Erasmus University Rotterdam
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Master's Thesis Accounting Auditing & Control

An evaluation of the accounting relevance in the football industry.

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Abstract:

IAS 38 aims to provide accounting standards for intangible assets, but the capitalization of player contracts in the football industry has its limitations. In the cases of free agents and youth players, there is no recognition of the player's contract on the balance sheet. In this paper, I have investigated the usefulness of the recognition of contract value in an event study setting of transfer announcements. I have found that the recognition of a player's contract decreases the abnormal returns of a club´s stock by 20.8 percent after the transfer announcement. IAS 38 does not sufficiently allow intangible assets to represent their value.

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1. Introduction

Recently, the European football industry has become economically highly relevant. In the year 2017/2018 the European football market was estimated to be worth 28.4 billion euros (Deloitte, 2019). Moreover, revenues of the 5 biggest European leagues have steadily grown by over 150% percent in the past 15 years, showing no signs of stopping (Deloitte, 2020). Nowadays, there are over 20 European professional football clubs that are publicly listed and must provide financial disclosure. What makes this industry especially interesting is the valuation of player contracts. In 2002, the European Commission and FIFA agreed on the current regulations of the transfer system (European Commission, 2002). This system requires clubs to pay a release clause when they acquire a player who is still under contract at another club. These player contracts are identified as intangible assets. Whenever a transfer fee (release clause) has been paid, IAS 38 requires the club to initially measure the asset at cost and impair it linearly across its useful life (IASC, 1998). While these intangibles are recognized to represent a fair economic value of the asset, it is often the case that transfer fees paid exceed the remaining value of the contract on the balance sheet (Hoey, Peeters & Principe, 2021).

In addition to this, transfer fees have inflated tremendously with a record amount of 222 million Euros since the transfer of Neymar Jr. to PSG (CNN, 2017). Even while the covid crisis has put a brake on the continuous increase in transfer fees, the amounts in 2020 are still growing by 6% (Besson, Poli & Ravenel, 2020). This trend of increasing transfer fees could result in even larger differences between the transfer fee and the remaining economic value of player contracts. Furthermore, in some cases, there is no economic value recognized on the balance sheet. This occurs when a player originates from the club's youth academy or was previously acquired as a free transfer (Oprean & Oprisor, 2014), which augments the gap between book value and transfer fee even more.

Accounting information primarily serves the purpose of supporting stakeholders in their economic decision-making (Eierle & Schultze, 2013), and thus, this raises the question of whether IAS 38 is sufficient in serving that purpose. Does IAS 38 contribute to providing relevant information or do stakeholders retrieve their information from other sources? This research aims to investigate whether the values recognized by IAS 38 are relevant. The research question is as follows:

"Does IAS 38 allow intangibles to represent economic relevant information?"

An answer to this question would clarify whether additional accounting standards are needed to account for these intangible assets. To answer this question, this paper will make use of an event study research design in which I will investigate the announcements of outgoing player transfers and their impact on the stock exchange of a club. I can measure the information availability to stakeholders based on whether a player's contract value is represented on the balance sheet. By comparing the shocks on the stock exchange, I can estimate whether the shocks are smaller when a player's contract value is represented on the balance sheet. I have found statistical evidence that transfer confirmations significantly increase the abnormal returns of a club´s stock by 7.6 percent. This indicates that transfer confirmations are regarded as relevant information by the market. In addition, the recognition of a player's contract value

would decrease the abnormal returns after transfer confirmations by 20.8 percent. The recognition of a player's contract therefore provides relevant information to the market as the magnitude of the market response decreases. All in all, these findings highlight the importance of the recognition of player's contracts and emphasize the need for changes in IAS 38.

This research is socially relevant since it evaluates the relevance of accounting information. If people don't make use of the information, it's either not valuable or in need of alteration. Standard setters can learn from this paper and potentially change the accounting standards in relation to intangible assets, so they may better reflect the true economic value. The paper also provides managerial implications. Management's performance depends on the growth of the firm's intangibles (Hurwitz et al. 2002). This research will give insights into the relevance of the book value of intangibles and whether other sources may be more accurate in estimating their value. Furthermore, this research will prove the relevance of accounting information of player contracts. When acquiring new players, management can therefore have supportive evidence to base their decision-making on the accounting information.

This research adds to academic literature because there has been little coverage in the current literature on the sufficiency of IAS 38. Especially the football industry setting receives little attention on the topic of accounting standards. While Fűrész and Rappai (2020) recently investigated the pre-announcement behavior of the abnormal stock returns, this paper expands on that by looking at the official confirmation of the transfer. It is unique as it uses an event study methodology that combines the announcements of transfers and the abnormal returns on the stock exchange.

The paper will be structured as follows. In the theoretical framework, I will discuss the concepts that are necessary to understand the context of this research and the hypotheses to answer the research question. In data and methodology, I will explain the data acquisition process and the methods that were used. In results, I will analyze the results of our tests. Finally, in conclusion, I will answer the research question and discuss the limitations of this research.

2. Theoretical Framework

In this section, I will explain the necessary concepts that are needed to understand the context of this research. Firstly, in section 2.1, I will provide a historic background of the transfer system in which I explain the functionalities and their developments over the years. In section 2.2, I explain the accounting standards associated with intangible assets and how it applies to the context of the football industry. In section 2.3, I discuss the relevance of accounting information and what the previous literature has used to measure this. Finally, in section 2.4, I will develop the hypotheses that are needed to answer the research question.

2.1 The transfer system

In the football industry, there is a set of regulations, referred to as the "transfer system" which allows clubs to have the sole property rights over the service of football players (Dietl et al., 2008). A player can make a move to another club under the condition that all parties, the player, the original club, the future club and the football association, approve the transfer (Pavlović et al., 2014). This system was created to prevent players from leaving their club, resulting in unrealized gains for their original club. Specifically, smaller clubs need to be protected from poaching by larger clubs as compensation for the costs of training and development they have invested in the players (Simmons, 1997). The regulations for transfers of players have been changed several times in the past. Originally, the system was designed so that whenever a club wanted to acquire a player from another club, it had to pay a transfer fee as compensation for the selling club (Ericson, 2000). The buying club had to pay the amount that resulted from the negotiations based on the player's market value. Alternatively, if the player was already out of contract, the club had to pay a fixed fee that was set under legal regulations. The system allowed the club to protect their investment, but in return, the job mobility of the employee decreases as the player needs mutual agreement on the transfer fee between their current and future club (Feess & Muehlheusser, 2003b).

In 1995, the "Bosman case" caused the regulations to change. Jean-Marc Bosman, a Belgian footballer, was refused to join a French club, US Dunkerque, after the expiration of his contract. This was not in line with Article 48 of the European Treaty which pleads for freedom of job mobility within the EU (Simmons, 1997). Bosman sued his old club and this case eventually caused the regulations to be changed such that clubs were no longer entitled to transfer fees when the contract of a player expired (Feess & Muehlheusser, 2003b). A player would become a free agent and was allowed to negotiate with other clubs in the final 6 months of their current contract at the club. As a result, clubs were incentivized to arrange long-term contracts with their players to ensure high transfer fees before the expiration of the contract (Kranz, 1998). Typically, near the end of the contract, players experience a good bargaining position. Consequently, clubs are more lenient towards offering an improved salary to prevent the player from leaving the club for free. However, for players aged under 23, buying clubs still need to pay compensation for the training and development by their previous clubs (Simmons, 1997). This compensation consists of two parts, namely a training compensation and a solidarity contribution. The training compensation needs to be paid until the player signs his first professional contract or each time the player makes an international transfer until the season of their 23rd birthday (Fifa, 2021). The solidarity contribution is paid to all clubs that

have contributed to the development of the player's training until the age of 23. This continues each time a transfer fee is paid of which a portion, usually around 5 percent, is distributed between the clubs that developed the player (Fifa, 2021).

In 2001, the new "Monti system" was introduced after an agreement between the European commission and organizations FIFA and UEFA. This updated system aimed to improve the player's job mobility by allowing the player to pay a fee for breach of contract (Feess & Muehlheusser, 2003a). Additionally, the duration of contract lengths was restricted to the range of 1 to 5 years. These length restrictions were primarily designed to prevent a player from remaining bound to a club for too long.

2.2 Intangible assets

According to IAS 38, intangible assets are "identifiable non-monetary assets without physical substance" (IFRS, 2022). An asset needs to meet multiple conditions to be recognized as an intangible asset. These conditions are identifiability, control and future economic benefits (IFRS, 2022).

An asset is identifiable if they are either separable, thus it can i.e. be sold or exchanged with another entity as an individual asset. Alternatively, it is identifiable if the asset stems from a contractual right of the firm to make use of the asset. Both cases hold since the value of player contracts can be separated and exchanged with other clubs through a transfer, while it is also based on the contractual sole right of use of the player's services (Dietl et al., 2008).

The firm has control over the asset if it is capable of reaping the future economic benefits gained from the asset and can restrict others from using the asset. Player contracts between the club and the player allows the club to be the only one that can register the player in their team (Dietl et al., 2008), thus they can restrict other clubs from adding the player to their squad. However, the capability of reaping future economic benefits is questionable, since a transfer needs a mutual agreement between all parties involved, which limits the power that the club has. Furthermore, older players are less likely to still reap benefits as they grant no transfer fee when retiring. On the other hand, the standard discusses both direct and indirect cash flows (Morrow, 1996), thus it is not necessarily only the revenues that stem from an outgoing transfer, but also the additional sales of tickets and shirts.

The asset will be recognized on the balance sheet if it is probable that the asset will generate future economic benefits for the organization and the cost of the asset can be measured reliably (IFRS, 2022). As discussed before, the probability of future economic benefits can be debatable. With regards to the cost measurement reliability, the transfer fee is used as the reference for the value of the asset. Furthermore, IAS 38 (IASC, 1998) states that intangible assets should be initially measured at cost, thus at the transfer fee paid, and depreciated across their useful life. Yet, the challenge of contract valuation is not necessarily solved. Oprean and Oprisor (2014) address the important distinction between the types of players. Contracts of players registered through a paid transfer should be valued differently than those of free agents or youth players that are promoted to the senior team.

The contracts of players who are acquired through the payment of a transfer fee by their future club must be recognized at their historic acquisition cost (UEFA, 2018). Afterward, since the player contracts always have a definite useful life, the value will be annually amortized on a linear basis over the duration of the contract (Amir & Livne, 2005).

On the contrary, player contracts that were acquired for a transfer fee equal to zero, which mainly occurs with free agents, no value is recognized on the balance sheet. The same holds for youth players from the club's own academy that promote to the senior team. A club is only allowed to capitalize direct costs that are associated with the acquisition of a player (UEFA, 2018). However, the UEFA also states that costs like sign-off bonuses, which can have a direct impact on the acquisition of a player, cannot be capitalized and need to be accounted for as employee benefits expenses. In the case of a contract extension, any carrying amount plus costs incurred by negotiating need to be amortized for the remainder of the new contract duration (UEFA, 2018). Moreover, in case a player is no longer able to serve his contract for the remainder of the useful life, i.e. due to a long-term injury or legal reasons, the remaining value of the contract should be fully impaired.

However, regardless of whether transfer fees are the only measurement for player value upon the acquisition of players, IAS 38 (IFRS, 2022) also discusses the possibility of internally generated intangible assets, which relates to the accounting of youth player contracts. According to paragraph 57, "an intangible asset arising from development shall be recognized if an entity can demonstrate the following conditions" (IFRS, 2022). In total there are six conditions of which each would be applicable.

Firstly, the firm should have the technical capability to complete the asset to be ready for use or sale. This capability can be recognized by for example the youth academy of the Dutch football club Ajax which provides the training facilities, the coaching staff, the medical staff and clinics to develop their players (Ajax, 2022). Completion can be identified whenever the player signs his first professional contract.

Secondly, the firm should have the intention to complete and use or sell the asset. This intention of completion can be displayed by a personal development plan and the intention of use or sell can be displayed by the registration on the team sheet or transfer list, respectively. Thirdly, the firm should have the ability to use or sell the asset. A player's contract displays the sole property right of the player's services (Dietl et al., 2008), thus showing the ability to use or sell the asset.

Moreover, the fourth condition states the firm must demonstrate how the asset will generate future economic benefits. This would be the most difficult condition to achieve since there's uncertainty about the player's capability. There is a substantial difference in economic benefits generated by the player based on how successful they become. Although several observational studies identified factors, psychological and physical, that affect the probability of a successful player career (Holt & Dunn, 2004; Mills et al., 2012; Unnithan et al., 2012), their true potential may be overestimated, leading to aggressive accounting.

The fifth condition states that the firm needs to have sufficient resources to complete the asset. In that sense, there's a limited availability of spots at a youth academy, therefore showing that players are only incorporated in the youth academy if there are sufficient resources.

Finally, the sixth condition requires the firm to reliably measure the expenditure that was attributable to the development of the asset. These can exist as employee benefits, such as training staff, or i.e. materials and services, such as equipment and accommodation, consumed by the asset (IFRS, 2022).

Overall, capitalization of internally generated intangible assets such as the player contracts of youth players appears to meet most of the conditions. Only the fourth condition does not allow for the recognition due to large uncertainty in generating future economic benefits. Thus, only player contracts acquired through a transfer fee do have accounting standards that recognize the value that these players represent, whereas free agents and youth players are not represented on the balance sheet. This results in accounting balances that do not reflect a substantial portion of the assets (Kulikova & Goshunova, 2014).

2.3 The relevance of accounting information

Recently in the literature, there is an ongoing debate about the capitalization of player contracts concerning the relevance of accounting information. Amir and Livne (2005) questioned the capitalization of player contracts because of the weak association between the investment and future benefits. They state that when the assurance of future benefits is low, no value should be capitalized. The association primarily holds for the first two years but diminishes afterward. The duration of relevance therefore lasts shorter than the period of amortization of the contract (Amir & Livne, 2005). This corresponds to what Lozano and Gallego (2011) point out that the book values of the player contracts are substantially lower than the market prices. This suggests that the current accounting standard is undervaluing the main assets of the organization, therefore the association is diminishing, and the standards may be inefficient.

Moreover, one of the main purposes of accounting is to provide the necessary information to the stakeholders. Multiple articles conclude that accounting information supports the investors' decision making by providing a reasonable assurance of the financial statements (Durst, 2008; Eckstein, 2004; Scott & Scott, 2015). Mellemvik et al (1988) pose that accounting information has the function of reducing uncertainty in control and decision processes. Accounts should reflect business reality and provide the essential financial features of a firm's underlying business model (Dichev, 2008). With the current accounting standards, a large portion of the main assets of a club is missing on the balance sheet, since players that represent a value may not be recognized. The value of an asset will determine the contribution to the business processes, where a high valuation displays high importance to the firm (Breier, 2014). However, the most valuable assets of a club are generally the young talents who contribute to the team performance and represent high market value yet represent no book value.

In addition, Rowbottom (2002) also states that the relevance of financial statements is potentially impaired if intangibles are not recognized. Financial performance is determined by how well a firm relatively performs compared to its assets. The omission of intangibles could lead to a misrepresentation of the financial performance. Even though the monetary information of intangibles can be subjective or unreliable, investors tend to incorporate the information in their decision-making (Sriram, 2008).

In the literature, there are multiple operationalizations used to measure the relevance of accounting information. A frequently used method in the literature (Barth & McClure, 2022; Dontoh, 2004; Karğın, 2013; Marquardt & Wiedman, 2004) is estimating the R-squared by regressing book value and earnings on dependent variable market value to measure the value-

relevance of accounting. If stock prices show strong associations with the book value of the firm, then the available information would be assumed to be relevant for investors.

Moreover, the portfolio method is also widely used in the literature (Alford et al., 1993; Chang, 1999; Hung, 2000). This methodology calculates the optimal portfolio returns based on changes in net incomes, assuming perfect foreknowledge. The returns are maximized by firstly ranking firms based on their changes in net incomes and shorting the lowest 40% and going long for the highest 40%. Using matched sampling, they can investigate the difference between two accounting methods and see which is more relevant. The one with significantly higher returns displays that the accounting information is more informative, and thus more relevant.

Furthermore, introduced by Ball and Brown (1968), is to estimate the relative effect on the stock market after the release of new information, also referred to as abnormal returns. Assuming markets are efficient, new information should be spread quickly and stock prices should adjust relatively fast as well (Malkiel, 1989). Ball and Brown (1968) wanted to measure the impact of new financial information on the market reaction. However, multiple factors can influence the market value of a firm. Therefore, they made the assumption that industry effects apply to all firms within that specific industry. To extract the pure market response to the new information released, they subtracted the industry effect.

Abnormal returns can be seen as a signal by the market that arises from new information that is associated with future economic performance which was previously not identifiable in the financial reports (Abarbanell & Bushee, 1998). Accounting reports contain relevant new information if investors change their assessments of the firm's performance, which is reflected in the adjustments on the stock market (Beaver, 1968). If there are large shocks on the stock market, then this would mean that there is an information asymmetry potentially caused by the lack of accounting standards.

This research will also make use of the abnormal returns design by Ball and Brown (1968) as the indicator for the relevance of the current accounting information after the release of new information on the market. Abnormal returns are chosen because the methodology allows to effectively extract the effect of new information and evaluate the relevance of the current information available. This is because I assume the new information to be the only change, while all other factors remain constant. This helps in the estimation of an exogenous model. The first methods I discussed before, the R-squared and portfolio method, are primarily suitable for evaluating the usefulness of a larger collection of accounting information. However, in this article, I want to evaluate the usefulness of accounting information related to intangible assets, thus I need a more specific identification, such as abnormal returns. Moreover, the transfer system of players creates a perfect setting for an event study to evaluate the effectiveness of IAS 38. Transfers relate directly to the accounting of the valuation of player contracts and the difference in book value and market value can potentially be captured by the abnormal returns.

2.4 Hypothesis development

In this thesis, the aim is to evaluate whether the current IAS 38 is sufficient in providing relevant information to the stakeholders. In section 2.3 I explained the different methods for measuring the relevance of accounting information. As a starting point, it is important to investigate whether transfer announcements are seen as relevant information and thus, whether investors change their valuation after the release of this new information. If the book value of a player is the same as the transfer fee, then I would not expect any changes in evaluations made by the investors, but if the transfer fee is higher than the remaining book value, I expect abnormal returns to increase as well. Therefore, I state the following hypothesis:

H1: The confirmation of a player's transfer has a significant effect on the abnormal returns of a club.

An answer to this hypothesis would clarify whether transfer announcements are useful in the first place. If transfer announcements do not significantly affect the abnormal returns, then investors would have already known the information before. They would have already incorporated the information in the firm's evaluation and there will be no shock on the stock market at the date of confirmation.

To get the answer to whether the current information with regards to intangible assets is relevant, I will look at situations when the recognition of these intangibles applies and when it does not. As discussed in section 2.2, there is a difference in accounting based on the player types. Players registered after a paid transfer need to be recognized on the balance sheet, while players without a transfer fee, i.e. free agents and internally developed youth players, are not recognized (Oprean and Oprisor, 2018). This paper expects that the capitalization of players plays an important role in sufficiently informing the stakeholders. The release of relevant new accounting information will be incorporated by investors and the market prices adjust accordingly (Malkiel, 1989). If the value of a player's contract is already recognized on the balance sheet, the level of new information should remain limited after the announcement of the player and the corresponding transfer fee. The shock on the stock market is expected to be smaller than after the announcement of a player's transfer who had no value reported on the balance sheet. Therefore, I pose the following hypothesis:

H2: The abnormal returns of a club´s stock after the transfer confirmation becomes smaller when the value of the player's contract is recognized on the balance sheet.

An answer to this hypothesis would explain whether the recognition of a player's contract reduces the shock on the stock market. If there is no significant difference between transfers with or without a value on the balance sheet, then it would suggest that the information provided on the balance sheet is not useful to investors. Potentially, the investors would retrieve their information from other sources to estimate the value of a player's contract.

3. Data & Methodology

In this chapter, I will explain the method used to estimate the effect of transfer announcements on the stock market's response and the potential moderating effect of the recognition of the player's contract economic value. In section 3.1, I will discuss the data gathering process. In section 3.2, I will explain the statistical method of an event study using cumulative abnormal returns. Finally, in section 3.3, I will explain the selection of variables used to estimate the model.

3.1 Data

For this event study model, I have made use of multiple sources of data. Firstly, I need to gather the transfer data from the clubs that are also registered on the stock exchange. There is a limited selection of European football clubs that are also publicly listed. In total there are 19 clubs of which the data is provided. The majority of the clubs were publicly listed around 2000 and since the transfer system remained relatively similar since the introduction of the "Monti" system, I have gathered data from 2002 until 2021. I chose 2002, as it may take some time for the clubs to adjust their financials after the introduction of 2001. I use the website transfermarkt (https://transfermarkt.com) for acquiring all the football-related data. This website is the largest data platform for football statistics. It is maintained by a professional team of 50 people and receives support from hundreds of voluntary data moderators and scouts that keep the information up to date and accurate. I have gathered the data for all outgoing transfers of the clubs. Using the transfer information of each season of a club, I was able to identify the names and the player ids that made a transfer in the time window of 2002-2021. Using the player ids, I extracted the transfer history of each player's career. The data consisted of the clubs they left, the clubs to which they have transferred, the transfer fee paid and the date.

By using the complete transfer history of a player, I can first identify the transfer fee paid for the event of interest. Also, I can identify if the player was previously acquired through payment, acquired for free or promoted to the senior team. The transfer date corresponds to the official date when the player is registered at the next club. Normally, a player needs to run some medical tests before the transfer is confirmed, but transfers break down after this stage. Therefore, I set the confirmation date as 3 days before the official transfer date. In some cases, a transfer is announced before the registration date. This primarily happens when the clubs and the player reach an agreement before the transfer window opens. I.e. Brian Brobbey's transfer from Ajax to RB Leipzig was announced on March 12th (Bundesliga, 2021), whereas the transfer date on transfermarkt is recognized as July 1st. This can pose an identification problem in case this occurs frequently in the dataset.

For the financial data, I have made use of the websites Yahoo Finance (https://finance.yahoo.com), the Wall Street Journal (https://wsj.com) and Investing (https://investing.com). The choice of using the three different sources was primarily because not one provided all data of club stock prices or market indices. Using the previously acquired transfer data, I estimate the abnormal returns for each club's stock on the transfer date. I estimate the abnormal returns by subtracting the market effect from the total change in the stock of a club. Investors may already have access to relevant information about the transfer before the actual confirmation at the announcement date. Therefore, part of the variation caused

by the transfer may already be captured before the date. To account for this, I will make use of a 3-day time window that measures the abnormal return from the day before and the day after the announcement date. For robustness checks, I also construct wider time windows, thus I need the stock data of multiple dates around each transfer date.

3.2 Methodology

In this paper, I make use of the market-adjusted model, also known as the "index model". Armitage (1995) expressed the simple assumption that a share should on average earn the market return (Rmt). Any deviation from the market return would be caused by the abnormal returns (AR), which results in the actual return (Rit). Therefore, to calculate the abnormal returns, I subtract the market return from the actual return:

$$AR = Rit - Rmt$$

For the calculation of the abnormal and actual return, I use the developments of the club's stock. For the calculation of the market return, I assume the national market index to represent the average of all stocks in the market. By using the national market index, I control for local economic effects that would not be captured by large economic indices like NASDAQ.

Furthermore, the time window used for the estimation of the returns differs in the event study literature. While recent literature makes use of smaller time windows, i.e. 2 days (Palmrose, 2004), papers that date back further use larger time windows, i.e. 60 days (Masulis, 1980). Palmrose (2004) states the possibility of markets anticipating the effects on the stock exchange before the announcement date, potentially by leaked information. In addition, over time, markets have become more efficient in incorporating information, thus I assume that the time window should be relatively smaller nowadays to capture the effect of an event. Additionally, it is normal practice for clubs to sell more than one player in the same transfer window. Since transfer windows on average have a duration of 12 weeks, choosing large time windows may result in overlapping events. Kolari and Pynnönen (2010) make use of different time windows of 3, 5, 11 and 21 days to compare the development of the shares over time and evaluate how long the market needs to incorporate the information. In this research, I will use a two-day window and run multiple robustness tests with different time windows to see if the results still hold.

3.3 Variables

Dependent variable

As discussed earlier, the dependent variable that I use in this research is *abnormal returns*. The variable captures the shock that erupts after the release of new information on the market. If *abnormal returns* are high, then the transfer announcement provides relevant information to the investors.

Independent variable

For hypothesis 2, I want to investigate whether the recognition of the player's contract affects the market reaction after a transfer announcement. Hence, I include a dummy variable,

recognition, that takes value 1 when the value of a player's contract is recognized on the balance sheet, 0 when there is no value reported. If the coefficient is negative, then it means that the recognition of a player's contract decreases the abnormal returns.

Control variables

Multiple factors can affect the magnitude of abnormal returns for which I have controlled. To control for the magnitude of the transfer I have chosen *transfer fee* as the independent variable. This serves as a proxy for the value of the asset that will be sold, namely the player's contract. If the value of an asset is high, then the contribution to the total assets of a club, or the importance, is expected to be high as well (Breier, 2014). High transfer fees can come with large revaluations of investors, thus larger abnormal returns on the stock exchange. To prevent heteroskedasticity, I have created a logarithmic transformation of the transfer fee.

In addition, I include the categorical variable *country*. This controls for potential local differences in financial reporting standards. Consequently, information availability to investors may deviate between countries. Abnormal returns may be higher where information is not readily available in the financial reports. I also control for year and club fixed effects to prevent large differences between periods and clubs.

Furthermore, I created the variable *bigfive*, which takes value 1 when the destination club of the player is active in one of the five biggest earning leagues of Europe. This group consists of the English, Spanish, Italian, German and French league. This can primarily be explained by the large domestic population sizes and foreign broadcasting that generate high levels of revenue (Lange, 2022). There are more financial analysts as the financial importance increases and more information is disclosed to the public (Bhushan, 1989). Thus, I expect that the level of media coverage and relevant information available is higher when the transfer is designated to one of the five biggest leagues. Abnormal returns should be relatively lower compared to transfers to other leagues. In line with this argumentation, I also add the categorical variable *coefficient* to control for differences in club sizes. This categorical variable takes different values based on the UEFA ranking of the past 10 years.

Additionally, I add the control variable *young*, which takes value 1 if the player is aged above 23 years old. According to the UEFA (2018), players experience most of their development until the age of 23. Thus, the valuation of younger players can be more difficult for investors. Less data is available about them since they have not played as many matches as older players. This can cause abnormal returns to increase even more.

4. **Results**

4.1 Sample selection

For the sample of this paper, I collect the outgoing transfer data of the 19 publicly listed European clubs in the period 2002-2021. The sample selection process is presented in table 1 (see appendix). The initial data collection results in a sample of 7307 transfers. Afterward, I remove all cases that are labeled as loan transfers or that have no information available about the transfer fee. This leaves 3478 transfers with a transfer fee or are registered as transfer free. I also removed the cases with loans with an option to buy at a later stage as the database of Transfermarkt did not recognize these cases as loan transfers, which leaves a total of 2200 transfers. A large portion of the transfer agreements takes place outside of the transfer windows. This causes the transfer date, registered on Transfermarkt, to be the opening day of the next transfer window, while the original confirmation may have been weeks before that date. Therefore, I drop all cases that are registered on the first day of the transfer windows, July 1st and January 1st, resulting in 1317 transfers. After the merging of this dataset and the financial dataset, I end up with 1206 transfers due to missing financial data of stock exchanges or market indices. Some clubs were publicly listed in a later year than 2002, i.e. Manchester United went public on August 10th, 2012, resulting in fewer transfers with financial data. To account for large outliers, I performed winsorization on the dependent variable and set the cut-off point for the absolute value of abnormal returns not to be higher than 10 percent. This results in a final sample of 1063.

4.2 Descriptive Statistics

In table 2, I provide the descriptive statistics relating to hypothesis 1. In the appendix I also added a table of the variable definitions of this paper (see table 4). Table 2 corresponds to the entire sample of the financial data from 2002-2021. I also created the descriptives of the two sub-samples, positive and negative abnormal returns (see appendix, tables 2a and 2b). The variable transfer corresponds to the 1063 transfer events for which the observation has value 1. The remainder of the observations are the abnormal returns of the club's stock for all the other dates. The variable *ar 2-day* corresponds to the abnormal returns in a time window of two days after the transfer confirmation, thus the difference between the start of day 1 and the end of day 2.

Table 2: Descriptive Statistics Hypothesis 1

Statistic	N	Mean	St. Dev.	Min	Max
transfer	88,238	0.01	0.11	0	1
ar 2-day	88,238	-0.0003	0.03	-0.10	0.10

See appendix, table 4 for variable definitions. This table provides the descriptive statistics of the sample that is used to test hypothesis 1. It provides the descriptive statistics, number of observations (N), mean, standard deviation, minimal value, the 25% quartile, the 75% quartile and the maximum value.

In table 3, you can find the descriptive statistics that correspond to hypothesis 2. The variable *transfer fee* relates to the fee paid at the current transfer, whereas *transfer fee prev* represents the fee paid at the previous transfer. *Market value* corresponds to the market value of the player at the transfer event. It has a lower number of observations because of missing values. Consequently, the difference between *transfer fee* and *market value* (*diff mv*) also has some missing values. *Book value* depicts the remaining value that is recognized on the balance sheet. *Transfer fee*, *market value*, *book value* and the difference variables, *diff mv, diff prev* (*transfer fee – transfer fee prev*) *and diff bv* (*transfer fee – book value*), are in thousands of euros. These variables will be used for the additional analysis. To account for skewness, I have performed logarithmic transformation on these variables.

Recognition, the main variable of interest shows a mean value of 0.47. This suggests that there is balanced sample of transfers with and without a value recognized on the balance sheet. Additionally, I have also added the *age* variable, where the average transfer age is 26.44 years. In certain cases, players can make multiple transfers throughout their career. If you assume a player's career to be between the age of 17 and 35 years, it is expected that the average age lies around 26. Variables *big five* and *young* display the transfers concerning a top-league move and a player younger than 23 years old, respectively. With mean values of 0.39 and 0.31, there is a balanced sample.

Finally, the abnormal returns (*ar 2-day*) have a minimum of -0.10 and a maximum of 0.10. This is because of winsorization. Note that the mean is close to 0, which is logical as I expect the market to both react positively and negatively after transfer announcements. In the appendix (see table 2a and 2b), I have also provided the statistics for the samples with only positive and negative abnormal returns.

Table 3: Descriptive statistics Hypothesis 2

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
transfer fee	1,063	5,039.76	12,051.25	0.00	0.00	4,500.00	140,000.00
transfer fee prev	1,079	3,367.80	7,911.88	0	0	3,500	117,000
market value	1,016	5,500.00	9,952.35	25.00	650.00	5,500.00	100,000.00
book value	1,079	1,436.74	4,166.15	0.00	0.00	1,227.93	60,831.62
diff mv	1,001	2,817.16	5,388.56	0.00	450.00	3,000.00	107,000.00
diff prev	1,063	4,761.55	10,732.13	0.00	0.00	4,455.00	127,200.00
diff bv	1,063	4,145.97	10,659.78	0.00	0.00	2,755.82	127,200.00
recognition	1,079	0.47	0.50	0	0	1	1
age	1,079	26.44	4.43	17	23	30	40
big five	1,079	0.39	0.49	0	0	1	1
young	1,079	0.31	0.46	0	0	1	1
ar 2-day	1,079	0.002	0.03	-0.10	-0.01	0.02	0.10

See appendix, table 4 for variable definitions. This table provides the descriptive statistics of the sample that is used to test hypothesis 2. It provides the descriptive statistics, number of observations (N), mean, standard deviation, minimal value, the 25% quartile, the 75% quartile and the maximum value.

4.3 Results hypothesis 1

In table 5, the results of the first regression are provided. The dependent variable is abnormal returns (2-day window) with explanatory variable *transfer* that takes value 1 for each observation date, 3 days before a transfer announcement. Club, country and year fixed effects are included.

Table 5: Linear regression of abnormal returns on transfer confirmations

	Dependent variable:
	Abnormal Returns (2-day window)
Transfer	0.002^{**}
	(0.001)
Constant	0.00002
	(0.001)
Fixed effects (Club, country and year)	Incl.
Observations	88,238
R^2	0.002
Adjusted R^2	0.001
Residual Std. Error	0.029 (df = 88197)
F Statistic	3.573^{***} (df = 40; 88197)
Note:	*p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regression with explanatory variable *transfer* on dependent variable *ar 2-day*. Explanatory variable *transfer* takes value 1 when the date corresponds to a transfer event. Variable *ar 2-day* depicts the abnormal returns between the start of the date, 3 days before, and the end of the following day.

The coefficient of *transfer* is positive and significant at a 5-percentage level (0.023). In other words, the abnormal returns are 0.2 percentage points higher on a date, when 3 days later a transfer announcement is publicly communicated, ceteris paribus. For relative effects, the average absolute abnormal returns are 2.63 percent. Thus, the transfer confirmation increases the average absolute abnormal returns by 7.6 (0.2/ 2.63*100%) percent. Overall, although it is statistically significant, the economic effect remains relatively small.

A potential explanation for this is that the transfer confirmation does not bear as much relevance to investors. A high portion of information related to the transfer can be acquired before the confirmation date. In some cases, such as the one of Ajax' player Ryan Gravenberch, the negotiations between Ajax and his future club Bayern Munich have started on March 18th (Romano, 2022) and have continued until the final confirmation was at June 13th. Overall, relevant information, such as the height of the transfer fee offer, can be leaked by media platforms, which causes investors to create more informed estimations of the player's value in advance of the confirmation date. Yet, the negotiation between clubs does not mean that a deal will happen, thus the negations can potentially break down. Therefore, depending on the risk

aversion of investors, they will adjust their financial valuations before the confirmation. Following this logic, I can argue that this small effect after the confirmation is the adjustment made by investors that are the most risk-averse.

Another explanation for the relatively small economic effect can be that this simple model solely distincts between dates 3 days before a transfer announcement and the other days. It does not account for the differences in transfer fee, since larger transfer fees, thus larger financial importance, can cause larger shocks on the market. Moreover, other events such as financial statement publications, match results, player or coach acquisition can also have an impact on the abnormal returns of a club's stock. Ideally, I would compare the transfer dates with dates when no event occurs that can be financially relevant.

Overall, I can still find statistical significance, thus I can accept the first hypothesis that transfer announcements have a significant effect on the abnormal returns of a club's stock.

4.4 Results Hypothesis 2

For hypothesis 2 I have run a regression on the transfer sample with dependent variable abnormal returns (2-day window), 3 days before the announcement, and independent variable *recognition* that takes value 1 when a player's value was reported on the club's balance sheet during the transfer. The results are provided in table 6.

The coefficient of *recognition* is negative and significant at a 10-percentage level (0.053). Keeping everything else constant, the recognition of a player's contract value on the balance sheet reduces the abnormal returns after the transfer confirmation by 0.4 percentage points. For relative effects, the average absolute abnormal returns are 1.98 percent. The recognition can thus decrease the abnormal returns after a transfer confirmation by 20,2 percent (0,4/1,98*100%). Although the results of hypothesis 1 suggested that the effect of transfer confirmations on abnormal returns appears economically irrelevant, this result gives suggestive evidence that the recognition of a player's contract value has a significant impact on the investors' decision-making.

The recognition can provide relevant information to the investors, so they can make more informed estimations of the firm's value. As new relevant information about a player's value gets released, the market adjusts their valuations. The level of this information should be lower or limited due to the availability of the value on the balance sheet.

Alternatively, the value of a player's contract can only be recognized after the acquisition of a player. This means that players that have their value recognized need to have made a transfer before, while players without recognition do not require that condition. This can create a selection bias, because of two reasons. Firstly, when a player makes a transfer to another club, it means that a club is willing to take over the player. Either to develop the player, sell in the future or improve the sportive performance. Regardless, the market sees value in the player which gives investors more assurance about the value of the player, compared to players that have not made a transfer before. This can cause the shock on the market to remain limited.

Secondly, players that have made a transfer before, are expected to have more experience as well compared to players that have not transferred. More experience comes with potentially more play time, thus more player data, which can assist investors in making

informed estimations of the player's value. Consequently, the abnormal returns can therefore be reduced to this.

Primarily young players are the ones that have not made a transfer yet, which is why it is also used as a control variable in the model, but it is an important note when interpreting the results of this regression.

All in all, there is statistically significant evidence that suggests the negative effect of the recognition of a player's contract value on the abnormal returns. Therefore, I can accept hypothesis 2.

Table 6: Linear regression of abnormal returns on recognition

	Dependent variable:
	Abnormal Returns (2-day window)
recognition	-0.004*
	(0.002)
ln(transfer fee)	0.001***
	(0.0003)
young	0.002
	(0.002)
big five	-0.002
	(0.002)
Constant	0.0005
	(0.009)
Fixed effects (Club, country and year)	Incl.
Observations	1,063
R^2	0.054
Adjusted R^2	0.016
Residual Std. Error	0.027 (df = 1021)
F Statistic	1.410** (df = 41; 1021)
Note:	*p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regression with explanatory variable recognition on dependent variable *ar 2-day*. Explanatory variable recognition takes value 1 when a player's contract value is recognized on the balance sheet. *Ar 2-day* depicts the abnormal returns between the start of the date of confirmation, 3 days before the official transfer date, and the end of the following day.

4.5 Additional analysis

In addition to the recognition of a player's contract value, it is also interesting to investigate the level of this value. I have already seen the statistical significance of the transfer fee on the abnormal returns in table 6. As an interpretation, a 1 percent increase in the transfer fee, increases the abnormal returns by 0.001 percentage points (0.001 *ln(1.01)), ceteris paribus. As a relative effect compared to the average absolute abnormal returns, that would be an increase of 0.0005 percent (0.001 / 1.98*100%). Overall, the size of the transfer fee has an economically irrelevant effect on the abnormal returns.

However, the size of the transfer fee may not be the factor of interest that can cause shifts in investors' estimations, thus higher abnormal returns. These cases would primarily exist when the valuations of the investors deviate from the transfer fee paid. Thus, the difference between the investors' estimation and the transfer fee is expected to influence the abnormal returns. To test this, I have run three regressions with dependent variables, book value, previous transfer fee and market value.

I have chosen to use book value as it should reflect the remaining value of the contract after amortization throughout the years. Generally, contracts can take a maximum of 5 years (Feess & Muehlheusser, 2003a). I calculate the book value by amortizing the transfer fee that was previously paid by the club to acquire the player, using a linear method across 5 years. If the player remained longer than 5 years at the club, I recognize the book value as 0. If the previous transfer fee was 0, I recognize the book value as 0 as well.

As Hoey et al. (2021) stated, transfer fees often exceed the remaining book value. A potential explanation for this is the conservatism of the current amortization procedure. Firstly, the value amortizes relatively fast in the beginning period, while this primarily happens near the end of the contract duration. Players can leave for lower transfer fees when they have only a year or two left. This phenomenon occurs because clubs are in fear of seeing the player leave for free when the contract expires. Therefore, the transfer fee that was issued before, would be expected to have a representational value of the transfer fee paid in the future. To check for potential impact on the market's response, I estimate the difference between the transfer fee and the previous transfer fee.

Secondly, there are no potential adjustments in case the player's value increases over time. Typically, the market value provided by Transfermarkt would be an appropriate tool to measure the fair value of a player. Therefore, I also estimate the difference between the transfer fee and the market value to see if there is an impact on the abnormal returns. The results are provided in table 7.

Table 7: Additional analysis: Linear regressions of abnormal returns on different explanatory variables

	Dependent variable:			
	Abnormal Returns (2-day window)			
	(1)	(2)	(3)	(4)
recognition	-0.004**			
	(0.002)			
ln(diff bv)		-0.001		
		(0.0005)		
ln(diff prev)			-0.001*	
			(0.0004)	
ln(diff mv)				-0.001
				(0.001)
ln(transfer fee)	0.001***	0.001**	0.001***	0.001**
	(0.0003)	(0.0004)	(0.0003)	(0.0003)
young	0.001	0.002	0.001	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
big five	0.0001	0.0003	0.0005	0.00004
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	-0.015	-0.015	-0.014	-0.012
	(0.010)	(0.010)	(0.010)	(0.023)
Fixed effects (Club, country and year)	Incl.	Incl.	Incl.	Incl.
Observations	1,052	1,052	1,052	988
R^2	0.060	0.058	0.060	0.054
Adjusted R^2	0.022	0.019	0.021	0.014
Residual Std. Error	0.031 (df = 1010)	0.031 (df = 1010)	0.031 (df = 1010)	0.031 (df = 947)
F Statistic	1.571** (df = 41; 1010)	1.508** (df = 41; 1010)	1.562** (df = 41; 1010)	1.353* (df = 40; 947)
Note:				*p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regressions with explanatory variables *recognition, diff bv, diff prev* and *diff mv* on dependent variable *ar 2-day*. Explanatory variable recognition takes value 1 when a player's contract value is recognized on the balance sheet. Variables *diff bv, diff prev, diff mv* represent the difference between the transfer fee paid at the transfer and the book value, previous transfer fee and market value, respectively. *Ar 2-day* depicts the abnormal returns between the start of the date of confirmation, 3 days before the official transfer date, and the end of the following day.

According to the results I can find statistical insignificance for the differences in transfer fee and the book value and the previous transfer fee. I can argue that the insignificance of book value can initially be explained by the conservative argument. If a contract value is amortized too soon, then it will represent an accurate estimation of the value of the asset. In that sense, investors would not find the book value relevant information for their evaluation of player contracts.

The insignificance of the previous transfer fee can be explained by the second conservative argument. As players develop over time, player value is expected to increase accordingly. This causes the previous transfer fee to be structurally lower than the transfer fee of the current transfer. Alternatively, players can also decrease in value, due to disappointing performance or injuries. The previous transfer fee may be too rigid in their estimation as it can primarily capture the value of the player at a certain point in time.

The difference between transfer fee and market value is negative and statistically significant at a 10-percentage level. A one percent increase in the difference between the transfer fee and the market value decreases the abnormal returns of a transfer announcement by (-0.001*ln(1.01)*100%) by 0.001 percentage points, ceteris paribus. The mean of the absolute abnormal returns is 1.99. The relative effect of a 1 percent increase in the difference between the transfer fee and the market value is 0.001 percent (0.001/1.99*100%). Overall, there is no economically relevant result found here either. However, this is not unexpected, as the main analysis also suggested limited effects of transfer confirmations on the abnormal returns. Yet, there is statistical evidence that the difference between the transfer fee and the market value may play a role in the shock on the market. This may suggest that investors identify the market value as relevant information as the shocks are larger when this value deviates from the transfer fee.

4.6 Robustness checks

To check whether the statistical significance holds, I have performed multiple robustness checks for both hypotheses 1 and 2. In table 8, you can find the robustness tests for hypothesis 1.

Table 8: Robustness tests of hypothesis 1.

	Dependent variable:			
	3-day window	Same day	Positive	Negative
	(1)	(2)	(3)	(4)
transfer	0.001	0.001	0.001	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.0001	-0.042	0.121***	-0.139***
	(0.038)	(0.033)	(0.035)	(0.032)
Observations	86,848	89,280	42,435	45,794
R^2	0.001	0.0004	0.020	0.027
Adjusted R^2	0.001	0.0002	0.019	0.026
Residual Std. Error	0.032 (df = 86826)	0.028 (df = 89258)	0.020 (df = 42413)	0.019 (df = 45772)
F Statistic	5.362*** (df = 21; 86826)	1.803** (df = 21; 89258)	40.637*** (df = 21; 42413)	60.264*** (df = 21; 45772)

Note: *p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regression with explanatory variable *transfer* on dependent variables *ar 3-day*, *Same day*, *Positive* and *negative*. Explanatory variable *transfer* takes value 1 when the date corresponds to a transfer event. Variable *ar 3-day* depicts the abnormal returns between the start of the date, 3 days before, and the end 2 days afterward. Variable *same day* depicts the abnormal returns between the beginning and the start of the day of the official transfer date. Variables *Positive* and *Negative* take the original dependent variable *ar 2-day*, but are now split into subsamples with only the positive and negative values of *ar 2-day*.

I have run robustness checks by changing the dependent variable. Firstly, I have broadened the time window of the abnormal returns by 1 additional day. Furthermore, in the second regression, I have used the abnormal returns that resulted on the same day of the transfer announcement, instead of 3 days in advance. The third and fourth regressions have dependent variable abnormal returns (2-day window) and I have split them into the positive and the negative sample.

Overall, the first three regressions report insignificant coefficients. The 3-day time window could be too large to identify the effect of a transfer and might capture variation that cannot be attributed to the transfer. The insignificance of regression 2 may prove that the transfer confirmation is recognized by investors a couple of days in advance of the final transfer announcement. Finally, the positive sample shows insignificant results, while the negative sample reports significant results. A potential explanation for this might be that investors are more lenient toward changing their evaluations when a transfer announcement is related to a

negative financial impact. In table 9, I have also run the four main models of hypothesis 2, but with dependent variable in a 3-day window.

Table 9: Robustness tests of hypothesis 2

	Dependent variable:			
	Abnormal Returns (3-day window)			
	(1)	(2)	(3)	(4)
recognition	-0.004**			
	(0.002)			
ln(diff bv)		-0.001		
		(0.0005)		
ln(diff prev)			-0.001*	
			(0.0004)	
ln(diff mv)				-0.001
				(0.001)
ln(transfer fee)	0.001***	0.001**	0.001***	0.001**
	(0.0003)	(0.0004)	(0.0003)	(0.0003)
young	0.001	0.002	0.001	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
big five	0.0001	0.0003	0.0005	0.00004
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	-0.015	-0.015	-0.014	-0.012
	(0.010)	(0.010)	(0.010)	(0.023)
Fixed effects (Club, country and year)	Incl.	Incl.	Incl.	Incl.
Observations	1,052	1,052	1,052	988
R^2	0.060	0.058	0.060	0.054
Adjusted R^2	0.022	0.019	0.021	0.014
Residual Std. Error	0.031 (df = 1010)	0.031 (df = 1010)	0.031 (df = 1010)	0.031 (df = 947)
F Statistic	1.571** (df = 41; 1010)	1.508** (df = 41; 1010)	1.562** (df = 41; 1010)	1.353* (df = 40; 947)

Note: *p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regressions with explanatory variables *recognition*, *diff bv*, *diff prev* and *diff mv* on dependent variable *ar 3-day*. Explanatory variable recognition takes value 1 when a player's contract value is recognized on the balance sheet. Variables *diff bv*, *diff prev*, *diff mv* represent the difference between the transfer fee paid at the transfer and the book value, previous transfer fee and market value, respectively. *Ar 3-day* depicts the abnormal returns between the start of the date of confirmation, 3 days before the official transfer date, and the end of the 2 days afterward.

As you can see, the results for the first two regressions are robust. The recognition of a player contract also has a significant impact when investigating a 3-day window, while the difference

in transfer fee and book value still shows insignificant results. Yet, in contrast to the initial additional analysis, the difference between transfer fee and previous transfer fee is significant, while the difference between transfer fee and market value is insignificant. The magnitudes remain relatively similar in their economic irrelevance, so it might be coincidental.

Finally, in tables 10, 11 and 12 I have also run robustness tests using the absolute value, the positive sample and the negative sample of abnormal returns, respectively. In line with the findings of the main analysis, I can find that recognition is robust for both the absolute and the positive abnormal returns regression. The negative sample reports insignificant results. A potential reason for this could be that negative outcomes of outgoing transfers may already be recognized by investors in advance. The valuation of a player's contract may be amortized to be more conservative. The other dependent variables report no significant results for all three samples. Overall, I find relatively little statistical supporting evidence for hypothesis 1, whereas hypothesis 2 appears robust.

Table 10: Robustness tests on absolute sample of hypothesis 2

	Dependent variable:			
	Abnormal Returns (2-day window)			
	(1)	(2)	(3)	(4)
recognition	-0.003**			
	(0.001)			
ln(diff bv)		-0.0001		
		(0.0003)		
ln(diff prev)			-0.0003	
			(0.0002)	
ln(diff mv)				0.00004
				(0.0004)
ln(transfer fee)	0.0001	0.00004	0.0001	-0.00004
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
young	0.002	0.003*	0.002*	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
big five	0.001	0.001	0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.025***	0.025***	0.026***	0.021
	(0.006)	(0.006)	(0.006)	(0.014)
Fixed effects (Club, country and year)	Incl.	Incl.	Incl.	Incl.
Observations	1,063	1,063	1,063	1,001
R^2	0.078	0.074	0.075	0.080
Adjusted R^2	0.041	0.037	0.038	0.041
Residual Std. Error	0.018 (df = 1021)	0.018 (df = 1021)	0.018 (df = 1021)	0.018 (df = 960)
F Statistic	2.120*** (df = 41; 1021)	1.985*** (df = 41; 1021)	2.022*** (df = 41; 1021)	2.074*** (df = 40; 960)

Note: *p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regressions with explanatory variables *recognition*, *diff bv*, *diff prev* and *diff mv* on dependent variable *ar 2-day*. Explanatory variable recognition takes value 1 when a player's contract value is recognized on the balance sheet. Variables *diff bv*, *diff prev*, *diff mv* represent the difference between the transfer fee paid at the transfer and the book value, previous transfer fee and market value, respectively. *Ar 2-day* depicts the abnormal returns between the start of the date of confirmation, 3 days before the official transfer date, and the end of the 2 days afterward. This sample transforms all values of *ar 2-day* into absolute values.

Table 11: Robustness tests on positive sample of hypothesis 2

	Dependent variable:			
	Abnormal Returns (2-day window)			
	(1)	(2)	(3)	(4)
recognition	-0.005**			
	(0.002)			
ln(diff bv)		-0.0003		
		(0.0004)		
ln(diff prev)			-0.0005	
			(0.0003)	
ln(diff mv)				-0.00003
				(0.001)
ln(transfer fee)	0.0004	0.0004	0.0005	0.0001
	(0.0003)	(0.0004)	(0.0003)	(0.0003)
young	0.006***	0.007***	0.007***	0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
big five	0.0002	0.0002	0.0003	0.0001
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.015*	0.015*	0.016*	0.023*
	(0.008)	(0.008)	(0.008)	(0.013)
Fixed effects (Club, country and year)	Incl.	Incl.	Incl.	Incl.
Observations	531	531	531	505
R^2	0.135	0.125	0.128	0.135
Adjusted R^2	0.063	0.052	0.055	0.062
Residual Std. Error	0.019 (df = 489)	0.020 (df = 489)	0.020 (df = 489)	0.020 (df = 465)
F Statistic	1.862*** (df = 41; 489)	1.709*** (df = 41; 489)	1.755*** (df = 41; 489)	1.855*** (df = 39; 465)

Note: *p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regressions with explanatory variables *recognition*, *diff bv*, *diff prev* and *diff mv* on dependent variable *ar 2-day*. Explanatory variable recognition takes value 1 when a player's contract value is recognized on the balance sheet. Variables *diff bv*, *diff prev*, *diff mv* represent the difference between the transfer fee paid at the transfer and the book value, previous transfer fee and market value, respectively. *Ar 2-day* depicts the abnormal returns between the start of the date of confirmation, 3 days before the official transfer date, and the end of the 2 days afterward. This sample consists only of the positive values of *ar 2-day*.

Table 12: Robustness tests on negative sample of hypothesis 2

	Dependent variable:			
	Abnormal Returns (2-day window)			
	(1)	(2)	(3)	(4)
recognition	-0.0001			
	(0.002)			
ln(diff bv)		0.0001		
		(0.0003)		
ln(diff prev)			-0.0001	
			(0.0003)	
ln(diff mv)				-0.00005
				(0.001)
ln(transfer fee)	-0.0001	-0.0002	-0.0001	-0.0002
	(0.0002)	(0.0003)	(0.0002)	(0.0002)
young	-0.003	-0.002	-0.003	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)
big five	0.002	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.041***	0.041***	0.041***	0.026*
	(0.009)	(0.009)	(0.009)	(0.013)
Fixed effects (Club, country and year)	Incl.	Incl.	Incl.	Incl.
Observations	532	532	532	496
R^2	0.149	0.149	0.149	0.149
Adjusted R^2	0.078	0.078	0.078	0.074
Residual Std. Error	0.016 (df = 490)	0.016 (df = 490)	0.016 (df = 490)	0.016 (df = 455)
F Statistic	2.089*** (df = 41; 490)	2.093*** (df = 41; 490)	2.093*** (df = 41; 490)	1.991*** (df = 40; 455)

Note: *p<0.1; **p<0.05; ***p<0.01

See appendix, table 4 for variable definitions. Linear regressions with explanatory variables *recognition*, *diff bv*, *diff prev* and *diff mv* on dependent variable *ar 2-day*. Explanatory variable recognition takes value 1 when a player's contract value is recognized on the balance sheet. Variables *diff bv*, *diff prev*, *diff mv* represent the difference between the transfer fee paid at the transfer and the book value, previous transfer fee and market value, respectively. *Ar 2-day* depicts the abnormal returns between the start of the date of confirmation, 3 days before the official transfer date, and the end of the 2 days afterward. This sample consists only of the negative values of *ar 2-day*.

5. Conclusion

Following our results, I have found statistical evidence to accept both hypotheses 1 and 2. From hypothesis 1, I can conclude that transfer confirmations provide relevant information to investors, so they adjust their evaluations of a club's stock. On average, the abnormal returns increase by 7.6 percent after the confirmation of a player's transfer compared to when there is no transfer confirmation, ceteris paribus. While this effect may be statistically significant, the economic relevance may be questioned. However, this still provides suggestive evidence to support the relevance of the event study, since investors alter their valuations accordingly.

Furthermore, by accepting hypothesis 2, I can state that the recognition of the contract value of a player significantly decreases the abnormal returns after the transfer confirmation of a player. On average, it decreases this shock by 20.2 percent compared to when a player's transfer does not have the player's value recognized on the balance sheet, ceteris paribus. Overall, this suggests the importance of the recognition of an immaterial asset like a player's contract. In other words, the absence of this recognition, for free agents or youth players, shows that IAS 38 does not allow intangibles to completely represent economic relevant information, more specifically in the football industry context. Accounting standard setters could revise the accounting standards to provide an alternative to the valuation of contracts of freely acquired players or youth players.

6. Limitations and future research

Although I have found statistical support for the relevance of the recognition of player contracts, there are some limitations. Firstly, one of the main limitations of this research is the misidentification of the transfer dates. The data set that I have assembled uses the transfer dates of Transfermarkt. These dates correspond to the official dates when a player is under contract with the new club. However, the start of a player´s new contract does not have to align with the transfer confirmation date. I.e. Brian Brobbey (former player of Ajax) signed a pre-contract agreement with RB Leipzig (Bundesliga, 2021). The date at Transfermarkt will state 1st of June, while the actual announcement was months in advance. I partially solved this issue by dropping all observations of which the dates occur at the start of the transfer windows since a large portion of transfer agreements take place outside of the transfer window. Ideally, I would gather all the dates of the official transfer announcements made by the club. Potentially, you could manually check the social media posts of the clubs, but considering the scope of my thesis, I chose not to. Alternatively, instead of the transfer confirmation dates, future research could investigate the announcements of transfer bids. The transfer bids usually provide investors an accurate estimation of a player´s value by the market, which can aid investors to potentially adjust their evaluations. Also, the initial bid could potentially cause the largest shock in the whole negotiation process, which can explain the relatively small effect seen at hypothesis 1.

Furthermore, another limitation is the cumulative effect of transfers. In line with the paper of Fűrész and Rappai (2020), one can assume that the total effect is disseminated over a larger period. As discussed before, the negotiations of transfers can have a duration of months

in advance of the final confirmation. Over time, media provides updates with relevant details of the transfers, such as the transfer bids, which cumulatively can make investors adjust their evaluations. All in all, the total effect may not be captured on the day after the confirmation, but over a longer period. A potential solution would be to widen the window of abnormal returns, but an increase of the window could cause overlaps with other events that are linked to the club, which can impact the club´s stock as well. In line with the recommendation made in the previous limitation, future research could try to investigate the social media posts made by the club or transfer experts that are related to a player´s transfer and investigate the impact on the abnormal returns after each individual post. Using this strategy, you can maintain short time windows, while still covering a larger period and you can allocate the portion of the total shock to each social media announcement.

Moreover, a potential limitation is the generalizability of the football context. While the football industry has become economically highly relevant and there is a selection of publicly registered clubs that provide investment opportunities, Tiscini and Dello Strologo (2016) explained an important distinction of the football industry. They discovered that the value of football clubs is not directly linked to the financial results, because socio-emotional benefits need to be considered for shareholders as well. Shareholders of football clubs may not act in line with the expectation of rational investors. Abnormal returns may therefore not be the correct tool to measure the financial importance of player's contract values.

Finally, another limitation is the simplicity of the models. The low R-squared of the models in this paper can partially be attributed to the neglect of other relevant events that can have an impact on the abnormal returns of a club´s stock. For hypothesis 2, this would typically only pose a problem when such an event would take place on the same day of a transfer, thus the impact is expected to remain relatively limited. However, hypothesis 1 compares transfer events with all other dates in the period of interest. Those events will thus also be compared with dates when events occur that have an impact on the club´s stock. Ideally, I would either want to control for these events or solely compare the transfer events with dates when no relevant events occur.

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8. Appendix:

Table 1: Sample selection

	Observations
All transfers of the 19 publicly listed clubs in 2002-2021.	7307
Excluding transfers labeled as loan transfers or without information available about the transfer fee.	3478
Excluding transfers with the option to buy at a later stage.	2200
Excluding transfers that are registered on the starting day of the transfer windows.	1317
After merging the transfer data with the financial data, there are missing values.	1206
After performing winsorization on abnormal returns to exclude large outliers.	1063

This table provides an overview of the sample selection process to acquire the final sample of 1063 observations. Each comment explains why I have dropped certain observations. The remaining observations are reported next to the explanation.

Table 2a: Descriptive statistics hypothesis 1 positive sample

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
transfer	42,435	0.01	0.11	0	0	0	1
ar 2-day	42,435	0.02	0.02	0.0000	0.01	0.03	0.10

See appendix, table 4 for variable definitions. This table provides the descriptive statistics of the positive sample that is used to test hypothesis 1. It provides the descriptive statistics, number of observations (N), mean, standard deviation, minimal value, the 25% quartile, the 75% quartile and the maximum value.

Table 2b: Descriptive statistics hypothesis 1 negative sample

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
transfer	45,794	0.01	0.11	0	0	0	1
ar 2-day	45,794	-0.02	0.02	-0.10	-0.03	-0.01	-0.0000

See appendix, table 4 for variable definitions. This table provides the descriptive statistics of the negative sample that is used to test hypothesis 1. It provides the descriptive statistics, number of observations (N), mean, standard deviation, minimal value, the 25% quartile, the 75% quartile and the maximum value.

Table 3a: Descriptive statistics Hypothesis 2 positive sample

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
market value	507	5,425.20	10,282.19	50.00	700.00	6,000.00	100,000.00
transfer fee	532	4,747.08	11,251.71	0.00	0.00	4,625.00	105,000.00
transfer fee prev	544	3,346.08	8,100.92	0	0	3,762.5	117,000
book value	544	1,383.77	3,814.83	0.00	0.00	1,202.10	49,498.19
diff mv	496	2,792.20	3,848.00	0.00	500.00	3,425.00	35,000.00
diff prev	532	4,518.32	10,285.89	0.00	0.00	4,402.50	105,000.00
diff bv	532	3,936.28	10,151.69	0.00	0.00	2,430.63	105,000.00
recognition	544	0.47	0.50	0	0	1	1
age	544	26.52	4.46	17	23	30	39
big five	544	0.38	0.49	0	0	1	1
young	544	0.31	0.46	0	0	1	1
ar 2-day	544	-0.02	0.02	-0.10	-0.03	-0.01	0.0000

See appendix, table 4 for variable definitions. This table provides the descriptive statistics of the positive sample that is used to test hypothesis 2. It provides the descriptive statistics, number of observations (N), mean, standard deviation, minimal value, the 25% quartile, the 75% quartile and the maximum value.

Table 3b: Descriptive statistics Hypothesis 2 negative sample

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
market value	509	5,574.51	9,622.11	25.00	600.00	5,500.00	70,000.00
transfer fee	531	5,332.99	12,806.31	0.00	0.00	4,500.00	140,000.00
transfer fee prev	535	3,389.89	7,722.42	0	0	3,300	75,000
book value	535	1,490.60	4,498.30	0.00	0.00	1,279.25	60,831.62
diff mv	505	2,841.68	6,562.64	0.00	400.00	3,000.00	107,000.00
diff prev	531	5,005.23	11,165.75	0.00	0.00	4,500.00	127,200.00
diff bv	531	4,356.05	11,151.28	0.00	0.00	2,926.00	127,200.00
recognition	535	0.48	0.50	0	0	1	1
age	535	26.36	4.40	17	23	30	40
big five	535	0.39	0.49	0	0	1	1
young	535	0.30	0.46	0	0	1	1
ar 2-day	535	0.02	0.02	0.0000	0.01	0.03	0.10

See appendix, table 4 for variable definitions. This table provides the descriptive statistics of the negative sample that is used to test hypothesis 2. It provides the descriptive statistics, number of observations (N), mean, standard deviation, minimal value, the 25% quartile, the 75% quartile and the maximum value.

Table 4: Summary variable definitions

Variable name	Definition
transfer	The variable *transfer* corresponds to the 1063 transfer events. Each observation takes value 1 if a transfer occurs on the date. It takes value 0 if there is no transfer on that date.
ar 2-day	The variable *ar 2-day* represents the dependent variable abnormal returns. Abnormal returns are calculated by calculating the difference between the stock return of the club and the market index return. It measures the abnormal returns from the start of day 1 and the end of day 2. Note that day 1 does not correspond to the transfer date. I assume that the transfer confirmation occurs 3 days before the official transfer date. I.e. to calculate the abnormal returns on January 6th, I calculate the abnormal returns using the start of January 3rd and the end of January 4th.
market value	The variable *market value* represents the market value of the player at the transfer date. This value is an estimation made by Transfermarkt which is calculated using age, nationality, position and other sportive statistics. It functions as a proxy for the value of a player and thus the potential transfer fee that a club needs to pay for the player. The variable is expressed in thousands of Euros and in the regressions, it is operationalized at a logarithmic scale.
transfer fee	The variable *transfer fee* represents the fee that the acquiring club paid to release a player from its previous club´s contract at the transfer date. This value is zero if the player joined as a free transfer or if the player was a youth player, acquired from the youth squad. The variable is expressed in thousands of Euros and in the regressions, it is operationalized at a logarithmic scale.
transfer fee prev	The variable *transfer fee prev* represents the fee that was originally paid by the selling club. I.e. Moroccan player Hakim Ziyech was acquired from FC Twente by Ajax in 2016 for 11 million Euros and was sold in 2020 to Chelsea for 40 million Euros. The 11 million Euros refers to *transfer fee prev* whereas the 40 million Euros refers to the *transfer fee*. The variable is expressed in thousands of Euros and in the regressions, it is operationalized at a logarithmic scale.
book value	The variable *book value* represents the remaining accounting value of the player´s contract that is reported on the balance sheet of the club. I calculate this value by amortizing the *transfer fee prev* on a linear basis, assuming all contracts have a duration of 5 years. I.e. Hakim Ziyech arrived at Ajax in 2016 for 11 million Euros and left the Club 4 years later. The *book value* is 2.2 million Euros (11- 4/5*11). The variable is expressed in thousands of Euros and in the regressions, it is operationalized at a logarithmic scale.

diff mv	The variable *diff mv* represents the difference between the *transfer fee* and the *market value*. I.e. Hakim Ziyech had a market value of 40 million Euros and was acquired for a transfer fee of 40 million Euros. His *market value* thus is zero. The variable is expressed in thousands of Euros and in the regressions, it is operationalized at a logarithmic scale.
diff prev	The variable *diff prev* represents the difference between the *transfer fee* and *transfer fee prev*. I.e. Hakim Ziyech was originally acquired by Ajax for 11 million Euros and sold to Chelsea for 40 million Euros. The *diff prev* thus is 29 million Euros (40 – 11). The variable is expressed in thousands of Euros and in the regressions, it is operationalized at a logarithmic scale.
diff bv	The variable *diff bv* represents the difference between *transfer fee* and *book value*. I.e. Hakim Ziyech´s *book value* was valued at 2.2 million Euros and we was acquired for 40 million Euros. The *diff bv* therefore results in 37.8 million Euros (40-2.2). The variable is expressed in thousands of Euros and in the regressions, it is operationalized at a logarithmic scale.
recognition	The variable *recognition* is a dummy variable that holds value 1 when a player´s value was reported on the balance sheet of the club. I.e. Hakim Ziyech was reported at a book value of 2.2 million Euros at the transfer. For this transfer, *recognition* holds value 1. The variable holds value 0 when a player joined on a free transfer basis or when the player was a youth player who was internally developed.
age	The variable *age* represents the age of the player at the time of the transfer. I calculated the age by comparing the birthdate of the player and the transfer date. I.e. Hakim Ziyech was born on March 13, 1993 and made his transfer to Chelsea on July 1, 2020. The variable *age* would hold value 27.31.
big five	The variable *big five* holds value 1 when the acquiring club is active in one of the top 5 leagues of Europe, namely, England, Spain, Italy, Germany or France. I.e. Hakim Ziyech was acquired by Chelsea, a English club that was active in the Premier League of England, thus *big five* holds value 1. If a club is not active in one of the top 5 leagues, *big five* holds value 0.
young	The variable *young* is a dummy variable that holds value 0 when the player is aged above the age of 23. I.e. Hakim Ziyech had the age of 27.31 at the transfer date, thus *young* holds value 0. Any player at the age of 23 or younger, *young* holds value 1.
club	The variable *club* corresponds to one of the 19 clubs of the sample. It is used to control for fixed effects. I.e. Hakim Ziyech was originally a player of Ajax. The variable *club* thus controls for the fixed effect of Ajax.

country	The variable *country* corresponds to the country at which the club is active. This is used to control for fixed effects. I.e. Hakim Ziyech was originally a player of Ajax, which is a Dutch club. The variable *country* therefore accounts for the fixed effect of the Netherlands.
year	The variable *year* represents the year at which the transfer occurs. This is used to control for fixed effects. I.e. Hakim Ziyech made his transfer in 2020. The variable *year* therefore uses the fixed effect of 2020.

This table provides an overview of the variable definitions. I have included the variables of hypotheses 1 and 2 and the variables of the additional analyses.