The number of observations is listed under "Obs.". Standard errors are reported in parentheses, and the Crude Dependence Adjustment (CDA) is applied to correct for potential event clustering. Significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type	Obs.	CAAR [-1, 0]	CAAR [0, 1]	CAAR [-1, 1]	CAAR [-3, 3]	CAAR [-5, 5]	CAAR [-10, 10]	CAAR [-20, 20]
Acquisition	1524	0.0010	**0.057****	0.047	0.061	**0.217*****	**0.501*****	**0.775*****
		(0.49)	**(2.43)**	(1.02)	(1.06)	**(2.52)**	**(3.91)**	**(4.26)**
Loan In	269	**0.0045*****	**0.0073*****	**0.0091*****	0.0041	0.0041	0.0126	**0.0298***
		(4.76)	**(3.95)**	**(3.69)**	(0.44)	(0.39)	(0.97)	**(1.72)**
Loan Out	380	**0.0044*****	**0.0029*****	**0.0058*****	0.0049	0.0090	**0.0185****	**0.0371*****
		(3.57)	**(10.43)**	**(4.10)**	(0.99)	(1.35)	**(2.07)**	**(3.00)**
Sale	1272	0.0017	0.0024	0.0018	0.0034	0.0049	**0.0093***	**0.0228*****
		(0.59)	(1.16)	(0.72)	(1.11)	(1.53)	**1.91**	**(3.50)**

The CAARs reported in Table 12 are all positive. This indicates that investors respond positively to transfer announcements. However, statistical significance is only limited to certain event windows for each transfer type.

Acquisitions yield significant results in the event windows [0, 1], [-5, 5], [-10, 10], and [-20, 20] at the 1% level. These results suggest that markets respond positively to player acquisitions. These findings support H1 and align with Boido et al. (2023), who emphasize the importance of additional revenue streams when a player is acquired. Sales contradict with H1, all CAARs are positive with statistical significance only observed in the [-10,10] window at the 10% level and [-20,20] window at the 1% level. These findings are in line with Fotaki et al. (2009, 2021), who argue that sales may be perceived positively, due to financial optimization or improved team dynamics. The presence of significance in longer windows may indicate that the market does not immediately react to the transfer announcement but instead gradually incorporates the information over time.

Regarding loan in transfers, CAARs for the [-1, 0], [0,1] and [-1,1] windows are significant at the 1% level, while the [-20,20] window is significant at the 10% level. These results indicate a stronger short-term reaction from the market, with some lasting effects over the longer horizon. Loan out transfers show significant positive CAARs in the [-1, 0], [0,1], [-1,1], [-10,10], and [-20,20] windows. The first two and the latter are statistically significant at the 1% level, while [-10,10] is significant at the 5% level. These patterns suggest that loan transfers are viewed favorably by investors, possibly due to salary savings and player development for outgoing loans, and improved team performance for incoming loans.

Based on the results in Table 12, H1 is only partially supported. While all reported CAARs for sales are positive, there are only two event windows statistically significant. Therefore, the null hypothesis cannot be rejected. What drives investors remains uncertain. It may stem from mispricing of players, the “winner’s curse”, or other unobserved market factors. Acquisitions are followed by a significant positive stock market reaction across all the event windows. Notably, in the event window [-5. 5], acquisitions are associated with a 1.02% increase in returns on average.

The results provide strong support for H2, with consistent positive CAARs across loan transfers and multiple statistically significant event windows. For instance, a loan in transfer yields an average increase of 0.91% in investor returns in the [-1, 1] window. Similarly, loan out transfers result in a 1.85% return increase in the [-10, 10] window. These findings underscore the market's

favorable perception of loan deals and are consistent with previous research by Fotaki et al. (2009, 2021).

5.2 Player-specific effects

This section analyzes the effect of player-specific characteristics on stock market reactions, as measured by CARs. The objective is to determine whether certain traits of transferred players influence investor responses.

5.2.1 Offensive player effects

H3 examines whether the position of a transferred player affects the stock market reaction. This hypothesis is based on the findings of Whitlam and Preston (1998), who observed that offensive players tend to receive more media attention than players in other positions. This increased visibility may lead to stronger investor responses. To test this, a dummy variable *Offensive* is constructed, which equals one if a player is an attacker and zero otherwise.

> *H5: The sale (acquisition) of a high-value player leads to a more negative (more positive) stock market reaction.*

Table 13: OLS regression results on the effect of offensive players on CARs after acquisitions

*This table presents the results of OLS regressions examining the effect of player position on CARs following an acquisition. The dependent variable is the CAR across different windows. The independent variable is the dummy "Offensive", which equals one if a player is an attacking player and equals the value zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates how many times the dummy variable is one in the dataset for acquisitions. Country and season fixed are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisition	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.028	-0.049	-0.038	-0.029	0.002	-0.028	-0.046
		(0.037)	(0.039)	(0.043)	(0.061)	(0.079)	(0.125)	(0.154)
Offensive	479	-0.003	**-0.006****	**-0.006****	-0.004	-0.003	-0.006	0.001
		(0.002)	**(0.002)**	**(0.003)**	(0.004)	(0.004)	(0.006)	(0.008)
Obs.		1524	1524	1524	1524	1524	1524	1524
R^2		0.013	0.023	0.020	0.008	0.013	0.030	0.046
Adj R^2		-0.005	0.006	0.003	-0.010	-0.005	0.012	0.029
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 14: OLS regression results on the effect of offensive players on CARs after sales

*This table presents the results of OLS regressions examining the effect of player position on CARs following a sale. The dependent variable is the CAR across different windows. The independent variable is the dummy "Offensive", which equals one if a player is an attacking player and equals the value zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates how many times the dummy variable is one in the dataset for sales. Country and season fixed are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.016	-0.040	-0.020	-0.015	0.144	0.099	0.061
		(0.045)	(0.045)	(0.053)	(0.071)	(0.093)	(0.132)	(0.167)
Offensive	438	-0.003	**-0.006****	**-0.006****	**-0.008****	**-0.009****	-0.004	-0.013
		(0.002)	**(0.002)**	**(0.003)**	**(0.004)**	**(0.004)**	(0.006)	(0.008)
Obs.		1272	1272	1272	1272	1272	1272	1272
R^2		0.028	0.018	0.027	0.029	0.038	0.035	0.031
Adj R^2		0.007	-0.003	0.006	0.008	0.017	0.014	0.010
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 13 presents the regression results for player acquisitions. The *Offensive* dummy is negative across all event windows, except for the event window [-20, 20], where the sign turns slightly positive. Statistical significance is observed in the short-term windows [0, 1] and [-1, 1] at the 5% level. This suggests that the market initially reacts more negatively to the acquisition of attacking players than to those in other positions. However, the loss of statistical significance in longer event windows implies that this reaction may be temporary, potentially driven because of the salience of offensive players, or corrected as more information becomes available. Therefore, while there is some support for H3 in the context of acquisitions, the evidence is not strong enough to confidently reject the null hypothesis with confidence.

In contrast, the evidence for sales is more compelling. Table 14 shows a negative coefficient for the *Offensive* dummy across all event windows. Statistically significant is found in the following event windows: [0, 1], [-1, 1], [-3, 3], and [-5, 5], at the significance level of 5%. For example, in the [-3,3] window, the sale of an attacking player results in an average abnormal return decrease of approximately 0.8% compared to the sale of a non-attacking player. Several factors may explain this penalty. First, selling an attacker could lead to fewer goals for the club, reducing the likelihood of success in competitions. Second, attacking players often possess high commercial value through merchandise sales and club reputation, factors that investors likely factor into their valuation.

These findings align with salience theory, which posits that investors are more responsive to events that are media-visible or emotionally engaging (Palomino et al., 2008). The results provide support for H3 in the context of player sales. The market reacts more negatively to the sale of an attacking player compared to players in other positions.

5.2.2 Goal-scoring effects

H4 investigates whether the stock market responds more strongly to transfers involving high-performing offensive players. Specifically, it examines whether attackers who scored a high number of international goals in the previous seasons trigger more pronounced market reactions than other players. Goal scoring is chosen as the performance metric based on its salience and its role as a quantifiable indicator of player impact. To assess this, the variable *CapsGoals* is introduced, representing the number of international goals scored by a player before the transfer. Transfers involving players with no international appearances are excluded, as these have no goal data in international matches. The analysis first examines the standalone effect of performance, followed by an interaction analysis with offensive players in Subsection 5.2.3.

Table 15: OLS regression results on the effect of goals scored on CARs after acquisitions.

*This table presents the results of OLS regressions examining the effect of international goals scored on CARs following an acquisition. The dependent variable is the CAR across different windows. The independent variable is CapsGoals. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates how many transfers there were where the CapsGoals was above or equal to 1 for acquisitions. Country and season fixed effects are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisition	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.049	-0.051	-0.063	0.002	0.068	0.040	0.195
		(0.051)	(0.056)	(0.060)	(0.089)	(0.114)	(0.186)	(0.219)
Capsgoals	518	0.000	0.000	-0.000	-0.000	-0.000	0.000	**0.001***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	**(0.000)**
Obs.		872	872	872	872	872	872	872
R^2		0.023	0.023	0.019	0.016	0.023	0.054	0.060
Adj R^2		-0.009	-0.008	-0.012	-0.015	-0.009	0.024	0.030
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 16: OLS regression results on the effect of goals scored on CARs after sales.

*This table presents the results of OLS regressions examining the effect of international goals scored on CARs following a sale. The dependent variable is the CAR across different windows. The independent variable is CapsGoals. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates how many transfers there were where the CapsGoals was above or equal to 1 for sales. The robust standard errors are reported in the regression results in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.014	-0.023	-0.004	-0.096	-0.028	-0.066	-0.027
		(0.064)	(0.069)	(0.080)	(0.102)	(0.132)	(0.185)	(0.233)
Capsgoals	416	-0.000	0.000	0.000	-0.000	-0.000	**-0.001***	**-0.001****
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	**(0.000)**	**(0.000)**
Obs.		756	756	756	756	756	756	756
R^2		0.038	0.023	0.029	0.032	0.044	0.052	0.045
Adj R^2		0.003	-0.013	-0.007	-0.004	0.008	0.017	0.010
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

As reported in Table 15, the coefficients on *CapsGoals* are close to zero and statistically insignificant across all event windows. The event windows, [0, 1], [-1, 1], [-3, 3], and [-5, 5] even reported a negative adjusted R^2, indicating that the model offers limited explanatory power. These results suggest that previous international goal-scoring has no meaningful influence on investor response following an acquisition. For sales, a slightly more nuanced picture emerges in Table 16. While the coefficients on *CapsGoals* remain small, the estimate for the event window [-10, 10] is significant at the 10% level, and for the [-20, 20] window at the 5% level. However, the economic magnitude is minimal, with each additional international goal associated with a stock price decrease of approximately 0.1%. This effect, though statistically significant in longer windows, is economically negligible.

These outcomes challenge the assumption that international goals in previous seasons are a strong performance signal for investors, despite their public visibility. Instead, it suggests that other factors, such as age, assists, or other factors, may play a more major role in shaping investors' reactions. The next subsection investigates whether the combination of an attacking position and international goal-scoring creates a more salient signal. This interaction approach may uncover effects not visible when performance and position are evaluated separately, offering a more refined understanding of how investors interpret player attributes.

5.2.3 Interaction effect: goal-scoring and offensive player

This subsection evaluates how the interaction effect between a player's position and prior goal-scoring performance influences CARs. To test the following hypothesis:

> *H4: The sale (acquisition) of a high-scoring offensive player leads to a more negative (more positive) stock market reaction.*

Table 17: OLS regression results on the interaction between offensive and goals after acquisitions

*This table presents the results of OLS regressions examining the effect of player performance and offensive on CARs following acquisitions. The dependent variable is the CAR, calculated across seven event windows. The independent variables are (1) Offensive, a dummy equal to one if the player is an attacker and zero otherwise, (2) Performance, the number of international goals scored before the transfer, and (3) Offensive * Performance, an interaction term. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country and season fixed effects are included. The robust standard errors are reported in the regression results in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisitions	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.046	-0.043	-0.058	0.010	0.075	0.038	0.180
		(0.051)	(0.056)	(0.060)	(0.089)	(0.114)	(0.185)	(0.220)
Offensive	296	-0.003	**-0.008****	**-0.009****	-0.001	-0.006	-0.015	-0.011
		(0.003)	**(0.003)**	**(0.004)**	(0.005)	(0.006)	(0.009)	(0.012)
CapsGoals	518	0.000	0.000	-0.000	0.000	0.000	-0.001	-0.001
		(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Offensive * CapsGoals	231	-0.000	-0.000	0.000	-0.001	-0.000	0.001	**0.002****
		(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	**(0.001)**
Obs.		872	872	872	872	872	872	872
R^2		0.024	0.032	0.026	0.018	0.024	0.057	0.062
Adj R^2		-0.009	-0.002	-0.008	-0.016	-0.010	0.025	0.030
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 18: OLS regression results on the interaction between offensive and goals after sales

*This table presents the results of OLS regressions examining the effect of player performance and offensive on CARs following sales. The dependent variable is the CAR, calculated across seven event windows. The independent variables are (1) Offensive, a dummy equal to one if the player is an attacker and zero otherwise, (2) Performance, the number of international goals scored before the transfer, and (3) Offensive * Performance, an interaction term. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country and season fixed effects are included. The robust standard errors are reported in the regression results in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.025	-0.074	-0.061	-0.067	-0.005	-0.071	0.107
		(0.047)	(0.053)	(0.060)	(0.090)	(0.103)	(0.142)	(0.182)
Offensive	276	-0.005	**-0.010****	**-0.010****	**-0.014****	**-0.015****	-0.002	-0.005
		(0.004)	**(0.004)**	**(0.004)**	**(0.005)**	**(0.006)**	(0.009)	(0.012)
CapsGoals	461	0.000	-0.000	0.000	-0.000	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Offensive * Goals	214	-0.000	0.000	-0.000	0.000	0.000	-0.000	-0.001
		(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Obs.		756	756	756	756	756	756	756
R^2		0.026	0.022	0.028	0.029	0.025	0.025	0.025
Adj R^2		0.006	0.003	0.008	0.010	0.005	0.005	0.006
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 17 presents the regression results for acquisitions. The interaction term is statistically significant at the 5% level in the event window [-20, 20]. The coefficient magnitude is small, and the interaction term lacks statistical significance in all other event windows. Additionally, the direction of the coefficients is inconsistent across event windows, undermining the argument for a systematic effect. Table 18 reports the regression outputs for sales. The interaction term is insignificant at the 10% level across all event windows.

There is no do not provide meaningful support for H4. The joint effect of a player being an attacker and having scored international goals does not significantly influence stock market reactions, neither for acquisitions nor for sales. As said earlier, investors likely have other performance indicators.

5.3 Transfer-specific effects

This section analyses the impact of transfer-specific characteristics on CARs, evaluating the corresponding hypotheses. The objective is to assess whether certain transfer types systematically influence investor reactions.

5.3.1 Market value effects

H5 of this study examines whether the market value of a transferred player affects investors' perceptions following a transfer announcement. The assumption is that high-value players attract greater media attention. To test this, a dummy variable is created that equals one if a player is valued at €18 million or more, and zero otherwise.

> *H5: The sale (acquisition) of a player with a market value above €18 million leads to a more negative (more positive) stock market reaction.*

Table 19: OLS regression results on the effect of market value above €18 million on the CARs after acquisitions

*This table presents the results of OLS regressions examining the effect of market value above €18 million on CARs following an acquisition. The dependent variable is the CAR across different windows. The independent variable is the dummy "Markethigher18 ", which equals one if a player is valued at €18 million or more, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates the number of observations for each variable. Country and season fixed effects are included. The robust standard errors are reported in parentheses within the regression results. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisition	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.031	-0.053	-0.043	-0.031	0.004	-0.030	-0.035
		(0.038)	(0.039)	(0.043)	(0.061)	(0.079)	(0.127)	(0.155)
Markethigher18	145	-0.002	-0.000	-0.001	0.000	0.008	0.003	0.018
		(0.004)	(0.004)	(0.005)	(0.006)	(0.008)	(0.010)	(0.014)
Obs.		1524	1524	1524	1524	1524	1524	1524
R^2		0.011	0.019	0.017	0.008	0.014	0.029	0.047
Adj R^2		-0.006	0.001	-0.001	-0.010	-0.004	0.012	0.030
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season Fe		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 20: OLS regression results on the effect of market value above €18 million on the CARs after sales

*This table presents the results of OLS regressions examining the effect of market value above €18 million on CARs following a sale. The dependent variable is the CAR across different windows. The independent variable is the dummy "Markethigher18 ", which equals one if a player is valued at €18 million or more, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates the number of observations for each variable. Country and season fixed effects are included. The robust standard errors are reported in parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.015	-0.038	-0.018	-0.011	0.146	0.094	0.062
		(0.045)	(0.045)	(0.054)	(0.072)	(0.094)	(0.132)	(0.168)
Markethigher18	169	0.001	0.004	0.003	0.008	0.001	-0.011	-0.000
		(0.003)	(0.003)	(0.004)	(0.005)	(0.005)	(0.007)	(0.012)
Obs.		1272	1272	1272	1272	1272	1272	1272
R^2		0.027	0.015	0.024	0.027	0.035	0.036	0.029
Adj R^2		0.006	-0.007	0.002	0.006	0.014	0.015	0.008
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

The regression results in Tables 19 and 20 do not support H5. Since the coefficients for *Markethigher18* are insignificant across all event windows for both acquisitions and sales. For acquisitions, in the event windows [-1, 0], [0, 1], and [-1, 1], is the coefficient of the dummy negative, which is contrary to H5. In the longer event windows [-3, 3], [-5, 5], [-10, 10], and [-20, 20], the coefficients are positive, which is in line with H5, but the estimates remain insignificant. These mixed signs, combined with the lack of significance, indicate that no consistent relationship exists between the acquisition of a high-valued player and stock market responses.

Notably for the transfer type sales, there are positive coefficients for all event windows, except for the event windows [-10, 10] and [-20, 20], where the coefficient is negative. The positive coefficients may reflect the need for clubs to comply with the FSR constraints. In such cases, the investors may interpret the sale of a high-valued player as a timely step to comply with the rules, indicating financial discipline and responsible management. In the end, no results are found to reject the null hypothesis. As such, player transfers involving a market value above €18 million do not appear to trigger investor reactions. It should be noted, however, that such high-value transfers are more common among larger clubs than smaller ones and should therefore be interpreted with caution.

5.3.2 Effect of market value exceeding transfer fee

H6 investigates whether investor perception differs when a player is transferred for less than their market value. A dummy variable, *MarketHigherFee*, is used with the value one if the market value exceeds the transfer value, and zero otherwise.

> *H6: The sale (acquisition) of a player when the market value exceeds the transfer fee leads to a more negative (more positive) reaction.*

Table 21: OLS regression results on the effect of a market value exceeding the transfer fee on the CARs after acquisitions

*This table presents the results of OLS regressions examining the effect of a market value higher than the transfer fee on CARs following an acquisition. The dependent variable is the CAR across different windows. The independent variable is the dummy "MarketHigherFee", which equals one if the market value exceeds the transfer value, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates the number of observations for each variable. Country and season fixed effects are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisition	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.032	-0.055	-0.044	-0.035	-0.005	-0.040	-0.067
		(0.037)	(0.039)	(0.043)	(0.061)	(0.080)	(0.126)	(0.154)
MarketHigherFee	745	0.002	0.002	0.002	0.004	0.005	0.008	**0.022*****
		(0.002)	(0.002)	(0.003)	(0.004)	(0.004)	(0.006)	**(0.008)**
Obs.		1524	1524	1524	1524	1524	1524	1524
R^2		0.012	0.020	0.017	0.008	0.014	0.031	0.051
Adj R^2		-0.006	0.002	-0.001	-0.009	-0.004	0.013	0.034
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season Fe		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 22: OLS regression results on the effect of a market value exceeding the transfer fee on the CARs after sales

*This table presents the results of OLS regressions examining the effect a market value higher than transfer fee on CARs following an sales. The dependent variable is the CAR across different windows. The independent variable is the dummy "MarketHigherFee", which equals one if the market value exceeds the transfer value, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates the number of observations for each variable. Country and season fixed effects are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.021	-0.041	-0.028	-0.026	0.130	0.091	0.050
		(0.045)	(0.045)	(0.053)	(0.072)	(0.093)	(0.132)	(0.169)
MarketHigherFee	700	0.003	0.001	**0.004***	**0.006***	**0.009****	0.004	0.006
		(0.002)	(0.002)	**(0.003)**	**(0.003)**	**(0.004)**	(0.006)	(0.008)
Obs.		1272	1272	1272	1272	1272	1272	1272
R^2		0.029	0.014	0.025	0.028	0.038	0.035	0.030
Adj R^2		0.008	-0.008	0.004	0.007	0.017	0.014	0.009
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

In case of acquisitions, see Table 21, the dummy variable shows positive coefficients across all event windows. Although most results are statistically insignificant, the coefficient becomes significant at the 1% level in the [-20, 20] window. The positive coefficients suggest that purchasing a player for less than their market value may be perceived positively by investors, particularly in the longer-term horizon. These transfers could signal financial prudence or value creation, aligning with the expectations of H6.

In Table 22, the results for sales are presented. The coefficients on *MarketHigherFee* are consistently positive across all event windows, contrary to H6, which predicted a negative market reaction for selling under market value. Statistically significant results are observed at the 10% level for the event windows [-1, 1] and [-3, 3], and significant at the 5% level for the event window [-5, 5]. The findings suggest that the market may not penalize clubs for such sales. One possible interpretation is that sales with a fee below market value are seen as strategic, due to aiming at reducing salary bills.

The regression results show a generally positive market reaction for both transfer types. However, due to the predominance of statistically insignificant results, the null hypothesis cannot be rejected. While some evidence supports the idea that investors react positively to underpriced acquisitions or sales, the results are not consistent enough to draw definitive conclusions.

5.4 Effects of COVID-19

During the COVID-19 pandemic, football clubs faced an unexpected suspension of competition in a heightened degree of uncertainty. Clubs struggled with their overall financial health due to the lack of revenue. In this context, transfer announcements made during the pandemic may have been interpreted differently by investors than under normal market conditions, as financial risk and liquidity concerns became more prominent.

This section investigates whether stock market reactions to transfer announcements differed between the COVID-19 and post-COVID-19 periods. Subsection 5.4.1 examines the general differences in market responses across these two phases. Subsection 5.4.2 explores whether the impact of offensive player transfers varied between the pandemic and the subsequent recovery period. Finally, Subsection 5.4.3 evaluates whether high-value transfers trigger stronger investor responses during the pandemic compared to the post-pandemic era. Only transfers occurring during and after the COVID-19 crisis are included in this analysis.

5.4.1 General effect of COVID-19

H7 is stated below. To test this hypothesis, dummy variables are created that are used across multiple subsections. First, *CovidDum* has the value one if the transfer occurred during the COVID-19 period, and zero otherwise. Second, *PostCovidDum* has the value one if the transfer occurred after the COVID-19 period and zero otherwise.

> *H7: The sale (acquisitions) of a player during the COVID-19 pandemic leads to a positive (negative) stock market reaction.*

Table 23: OLS Regression Results on the Effect of the COVID-19 Period on CARs Following Acquisitions

*This table presents the results of OLS regressions examining the effect of the COVID-19 Period on CARs following an acquisition. The dependent variable is the CAR across different windows. The independent variable is the dummy "CovidDum", which equals one if the transfer occurred during the COVID-19 period, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates the number of observations for each variable. Country fixed effects are included, and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisition	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		0.192**	**0.199****	**0.205****	0.161	0.086	0.107	**-0.628***
		(0.078)	**(0.083)**	**(0.095)**	(0.131)	(0.165)	(0.235)	**(0.331)**
CovidDum	168	-0.007*	**-0.006***	-0.006	-0.005	-0.004	-0.007	-0.010
		(0.004)	**(0.004)**	(0.005)	(0.006)	(0.008)	(0.011)	(0.014)
Obs.		519	519	519	519	519	519	519
R^2		0.024	0.036	0.026	0.013	0.009	0.018	0.052
Adj R^2		-0.002	0.012	0.001	-0.013	-0.017	-0.007	0.027
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season Fe		No	No	No	No	No	No	No

Table 24: OLS Regression Results on the Effect of the COVID-19 Period on CARs Following Sales

*This table presents the results of OLS regressions examining the effect of the COVID-19 Period on CARs following sales. The dependent variable is the CAR across different windows. The independent variable is the dummy "CovidDum", which equals one if the transfer occurred during the COVID-19 period, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates the number of observations for each variable. Country fixed effects are included, and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.012	-0.062	0.014	0.034	0.082	0.203	-0.283
		(0.091)	(0.097)	(0.110)	(0.143)	(0.193)	(0.234)	(0.319)
CovidDum	125	-0.012***	-0.005	**-0.010****	**-0.016*****	**-0.018****	-0.008	0.004
		(0.004)	(0.004)	**(0.005)**	**(0.006)**	**(0.008)**	(0.010)	(0.013)
Obs.		428	428	428	428	428	428	428
R^2		0.033	0.025	0.033	0.033	0.021	0.028	0.049
Adj R^2		0.003	-0.006	0.003	0.002	-0.010	-0.002	0.019
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

Table 23 reports the results for acquisitions. Consistent with the hypothesis, the coefficients on *CovidDum* are negative across all event windows. The only statistically significant results are found in the [0, 1] window, at the 10% level, where a 0.6% decline in CAR is observed when a player is acquired. While the effect is modest, it suggests a short-term negative investors' perception. Positive CARs were expected for sales, as financially distressed clubs would be

expected to limit unnecessary spending. However, Table 24 shows that the Covid dummy also carries negative coefficients for most windows, with significant results in the event windows [−1,1], [−3,3], and [−5,5]. For instance, the event window [-3, 3], shows a decline of 1.6% in return, significant at the 1% level. Indicating that sales were not viewed positively by investors, possibly due to the signal of financial distress or weakened club's competitive strength.

The findings contrast with H7 but consistent with a risk-averse investor sentiment, as described by Schreiber & Schiereck (2025), who observed a sharp market decline following the initial . Another possible explanation is the suspended competition, whereby the transfer spending may have been seen as a waste of expenditures. While some statistically significant short-term negative reactions to transfers during the pandemic are identified, the overall results lack the consistency or strength required to reject the null hypothesis of H7.

5.4.2 Interaction effect: COVID-19 and offensive player

The regression results in Tables 25 and 26 show that the interaction term between offensive players and the COVID-19 period is consistently positive across all event windows, while at the same time, the standalone coefficient for *CovidDum* and *Offensive* remains slightly negative. This pattern suggests that investors react slightly more positively to acquisitions or sales of an offensive player. However, the interaction effect fails to reach statistical significance in any event window. Therefore, we conclude that investors did not differentiate between offensive and non-offensive players when transfers occurred during the pandemic. As there is no evidence to reject the null hypothesis of H8

> *H8: The sale (acquisition) of an offensive player during the COVID-19 pandemic leads to a positive (negative) stock market reaction.*

Table 25: OLS Regression Results on the interaction effect of COVID-19 Period and offensive players on CARs following acquisitions

*This table presents the results of OLS regressions examining the effect of COVID and offensive players on CARs following acquisitions. The dependent variable is the CAR, calculated across seven event windows. The independent variables are (1) Offensive, a dummy equal to one if the player is an attacker and zero otherwise, (2) "CovidDum", which equals one if the transfer occurred during the COVID-19 period, and zero otherwise, and (3) Offensive * CovidDum, an interaction term. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included, and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisitions	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		0.192**	**0.198****	**0.205****	0.166	0.104	0.113	**-0.641***
		(0.077)	**(0.082)**	**(0.094)**	(0.131)	(0.164)	(0.236)	**(0.329)**
Offensive	149	-0.001	-0.003	-0.003	0.002	0.003	0.000	-0.009
		(0.005)	(0.005)	(0.005)	(0.007)	(0.008)	(0.011)	(0.016)
CovidDum	168	-0.009*	**-0.010****	**-0.009***	-0.006	-0.011	-0.010	-0.014
		(0.005)	**(0.005)**	**(0.006)**	(0.008)	(0.010)	(0.015)	(0.018)
Offensive * CovidDum	48	0.005	0.013	0.011	0.005	0.021	0.011	0.016
		(0.008)	(0.009)	(0.010)	(0.014)	(0.016)	(0.024)	(0.032)
Obs.		519	519	519	519	519	519	519
R^2		0.024	0.041	0.028	0.013	0.015	0.019	0.052
Adj R^2		-0.005	0.012	-0.001	-0.016	-0.014	-0.010	0.024
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

Table 26: OLS Regression Results on the interaction effect of COVID-19 Period and offensive players on CARs following sales

*This table presents the results of OLS regressions examining the effect of COVID and offensive players on CARs following sales. The dependent variable is the CAR, calculated across seven event windows. The independent variables are (1) Offensive, a dummy equal to one if the player is an attacker and zero otherwise, (2) "CovidDum", which equals one if the transfer occurred during the COVID-19 period, and zero otherwise, and (3) Offensive * CovidDum, an interaction term. The Obs. column indicates the number of observations for each variable. Country fixed effects are included, and season fixed effects are excluded. Control variables include Log(Revenue), Log(Assets), and ROA. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.018	-0.080	-0.007	0.032	0.047	0.191	-0.289
		(0.092)	(0.096)	(0.109)	(0.143)	(0.192)	(0.233)	(0.315)
Offensive	138	-0.002	-0.005	-0.006	-0.001	-0.011	-0.004	-0.003
		(0.004)	(0.005)	(0.005)	(0.006)	(0.008)	(0.010)	(0.013)
CovidDum	125	-0.013**	-0.006	-0.009	**-0.018****	**-0.025****	-0.015	-0.006
		(0.005)	(0.005)	(0.006)	**(0.007)**	**(0.010)**	(0.012)	(0.016)
Offensive * CovidDum	47	0.004	0.003	0.001	0.007	0.024	0.021	0.029
		(0.010)	(0.010)	(0.011)	(0.013)	(0.019)	(0.021)	(0.027)
Obs.		428	428	428	428	428	428	428
R^2		0.034	0.028	0.037	0.034	0.026	0.031	0.053
Adj R^2		-0.002	-0.007	0.002	-0.001	-0.009	-0.004	0.019
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

5.4.3 Effects of high-value transfers

Some transfer announcements are classified as "high-value transfers", defined in this study as those involving players with a market value above €18 million. These transfers often attract greater media attention, increasing their salience to investors. To test this, the variable *Markethigher18* is used. This section tests whether investors responded differently to such transfers in the post-COVID-19 period compared to the pandemic period.

> *H9: In the post-COVID-19 period, the sale (acquisition) of a high-value player leads to a more positive (more negative) stock market reaction compared to during the COVID-19 period.*

Table 27: OLS regression results on the interaction between the COVID-19 period and high-value transfers on CARs following acquisitions

*This table presents the results of OLS regressions examining the effect of COVID and top transfers on CARs following acquisitions. The dependent variable is the CAR, calculated across seven event windows. The independent variables are (1) Markethigher18 ", which equals one if a player is valued at €18 million or more, and zero otherwise, (2) "CovidDum", which equals one if the transfer occurred during the COVID-19 period, and zero otherwise, and (3) "Markethigher18 * CovidDum" an interaction term. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included, and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisitions	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		**0.181****	**0.175****	**0.174***	0.127	0.088	0.119	-0.590*
		(0.080)	**(0.084)**	**(0.096)**	(0.135)	(0.170)	(0.238)	(0.335)
Markethigher18	73	0.003	0.006	0.007	**0.020***	**0.035****	**0.032***	**0.043***
		(0.006)	(0.008)	(0.008)	**(0.012)**	**(0.015)**	**(0.017)**	**(0.022)**
CovidDum	168	-0.006	-0.003	-0.003	0.002	0.002	-0.002	-0.005
		(0.004)	(0.004)	(0.005)	(0.007)	(0.008)	(0.012)	(0.015)
Markethigher18 * CovidDum	20	-0.010	**-0.022***	**-0.026***	**-0.046****	**-0.047****	-0.036	-0.036
		(0.010)	**(0.012)**	**(0.014)**	**(0.020)**	**(0.023)**	(0.034)	(0.042)
Obs.		519	519	519	519	519	519	519
R^2		0.025	0.043	0.033	0.026	0.025	0.025	0.058
Adj R^2		-0.004	0.015	0.004	-0.003	-0.004	-0.005	0.030
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

Table 28: OLS regression results on the interaction between the COVID-19 period and high-value transfers on CARs following acquisitions

*This table presents the results of OLS regressions examining the effect of COVID and top transfers on CARs following sales. The dependent variable is the CAR, calculated across seven event windows. The independent variables are (1) Markethigher18 ", which equals one if a player is valued at €18 million or more, and zero otherwise, (2) "CovidDum", which equals one if the transfer occurred during the COVID-19 period, and zero otherwise, and (3) "Markethigher18 * CovidDum" an interaction term. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included, and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.022	-0.070	0.012	0.043	0.121	0.239	-0.262
		(0.091)	(0.096)	(0.110)	(0.145)	(0.197)	(0.234)	(0.326)
Markethigher18	70	0.003	0.004	0.000	-0.005	**-0.018****	**-0.029****	**-0.030***
		(0.005)	(0.006)	(0.006)	(0.007)	**(0.008)**	**(0.012)**	**(0.016)**
CovidDum	125	**-0.010****	-0.004	**-0.009***	**-0.018*****	**-0.025*****	-0.017	-0.003
		(0.005)	(0.005)	**(0.005)**	**(0.006)**	**(0.009)**	(0.011)	(0.015)
Markethigher18 * CovidDum	19	-0.009	-0.009	-0.002	0.010	**0.042****	**0.049****	0.041
		(0.009)	(0.010)	(0.011)	(0.017)	**(0.018)**	**(0.020)**	(0.025)
Obs.		428	428	428	428	428	428	428
R^2		0.035	0.027	0.033	0.034	0.031	0.040	0.056
Adj R^2		-0.001	-0.009	-0.002	-0.001	-0.004	0.006	0.022
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

Table 27 shows the regression results for acquisitions. The coefficient on *MarketHigher18* on the CARs is positive across all event windows, with statistical significance at the 10% level in the event windows [-3, 3], [-5, 5], [-10, 10], and [-20,20]. These findings indicate that acquisitions with high-value players elicit positive investor responses, particularly in the longer event windows. In contrast, the interaction term *Markethigher18 * CovidDum* is negative across all event windows. Where the event windows [0, 1] and [-1, 1] are significant at the 10% level, and the event windows [-3, 3] and [-5, 5] at the 5% level. For instance, in the event window [-3, 3], the coefficients reach -0,046, implying a reduction of investors' wealth by 4.6%. This suggests that high-value acquisitions were positively received in the post-pandemic period, whereas similar spending during the pandemic was perceived as financially imprudent or excessively risky.

The results for sales are presented in Table 28. The dummy variable, *Markethigher18,* has a significant effect on the CAR in the event window [-5, 5] and [-10, 10], at the 5% level. The event window [-20, 20] is significant at the 10% level. There is some support that the sale of

high-value players triggers a market reaction. Nevertheless, the interaction term shows a negative coefficient on the short-term, but becomes positive on the longer event windows. With becoming significant at the 5% level in the windows [-5, 5] and [-10, 10], which suggest that the sales of a high-valued player is perceived positively by the stock market. Possibly due to the financial distress clubs had during the COVID-19 period. The incoming transaction provided relief to the club's financial problems.

The findings for acquisitions support H9. Investors reacted more positively to transfers with a high market value after COVID-19 than during the pandemic. It is possible that such acquisitions were interpreted post-pandemic as signals of financial strength and strategic ambition. Conversely, during the pandemic, such acquisitions may have been viewed as financially irresponsible or risky due to prevailing uncertainty and constrained revenues. No consistent evidence was found to support H9 for sales. While some indications of selling high-value players during the pandemic were perceived positively, possibly as a means of financial stabilization. However, there is a lack of statistical significance.

It is important to note that the interaction term is based on a relatively small number of observations, limiting statistical power. Nonetheless, the results underscore the importance of macroeconomic context: similar transfer activities may be interpreted very differently depending on whether they occur during a crisis or a recovery phase.

5.5 Manager-specific effects

5.5.1 General effect of managerial changes

To evaluate H10, the general impact of managerial changes on the stock prices is examined. While Boido et al. (2023) found no significant effect on shareholder wealth following managerial turnover, they described this as surprising given the high visibility. Because managerial changes often receive substantial media coverage, they are expected to be salient to investors. Therefore, this study re-examines the managerial changes. To analyze the effect of managerial changes, the CAAR is reported across seven event windows. The hypothesis assumes a negative investor reaction, based on the idea that managerial changes may signal internal instability or recent underperformance.

H10: A managerial change leads to a negative stock market reaction

Table 29: CAARs for managerial changes across different event windows

*The table presents the CAARs for managerial changes across seven different event windows. The number of observations is listed under "Obs.". Standard errors are reported in parentheses, and the Crude Dependence Adjustment (CDA) is applied to correct for potential event clustering. Significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Event type	Obs.	CAAR [-1, 0]	CAAR [0, 1]	CAAR [-1, 1]	CAAR [-3, 3]	CAAR [-5, 5]	CAAR [-10, 10]	CAAR [-20, 20]
Managerial change	231	0.0034	0.0067	0.0047	-0.0064	-0.0043	-0.0021	-0.0058
		(0.45)	(1.58)	(0.71)	(0.63)	(-0.41)	(0.16)	(-0.33)

Table 29 shows the CAARs for 231 managerial changes. None of the event windows presents statistically significant abnormal returns. While the event windows [-1, 0], [0, 1], and [-1, 1] exhibit small positive CAARs, the remaining longer-term windows show slightly negative CAARs. The lack of significance across all windows suggests that investors do not react to general managerial changes.

These results are consistent with previous studies of Fotaki et al. (2009) and Boido et al. (2023), who found no significant stock price response to managerial changes. The findings support the idea that managerial changes are often seen as symbolic, "scapegoating", rather than a signal of improved competitive performance. As Boido et al. (2023) argue, investors may prioritize the financial performance of a club rather than personnel decisions. Given the absence of significant abnormal returns across all event windows, the null hypothesis cannot be rejected. The results suggest that managerial changes do not elicit a measurable response from investors.

5.5.2 Departure type effects

To evaluate H11, this section differentiates between dismissals and voluntary departures of managers. The key independent variable is the dummy, *FiredDum,* which equals one if the managerial change was a dismissal, and zero otherwise. This approach enables to examine whether the nature of the departure influences investor sentiment and how the stock market interprets the underlying signal of the change.

H11: The voluntary departure of a football club's manager leads to a more negative stock market reaction than a dismissal.

Table 30: OLS regression results on the effects of departure type on CARs

*This table presents the results of OLS regressions examining the effect of managerial dismisses on CARs across seven event windows. The dependent variable is the CAR across different windows. The independent variable is the dummy "FiredDum", which equals one if the managerial change was a dismissal, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates how many times the dummy variable is one in the dataset for acquisitions. Country and season fixed effects are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Managerial change	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		0.090	0.015	0.015	0.117	-0.037	0.253	**0.757****
		(0.078)	(0.081)	(0.089)	(0.123)	(0.154)	(0.187)	**(0.383)**
FiredDum	123	0.002	**0.017****	0.008	0.005	0.014	0.016	-0.007
		(0.008)	**(0.007)**	(0.009)	(0.010)	(0.011)	(0.016)	(0.024)
Obs.		231	231	231	231	231	231	231
R^2		0.173	0.225	0.182	0.220	0.210	0.234	0.139
Adj R^2		-0.023	0.042	-0.012	0.035	0.023	0.052	-0.065
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 30 presents the regression results across seven event windows. The coefficient for the dummy variable is positive around all event windows. The effect is only statistically significant in the event window [0, 1] at the 5% level, indicating that managerial dismissals are associated with a 1.7% increase in shareholder value in the immediate aftermath of the announcement. This short-term response may reflect investor relief, especially when dismissals are perceived as necessary steps to address. The positive and insignificant coefficients in the other event windows suggest that the initial optimism does not translate into sustained abnormal returns. This may indicate that, rather than imprinting the sacking as "scapegoating", investors view it as an action to improve performance. However, the lack of significance in the longer event windows suggests that this optimism is short-lived, possibly due to the uncertainty that managerial changes bring.

The results provide limited support for H11. While dismissals appear to generate a short-term positive investor response, this effect does not persist across the longer event windows. Therefore, there is no sustained impact across the event windows.

5.5.3 Manager performance relative to club average effects

This section investigates whether investor responses to managerial changes depend on the outgoing manager's relative performance. Namely, one would anticipate that replacing a well-performing manager would be seen as a negative signal to investors, while replacing an underperforming manager would be seen as a positive signal to investors.

> *H12: The departure of a manager with above-average club performance leads to a more negative stock market reaction than a below-average club performance.*

To test H12, an initial regression was performed, using the manager's points per game (PPG) before the departure. PPG is assumed to be a salient and objective measure for the performance of managers. However, as shown in Appendix A, this approach yielded no statistically significant findings. The coefficient where positive across the windows, except the event windows [-1, 0] and [-20, 20]. A likely explanation for the insignificant findings is that PPG is not comparable across clubs with different levels of competitiveness. For example, while S.L. Benfica has an average points per game of 2.14, Silkeborg IF averages just 1.31. A manager achieving 1.6 PPG would be considered underperforming at Benfica but overperforming at Silkeborg. This performance asymmetry across clubs may obscure any general relationship between managerial performance and investor response. To account for this, a dummy variable, *AboveAvgPerf,* was created. It equals one if the manager's PPG exceeded the club's average performance, and zero otherwise.

The results of this regression are shown in Table 31. Across the event windows, the coefficient is positive, except for the event window [-20, 20], which is negative. Although the coefficient is statistically never different from zero. These results indicate that investors do not differentiate in their perception of managerial changes based on whether the outgoing manager's performance was above or below the club's historical average. One potential reason for the lack of significance can be the media exposure and rumors that are connected, making the managerial change salient, which may lead to a price in the information before the announcement. The findings do not provide evidence to support H12, and the null hypothesis cannot be rejected.

Table 31: OLS regression results on the effects of managerial performance on CARs

*This table presents the results of OLS regressions examining the effect of managerial dismisses on CARs across seven event windows. The dependent variable is the CAR across different windows. The independent variable is the dummy "AboveAvgPerf", which equals one if the manager's PPG exceeded the club's average performance, and zero otherwise. Control variables include Log(Revenue), Log(Assets), and ROA. The Obs. column indicates how many times the dummy variable is one in the dataset for acquisitions. Country and season fixed effects are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Managerial change	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		0.084	-0.046	-0.009	0.091	-0.095	0.183	**0.792****
		(0.066)	(0.082)	(0.081)	(0.115)	(0.148)	(0.177)	**(0.387)**
AboveAvgPerf	136	0.001	0.012	0.003	0.008	0.014	0.018	-0.011
		(0.009)	(0.008)	(0.010)	(0.011)	(0.011)	(0.015)	(0.025)
Obs.		231	231	231	231	231	231	231
R^2		0.173	0.213	0.178	0.221	0.209	0.234	0.139
Adj R^2		0.084	0.026	-0.017	0.037	0.022	0.053	-0.064
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

5.6 Combined effects

This section examines the combined effects of the different independent variables for transfers to the CARs. The sample is split into the pandemic and post-pandemic periods, allowing for an assessment of how the impact of the player and transfer characteristics changed over the macroeconomic periods. Only transfers that took place during or after the COVID-19 pandemic. As well, only players who have participated in one or more international matches are considered.

To verify that there is no correlation between the independent variables, a correlation matrix is created. In Table 32 for acquisitions and Table 33 for sales can be concluded that there is no correlation among the variables.

Table 32: Correlation matrix of independent variables for sales

The correlation matrix displays the correlations among all independent variables used in the analysis for player acquisition.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Offensive	1.000					
(2) CapsGoals	0.24	1.000				
(3) MarketHigher18	0.04	0.22	1.000			
(4) MarketHigherFee	0.00	0.10	0.06	1.000		
(5) CovidDum	-0.02	-0.02	0.03	0.00	1.000	

Table 33: Correlation matrix of independent variables for sales

The correlation matrix displays the correlations among all independent variables used in the analysis for player sales.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Offensive	1.000					
(2) CapsGoals	0.22	1.000				
(3) MarketHigher18	0.00	0.23	1.000			
(4) MarketHigherFee	-0.04	0.04	-0.07	1.000		
(5) CovidDum	0.02	0.01	0.02	0.00	1.000	

The analysis first focuses on the regression results for the COVID-19 period, as presented in Appendix B. Table B1 reports the results for acquisitions. None of the variables are statistically significant, and the adjusted R^2 is negative across all event windows, indicating limited explanatory power. As a result, no meaningful conclusions can be drawn from these findings. For sales, Table B2 shows slightly improved model performance. The adjusted R^2 is negative only in the [–1, 0] and [0, 1] windows, suggesting a marginally better fit. However, the regression results do not offer any new insights beyond those already discussed in earlier sections.

The regression results for the post-COVID-19 period are reported in Tables 34 and 35. The explanatory power of the models improves significantly compared to the COVID-19 period, with the highest adjusted R^2 values reached in the [-20, 20] window, 11.4% for acquisitions and 11.9% for sales. This means that the models explain 11.4% and 11.9% of the variation in stock prices. Among the acquisition variables, *MarketHigher18* is statistically significant only in the event window [-10, 10] at the significance level of 10%. However, this isolated result does not provide sufficient evidence to reject the null hypothesis of H5 in the post-COVID context. For sales, the independent variables *CapsGoals and MarketHigher18* show statistically significant coefficients. Nonetheless, this is consistent with earlier findings and does not offer new insight. No additional hypotheses can be confirmed or rejected based on the post-COVID-19 combined model for sales

Table 34: OLS regression results on the combined effects of independent variables following acquisitions (post-COVID-19)

*This table presents OLS regression results for the effect of multiple transfer and player characteristics on cumulative abnormal returns (CARs) following player acquisitions during the post-COVID-19 period. The dependent variable is the CAR over seven event windows. The independent variables are Offensive, CapsGoals, Offensive * Goals, MarketHigher18, and MarketHigherFee. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included, and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisitions	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		0.316	0.212	0.171	0.179	0.476	0.624	0.496
		(0.209)	(0.191)	(0.237)	(0.332)	(0.434)	(0.520)	(0.659)
Offensive	35	-0.006	-0.004	-0.004	0.026	0.027	0.022	-0.010
		(0.009)	(0.010)	(0.010)	(0.017)	(0.020)	(0.025)	(0.034)
CapsGoals	62	-0.000	0.002	0.002	0.005	0.004	0.001	-0.001
		(0.001)	(0.002)	(0.002)	(0.004)	(0.005)	(0.005)	(0.004)
Offensive * CapsGoals	28	0.000	-0.002	-0.002	**-0.007***	-0.007	-0.006	-0.003
		(0.002)	(0.002)	(0.002)	**(0.004)**	(0.005)	(0.005)	(0.005)
MarketHigher18	29	0.005	0.012	0.009	0.023	**0.054***	**0.053****	0.020
		(0.009)	(0.013)	(0.013)	(0.022)	**(0.032)**	**(0.027)**	(0.028)
MarketHigherFee	83	-0.008	-0.004	-0.008	-0.014	**-0.021***	-0.019	0.016
		(0.008)	(0.007)	(0.009)	(0.011)	**(0.012)**	(0.017)	(0.025)
Obs.		117	117	117	117	117	117	117
R^2		0.096	0.135	0.129	0.157	0.170	0.171	0.244
Adj R^2		-0.059	-0.014	-0.020	0.012	0.028	0.028	0.114
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

Table 35: OLS regression results on the combined effects of independent variables following sales (post-COVID-19)

*This table presents OLS regression results for the effect of multiple transfer and player characteristics on cumulative abnormal returns (CARs) following player sales during the post-COVID-19 period. The dependent variable is the CAR over seven event windows. The independent variables are Offensive, CapsGoals, Offensive * Goals, MarketHigher18, and MarketHigherFee. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included, and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.113	-0.256	-0.122	0.019	0.289	**1.026****	-0.070
		(0.181)	(0.188)	(0.215)	(0.370)	(0.402)	**(0.500)**	(0.586)
Offensive	39	0.001	0.003	0.003	0.003	-0.002	-0.008	0.001
		(0.008)	(0.012)	(0.012)	(0.013)	(0.012)	(0.017)	(0.017)
Goals	71	0.000	0.001	0.001	-0.001	-0.003	**-0.008***	-0.003
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	**(0.004)**	(0.004)
Offensive * CapsGoals	31	-0.001	-0.001	-0.002	0.001	0.002	0.007	0.005
		(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)
MarketHigher18	37	0.008	0.007	0.008	-0.005	-0.012	**-0.023***	-0.013
		(0.007)	(0.007)	(0.008)	(0.010)	(0.010)	**(0.013)**	(0.017)
MarketHigherFee	85	0.005	0.006	0.010	0.001	-0.007	-0.016	0.005
		(0.006)	(0.009)	(0.009)	(0.010)	(0.010)	(0.015)	(0.013)
Obs.		131	131	131	131	131	131	131
R^2		0.115	0.153	0.159	0.103	0.182	0.189	0.234
Adj R^2		-0.018	0.026	0.032	-0.032	0.059	0.067	0.119
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

5.7 Robust analysis

This section presents two robustness checks to assess whether some findings remain valid under different conditions. First, the regression models from section 5.6 are re-estimated, this time excluding the COVID-19 period due to its previously observed limited explanatory power. In addition, country fixed effects are replaced with club fixed effects to better account for unobserved heterogeneity at the club level.

5.7.1 Model without COVID-19

The regression results excluding the COVID-19 period are presented in Appendix C. For acquisitions, the findings are shown in Table C1. The variable *Offensive* exhibits three statistically significant event windows, one more than the earlier findings presented in Subsection 5.2.1. However, there is still insufficient evidence to support H3 in the context of acquisitions. Table C2 shows the results for sales. The variable has statistically significant negative coefficients in the short-term event windows [0,1], [-1,1], [-3,3], and [-5,5]. These results further support the earlier conclusion that investors tend to respond more negatively to transfers involving offensive players, particularly in the context of player sales. Beyond this, the regression models do not reveal any additional noteworthy findings.

5.7.2 Analysis by country level of the listed club

The second robustness check evaluates whether the general effect of transfers on the CAARs depends on where the listed football club is based. This complements the general findings of Section 5.1, which showed that acquisitions and sales tend to elicit positive abnormal returns. By splitting the dataset by country of the listed club, the analysis tests whether investors' responses are consistent across national stock markets.

Table 36 reports the CAARs for acquisitions. The results for Turkey, Italy, Denmark, France and Portugal align with Section 5.1, confirming that investors perceive acquisitions as positive. No statistically significant results are observed for Germany, England, and Sweden, likely due to the smaller sample sizes in the latter two countries, limiting statistical power. The most notable outlier is Scotland, where acquisitions exhibit negative and statistically significant CAARs across all event windows. The effect is significant at the 1% level in all windows except [-20, 20], which remains significant at the 5% level. Therefore is the event window [-1, 0] is insignificant. This suggests that acquisitions by Scottish clubs are viewed less favorably by investors. One possible explanation is myopic investors' behavior, where the long-term value is not properly accounted for, and short-term financial costs dominate market perceptions.

For sales, the results are presented in Table 37. Consistent with Section 5.1, the coefficients in statistically significant event windows are positive. However, while Section 5.1 found significance mainly in the longer event windows [-10, 10] and [-20, 20], Table 38 shows more significance in the short-term event windows [-1, 0], [0, 1], and [-1, 1]. This suggests that the stock market response to sales may be more immediate and therefore rapidly incorporated into share prices.

In conclusion, these robustness checks generally support the main findings of this study. The regression model, excluding the COVID-19 period and using club fixed effects, confirms the earlier evidence that investors react more negatively to transfers involving offensive players, particularly in the context of sales. The CAAR analysis at the club country-level confirms the general positive effect of acquisitions and sales. Notably, Scottish clubs consistently face negative market reactions to acquisitions, highlighting the importance of context and investor perception at the national level. For sales, the main findings remain robust, with the significance shifting toward short windows.

Table 36: CAAR by club country for acquisitions

*The table presents the CAARs for acquisitions, reported at the club country level. The number of observations is listed under "Obs.". Standard errors are reported in parentheses, and the Crude Dependence Adjustment (CDA) is applied to correct for potential event clustering. Significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Country	Obs.	CAAR [-1, 0]	CAAR [0, 1]	CAAR [-1, 1]	CAAR [-3, 3]	CAAR [-5, 5]	CAAR [-10, 10]	CAAR [-20, 20]
Turkey	408	0.0010	**0.0056*** **	0.0041	0.0046	0.0152	**0.0323*** **	**0.0553*** **
		(0.25)	**(11.29)**	(0.94)	(0.51)	(1.44)	**(2.86)**	**(3.46)**
Italy	315	0.0004	0.0008	-0.0003	0.0028	**0.0168** **	**0.0401*** **	**0.0513*** **
		(0.17)	(0.36)	(-0.12)	(0.82)	**(2.18)**	**(3.43)**	**(3.52)**
Portugal	308	**0.0019***	-0.0015	-0.0000	0.0047	**0.0139***	0.0161	0.0141
		(1.69)	(-0.67)	(-0.01)	(0.96)	**(1.70)**	(0.83)	(0.61)
Denmark	126	**0.0037*** **	**0.0043*** **	**0.0057*** **	0.0073	0.0081	0.0334	**0.0560** **
		(4.29)	**(12.74)**	**(7.50)**	(1.25)	(1.28)	(1.64)	**(2.15)**
Scotland	87	-0.0027	**-0.0044*** **	**-0.0049*** **	**-0.0079*** **	**-0.0135*** **	**-0.0187*** **	**-0.0229** **
		(-1.61)	**(-80.50)**	**(-2.93)**	**(-3.26)**	**(-4.33)**	**(-4.02)**	**(-2.44)**
Netherlands	73	0.0006	**0.0008***	0.0007	0.0001	-0.0053	-0.0034	-0.0015
		(0.72)	**(1.65)**	(1.06)	(0.02)	(-0.83)	(-0.44)	(-0.09)
Germany	71	0.0001	0.0048	0.0044	-0.0034	-0.0074	-0.0130	-0.0180
		(0.13)	(1.33)	(1.03)	(-0.56)	(-1.16)	(-1.38)	(-1.08)
France	66	0.0010	**0.0061** **	0.0053	0.0089	0.0174	0.0167	0.0011
		(0.39)	**(2.34)**	(1.20)	(0.89)	(1.54)	(1.03)	(0.05)
England	49	0.0012	0.0026	0.0010	0.0035	-0.0032	-0.0071	0.0007
		(0.28)	(0.83)	(0.25)	(0.70)	(-0.36)	(-0.43)	(0.03)
Sweden	21	0.0033	0.0102	0.0010	0.0055	0.0156	-0.0149	-0.0098
		(0.15)	(0.69)	(0.05)	(0.15)	(0.38)	(-0.25)	(-0.12)

Table 37: CAAR by club country for sales

*The table presents the CAARs for sales, reported at the club country level. The number of observations is listed under "Obs.". Standard errors are reported in parentheses, and the Crude Dependence Adjustment (CDA) is applied to correct for potential event clustering. Significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Country	**Obs.**	**CAAR [-1, 0]**	**CAAR [0, 1]**	**CAAR [-1, 1]**	**CAAR [-3, 3]**	**CAAR [-5, 5]**	**CAAR [-10, 10]**	**CAAR [-20, 20]**
Turkey	184	0.0043	0.0007	0.0007	0.0073	0.0147	0.0149	**0.0324***
		(1.01)	(0.08)	(0.10)	(0.99)	(1.40)	(1.04)	**(1.73)**
Italy	274	-0.000	0.0041	0.0017	0.0032	0.0009	0.0005	0.0169
		(-0.01)	(1.28)	(0.31)	(0.43)	(0.07)	(0.03)	(0.79)
Portugal	293	-0.0020	0.0041	0.0017	0.0032	0.0009	0.0005	0.0169
		(-0.69)	(1.28)	(0.31)	(0.43)	(0.07)	(0.03)	(0.79)
Denmark	122	**0.0109*****	**0.0037*****	**0.0036***	0.0047	0.0025	-0.0053	-0.0081
		(21.55)	**(3.37)**	**(1.70)**	(0.98)	(0.38)	(-0.59)	(-0.60)
Scotland	55	0.0001	-0.0004	0.0012	0.0076	0.0065	**0.0116***	0.0017
		(0.02)	(-0.15)	(0.41)	(1.47)	(1.06)	**(1.75)**	(0.14)
Netherlands	88	**0.0052****	**0.0026*****	**0.0061****	0.0029	0.0019	0.0035	0.0077
		(2.70)	**(3.52)**	**(2.58)**	(0.57)	(0.35)	(0.50)	(0.63)
Germany	79	0.0028	**0.0005***	0.0029	0.0006	0.0029	-0.0072	-0.0078
		(1.38)	**(1.86)**	(1.34)	(0.15)	(0.62)	(-0.97)	(-0.38)
France	91	0,23	**0.0037*****	**0.0036***	0.0047	0.0025	-0.0053	-0.0081
		(0.95)	**(3.37)**	**(1.70)**	(0.98)	(0.38)	(-0.59)	(-0.60)
England	48	0.0007	0.0006	0.0025	0.0025	-0.0014	0.0026	0.0195
		(0.23)	(0.19)	(0.81)	(0.42)	(-0.13)	(0.14)	(0.78)
Sweden	38	-0.0109	-0.0073	-0.0241	-0.0231	-0.0108	-0.0171	0.0263
		(-0.48)	(-0.38)	(1.14)	(-0.95)	(-0.41)	(-0.47)	(0.49)

6 Conclusion, limitations, and recommendations

This section provides an overview of the main findings of this study, followed by the limitations of this study and suggestions for future research.

6.1 Conclusion

The financial performance of listed football clubs is influenced by their sporting performance. Previous research showed that match performance affects the stock prices of listed football clubs, with wins leading to a positive and losses leading to a negative stock market reaction (Palomino et al., 2008; Renneboog and Vanbrabant, 2000). Given the importance of players in driving sporting success, researchers also investigated whether player transfers influence the stock prices, though findings have been mixed. For example, Fotaki et al. (2009, 2021) focused on UK-listed clubs and found that the market perceives sales positively and acquisitions negatively. While Boido et al. (2023) extended the analysis to ten European countries, but focused solely on acquisitions and explored the effect of the COVID-19 period. They found that acquisitions led to positive market reactions. This study builds upon and extends their work by including acquisitions, sales, and loan transfers for listed clubs in Europe, across the pre-, during, and post-COVID-19 periods. Regarding managerial changes, earlier studies reported no statistically significant effects (Fotaki et al., 2009; Boido et al., 2023). Therefore, in this study, the managerial changes are examined in more depth by considering performance and departure type.

The objective of this study was to assess whether player transfers and managerial changes influence the stock prices of 20 listed European football clubs. To address this, an event study was used to capture the market reaction to changes in human capital. The dataset consists of 3,445 transfers and 231 managerial changes spanning from the 2010/11 to 2024/25 seasons.

The results show that player acquisitions are followed by a positive stock market reaction, which is consistent with the findings of Boido et al. (2023). The CAARs across most event windows were positive and statistically significant, except for the event windows [-1, 0], [-1, 1] and [-3, 3], where the coefficient is insignificant but remains positive. From the event window [-5, 5], it can be concluded that acquisition, on average, leads to an increase of shareholders' wealth by 1.02%. For player sales, the findings were less conclusive: coefficients were mostly positive but statistically significant in only two event windows, consistent with Fotaki et al. (2009, 2021). The two significant event windows are insufficient to conclude that

sales trigger a positive investor reaction. The results suggest that acquisitions lead to a positive market reaction.

Loan transfers, both incoming and outgoing, were expected to be positively perceived by investors, as such deals are generally considered cost-effective ways to improve short-term sporting performance. This can send a positive signal to the market. The results support this expectation, showing statistically significant positive CAARs across several event windows for both types of loan transfers. For example, in the event window [-1, 1], incoming loans are associated with a 0.91% increase in shareholder value, while outgoing loans result in a 0.58% increase. This suggests that loan transfers are indeed followed by a positive stock market reaction.

Beyond analyzing the general effects of transfers, this study also sought to deepen the literature by examining several factors. First, player-specific characteristics were examined. For offensive players, it was expected that sales (acquisition) of an offensive player would lead to a more negative (more positive) stock market reaction. Based on the assumption that such players receive more media attention, which leads to more visibility. The sale of attacking players led to statistically significant market responses in multiple event windows, with a 0.8% decline in shareholder wealth in the event window [-3, 3]. Likely driven by the effect of the commercial value that offensive players have. However, the combined analysis showed no significant effect. However, robustness checks that excluded the COVID-19 period yielded significant results. For acquisitions, the results were less conclusive, with only two significant event windows. In the robustness analysis, more significant event windows appeared, but overall, the results were not enough to conclude that the acquisition of offensive players led to a market reaction. The results suggest that selling offensive players leads to a more negative market response than selling players in other positions.

Second, the joint effect of goals and offensive on the stock market reaction was investigated. It was expected that such transfers would lead to a stronger stock market reaction. However, the results showed hardly any evidence that high-scoring offensive players affect stock market reactions. A possible explanation is that investors may consider alternative performance indicators beyond just goal-scoring statistics when evaluating the impact of a transfer.

The analysis of transfer characteristics, such as high market value and transfer fee, seems to have limited explanatory power. For transfers involving a market value above €18 million, no statistically significant effects were found, suggesting that high market value does not drive

stock market reaction. When examining clubs that paid less than the player's market value, it was expected that sales would trigger a more negative reaction and acquisitions a more positive one. The results provide some support in the context of sales, with three significant event windows. For acquisitions, however, only one window showed a significant effect. Overall, the findings suggest that investors neither penalize clubs for selling players below market value nor reward them for acquiring players at a discount.

The COVID-19 pandemic impacted the club's financials and investor behavior. Sales were expected to generate positive stock market reactions, as clubs sought liquidity, while acquisitions were expected to provoke negative reactions due to financial uncertainty. Although the results suggest a more negative investor response for acquisitions and sales during the pandemic compared to the post-pandemic period, most event windows do not show statistically significant effects. The interaction between COVID-19 and offensive players was also examined, but yielded no significant results for either sales or acquisitions. This suggests that investors did not differentiate based on a player's position during the pandemic. However, one notable finding emerged in relation to high-value transfers. It was expected that such transfers would lead to a stronger stock market reaction. The findings show that after the pandemic, acquisitions are met with more positive reactions than similar deals during the pandemic. This indicates that the perception from a high-valued transfer shifted from caution to confidence, as financial conditions stabilized. For sales, no statistically significant effect is found.

Managerial changes were found to have no statistically significant impact on stock prices, consistent with the literature (Fotaki et al., 2009; Boido et al., 2023). This lack of market response persists even when controlling for the manager’s performance relative to club averages or whether the departure was voluntary or involuntary. One explanation could be that managerial turnovers are often anticipated by investors and thus already reflected in stock prices at the time of the announcement. Another interpretation is that managerial changes are symbolic acts, “scapegoating”, rather than strategic moves expected to improve sporting performance.

The robustness checks further validated the findings. Introducing fixed effects for clubs improved the explanatory power of the model up to 19% for acquisitions, indicating that club-specific effects explain some of the variation in stock prices. The second robustness check, examining country-level CAARs, revealed a consistent positive reaction in general. However, market responses varied across countries. Notably, Scotland showed negative reactions to acquisitions, whereas Turkey, Italy, and Portugal exhibit an increase in shareholders' wealth, highlighting investor behavior heterogeneity across countries.

6.1 Discussion and limitations

This study expands the existing literature by jointly analyzing acquisitions, sales, and loan transfers across listed football clubs in Europe, while also incorporating the post-COVID period. The findings offer insights into how investors react to different transfer types, with loan deals in particular being positively perceived. These results are relevant not only for academics but also for club executives aiming to align sporting decisions with shareholder value.

Despite its contributions, this study has several limitations. First, the subject of event clustering. Because transfers and managerial changes often occur within the same short windows, multiple events may overlap, violating the assumption of independent events. This is especially for longer event windows like [-5, 5], [-10, 10], and [-20, 20]. Although the CDA was applied to compute the significance of CAARs, and robust standard errors were used in CAR regressions, these methods only partially address the clustering issue. The possibility that overlapping events influence results cannot be fully ruled out.

Second, the measurement of player performance relied on the total number of international goals scored by a player's career. This metric may not accurately reflect a player's current form at the time of the transfer. Moreover, many players do not participate in international matches, leading to missing data for a substantial portion of the sample. Future research could improve this by using more timely indicators, such as the number of goals scored during the season preceding the transfer.

Third, this study used indirect measures for salience information, such as position, goals, and market value, which may only partially capture the concept of visibility to investors. These variables do not directly reflect the level of media exposure or public attention surrounding a transfer. Since salient information is incorporated faster into stock prices, it thereby influences investor reactions. Future research would benefit from using more direct measures of salience, such as media articles search trends surrounding a transfer or managerial change.

Lastly, an interesting future research could be the impact of UEFA's FSR, specifically the squad cost cap op 70% of revenues, on the market reaction. It would be insightful to examine whether clubs nearing this threshold face different stock market reactions. Additionally, the absence of a significant market reaction to managerial changes raises the question of whether other forms of human capital exist. Such as sporting directors or data analysts, might lead to a market reaction as these roles gain importance in modern football.

AI statement

In line with the AI policy of Tilburg University for the MSc Finance[21], I confirm that AI tools such as ChatGPT were used appropriately. ChatGPT was used for final grammar checks, where I carefully reviewed each suggestion. Additionally, it was used to assist with R programming by clarifying coding errors and offering minor suggestions to resolve issues, all suggestions were critically assessed before implementation. No AI tools were used for interpreting tables, drawing conclusions, generating ideas, or gathering data in this study. I take full responsibility for the content and findings presented in this research.

[21] Source: https://tilburguniversity.instructure.com/courses/18137/files/3751190?wrap=1

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Appendices

Appendix A: Managerial changes

Table A1: OLS regression results on the effect of managerial performance on CARs

*This table presents the results of OLS regressions examining the effect of managerial dismisses on CARs across seven event windows. The dependent variable is the CAR across different windows. The independent variable is AvgPerf, which indicates the average points a manager earned per match. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Managerial change	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant	0.089	-0.049	-0.009	0.107	-0.098	0.191	**0.833****
	(0.067)	(0.084)	(0.083)	(0.116)	(0.150)	(0.179)	**(0.384)**
AvgPerf	-0.001	0.012	0.003	0.000	0.013	0.011	-0.026
	(0.007)	(0.008)	(0.009)	(0.010)	(0.012)	(0.015)	(0.023)
Obs.	231	231	231	231	231	231	231
R^2	0.173	0.211	0.178	0.219	0.208	0.231	0.143
Adj R^2	-0.023	0.024	-0.017	0.034	0.020	0.049	-0.060
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Appendix B: Combined effects during COVID-19

Table B1: OLS regression results of the combined effect variables on CARs following acquisitions (COVID-19)

This table presents OLS regression results for the effect of multiple transfer and player characteristics on cumulative abnormal returns (CARs) following player acquisitions during the COVID-19 period. The dependent variable is the CAR over seven event windows. The independent variables are Offensive, CapsGoals*, Offensive ** CapsGoals*, MarketHigher18, and MarketHigherFee. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisitions	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		0.029	0.022	-0.073	0.006	-0.557	-0.337	0.029
		(0.237)	(0.346)	(0.350)	(0.542)	(0.627)	(0.913)	(0.237)
Offensive	24	0.008	0.007	0.003	0.011	0.007	0.018	0.008
		(0.009)	(0.011)	(0.013)	(0.018)	(0.018)	(0.032)	(0.009)
CapsGoals	42	0.001	-0.000	-0.000	0.001	-0.001	0.002	0.001
		(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.004)	(0.001)
Offensive * CapsGoals	19	-0.001	0.001	0.001	-0.001	0.000	-0.003	-0.001
		(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.004)	(0.001)
MarketHigher18	18	-0.011	-0.019	-0.025	-0.021	-0.020	-0.004	-0.011
		(0.009)	(0.014)	(0.016)	(0.025)	(0.031)	(0.039)	(0.009)
MarketHigherFee	45	-0.005	-0.003	-0.006	-0.000	0.004	-0.019	-0.005
		(0.009)	(0.011)	(0.012)	(0.017)	(0.019)	(0.032)	(0.009)
Obs.		81	81	81	81	81	81	81
R^2		0.133	0.160	0.167	0.137	0.117	0.075	0.076
Adj R^2		-0.101	-0.066	-0.057	-0.096	-0.121	-0.174	-0.173
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

Table B2: OLS regression results of the combined effect variables on CARs following sales (COVID-19)

*This table presents OLS regression results for the effect of multiple transfer and player characteristics on cumulative abnormal returns (CARs) following player sales during the COVID-19 period. The dependent variable is the CAR over seven event windows. The independent variables are Offensive, CapsGoals, Offensive * CapsGoals, MarketHigher18, and MarketHigherFee. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Country fixed effects are included and season fixed effects are excluded. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1) , ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		0.225	0.149	0.456	0.688	0.653	-0.181	-1.687
		(0.487)	(0.414)	(0.481)	(0.572)	(0.777)	(0.860)	-1.258
Offensive	22	0.010	0.008	0.007	0.018	0.033	0.012	0.026
		(0.014)	(0.011)	(0.014)	(0.018)	(0.023)	(0.022)	(0.034)
CapsGoals	37	0.002	-0.001	0.001	0.002	0.004	0.003	**0.005***
		(0.001)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	**(0.003)**
Offensive * CapsGoals	16	-0.001	0.000	-0.001	-0.002	**-0.004***	-0.003	**-0.005***
		(0.001)	(0.001)	(0.001)	(0.001)	**(0.002)**	(0.002)	**(0.002)**
MarketHigher18	28	-0.001	-0.011	0.004	0.022	**0.063****	**0.046***	0.050
		(0.016)	(0.009)	(0.017)	(0.020)	**(0.030)**	**(0.023)**	(0.035)
MarketHigherFee	40	0.021	0.015	**0.031***	**0.034***	**0.049***	0.016	-0.010
		(0.017)	(0.012)	**(0.018)**	**(0.018)**	**(0.029)**	(0.024)	(0.032)
Obs.		65	65	65	65	65	65	65
R^2		0.148	0.238	0.304	0.277	0.370	0.270	0.273
Adj R^2		-0.160	-0.038	0.053	0.015	0.142	0.006	0.010
Country FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Season FE		No	No	No	No	No	No	No

Appendix C: Robustness analysis

Table C1: OLS regression results of the combined effect variables on CARs following acquisitions (Excluding COVID-19)

*This table presents OLS regression results for the effect of multiple transfers and player characteristics on cumulative abnormal returns (CARs) following player acquisitions, excluding transfers that occurred during the COVID-19 period. The dependent variable is the CAR over seven event windows. The independent variables are Offensive, Goals, Offensive * Goals, MarketHigher18, and MarketHigherFee. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Season and country fixed effects are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Acquisitions	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.095	-0.073	-0.125	-0.091	0.023	-0.233	-0.395
		(0.078)	(0.080)	(0.088)	(0.129)	(0.162)	(0.250)	(0.291)
Offensive	272	-0.003	**-0.009****	**-0.008****	-0.001	-0.005	**-0.017***	-0.010
		(0.004)	**(0.004)**	**(0.004)**	(0.006)	(0.007)	**(0.009)**	(0.013)
CapsGoals	476	0.000	0.000	-0.000	0.000	0.000	-0.001	**-0.002****
		(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	**(0.001)**
Offensive * CapsGoals	212	-0.000	-0.000	0.000	-0.001	-0.000	**0.002****	**0.003*****
		(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	**(0.001)**	**(0.001)**
MarketHigher18	96	-0.000	0.003	0.005	0.011	0.015	0.013	0.021
		(0.006)	(0.006)	(0.007)	(0.008)	(0.011)	(0.013)	(0.017)
MarketHigherFee	436	0.003	0.002	0.003	-0.003	-0.000	0.004	0.008
		(0.003)	(0.003)	(0.004)	(0.005)	(0.006)	(0.008)	(0.011)
Obs.		791	791	791	791	791	791	791
R^2		0.047	0.055	0.054	0.032	0.049	0.086	0.107
Adj R^2		-0.003	0.005	0.003	-0.019	-0.001	0.038	0.060
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Club FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table C2: OLS regression results of the combined effect variables on CARs following sales (Excluding COVID-19)

*This table presents OLS regression results for the effect of multiple transfers and player characteristics on cumulative abnormal returns (CARs) following player sales, excluding transfers that occurred during the COVID-19 period. The dependent variable is the CAR over seven event windows. The independent variables are Offensive, Goals, Offensive * Goals, MarketHigher18, and MarketHigherFee. The Obs. column indicates the number of observations for each variable. Control variables include Log(Revenue), Log(Assets), and ROA. Season and country fixed effects are included. The robust standard errors are reported in the parentheses. The significance levels are noted as follows: * (p < 0.1), ** (p < 0.05), *** (p < 0,01).*

Transfer type: Sale	**Obs.**	**CAR [-1, 0]**	**CAR [0, 1]**	**CAR [-1, 1]**	**CAR [-3, 3]**	**CAR [-5, 5]**	**CAR [-10, 10]**	**CAR [-20, 20]**
Constant		-0.065	0.009	-0.020	-0.212	-0.202	-0.360	-0.283
		(0.085)	(0.094)	(0.108)	(0.170)	(0.189)	(0.242)	(0.298)
Offensive	254	-0.004	**-0.011****	**-0.010****	**-0.014****	**-0.017****	0.003	-0.004
		(0.004)	**(0.004)**	**(0.005)**	**(0.006)**	**(0.007)**	(0.010)	(0.013)
Goals	424	0.000	-0.000	0.000	-0.001	-0.001	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Offensive * Goals	198	-0.000	0.000	0.000	0.000	0.001	-0.000	-0.001
		(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
MarketHigher18	134	0.004	0.005	0.006	**0.013***	0.004	-0.006	0.017
		(0.004)	(0.005)	(0.005)	**(0.006)**	(0.007)	(0.010)	(0.016)
MarketHigherFee	402	-0.000	-0.005	-0.000	0.003	0.000	-0.008	0.004
		(0.003)	(0.004)	(0.004)	(0.005)	(0.006)	(0.008)	(0.010)
Obs.		691	691	691	691	691	691	691
R^2		0.057	0.048	0.056	0.060	0.059	0.082	0.083
Adj R^2		-0.001	-0.011	-0.002	0.002	0.001	0.026	0.027
Season FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Club FE		Yes	Yes	Yes	Yes	Yes	Yes	Yes