Master Thesis

The effect of player transfers on stock prices

An event study on European listed football clubs

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Abstract

This study is conducted in the field of behavioral finance where certain events, in this case player transfers, are linked to asset prices. For 15 listed football clubs, player transfers as well as player and club characteristics have been examined for their effect on the stock price of the accompanying club through affecting the mood of investors. The results show that investors do appreciate both the acquiring of players as well as selling them, since significant higher stock prices were found at the first, second and 9th day after the deal was closed. These effects were also found on the short term, namely for the interval from the day before until the day after the transfer deal. Moreover, the more fees a team receives from transfers, the stronger the positive relationship between transfers and stock returns tends to be. This holds especially for the acquisition of middle aged experienced players, while buying a particular younger or older player for a high fee is followed by a negative impact on the stock price of buying clubs. This confirms the 'overpricing' effect partially, since the effect is not incorporated in all transfer making. The higher a club's interest coverage, the lower stock returns are after sales, while higher stock prices are found after acquisitions whenever the club has high return on assets. No effects were found after players joined or left the team on a loan base. Moreover, transfer making has no impact at all on the stock prices of sponsors of listed clubs.

1. Contents

Chapter 1 Introduction

Football already exists for 150 years and is becoming more popular every year. Since the introduction of European top players like Thierry Henry, David Villa and Andrea Pirlo in the USA, even the American football league is becoming very popular. Because of its popularity, more and more money is invested in football teams. Many studies have investigated the effect of match outcomes on the stock prices of listed clubs. Often the results were similar with short-term effects on the stock price, which are positive after winning a match and negative after not winning a match (Sarac and Zeren (2013), Stadtmann (2006), Boidoa et al., 2007 etc). This holds especially for knock-out games and for matches played towards the end of the season (Bell et al., 2012). However, the effects of player transfers on clubs' stock prices are never investigated on a very large scale. Fotaki et al. (2007) did investigate it, but only partly, as they tested the effects of player transfers on stock prices without including certain transfer, player and club characteristics. Moreover, Fotaki et al. (2007) only used around 2000 player transfers, while this study incorporates more than 9000.

Because of the enormous interest of the world population in national and international football, the amount of money invested in the teams during transfer windows has increased enormously. To give an example; Manchester United and Adidas signed a sponsor deal of €1 billion for ten years in 2010. Since top league teams are receiving an increasing amount of sponsorship money on top of the rising ticket revenues and broadcast rights, player salaries and transfer fees are rising spectacularly. Only two-and-a-half years after the new record of signing of Gareth Bale by Real Madrid (€105 million), Manchester United exceeded the record by buying Paul Pogba from Juventus for €121 million. The amount of transfers dealing with fees over €50 million has never been so high and is increasing every season.

Since more and more money is invested in teams, the question arises whether investors are sensible to these transfers. This study tries to find an answer to that question. Fotaki et al. (2007) considered football players and managers to be the key elements of the human capital of a club. They only found significant higher returns at the 4^{th} and 12^{th} day after the acquisition of a player, without determining the effect of selling a player. This study finds an answer to them both with positive abnormal returns on the 9^{th} day of a transfer (both for acquisitions and sales). Acquisitions have a positive effect on the share price of the buying team. However, sales seems

to have a positive influence on the stock price of the selling club on the short run, as positive effects were found for both acquisitions and sales on the short term interval (-1, 1). Negative effects were expected for acquisitions because of 'overpricing'. Fotaki et al. (2007) stated that investors do not believe that players are able to earn back their transfer fees at their new team. This could be acquired through higher ticket revenues, more prize money from playing in a European competition (Champions league or Europa league) etc. The most important dataset in this study contains the accumulated fees of transfers in and out of a club in the following manner: *Net fees received at trading day T for listed club I = Fees received at trading day T from sales by listed club I – Fees paid at trading day T for acquisitions by listed club I.* Higher stock prices were found for the day of the transfer deal as well as for the day before. The higher net fee received, the stronger the effect on the stock price will be. Also the effect of loans on stock prices is tested, but no significant results were found. Both hiring and lending out does not seem to bother investors. Positive significant stock returns were expected, since hiring is a cheaper way to invest in the team. On top of that, clubs expect that one of their players will improve during his stay at another club.

After globally testing the effects of transfers, player and club characteristics were included into another dataset containing only one transfer per trading day per team. This has been executed to ensure that unique player and club characteristics could be included. For example, whenever a team sells a player who became champion with his team last season and who plays for the national team as well, negative returns seem to arise on the short term. The 'overpricing' effect was expected to be mostly common in the selling and acquiring of young football players, since they do not have a lot of experience, but are sold for the highest fees. The average fee was highest for young players (< 23 years). Strongly significant positive effects on stock prices of the selling team were found after selling young players for a high fee (> €5 million). The opposite relationship is found for middle aged and older players (≥ 23 years). Investors do not think those players are overpriced and believe they are an immediate strengthening of the team. Also buying an international player for a low fee (< €1 million) is followed by strongly significant higher stock prices, since investors believe the team got a bargain at acquiring an experienced player. The opposite effect is found for selling the same player for a low fee, which confirms the overpricing idea once again. The main conclusion could be that investors think that players are overpriced whenever they are young and bought or sold for a high fee. Also selling an old player

for a high fee (> 28 years and > €5 million fee), triggers higher stock prices on the longer term, since investors do not believe that old players are able to make up for the fees since their active careers are coming to their ends.

Also, the effects of club characteristics were tested. It became clear that the higher interest coverage of the selling club, the lower stock returns for those clubs tend to be. Investors believe it is not necessary to sell a player whenever enough money is earned to cope with interest payments. The higher ROA, the higher stock returns are for the buying team after a player is acquired, confirming that investors trust the club to invest in the team whenever revenues are high enough.

The stock prices of the main sponsors of listed clubs are not affected by transfers of the concerned listed club. Both sales and acquisitions do not influence the share prices. On top of that, no signing-effect is found. No significantly different stock prices were found after a sponsor deal is closed. This also holds for the long term (until 8 years after the deal signing).

This study is structured as follows. In Chapter 2, existing literature is investigated. This led to the research questions which are stated in Chapter 3. Chapter 4 describes the data used in this study and the methodology, while Chapter 5 discusses the results. This is followed by the conclusion in Chapter 6. Ended is with references and appendices.

Chapter 2 Literature overview

Part 1 Efficient Market

Fama (1970) defined an efficient market as a market where all available information is reflected in security prices directly. This implies that market prices only change when sensible information is released. This EHM (efficient market hypothesis) is based on three arguments (Fama, 1970):

1. The expectation is that investors act rationally.

2. When investors do not act rationally, their trades should be random and therefore cancel each other out (because of the large amounts of trades).

3. Whenever investors tend to act irrational, rational arbitrageurs will benefit from that and eliminate the influence of irrational investors on security prices.

The third argument is the most convincing part of the EMH, which implies that it is not possible to make superior returns. Price reflections appear immediately whenever new information becomes public. This is also concluded by Fama, Fisher, Jensen and Roll (1969).

Keown and Pinkerton (1981) studied the announcements of takeover bids. Whenever a takeover bid is announced, the stock price will already reflect this before the actual deal is finished. This is in line with the results of the EMH, with respect to the immediate effect of new information on security prices.

Part 1.2 Challenges to the efficient market hypothesis

After the papers of Fama (1970) and Keown and Pinkerton (1981) were published, more and more studies have been based on the efficient market hypothesis. Shiller (1981), for example, found more volatility in stock prices than could be expected according to the EMH. This implies that investors are not always rational and that there must be more factors influencing market prices. An increasing amount of factors have been recognized and the most important ones will be discussed below.

From De Bondt and Thaler (1985) it became clear that former ‘losing’ stocks will perform better in the future compared to former ‘winning’ stocks. Stocks were indexed in two groups, based on market returns over the last three years where the best half was marked as winning stocks. The

'losing' stocks performed better when checking the market returns five years after the portfolio was formulated. However, Jegadeesh and Titman (1993) found the opposite result, with 'winners' performing better in the near future. They found that the performance of stocks over the last three to twelve months could predict future returns. From then on, this effect is known as 'momentum'. Strategies based on momentum show significantly positive returns when taking this period (3-12 months) into account.

Another adjustment made to the EHM is the addition of company size to the model. Siegel (1998) performed a research using data from 70 years (1926-1996) and found that the smallest decile had higher returns than the largest decile in that period. 'Size' was determined by market capitalization in this study. The decile with the smallest companies earned almost 4 percent more than the largest decile, on an annual basis.

Another important factor is market-to-book ratio. Laknishok, Schleifer and Vishny (1994) have shown that companies with a low market-to-book ratio outperform companies that have high market-to-book ratios. Besides, since both size and market-to-book ratio are known by the market, it is possible to create a strategy that results in profit.

Furthermore, volatility seems to be a factor that needs to be taken into account. Cutler et al. (1991) checked whether one-day price changes were due to announcements or new information. Most of these one-day stock price changes were not caused by new information. This is not in line with EMH, which states that any new important information is incorporated immediately by the market price.

The EMH and the adjustments to it as summarized above will be applied to the football transfer world in the following manner. People interested in investing in listed football clubs are probably not rational as they are influenced by multiple factors with the most important being mood. This will be explained later on (Part 3 of this chapter).

Part 2 Listed Football clubs overview

Boidoa et al. (2007) used the Italian stock market and its three listed football clubs. These clubs are AS Roma, Lazio Roma and Juventus. Those teams are quoted since the beginning of this era.

Italy is a special case, considering the relegation of Juventus because of several scandals in 2006 while being national champions. Moreover, Lazio Roma was accused of rigging matches. During the scandals, matches of Juventus and Lazio were sold, or in other words fixed. This means in this case that wealthy individuals, mostly directors of football clubs, paid large amounts of money to Italian football federation officials to appoint favorable referees for matches of their team. Surely this helped Juventus and Lazio Roma to obtain a high rank in the table. Juventus was consequently relegated to the Serie B, which is the second league of Italy. This is a special case, since major earnings linked to television rights and European prize money were lost after the relegation. This had a negative influence on stock prices, which will be explained later in this study. Since Boidoa et al. (2007) wanted to investigate the effect of performances on stock prices, they had to control for this special case.

In addition, similar research has been done by Stadtmann (2006), who tested the effect of news on the stock price of Borussia Dortmund, a leading German side playing in the Bundesliga. He tested whether new information regarding sporting success helped to explain significant changes in Borussia Dortmund's stock price.

Renneboog and Vanbrabant (2000) did research on IPOs of listed football clubs and found that IPOs have not always been successful, since the stock prices of 8 out of the 12 LSE clubs dropped after one month. Moreover, over longer periods, only 4 out of 12 teams had increasing share prices. Consequently, investment funds closely linked to the football industry did not perform well. Singer and Friedlander started a fund consisting of listed football clubs in 1997 and by the time of 2002 it was worth half. Singer and Friedlander had a first year return of minus 13%. In their dataset only Manchester United had increased its value, with market capitalization in 2000 8 times larger than on the first day of trading in 1991.

Renneboog and Vanbrabant (2000) investigated the same effect as Stadtmann (2006) and Boidoa et al. (2007), but focused on Scottish and British listed teams. By that time 20(!) English and Scottish teams were listed on the LSE (London Stock Exchange). By now only two teams from these countries are still listed, which are Manchester United (UK) and Celtic (Scotland). The main reason for this is that extremely wealthy individuals started to buy the majority of shares of clubs at the end of '00s. Therefore many British teams started to withdraw their stocks from the exchange since they were in no need of external funds anymore (Baur and Mckeating, 2009).

This is one of the several reasons to take more leagues into consideration than only the major five European leagues. This will include teams from countries such as Portugal and Turkey, since this paper aims to have a sufficient amount of listed clubs to get enough data.

Part 3 Social Mood

Thayer (1996) stated that mood can be described as a background feeling that persists over time. Olson (2006) comprised moods of individual investors towards a more general mood. Social mood appears to be rooted in fundamental components of human personality that have been empirically established. From Nofsinger (2005) it is clear that the general level of optimism / pessimism is reflected in the emotions of financial decision-makers. Psychologists believe that emotion is a particularly important factor in decision making under risk and uncertainty because emotions interact with cognitive evaluation in the decision process (Arkes et al., 1988). Positive mood is often associated with positive emotions like optimism, happiness and hope. At their peak, these emotions lead to enormous overconfidence, euphoria and excess. A decreasing mood is often associated with, for example, pessimism and conservatism which leads investors to start minimizing their losses rather than maximizing their profits. It also works the other way around, with stock prices influencing mood. When market prices tend to increase in the last period, mood is very likely to be positive, while it would be negative when prices have been decreasing lately (Nofsinger, 2005).

Part 3.1 Mood as proxy

Boidoa et al. (2007) used the assumption of Edmans et al. (2007), who state that football results are a measure of mood. Edmans et al. (2007) found for example a highly significant increase in investor mood of Italian investors after their national team defeated the French team in the final of the World Championship in 2006. Another statement made in this paper is that variation in stock prices can grow because of the market of player transfers. Stock prices could be influenced in both a positive and a negative way when players are bought or sold to improve the strength of a team. However, Boidoa et al. (2007) left it at this. This relationship will be investigated in this study.

Just like Boidoa et al. (2007), Edmans et al. (2007) used international soccer results as an indicator for investor mood. Contrary to all papers discussed so far, Edmans et al. (2007) investigated the effect on a country's stock market rather than the effect on a club's stock price. However, the results are similar. Losing a football game has a significant negative influence on the domestic stock market, just like the negative effect of losing a match on market prices of listed football clubs.

That football is a game which affects many peoples' mood is also acknowledged by Shwarz et al. (1987) and Arkes et al. (1988). Shwarz et al. (1987) found that the outcome of two matches of the German national football team in the 1982 World Cup significantly changed German investors' assessment of their own well-being as well as their view on national issues. Arkes et al. (1988) showed that the sales of Ohio State lottery tickets strongly increased after victories of the Ohio State University football team. Taking mood as a proxy seems not entirely logical, but it certainly is as other studies show. There are several studies that state that day sunlight is associated with upbeat mood (Hirschleifer and Shumway, 2003). This means that when people are exposed to more daylight, stock returns will be significantly higher. Another example of the influence of mood is shown by Frieder and Subrahmanyam (2004), who found abnormally positive stock price returns around celebrating days like Yom Kippur and St. Patrick's Day and negative returns around days like Hashanah, without explaining why certain religious holidays trigger higher returns than other. However, concluded can be that mood has an effect on stock returns.

Part 3.2 Characteristics of a good proxy

Edmans et al. (2007) argue that for their mood variable, namely match performance, three characteristics should be satisfied. They are stated as follows:

1. The proxy variable must drive mood in a substantial and unambiguous way, so that its effect is powerful enough to show up in asset prices.

2. The variable should influence the mood of a large proportion in order to be likely to affect enough investors.

3. The effect must be correlated across the majority of individuals.

It is clear that for game performances these characteristics are satisfied. In this study, these characteristics will be used as well to test whether the mood variable is linked to stock returns. In this study, player transfers instead of match performances are used to predict moods.

1. Given variable must drive mood in a substantial and unambiguous way, so that its effect is powerful enough to show up in asset prices.

Player transfers influence the composition of the squad significantly. Therefore, supporters always have an opinion on the acquisition as well as on the selling of a player.

2. The variable should influence the mood of a large proportion in order to be likely to affect enough investors.

Player transfers probably will not have such a strong effect on people as match performances do. However, when a substantial amount of money is used to buy / sell a player, most fans will be influenced, since new team compositions will lead towards new season expectations (Zagnoli et al., 2010). Since most investors are fans, this will also influence their mood.

3. The effect must be correlated across the majority of individuals.

Some investors may be more satisfied by the acquisition or sales of players than other investors. However, the vast majority of investors, which are mainly fans (de Ruyter and Wetzels, 2000), do not expect a player to make up for the fees they are bought for. Investors do not expect that the benefits will be higher than the costs (Fotaki et al, 2007).

Overall, it can be concluded that match performances and match results have a large impact on general investor mood. The effect of player transfers will be tested in this paper.

Part 4 From odds to expectations

Betting odds are probably the best way to obtain match expectations. Spann and Skiera (2009) investigated the quality of different expectation methods. They distinguished between prediction markets, betting odds and tipsters. Prediction markets regard current differences in total league points achieved in the Bundesliga so far between home and away teams at the start of a match. Tipsters are ‘experts’ who give tips on betting sites about particular matches. Those tips are

mostly in accordance with betting odds, but sometimes they tip the underdog to win a game. This gives sports gamblers the opportunity to earn a large profit on that particular game. Nevertheless, they do not tend to outperform betting odds. Research has shown that prediction markets and betting odds yield comparable and good forecast accuracy, in contradiction to tipsters, who predict less accurate. Another important part regards the betting odds. These odds are available for all matches. Odds could be used to extract market expectations and ex-ante winning or losing probabilities. As a reference, an example[1] is given; if for a match the odds are 1.25 for one team and 14.00 for the opposing team, the bookmakers are 1/1.25 ≈ 80% sure that the first team will win the match and regard the chance that the opposing team will win only 1/14 ≈ 7%. The remaining 13% involves the expectation that the match will end in a draw. Considering all these characteristics of the football industry, publicly traded sport clubs could be regarded as a very appropriate candidate for an application of the news model (Stadtmann, 2006).

Part 5 Football games qualification and time framing

Football match outcome can be easily stated as either good or bad news, which is more difficult in 'normal' industries. This is a trivial issue in sports, where it is rather easy to qualify a performance as either a good or bad performance as if the club is a company (Boidoa et al., 2007). Moreover, they state that there are not many regular events like football matches that are of 'national interest' and producing mood swings in a large proportion of a country's population.

It should be noted that football matches, except for European games, are played during weekends, so stock prices on Mondays are used to test the effect of match results. European games in the UEFA Champions League and the UEFA Europa league are played on Tuesdays, Wednesdays and Thursdays. This means that the effect of European game performances can be checked the following morning.

Part 5.1 Announcement effect

Stadtmann (2006) and colleagues used the news model of asset determination, which states that changes in asset prices are the outcome of new, non-expected information. This model will also be used in this paper. Normally, in industries other than the football industry, earning

[1] This is a fictional example, but it is realistic in terms of betting notations.

announcements are used to test the effect on stock prices. However, these financial statements are announced only four times a year, which is very infrequent. Moreover, this information is often already known by insiders, which makes them advantageous. This could lead to insider trading, which would increase the stock price itself even before the announcement is made. This means that the effect of the announcement itself would be reduced. This could also be the case for player transfers. This will be taken into account in this study when considering the length of the intervals in the data section. Expectations also play a role in insider trading. This was already explained in part 4 of the literature section. Information presented in quarterly reports is already known to some extent. Therefore, stock prices will already reflect the expectation of the news content. These aspects make it difficult to test the effect of financial announcements on market prices. However, football performances are much easier to qualify than financial reports, as we already know from Boidoa et al. (2007). Winning is a positive result and losing is a negative result. Information is gathered very regularly and frequently, especially for teams in the highest European competitions that play at least 38 league fixtures. On top of that, the higher nationally ranked teams are likely to play European matches in Champions League and Europa League as well as national cup fixtures. Therefore, teams like Juventus and Barcelona play more than 50 matches every season. Consequently, football clubs deliver new information more frequently than normal companies.

Stadtmann (2006) also explains that the outcome of matches materialize when financial markets are closed because matches are played in weekends and on evenings. The effects of those game outcomes are thus only visible the next morning (for European games) and on Mondays (for league games).

Another very important aspect is the fact that matches are followed live. Insiders may have more knowledge on, for example, injuries and bookings, but they are informed similarly as non-insiders when it comes to match performance. News is thus received simultaneously by all investors. The insiders' effect is therefore reduced. Moreover, investors will have expectations about matches. However, expectations are based on recent match results rather than on financial reports from months ago.

Part 5.2 Qualifying player transfers

To satisfy all the characteristics (3) of Edmans et al. (2007), it is likely that only player transfers with high transfer fees will have a significant effect on stock returns, because only then a substantial amount of money is spent. However, this could be different per case. Borussia Dortmund, for example, bought Gonzalo Castro last summer from Bayer Leverkusen for €11 million, which is 3,6% (€11/€300 million) of the total market value of Borussia Dortmund. Total market value is the accumulated market value of Borussia's players. At the same time, AFC Ajax bought Nemanja Gudelj for €6 million last summer, which was 5,2% of their total market value (€6/€115 million). This difference exists because of, among others, different budgets and revenues, but this has to be taken into account when investigating the effect of transfer fees on stock prices. The effect of the Gudelj take-over from AZ Alkmaar should have a larger effect on Ajax' stock price than the Gonzalo Castro-transfer on Borussia's share price. Therefore, the effect of fees will be taken relatively as well as absolute.

Moreover, players with a lot of experience and influence in the football world, who are not necessarily transferred for high fees, could have an enormous effect on stock prices. A good example of this is the transfer of David Beckham from Real Madrid towards LA Galaxy for €20 million (which is not a lot of money anymore in the football world nowadays). He moved to the American side in 2007 and after his arrival, LA Galaxy became national champions three years in a row. Since then more and more football legends like Pirlo, David Villa, Lampard, Kaka, and Henry have moved towards the US at the end of their active careers which led to increasing interest from the USA in the sport which causes club values and revenues to explode. None of the American teams are listed, so it is hard to check actual market effects, but revenues have increased a lot. LA Galaxy's revenues from ticket sales and television rights have increased tenfold over the last 10 years. Considering these two effects, transfer and player characteristics will be taken into account as effects for higher stock prices and this will be explained at the end of the literature section.

Part 6 The effect of match performance on mood and stock prices

Even though little research has been done on this particular subject, some studies on match performance are used to state hypotheses. Especially the studies discussed by Benkraiem et al. (2009) are used, because they are closely linked to stock price changes of football teams.

Part 6.1 Mood effect in football

From Boidoa et al. (2007) it is clear that football results have a major impact on moods of investors and that these explain the changes in stock prices. They investigated the Italian football market quite extensively. Some side effects had to be taken into account. After AS Roma won the league in the 2000/2001 season, the price of the stock went down instead of up because of the large payouts the club made to the players as a bonus for becoming champions. An important effect to consider here is the 'emotional effect' (Boidoa et al., 2007), which means that people tend to buy goods and services they like more than other products. Consumer needs are described as the dichotomy of seeing your team win a match instead of only seeing them play.

Boidoa et al. (2007) found that for all clubs in question, the average price/return ratio is higher after successful matches than after unsuccessful matches. Also draws are considered to be unsuccessful matches.

Contrary to all other papers, Klein et al. (2009) did not found any effect of match performance on stock prices of the accompanying country. However, this particular research only used matches played in the qualification stage before the actual World and European Championships. These matches do not affect the result at the World Cup itself. Therefore, most of these matches are not that important to investors. Only when their qualification is not assured, investors' mood might be affected by these games. Klein and colleagues (2009) did not found results and therefore support market efficiency.

The last statement is on sponsor deals, which will be tested at the end of the results section. Announcements of sponsor deals do not make any difference in terms of triggering an increasing share price reaction (Clark et al., 2009) because most sponsor deals are signed at market-clearing prices.

Part 6.2 Stadtmann's earnings model

Stadtmann (2006) explains several ways to earn revenues. Stadtmann (2006) states that success in football will lead to higher revenues in four ways:

1. In Germany, 80% of the television rights of the Bundesliga and the DFB Pokal (the national cup) are owned by Bundesliga teams. Half of this money is distributed to all clubs, meaning that each club receives a fixed amount of 8.5 million euros. However, these regarded the television rights in 2005. This has doubled since then for the 2015/2016 season, so more than 600 million euros has been divided between the 18 clubs last summer. The other half of the money is distributed based on performance criteria, which consequently makes higher ranked teams even wealthier. This structure is used in all the five large European competitions. These are the Bundesliga, the French Ligue 1, La Liga from Spain, the Italian Serie A and the British Premier League.

2. When playing qualification games for one of the two major European competitions, clubs generate additional funds from selling broadcasting rights to multiple television channels. Moreover, winning in such a competition is rewarded highly. For example, winning a group stage Champions League match yields 1 million euros of prize money.

3. Successful teams will generate higher advertising and sponsoring revenues, since most sponsoring payments are linked to performance.

4. The more fans attending the game in the stadium, the higher the revenues for clubs because of higher ticket sales and merchandising revenues. Gärtner/Pommerehne (1978), Lehmann/Weigand (1997) as well as Czarnitzki/Stadtmann (2002) showed that better match performance leads towards higher attendance in the stadium.

Stadtmann (2006) illustrates the importance of playing in a European tournament to large clubs like Borussia Dortmund. In the 2000/2001 season Borussia Dortmund did not qualify for any European competition which caused revenues to drop 41.5%.

Besides, it should be noted that dividends increase this revenue (from stock returns) even further. Stadtmann (2006) showed that the more profitable, the higher dividend payments by clubs tend to be. This is an additional effect on top of increasing stock prices due to better performance.

Part 6.3 The Bosman Verdict

Renneboog and Vanbrabant (2000) took the Bosman Verdict (1995) into account in their study. Since John Bosman faced his club in court and won the case, clubs are no longer allowed to charge teams to pay a fee when they want to buy one of their players. This holds only when the players' contract is already finished. Because of the Bosman Verdict, some teams had to make an additional depreciation on players' value, which reduced their profits. Besides that, teams wanted their players to sign for longer periods of time so that they could sell players before their contract ends. In this study, the Bosman Verdict also plays an important role, since it will be investigated whether higher transfer fees have an effect on stock prices of football clubs. When transfer fees are equal to zero, or in other words free transfers, the effect could be different.

Part 6.4 Effect of match performance on stock prices

Stadtmann (2006) controlled for match expectation. When a home team win was already anticipated to a major extent, stock prices should not change very much after the actual win. A way to measure this is by taking betting odds to test the relative strength of both teams. Pope and Thomas (1989), Williams (1999) and Forrest and Simmons (2000) found that the betting market is quite efficient, meaning that it is almost impossible to beat the odds by using all sorts of information like standings, home-away performance and injuries. Betting odds were used by Stadtmann to derive expectations like was done in the example before (see Part 4).

Stadtmann (2006) also included variables considering transfers, which can be used in this study to explain variation in stock prices. He used HIRE, which means that a new player is hired, and SOLD, which implies that a player is sold to another club as variables. He found no significant effect of player transfers and therefore discarded these variables. However, he did not test for the influence of transfer, player and club characteristics in the research. In this study, it will be investigated whether the variables HIRE and SOLD play a role as well, but with a much larger sample.

Stadtmann (2006) did not only use the results of Borussia, but also the results of their main competitor, Bayern Munich. He found that whenever Bayern loses, the stock price of Borussia tends to rise. Moreover, an unexpected win or defeat has a larger effect on the market price than when the result was expected. Investigating the effect of transfer deals with the rival team could be an addition to this study if there is enough data.

Renneboog and Vanbrabant (2000) used the same variables as Stadtmann (2006) to explain revenues. The difference between these two papers is that Renneboog and Vanbrabant (2000) take into account that a stable shareholders structure and a lack of short term speculators can reduce share price fluctuations (less volatile). For most football clubs, shares are held by just a few shareholders, institutions and supporters. However, nowadays the majority of shares of clubs are often bought by very wealthy people like Roman Abramovich who bought Chelsea FC and Sheikh Mansour who bought Manchester City FC (those clubs are not listed).

Also Bell et al. (2012) did research on this subject and found the same significant relationship between match performance and stock returns. He also found that matches played around mid-season, which are not considered to be that important for the end qualifications, have a smaller effect on stock prices than critical matches. For example, when a team competes for the championship or when relegation could be avoided near the end of the season, match results are more important to investors.

Lastly, Sarac and Zeren (2013) studied the effect of game performance on stock prices for the three largest clubs in Turkey. The performances of Beşiktaş, Galatasaray and Fenerbahçe were considered for the period of 2005 until 2012. This period includes many matches and therefore strengthens their conclusions. They state that there is a positive relationship between match performance and stock prices of the listed football clubs. They found a stronger relationship for Beşiktaş, which they explain to be due to a high volatility in stock price as a result of their instable soccer performances. They also found a negative effect of European matches on stock prices, mainly because the three teams performed rather poor at these tournaments, losing the majority of the games. This shows the importance of European matches once again.

Renneboog and Vanbrabant (2000) found the same results as Stadtmann (2006) and Boidoa et al. (2007). Winning increases a team's share price, while a defeat or draw decreases its share price. Draws could be seen as a mild defeat, because they reduce the chance of playing at a European level or the chance to escape relegation. This explains why all studies found a negative relationship for draws as well. The effect of losing is much stronger for promotion and relegation matches. Namely, promotion towards a higher level will increase the revenues, which could result in higher stock prices. Relegation has even a stronger effect on revenues than promotion, thus relegation could also have a stronger effect on the share price than promotion. The last

statement from Renneboog and Vanbrabant (2000) is that even when considering the excellent share price performances of clubs like Manchester United and Celtic, investments in equally weighted funds consisting of listed football clubs are substantially underperforming the market index. This means that other listed clubs are underperforming the market (not Manchester United and Celtic).

All these studies show the same results considering match performances and stock prices. Winning has a positive effect on stock prices, while not winning has a negative effect. Nevertheless, the effect of losing is stronger than for a draw. When supporters' expectations are taken into account, the effect of match performance on stock prices is even stronger as became clear from Stadtmann (2006). These effects are also found in other sports, but they are strongest in football (Boidoa et al., 2007).

Part 7 Match performance on sponsors' stock prices

Another way to look at the effects of player transfers (and fees) is the effect of football transfers on the stock price of a football teams' main sponsor. Sponsoring is one of the main revenue drivers of football clubs. An example of the enormous amount of money being spent on marketing is the deal between Adidas and Manchester United. Adidas pays the British side nearly 1 billion euros (750 million pounds) to have their logo on the Manchester shirt for 10 years. This means that they are paying 100 million euros per year. Considering that Adidas is not the only shirt sponsor of Manchester United, it is clear that sponsor deals are a large component of club revenues. Because many people watch football and especially the British Premier League, many potential customers are hereby reached. These revenues are often used by clubs to invest in new players to strengthen the team. Sponsors on the other hand will sell more because of the marketing (TV-time) and note higher market prices.

However, little investigation was performed on the effect of match performance on sponsors' stock prices. Actually, only two papers investigating this subject were found. Since one of them is a master thesis, only the study of Hanke and Kirchler (2013) is used to answer this question. However, they investigated the effect of national teams' achievements during World Championships on the stock price of the teams' main sponsor. The payments companies make to

be shirt sponsor of a national side are comparable to those they make to football clubs. The master thesis, written by Bjerking and Reisig (2011) was actually a study on the effect of player transfers on sponsors' market prices. But, since it was not published in any journal and thus not peer-reviewed, their results will only be used for comparison to the results of this paper and to provide directions for possible future research.

Hanke and Kirchler (2013) based their study on the research of Cornwell et al. (2001), who examined the results of the 500 mile Indianapolis race and found abnormal stock returns for the sponsors of the winners. However, they found it to depend on some race- and sponsorship-related variables. The ex-ante probability of winning the race played a major role. This could be compared to the expectation variable which Edmans et al. (2007) used to test whether expectations matter. Earlier it was explained that the more a victory is expected, the less effect an actual victory has on the market price. Another important factor is whether the sponsors' core operations are linked to football. Clark et al. (2009) did comparable research on this subject, but in other sports namely golf, NASCAR-racing and college bowling games. They found a positive relationship between sponsors' closeness to the sport discipline of the club they are sponsoring and sponsors' stock returns. Lastly, Cornwell et al. (2001) found the 'mere exposure'-effect to occur, which means that the more a car is in the lead during a race, the more TV-time the sponsor gets. This then affects the stock price in a positive way. The hypotheses in Cornwell's research were based on the findings of Edmans et al. (2007).

Hanke and Kirchler (2013) used all this to test whether match performance has any effect on sponsors' stock prices. Moreover, they tested the 'mere exposure-effect', as it was examined by Cornwell et al. (2001) before. They found that positive abnormal returns arose whenever two opposing teams were sponsored by the same company. Also, larger effects on market prices were found after knockout-matches than after group stage matches. This implies the 'mere exposure'-effect: more people watch knockout games than group stage fixtures. Moreover, winning or losing a knockout match has a direct effect. Losing a group stage match will not always disqualify a team immediately.

Hanke and Kirchler (2013) also found a negative effect of losing matches on stock prices of sponsors as well as a higher moderating importance of knockout games. The last result is in line with the reasoning of Edmans et al. (2007), who stated that expectation has a moderating effect

on the relationship between match performance and stock prices. The more a defeat is expected, the smaller the decline of the stock price will be when the team actually gets defeated.

Part 8 Managerial turnover and the effect of player transfers

Part 8.1 Management changes

Furtado and Rozeff (1987) showed that management changes have an effect on market prices. Management changes imply that a company's policy is shifting and that shareholder's wealth is rising. Internal promotions of employees to top-level managers also have a positive effect on market prices, but this effect tends to decline when the size of a company decreases. Dismissal is not preferred, which implies necessary to handle managerial underperformance, but it results in higher stock prices. Managerial turnover could in some way be compared to player transfers. The dismissal of a manager could be compared to the selling of a player, because most listed teams only sell players when they think they do not need them anymore. In some cases, players of a small team are sold for a large amount of money to a larger team, although these smaller clubs do not really want to sell them. This could be compared to the resignation of managers.

Part 8.2 Managers and football players from a human resource perspective

Another way to look at this matter is to consider managers and footballers as the human resources of companies. Fotaki et al. (2007) considers coaches and players as the key elements of the human capital of a club. The manager is compared to the CEO of normal companies because of the large influence of his decisions on performances on the pitch and consequently on the ranking of the team. Players are, just as the manager, the key elements of a club's human capital and of important influence on the team's performance. This explains why they are the most expensive assets of football clubs.

Before this research on human capital resources, Grusky (1963) and Gamson and Scotch (1964) already found three basic explanations of the relationship between managerial turnover, thus a change of coach, and team performance:

1. A manager will only be replaced when match performance is bad. Performance will only improve if the replacement is successful.

2. Poor match performances lead to managerial turnover, which has long-lasting disruptive effects that lead to even more changes in management and consequently faltering performance.
3. Managerial turnover has no influence, since it is the players who have to perform. This contradicts the findings of Fotaki et al. (2007).

Part 8.3 The effect of player transfers

Because of player transfers, investors and fans expect the team to perform better. These expectations are not always fulfilled. Therefore, the relationship between player transfers and stock prices could be positive after the announcement, but negative on the longer run (Fotaki et al, 2007). This also holds for managerial turnover. It has to be noted that Fotaki et al. (2007) does not make a distinction between resignation and the dismissal of a manager. However, the result is that hiring a new coach is immediately followed by a stock price decrease of around 1%. However, after ten days, the AR is around 1.2% negative. Besides, firing a coach has a large influence on stock prices on the longer term. The immediate price reaction is almost zero while the effect after 19 days is about 2% (CAR) negative (Fotaki et al, 2007). Reinganum (1985) did not find any significant market reaction to management change, in contrary to Dedman and Lin (2002). They found that CEOs leaving companies is associated with negative market price reactions, especially when the CEO is leaving to fulfill a better job.

The effect of managerial turnover is also tested by Bell et al. (2012). They investigated the effect of managerial resignation on stock prices. Their main result is that a managerial dismissal leads to a post-announcement share price rise of 0.8%. Investors welcome the dismissal because they hope for better days and a better manager. When a manager leaves a club through resignation, the share price was found to decrease with 0.5% because the club and supporters do not want the coach to leave (Bell et al, 2012). In most cases he leaves because he thinks that he can get a better job at a higher ranked team. However, speculation about the resignation of a manager often drives market prices more than the actual leaving.

Literature has shown that asset purchases and asset sales create positive abnormal returns of excessive size for both buyers and sellers (Andrade et al., 2001). However, Fotaki et al. (2007) found that acquiring a new player has only a minor effect on the market price on the long run. The direct influence is around zero, while after 20 days the positive effect is around 0.6%. The

only significant effects were found on the 4th and 12th day after the event. However, after controlling for clustering (multiple events in 1 event window), acquiring players seems to have a negative effect on stock prices (Fotaki et al., 2007). Selling a player is rewarded by the market with a 0.1% increase in market price at the third day after the event. However, after 20 days the positive effect on stock prices is almost 2% (CAR), but this effect is insignificant. These results can be compared to the research of Andrade et al. (2001), who found that selling an asset has a positive effect on shareholder wealth. The opposite effect was found for acquiring a new football player. Once again, the effect was not significant. This contradicts the findings of Andrade et al. (2001), who found that acquiring new assets has a positive effect on the market price of the buying company. Stock returns around acquisitions are low or even negative (Fotaki et al, 2007). This has to do with the fact that investors do not believe that the marginal costs of acquiring a new coach or player will be covered by future profits from higher ticket revenues or more prize money.

Fotaki et al. (2007) found that lending a player has also an effect on market prices. Most of the time the effect is positive, but just like the selling of a player, the effect was insignificant. The effect is positive because investors expect players to become better football players during their stay at another team.

In conclusion, managerial turnover has a positive significant effect on stock prices on the short run, while its effect on the long run (20 days) is negative and insignificant. On the other hand, buying a player decreases market prices while selling a player increases stock prices, but these effects are both insignificant in Fotaki's (2007) study.

Chapter 3 Hypotheses section

In this part of the study, the literature from Chapter 1-8 will be used to formulate hypotheses. This papers aims to test the effects with a large database (~9000 transfers), since very little research has been completed on the effect of player transfers on stock prices so far. The most important hypotheses examine the effect of player transfers on the market price of listed football clubs. Based on the results of Fotaki et al. (2007) and what is known about managerial turnover from studies like Furtado and Rozeff (1987) and Bell et al. (2012), two hypotheses and four sub hypotheses are stated on the buying and selling of players;

1. Acquiring a new football player has a negative effect on the market price of the buying club. (The buying club has to be listed, the selling club does not)
    a. The more funds used to acquire a player, the more the market price of the buying club is expected to decrease.
2. Selling a football player has a positive effect on the market price of the selling club. (The selling club has to be listed, the buying club does not)
    a. The more funds received for selling a player, the more the market price of the selling club is expected to rise.

The negative relationship in the first hypothesis is anticipated because investors expect that the marginal costs of acquiring a new player are very likely higher than potential future profits (Fotaki et al., 2007). This effect, which is also known as 'overpricing', explains also hypotheses 2. Effects of buying from and selling to a rival team will not be taken into account because the amount of such transfers is too limited to test any effect.

Sub hypotheses 1a and 2a concern transfer fees. The more a club pays for a player, the more the fans and thus the investors expect that the marginal costs will not be covered by potential profits. This is different for the effect of selling players. The more money a club receives after selling a player, the more investors expect those profits from selling to be higher than potential losses of selling the player. These losses could be due to lower ticket sales or worse match performances (which leads to lower rankings). This has led to sub hypotheses 1a and 2a. A player's experience and his worldwide fame also could have an effect on market prices. Earlier on, it was explained that famous players like David Beckham, who joined American clubs, have an effect on the revenues of American League clubs. But, it is rather difficult to give a gradation towards the

experience and fame of a player. However, in the part where player characteristics are discussed, age and other dummies (like being an international player) are introduced, which could be seen as experience variables.

Fotaki et al. (2007) also found an effect form lending out players to other clubs. On the one hand, lending is expected to have an increasing effect on the market price of the club that is lending out, because players are expected to become better players during their stay at the other team. On the other hand, hiring players from other teams is considered to be a cheap investment in the team. This led towards the following hypotheses:

3. Hiring a player from another club has a positive effect on the stock price of the hiring club.
    a. Lending out a player to another team has a positive effect on the stock price of the team hiring out the player.
    b. Both lending out and hiring a player from another club has a positive effect on the stock price of the sponsor of the listed club.

The last effect tested by Fotaki et al. (2007) will also be included in this study. According to that study, expiration of player contracts is not related towards shareholder wealth because they are costless since the Bosman-ruling, and concern players whose residual value and marginal productivity is likely to be very small. This has led towards the fourth hypothesis:

4. Player contract expiration has no effect on shareholder wealth.

Seasonality will also be tested for transfer effects. Aim is to find differences in spending and stock prices between summer and winter periods. This will be executed for hypotheses 1 – 4.

From Hanke and Kirchler (2013) it is known that the more the sponsors' activities are related to the team's sport discipline, the stronger the effect of match performance on the stock price of the company tends to be. This relationship becomes even stronger when the 'mere-exposure' effect is larger (Clark et al., (2009). When a club buys a player, the club expects to perform better and rank higher. Higher ranking means more TV-exposure. Also the 'closeness to sport discipline' will be tested, leading to the following hypotheses:

5. More fees spent on transfers by the listed club leads to increasing stock prices of the accompanying sponsors (if listed).
    a. This effect is expected to be stronger when 'closeness to sports discipline' is high.

In addition, effects from sponsor deals on sponsors' stock prices will be tested, to test the results of Clark et al. (2009) for the listed clubs and sponsors incorporated in this database. It is expected that there exists no announcement-effect because deals are closed at competitive prices (Clark et al., 2009). Moreover, the long-term effect of sponsor deals on sponsors' stock prices is expected to be significant, since the more TV-time a sponsor gets, the more the stock price will increase. This is also known as the 'mere exposure'-effect as found by Cornwell et al. (2001). Hypotheses 6 and 6a are added to test the effect of becoming a sponsor of a listed football team on the sponsors' stock price.

6. Signing a sponsor deal with a football club has no effect on the stock price of the accompanying sponsor.
    a. On the long term, stock prices of sponsors of football clubs are expected to rise due to increasing TV-time.

These hypotheses are combined into a model, which is visualized in the figure below.

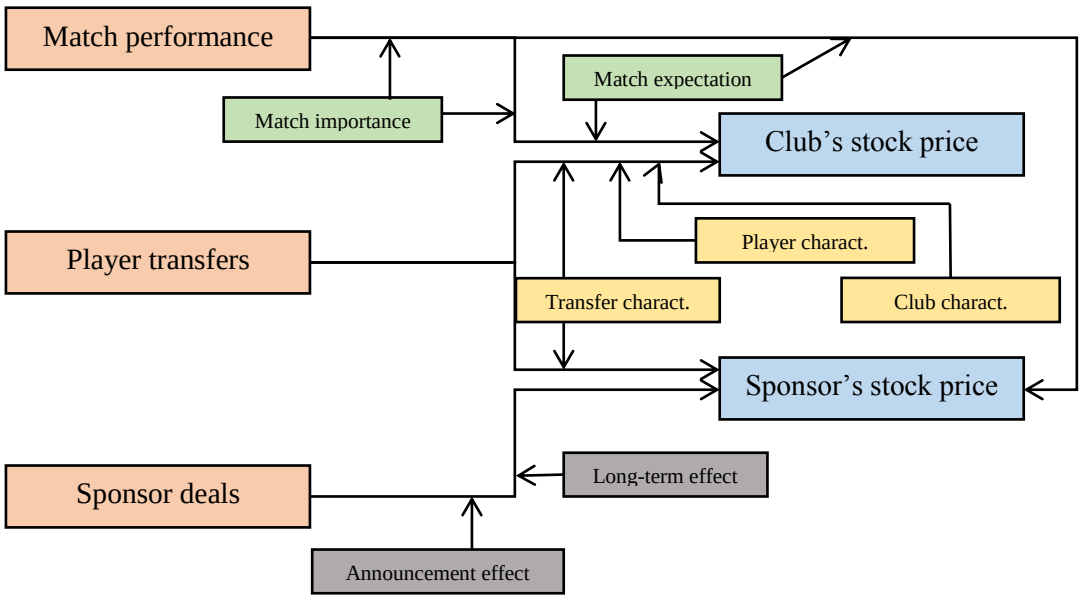

Figure 1: Expected model of match performance, player transfers and sponsor deals on stock prices of clubs and sponsors.

The effect of match performance is known, where literature tells us that better match performance leads to increasing stock prices. This relationship is stronger when match importance goes up and the relationship is weaker when match expectation goes up (when a win is anticipated). The effect of player transfers is the effect as tested by Fotaki et al. (2007) where the acquisition of players led to lower (insignificant) market prices. The opposite effect is expected for sales of players. In this paper also transfer, player and club characteristics will be tested on their moderating effect.

At last the effect of sponsor deals will be tested. It is expected that the announcement itself does not make any difference, but the effect on the long term should be significantly positive.

Chapter 4 Data selection and methodology

To test the effect of player transfers, two databases are needed and will be combined. On the one hand, a database consisting of all player, club and transfer characteristics is needed. On the other hand, the daily stock data of the accompanying listed football clubs as well as benchmark returns are needed. Below is explained how and why the information is incorporated.

Part 4.1 Club selection

After some research on stock prices and available transfer data, not all clubs listed on the STOXX Europe Football are included. Before further research on the amount of transfers and the amount of money spent in the last 15 years was executed, the aim was to include all 21 clubs into the dataset. However, when checking the main resource of transfer information (transfermarkt.com) some issues occurred. For some of these clubs transfer data is unavailable or expensive (absolute and relative) transfers were rare. This holds for 6 of these 21 clubs. For Silkeborg, Aalborg, Aarhus and AIK Solna not many transfers were found where a lot of money was spent. They did hire and lend players during this period, which is also going to be examined. However, from the other remaining 15 clubs more than enough loan deals were available. Therefore, it was not necessary to include them. For Parken Sport, which is probably the smallest football club from Europe that is listed, transfermarkt.com did not even archive transfers. For that reason, Parken Sport is not included in the dataset. Brondby IF is another story. After some research it became clear that the majority of shares were not publicly held over the last 15 years. Over the last few years even no shares were publicly held.

Part 4.2 Transfer data selection

To get an extensive overview of transfer details, transfermarkt.com was consulted to derive all data manually. This site archives all historical transfer data for most professional football clubs. Originally it is a German website. Therefore, all transfer fees are stated in euros which will be the currency used throughout this paper. By collecting the data the most important transfer, club and player details were included. For example, the listed club, buying and selling club, the position and age of a player, return on assets and interest coverage of clubs was incorporated.

Different transfer types are considered in the database used. In table 1 frequency figures of transfer types are collected, including a description of the transfer types.

Transfer Type	Frequency	Percent	Cumulative	Description
Banned	2	0.02	0.02	A player has been banned and his contract is terminated.
End of career	100	1.09	1.12	A player leaves a club and ended his active career.
End of loan	769	8.41	9.53	A player returns to his club after being lent out to another club.
Free	157	1.72	11.25	A player signed at a club after being a free agent.
Loan	2379	26.03	37.28	A player joins a club on a loan base.
Loan Fee	399	4.37	41.64	A player joins a club on a loan base (hiring team has to pay a fee).
Swap Deal	52	0.57	42.21	A player joined a team after being swapped for one of that team's players.
Transfer	4494	49.17	91.38	A player joins a team before his contract had expired (transfer fee could be €0).
Youth	788	8.62	100.00	A player joins the A-team of a club after leaving the youth academy.
Total	9140	100.00		

Table 1: Overview of transfer types frequency

Listed Club	Frequency	Percent	Cumulative
AS Roma	744	8.14	8.14
Ajax Amsterdam	428	4.68	12.82
Besiktas JK	588	6.43	19.26
Borussia Dortmund	303	3.32	22.57
Celtic Glasgow	637	6.97	29.54
FC Porto	787	8.61	38.15
Fenerbahce SK	365	3.99	42.14
Galatasaray SK	534	5.84	47.99
Juventus	853	9.33	57.32
Manchester United	849	9.29	66.61
Olympique Lyon	347	3.80	70.40
SL Benfica	811	8.87	79.28
SS Lazio	581	6.36	85.63
Sporting CP	635	6.95	92.58
Trabzonspor	678	7.42	100.00
Total	9140	100.00	

Table 2: Overview of transfer frequency per listed club

Transfer is specified in case the buying team has to pay a fee to the selling team. However, since the Bosman Verdict, this fee could also be €0 when the player is joining his new team after his contract with the selling team is already finished. A loan fee is exactly the same as a normal loan, but in this case the hiring team has to pay a fee. A good example is Radamel Falcao who joined Manchester United in September 2014 on a loan base for one season. Manchester United paid €7.6 million to AS Monaco, his employer at that time. Only for transfers and loan deals containing a fee actually fees are paid, so these are the most interesting transfer types for this research. From the total of 9140 (summarized per club in table 2) transfers, the 2497 transfers who had to do with fees are the most important for the first four hypotheses. However, since transfers are collapsed, fewer events (transfer with fees larger than zero) are found.

All transfers on one day for listed club *I* are compressed into one transfer. However, different datasets had to be made to contain either only acquisitions or sales. The composition of these datasets will be explained in table 3. Important to notice is that fees paid or fees received on the same day for one listed club are accumulated. For the first dataset, only acquisitions are taken into account, while for the second dataset only sales are considered. The dataset has been split in three, with one consisting of all acquisitions per listed club and one consisting of all sales per listed club. This has been done to get maximum one event per day per club, to be able to conduct a time-series research. A third dataset will be created, where sales minus acquisitions will be calculated in terms of fees, to control for omitting one of the two events in the first two datasets. In this dataset *net fees received* is taken into account which is determined as follows: *Net fees received on trading day T by listed club I = Fees received from sales on trading day T by listed Club I – Fees paid for acquisitions on trading day T by listed club I.* The complete explanation of these datasets can be found in table 3.

In the fourth dataset, only one transfer is taken per day per listed club (can be either a sale or acquisition; the transfer dealing with the highest fee is taken into consideration), to be able to include unique transfer, player and club data for that particular transfer on that particular trading day. This has led to a set consisting of fewer transfers than in the first, second and third dataset. But, using the fourth dataset, this study will be able to test the effect of player and club characteristics in transfer making.

Loans and end of loans are merged into two other datasets (5 and 6) to test the effects of loans. Also, the number of loan deals on a particular trading day for a team has been examined. There has been made a separation between loans in and loans out, to test the effect of both on the stock prices of listed clubs and the stock price of their main sponsors. This holds because a player is joining the team for free or returning from another club and is expected to become a better player at the time of his stay at the other club (end of loan). These differences are also explained in table 3. The effect of contract expiration will not be tested, since contracts always expire at the end of a season on the first day of the transfer window. Since the majority of all transfers are completed on that day, it is impossible to test the effect of contract expiration.

Dataset	Meaning
Acquisitions (1)	This is the dataset in which all transfers from other clubs (could also be one of the listed clubs) towards listed clubs (so the clubs investigated in this study) are taken into account. So this denotes transfers where the investigated clubs pay fees. Since a time study is conducted, transfers (acquisitions) of clubs on the same day are compressed into one transfer. The fees of those transfers are then accumulated. This holds most often for transfers on the first of January and the first of July, when the transfer windows open. For this dataset only transfers are taken into account (so no loans, swap deals, youth etc.).
Sales (2)	This is the dataset in which all transfers from listed clubs (so the clubs investigated in this study) towards other clubs (could also be one of the listed clubs) are taken into account. So this denotes transfers where the investigated clubs receives fees. Since a time study is conducted, transfers (sales) of clubs on the same day are compressed into one transfer. The fees of those transfers are then accumulated. This holds most often for transfers on the first of January and the first of July, when the transfer windows open. For this dataset only transfers are taken into account (so no loans, swap deals, youth etc.).
Sales – Acquisitions (3)	This is the dataset where the first two datasets from above are subtracted from each other in the following manner: *Total fees received on trading day T by listed club I – Total fees paid on trading day T by listed club I*. This has been done to control for the effect of leaving out either transfers out of the clubs in the first dataset and the other way around for the second dataset. Since a time study is completed transfers (sales and acquisitions) on the same day are compressed into one transfer. The fees of those transfers are then accumulated in the manner as described above. This holds most often for transfers on the first of January and the first of July, when the transfer windows open. For this dataset only transfers are taken into account (so no loans, swap deals, youth etc.).
Sales and Acquisitions with player and club characteristics (4)	Contains of unique transfers per club per day, in contrary to the first three groups. No transfers have been collapsed / compressed and only one transfer per day per club is incorporated to be able to conduct a time series study. The transfer dealing with the highest fee on trading day T is taken into account. Individual player characteristics and club characteristics are taken into account to test the effect on stock prices. The results could deviate since not all transfers are taken into account.
Loans in (5)	This is the dataset in which all transfers from other clubs (could also be one of the listed clubs) towards listed clubs (so the clubs investigated in this study) are taken into account. However, this time, it only concerns loan transfers. This could be hiring a player from another club or the returning of one of the clubs' players after a hiring period at another club.
Loans out (6)	This is the dataset in which all transfers from listed clubs (so the clubs investigated in this study) towards other clubs (could also be one of the listed clubs) are taken into account. However, this time, it only concerns loan transfers. This could be loaning a player to another club or the returning of one of the loaning clubs' players after a loan period at the investigated (listed) club.

Table 3: Overview and explanation of different datasets in research

Dataset		Frequency
All acquisitions collapsed (1)	Summer	538
	Winter	301
All sales collapsed (2)	Summer	543
	Winter	234
All sales – all acquisitions collapsed (3)	Summer	744
	Winter	287
Total		2649

Table 4: Overview of transfer frequency per season

The interval used to get this data has to do with the listing of most of the football clubs (table 6). Most of them are only listed since the season of 2000/2001 or even later. Therefore, only

transfers from that season and later are considered. Moreover, transfers from before the turn of the century are not in large quantity and often not dealing with (high) fees.

Using different transfer, club and player characteristics led to the following formula, which predicts the value of abnormal returns after a transfer deal is closed on a particular trading day for a certain listed club.

$$AR_{ij} = \propto_1 Transfer\ charact._{ij} + \propto_2 Player\ charact._{ij} + \propto_3 Club\ charact._{ij}$$

The used transfer, player and club characteristics can be found in table 5, 13 and 30, respectively. They are explained just before they got examined.

Transfer characteristic	Meaning
Listed Club	The concerned club in the transfer between buying club and selling club. Therefore, listed club is always equal to either buying or selling club.
Buying Club	The buying club in the transfer deal. Could be the listed club as well.
Selling Club	The selling club in the transfer deal. Could be the listed club as well.
Transfer Fee	The fee paid by the buying club towards the selling club to acquire the player.
Transfer Fee as % of total team value	The fee paid by the buying club towards the selling club to acquire the player as a percentage of the total team value at the time of the transfer. Total team value is equal to the accumulated value of all players of a team just before the new player is bought / sold.
Season	The season in which the transfer is completed. Could be 2015/2016 for example.
Summer / Winter	Whether the transfer is completed during the summer or the winter transfer window.

Table 5: Overview of transfer details included in the datasets

Transfer characteristics are used throughout the whole results section, while player and club characteristics are used only in particular paragraphs, since this data is only incorporated in dataset 4 (table 3 for explanation). The exact explanation of these transfer characteristics can be found in table 5.

Part 4.3 Daily stock data selection

The daily stock prices of the 15 listed clubs are downloaded from stockhistoricaldata.com. From this website daily stock data is downloaded using yahoo finance and modified into metastock format. This gives no problems since all clubs' historical stock data is found on Yahoo finance. In the dataset the date of the transfer as well as the opening and closing stock price are collected. Moreover the highest and lowest stock price is noted as well as the volume publicly hold. For some teams at some points in time no stocks were publicly held which has to be taken into account when testing the data. When no stocks are hold publicly, investors are not able to react to

transfer news. The price used to test the hypotheses will be the closing price, since transfers are sometimes completed overnights and in weekends, which gives investors time to react.

Not all teams were listed during the complete period (2000-2016) and therefore data research will only be done for the years that teams were actually listed (table 6). Also listed sponsors will be examined for the fact that one of the hypotheses (5) is testing the effect of player transfers on sponsors' market prices. A lot of sponsors of the 15 teams were not listed. Those companies are not taken into consideration. The companies in the dataset are mostly kit manufacturers and a few shirt sponsors. The selection is stated in table 7.

Listed Club (country)	Listed (years)
AS Roma	2000-2016
Ajax Amsterdam	2000-2016
Besiktas JK	2002-2016
Borussia Dortmund	2000-2016
Celtic Glasgow	2000-2016
FC Porto	2006-2016
Fenerbahce SK	2004-2016
Galatasaray SK	2002-2016
Juventus	2001-2016
Manchester United	2012-2016
Olympique Lyon	2007-2016
SL Benfica	2007-2016
SS Lazio	2004-2016
Sporting CP	2000-2016
Trabzonspor	2000-2016

Table 6: Overview listed period by club

Carling (Celtic FC), Umbro (Olympique Lyon) and Macron (Sporting Portugal) were sponsors for quite a long period, but are not listed. Other sponsors were either not listed or sponsoring a team that was not listed at that particular time.

Company name	Sponsoring (years)
Aegon	Ajax Amsterdam (2008-2014)
Mazda	AS Roma (2002-2005)
Toyota	Besiktas JK (2011-2014)
Yandex	Fenerbahce SK (2015-2016)
Huawei	Galatasaray SK (2014-2015)
Hyundai	Olympique Lyon (2012-2016)
Vodafone	SL Benfica (2001-2005)
Evonik	Borussia Dortmund (2005-2016)
Puma	SS Lazio (2000-2014)
Nike	FC Porto (2000-2012)
Adidas	Manchester United (2015-2016)

Table 7: Overview of listed sponsors by club

Part 4.4 Computation of abnormal returns

In this paper returns are defined using the following standard formula:

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

Where $R_{i,t}$ denotes the log return (continuously compounded) for stock i on day t, $P_{i,t}$ defines the closing index value at the end of a trading day and $P_{i,t-1}$ represents the closing index value at the end of the previous trading day. This could imply that there is a weekend between them, just like in weekend matches. Since transfers will be done also during weekends, returns on these days will be set equal to zero, just like log returns of the MSCI all country midcap index.

Part 4.4.1 Event study: Step 1

According to De Jong and De Goeij (2011) three steps are needed within an event study. First of all the event date and event window should be determined. The event date is incorporated in the dataset with the transfer date being the day the player joins his new club. After testing the effect of transfers themselves, also transfer, player and club characteristics will be tested for the first and second hypothesis. Expected is that some characteristics may influence the relationship between transfers and the stock prices of listed clubs. Also, for the loans (+ end of loans) the tests will be executed, in order to give an answer to hypotheses 3 and 4. To test hypotheses 5 and 6, different files with events will be made, consisting of stock price development for sponsors over the years. The 'long term'-effect will be tested, but the results should be handled with great care, since the dataset consists of only 11 sponsors (firms).

Since player transfers are often preceded by rumors, the event window taken into account should be longer than the event windows used for analyzing match performances. Therefore, the same event window as Fotaki et al. (2007) took is used, since this is also used for player transfers in that paper. This means an event window of 40 days is used. Twenty days before the signing and twenty days afterwards. Moreover, some other intervals will be used to test the short term effect. These include (-1, 1), (-5, 5) and (-10, 10).

To get an appropriate estimation window, seasonality has to be considered. This holds because player transfers are only allowed during the summer and winter transfer windows. The summer window for the five best European leagues considered is from 1 June until 31 august, so three

months. The winter transfer window is only one month, namely from January first until the second of February. Therefore, the estimation window is equal to the whole period (2000- 2016). Because of the longer event window, event clustering is expected to occur. Moreover, player transfers are mostly executed in the beginning and at the end of a season as well as in the summer period. Therefore, player transfers will quickly follow each other which will lead to event clustering.

From De Jong and De Goeij (2011) we know that event clustering could lead towards cross-sectional correlation between abnormal returns. To solve this problem, the *crude dependence adjustment* method of Brown and Warner (1980) will be used. This will be explained in the abnormal returns part of the methodology.

Part 4.4.2 Event study: Step 2

The second step in the process is the part where the benchmark model for normally expected returns is selected. In this study the market model (5) is used to calculate benchmark returns. Since the football clubs used in this study are different in meanings of size, the MSCI European all country midcap index is used to calculate benchmark returns. It is also used because the football clubs in the dataset are from different countries in Europe. This led to the following formulas:

$$R_{it} = \alpha_i + \beta_i * R_{mt} + \varepsilon_{it} \qquad (2)$$

$$ER_{it} = \hat{\alpha}_i + \hat{\beta}_i * R_{mt} \qquad (3)$$

In formula (3) the ER_{it} is the expected return of the football club where $\hat{\alpha}_i$ and $\hat{\beta}_i$ denote the OLS regression estimates. R_{mt} is the market return, or in this case, the returns of the MSCI index. The betas are calculated using the complete estimation period (2000-2016). The estimations of coefficients from daily data are influenced by non-synchronous trading which could lead to downward biased and inconsistent estimations (Brown & Warner, 1985; Scholes & Williams, 1977). Therefore, the approach of Dimson (1979) will be used meaning incorporating two lags of market returns to estimate benchmark returns, leading to the following updated formulas;

$$R_{it} = \alpha_i + \beta_{i\tau} * R_{mt+\tau} + \beta_{i+(\tau-1)} * R_{mt+(\tau-1)} + \beta_{i+(\tau-2)} * R_{mt+(\tau-2)} + \varepsilon_{it} \qquad (4)$$

$$ER_{it} = \hat{\alpha}_i + \hat{\beta}_{i\tau} * R_{mt+\tau} + \hat{\beta}_{i+(\tau-1)} * R_{mt+(\tau-1)} + \hat{\beta}_{i+(\tau-2)} * R_{mt+(\tau-2)} \quad (5)$$

To calculate benchmark returns, the complete period is used to determine estimation results. For some clubs this is only 2-3 seasons (Manchester United), while for other teams this is the complete period (2000- 2016).

Part 4.4.3 Event study: Step 3

The third step is the computation of abnormal returns around the event date. This leads to abnormal returns which are analyzed as they come from separate firms (clubs in this case). Abnormal returns are estimated in the event window (t_{-20}, t_{+20}).

$$AR_{it} = R_{it} - ER_{it} \quad (6)$$

The next step is to average the abnormal returns around the event dates over all listed clubs. So N is the total of firms (listed clubs in this case) in the sample leading to equation (7).

$$AAR_{it} = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \quad (7)$$

To determine total abnormal returns over the complete event window, cumulative abnormal returns are calculated by aggregating average abnormal returns over the period (t_{-20}, t_{+20}), as well as for the shorter periods as explained before.

$$CAR_i = AR_{i,t_1} + \cdots + AR_{i,t_2} \sum_{t=t_1}^{t_2} AR_{it} \quad (8)$$

$$TS_1 = \frac{1}{\sqrt{N}} * \frac{CAR_{it}}{s} \quad (9)$$

Cumulative average abnormal returns (CAAR's) will be calculated by aggregating the AAR_t's of equation 7 over the event period.

$$CAAR = \sum_{t=t_1}^{t_2} AAR_{it} \quad (10)$$

Part 4.4.4 Event clustering

Transfers are only executed in 4 months (because of official transfer windows) and therefore, event clustering will occur. This could lead towards underestimation of the variance of average abnormal returns, which could lead to biased t-statistics and too often rejected null hypotheses.

To solve this, the crude dependent adjustment as presented by Brown and Warner (1980) will be used. This leads to adjusted (average) abnormal returns. Because of that, equation 7 will be executed first from using abnormal returns. Afterwards, adjusted abnormal returns (AR^*) are calculated. The variance of the average abnormal returns is estimated directly from the time series of observations of average abnormal returns in the estimation period:

$$\bar{s} = \sqrt{\frac{1}{T-1}\sum_{t=T_1}^{T_2}(AAR_t - AR^*)^2} \quad (11)$$

Where:

$$\mathrm{AAR_t} = \frac{1}{N}\sum_{i=1}^{\mathrm{N}}\mathrm{AR_{it}} \quad (12)$$

$$\mathrm{AR^*} = \frac{1}{T}\sum_{t=t_{-20}}^{\mathrm{t_{20}}}\mathrm{AAR_{it}} \quad (13)$$

The accompanying test-statistics will be:

$$\mathrm{TS_2} = \frac{AAR_t}{\bar{s}} \approx \mathrm{N}(0,1) \quad (14)$$

$$\mathrm{TS_3} = \frac{1}{\sqrt{T}}\frac{CAAR_t}{s} \approx \mathrm{N}(0,1) \quad (15)$$

Where:

$$s = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N}(CAR_t - CAAR)^2} \quad (16)$$

Normally, another problem of this test could be event-induced variance. This implies that the variance of abnormal returns is higher around event dates. This will lead to underestimation of the true variance, which could mean that the null hypothesis is rejected too often. However, in this study it will not be a problem. This holds because the abnormal returns around events are part of the estimation window, so this problem is mitigated. Consequently, there is no need to correct like Boehmer, Masumeci, and Poulsen (1991) proposed.

Standardized abnormal returns will not be computed, since there are no large differences obtained in terms of variances of abnormal returns between different stocks. In the next Chapter (5) the results will be discussed in terms of (cumulative) abnormal returns.

Chapter 5 Results

This section contains the results of different OLS regressions and event studies among a list of different variables. The results are divided into four groups. First of all the effect of player transfers on the clubs' stock prices will be examined, since this is questioned in hypotheses 1 until 4. The results will be compared to the findings of Fotaki et al. (2007), Furtado and Rozeff (1987) and Bell et al. (2012). The first three groups contain all transfers which are compressed to one transfer deal per day per team (table 3 contains the explanation). Also a database is made containing only one transfer per day per club to test for individual player and club characteristics (dataset 4). This was not possible for the first three databases since they consist of compressed transfer data (all transfers on one day per club are compressed into one).

After that, the effects of player transfers on stock prices of the clubs' main sponsor are discussed, to test hypotheses 5 and 5a. At last the 'mere-exposure' and 'signing'-effect as discussed in hypothesis 6 will be tested to examine the effects as found by Clark et al. (2009) and Cornwell et al. (2001). In all regression output transfer types will be stated and tested separately.

Part 5.1 Global transfer effects on listed clubs' stock prices

First the results of player transfers on stock prices of the concerned clubs will be examined. In table 9 the results of a simple OLS regression are summarized. Abnormal returns have been calculated for the event date itself, as well as the day before and the day after the event. This leads towards the cumulative abnormal return for interval (-1, 1). The fact that these cumulative abnormal returns are not always equal to the summation of the three abnormal returns (-1, 0, 1) is due to the fact that not all events had those three days in their event window. This holds since sometimes transfers are completed in two consecutive days, which leads to no pre-event window for the last of the two events as outlined in table 8.

Transfer	Date	Event Window
	1-7-2010	-1
A	2-7-2010	0
B	3-7-2010	0
	4-7-2010	1
	5-7-2010	2

Table 8: Example of interfering event windows

Part 5.1.1 Global effect of transfers on clubs' stock prices

Transfer Type	N	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	1196	0.042 (0.03)	0.039 (0.03)	**0.072**** **(0.03)**	**0.155*** **(0.06)**	**0.441*** **(0.19**	**0.785*** **(0.35)**	**1.441*** **(0.63)**
Sales (2)	862	**0.064**** **(0.02)**	**0.078**** **(0.03)**	0.014 (0.02)	**0.130*** **(0.06)**	0.306 (0.19)	0.439 (0.37)	0.685 (0.74)
Sales – Acq. (3)	1282	**0.072*** **(0.03)**	**0.095**** **(0.03)**	0.012 (0.02)	**0.196***** **(0.04)**	**0.248**** **(0.10)**	0.273 (0.16)	0.380 (0.28)
Loans in (5)	160	0.025 (0.03)	0.025 (0.03)	0.034 (0.03)	0.165 (0.11)	0.650 (0.39)	1.265 (0.75)	2.511 (1.45)
Loans out (6)	257	0.006 (0.02)	0.001 (0.02)	0.008 (0.02)	0.039 (0.08)	0.180 (0.29)	0.376 (0.56)	0.773 (1.10)

Table 9: The results of a simple OLS regression of using only a dependent variable are summarized (the number between parentheses in the first column denotes which database is used from table 3). This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

From table 9 is obtained that acquisitions (so getting additional players for the team) has a positive effect on the share prices of the clubs buying them. This effect was not expected from the results as found by Fotaki et al. (2007). Expected was that the acquired players would not be able to make up for the fees they were bought for during their stay at the club ('overpricing'). The regression results above state the opposite. Acquiring new players will boost a clubs' share price. It should be noted that this holds on a 90% base for the cumulative abnormal returns in all event windows. The effect is not significant for the day of the signing and the day before. For selling players the effect on the stock price of the selling club seems more convincing on the day of the signing and the day before, since the strongly significant effects on those days. Also, the event window (-1, 1) denotes significant (90%) abnormal returns. In contrast to the 'Acquisitions (1)' dataset, no significant effect is found for the longer event windows. When checking the results of the total dataset 'Sales – Acquisitions (3) (all transfers in and out are collected in this dataset), the effect of transfers on stock prices is considered significantly positive. It is clear that for the day of the transfer and the day before that significant positive returns occurred, which were even strongly significant for the event windows (-1, 1) and (-5, 5).

The effect of loans in this case is not significant. For both lending out and hiring a player no effect on the stock price of the concerned listed club is found. This implies that the findings of Fotaki et al. (2007) are not found using this data since they found that lending has a positive effect on a clubs' stock price. Hiring a player has no effect on the stock price of the hiring team, and lending out a player has no effect on the stock price of the team that is lending out the player in this study.

Transfer Type	N	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	CAR (-1,1)	CAR (-5,5)	CAR (-10,10)	CAR (-20,20)	CAR (0,2)	CAR (0,5)	CAR (0,10)
Sales + Acq. (4)	1209	-1.775 (-0.54)	-.538 (0.67)	0.128 (0.11)	**0.301* (0.18)**	**0.273* (0.16)**	-0.281 (0.64)	-1.487 (1.10)	**2.620* (1.40)**	-0.761 (1.01)	0.33 (0.21)	0.191 (0.36)	**5.10* (2.95)**
Sales (4)	574	-2.000 (2.02)	-1.182 (1.53)	0.273 (0.19)	0.141 (0.26)	-0.192 (0.22)	-0.582 (1.10)	-2.748 (1.86)	2.009 (3.35)	-1.177 (1.42)	0.047 (0.23)	-0.444 (0.30)	4.06 (3.74)
Acquisitions (4)	634	-1.809 (1.46)	0.064 (0.14)	0.012 (0.15)	**0.452* (0.25)**	**0.690*** (0.24)**	0.119 (0.19)	-0.315 (0.71)	4.430 (2.93)	-0.022 (1.31)	**0.584** (0.25)**	**0.780* (0.47)**	6.987 (4.29)

Table 10: The results of a simple OLS regression of using only a dependent variable are summarized (the number between parentheses in the first column denotes which database is used from table 3).This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

The effects have also been tested in the dataset (4) containing only unique transfers and the results of that are found in table 10. More intervals have been taken into account since fewer transfers are included and results are less convincing as before. However, it will be clear that acquisitions have a positive effect on stock prices of the buying team on the short term. This holds because of the significant positive abnormal returns for the day after the deal and the day after that, as well as for the interval (0, 2), which is logical. Sales however, have no effect on stock prices of the selling club in this dataset whatsoever, where some strong positive effects were found earlier on (table 9). The effects for all days separately (-20, 20) can be found in table A1 in appendix 1 (these are daily average abnormal returns found in dataset 4). From this table it will be clear that transfers (both acquisitions and sales) trigger positive significant effects on the stock prices of clubs. For both acquisitions and sales, positive abnormal returns are found at the 9^{th} day after the deal is signed. Moreover, for acquisitions, significant positive abnormal returns are found for the buying club at the first and second day after the signing.

The next step is to test the effect of seasonality. The regression results are stated in table 11. No research has been done on the effects so far, so the results cannot be compared to results from other studies. The effects of summer and winter transfers are similar for sales of players on the longer term, but not for the 'Acquisitions (1)' and the 'Sales – Acquisitions (3)' datasets. Selling has a positive significant effect on the share price of the selling clubs, both for summer and winter transfers. Buying new players however, does not have a positive effect on the share price of the buying club in the summer on the longer term, but they do have a positive significant effect in the winter in the (-5, 5), (-10, 10) and the (-20, 20) interval. In the complete dataset (3) significant (99%) effects are found for all interval windows for summer transfers. On the contrary, for winter transfers no significant results are found.

Part 5.1.2 The effect of seasonality

Transfer Type		N	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	*Summer*	812	0.040 (0.02)	0.037 (0.02)	**0.052* (0.02)**	**0.139* (0.06)**	0.370 (0.19)	0.604 (0.36)	0.812 (0.47)
	Winter	384	0.042 (0.03)	0.042 (0.03)	**0.072** (0.03)**	**0.157* (0.06)**	**0.441* (0.19)**	**0.785* (0.35)**	**0.912* (0.43)**
Sales (2)	*Summer*	601	**0.046* (0.02)**	**0.063** (0.02)**	0.008 (0.02)	**0.090* (0.04)**	0.107 (0.14)	0.052 (0.27)	0.067 (0.31)
	Winter	261	0.018 (0.01)	0.015 (0.01)	0.005 (0.01)	0.041 (0.03)	0.201 (0.14)	0.390 (0.29)	0.426 (0.39)
Sales - Acquisitions (3)	*Summer*	987	**0.076* (0.03)**	**0.097** (0.03)**	0.018 (0.02)	**0.215*** (0.04)**	**0.325*** (0.10)**	**0.436*** (0.16)**	**0.740** (0.26)**
	Winter	295	-0.002 (0.00)	0.000 (0.00)	-0.003 (0.01)	-0.002 (0.01)	-0.012 (0.05)	-0.020 (0.11)	-0.036 (0.24)

Table 11: The results of a simple OLS regression of using only a dependent variable are summarized (the number between parentheses in the first column denotes which database is used from table 3).This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Part 5.1.3 The effect of fees

After testing the moderating effect of seasonality, another moderating effect should be tested. Expected is that the higher the fee, the stronger the effect on stock prices should be (both for acquisitions and sales). The effects (table 12) on stock prices are compared to the results of Fotaki et al. (2007) and Hanke and Kirchler (2013). When checking the abnormal returns, it is clear that the higher the fees paid, the lower the positive effect of acquisitions on stock prices of buying clubs will be. This confirms the idea of 'overpricing'. This also holds for sales, which sounds paradoxical; the more fees received for a transfer, the smaller the positive effect on stock prices will be. However, the result is only significant for event windows (-5, 5), (-10, 10) and (-20, 20). The only reason that could explain this is that investors expect that a club sold its' crown jewels when receiving high funds, meaning that the team will not be able to compete on the same level in the near future.

However, for the complete 'Sales – Acquisitions (3)' dataset the effect is positive. For the combined dataset, the expected effect is found for intervals (-1, 1), (-5, 5) and (-10, 10). This means that higher (cumulative) abnormal returns for listed clubs are found whenever *net fees received* tend to rise. *Net fees received on trading day T by listed club I* is equal to *Fees received from sales on trading day T by listed club I – Fees paid on trading day T by listed club I* (Net Fee can be negative). These regression results can be found in table 12 below.

Part 5.1.3.1 Absolute Fees

Transfer Type		N	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	*Total Fee spent on trading day t*	1196	-0.021 (0.01)	-0.010 (0.01)	**-0.042* (0.02)**	**-0.100* (0.02)**	**-0.184** (0.01)**	**-0.216*** (0.02)**	**-0.223*** (0.02)**
Panel A	*Constant*		**0.262* (0.124)**	0.050 (0.114)	**0.421* (0.201)**	**0.647*** (0.177)**	**1.963*** (0.421)**	**3.267*** (0.461)**	**2.787*** (0.630)**
	Adjusted R^2		0.0022	0.0008	0.0003	0.0015	0.0004	0.0020	0.0007
Sales (2)	*Total Fee received on trading day t*	862	0.00 (0.01)	0.01 (0.01)	-0.03 (0.02)	-0.02 (0.01)	**-0.07*** (0.01)**	**-0.15*** (0.01)**	**-0.20*** (0.01)**
Panel B	*Constant*		**0.376** (0.139)**	0.096 (0.101)	**0.470** (0.170)**	**0.947*** (0.155)**	**1.320*** (0.244)**	**2.000*** (0.412)**	**1.528* (0.768)**
	Adjusted R^2		0.0000	0.0006	0.0055	0.0009	0.0078	0.0129	0.0107
Sales – Acquisitions (3)	*Net Fee received on trading day t*	1282	**0.03*** (0.00)**	0.01 (0.01)	-0.01 (0.02)	**0.04*** (0.00)**	**0.03** (0.01)**	**0.03** (0.01)**	**-0.05*** (0.01)**
Panel C	*Constant*		**0.238** (0.089)**	0.0740 (0.078)	**0.301* (0.150)**	**0.277* (0.120)**	**0.713** (0.240)**	**1.484*** (0.360)**	**1.432* (0.576)**
	Adjusted R^2		0.0094	0.0008	0.0016	0.0042	0.0008	0.0004	0.0004

Table 12: The results of a simple OLS regression of using only a dependent variable are summarized (the number between parentheses in the first column denotes which database is used from table 3). This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

When taking relative fees (table 13), which are equal to: *Fees spent or received on trading day T by listed club I / Total team value at trading day T for listed club I* similar results are found. Total team value is equal to the combined value of all players of a team before the transfer is completed. Team values are downloaded from transfermarkt.com. For the dataset 'Acquisitions (1)', there is a negative relationship between relative fees received and cumulative abnormal returns for the buying club on the (-10, 10) and the (-20, 20) interval. For the dataset containing only the sales of players (2), no significant effects whatsoever are found. Higher *relative fees received* have no effect on the stock price of the selling club. However, regarding the complete dataset (3), expected results are found. Namely, the higher relative net fees received, the higher the abnormal returns of the concerned listed club will be, especially on the short term interval (-1, 1). This effect was also found or predicted by Fotaki et al. (2007) and Hanke and Kirchler (2013).

Furthermore, the effect of loans is tested using dataset 5 and 6 (explanation of datasets in table 3). These include only loans (and end of loans) where no loan fee had to be paid.

Part 5.1.3.1 Relative Fees

Transfer Type		N	AR (-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	*Relative Fee spent on trading day t*	1196	-0.510 (0.63)	-0.550 (0.66)	-0.445 (0.65)	-0.592 (1.02)	-3.259 (1.76)	**-6.814** (2.36)	**-9.060** (3.19)
Panel A	*Constant*		0.057 (0.03)	0.055 (0.03)	**0.083** (0.03)	**0.174** (0.07)	**0.539** (0.19)	**0.989** (0.35)	**1.710** (0.64)
	Adjusted R^2		0.0029	0.0004	0.0004	0.0017	0.0000	0.0004	0.0004
Sales (2)	*Relative Fee received on trading day t*	862	0.210 (0.46)	0.138 (0.45)	-0.019 (0.35)	0.318 (0.68)	-0.683 (1.14)	-1.523 (1.50)	-2.155 (2.04)
Panel B	*Constant*		**0.058** (0.03)	**0.074** (0.03)	0.014 (0.02)	**0.121** (0.06)	0.323 (0.20)	0.479 (0.38)	0.741 (0.75)
	Adjusted R^2		0.0000	0.0000	0.0006	0.0001	0.0023	0.0014	0.0000
Sales – Acquisitions (3)	*Relative Net Fee received on trading day t*	1282	**1.253** (0.53)	**1.220** (0.53)	-0.346 (0.30)	**2.066** (0.72)	0.033 (0.95)	-1.291 (1.16)	**-4.285** (1.44)
Panel C	*Constant*		**0.075** (0.03)	**0.097** (0.03)	0.013 (0.02)	**0.199** (0.04)	**0.251** (0.08)	**0.269** (0.13)	0.376 (0.28)
	Adjusted R^2		0.0123	0.0008	0.0025	0.0040	0.0012	0.0010	0.0002
Loans in (5)	*# of players incoming on loan base*	160	-0.013 (0.01)	-0.011 (0.01)	-0.010 (0.01)	-0.018 (0.02)	-0.017 (0.05)	-0.013 (0.06)	-0.024 (0.09)
Panel D	*Constant*		0.060 (0.04)	0.057 (0.04)	0.060 (0.04)	0.214 (0.13)	0.695 (0.42)	1.300 (0.79)	2.575 (1.51)
	Adjusted R^2		0.0001	0.0005	0.0083	0.0045	0.0017	0.0049	0.0018
Loans out (6)	*# of players outgoing on loan base*	257	-0.004 (0.00)	-0.004 (0.00)	-0.004 (0.00)	-0.005 (0.01)	-0.014 (0.02)	-0.047 (0.03)	-0.085 (0.04)
Panel E	*Constant*		0.029 (0.03)	0.026 (0.03)	0.029 (0.03)	0.065 (0.10)	0.256 (0.10)	0.631 (0.61)	1.226 (1.17)
	Adjusted R^2		0.0185	0.0125	0.0015	0.0026	0.0004	0.0026	0.0018

Table 13: The results of a simple OLS regression of using only a dependent variable are summarized (the number between parentheses in the first column denotes which database is used from table 3). This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Since loan deals are almost always closed on the same day, namely the first day of the transfer window, this number often is higher than one. The effect of the arrival of loaned players (also includes the returning of loaned players to the listed club) on the stock prices of hiring teams is not significantly in any interval (table 13). This also holds for the effect of outgoing players on a loan base (also includes the departing of loaned players from the concerned club back to his employer) on the stock price of the team lending out the players. So, the amount of loaned players does not affect higher stock returns of both the hiring club and the club that lends players out.

Part 5.2 Player characteristics

Since a dataset is created containing all kinds of player characteristics (dataset 4 in table 3), more effects could be examined. These player characteristics are explained in table 14 below.

Player characteristic	Meaning
Coming from top league	A player is bought from a team playing in either Ligue 1, Premier League, La Liga, Bundesliga or Serie A.
Going to top leage	A player is sold to a team playing in either Ligue 1, Premier League, La Liga, Bundesliga or Serie A.
Last year champion	A player is transferred from a team which were the champions of their league the season before. This could also mean being champion of a country's second league.
International	A player has played at least 1 international game for his country.
Individual rewards (prize)	A player has won at least 1 Golden Boot, Golden Shoe or Golden Glove or has been FIFA player of the year, World player of the year or World keeper of the year before the transfer deal.
International transfer	A player is going to a club playing in another country than his current team.
Intercontinental transfer	A player is going to a club playing on another continent than his current team.
Age	Player age at the time of the deal.
Position	Player position on the pitch. Could be keeper, defender, midfielder or striker.

Table 14: Dummy explanation

Part 5.2.1 Descriptive statistics

First of all some descriptive statistics will be discussed. These are collected in table 15 and 16. The reason of the low number of transfers for Manchester United is because of the fact that this club was only listed from 2012 until 2016. To test the effects of player characteristics another dataset is used (dataset 4 from table 3). It will be clear that lesser transfers are included in this dataset. The other three datasets (1, 2 and 3) contained a total of more than 2600 transfers (table 4), while this dataset contains 1200 transfers (approximately). The results of the regressions in this chapter should be handled with care for that reason.

From table 16 it will be clear that most transfers involved strikers, which is expected, since these players are often the most wanted. The average age of a player at the time of the transfer is just under 25 years, while the youngest players were 17 years old and the oldest 37 years old at the time of the deal. The average fee paid / received is just over €4 million, with the highest fee being €75 million (Ángel Di María's transfer from Real Madrid towards Manchester United in 2014). Also the dummy variables have been summarized in terms of quantity. Only 2 player transfers

included individual rewards winners which are the transfers of Alessandro Nesta and Cristiano Ronaldo.

	Acquisitions	Sales
AS Roma	71	55
Ajax Amsterdam	27	46
Borussia Dortmund	31	41
Besiktas JK	64	29
FC Porto	33	42
Fenerbahce SK	41	16
Galatasaray SK	66	51
Celtic Glasgow	51	28
Juventus	48	53
Manchester United	14	20
Olympique Lyon	29	35
SL Benfica	41	45
SS Lazio	30	26
Sporting CP	36	41
Trabzonspor	53	36
Total	635	574

Table 15: Transfers per team in the database containing transfers with player characteristics

Keepers	Defenders	Midfielder	Strikers	Total
65	332	364	448	1209

	Average	Lowest	Highest
Age	**24,76**	17	37
Fee	**€4.092.859**	€17.000	€75.000.000

Coming from top league	476
Going to top league	508
Last year champion	239
International	698
Individual awards (prize)	2
International transfer	788
Intercontinental transfer	132

Table 16: Descriptive statistics of the database containing transfers with player characteristics

A lot of players were international at the time of their transfer and also most transfers themselves were international (the selling and buying clubs play in different countries). Important to state is

that often regressions on 'top league'- clubs are performed. This considers teams playing in the France Ligue 1, Spanish La Liga, German Bundesliga, Italian Serie A or British Premier League.

Part 5.2.2 Dummy transfer characteristics

In this part of Chapter 5 the effects of dummy variables will be tested. The effects of sales and acquisitions are included in table 17 and 18, respectively. The dummies used are explained in table 14 in the introduction of Chapter 5.2.

When a player is bought from a club playing in one of the 5 big leagues, negative abnormal returns are expected for the day after the deal as well as on the longer term (-10, 10) for the buying club. No significant effects on stock prices of buying teams are found for the buying of a player by a top league team. This sounds logical, since most investors (fans) probably are not bothered that much by a player that comes from a lower league to join a top league club. Unexpected negative significant effects are found on the stock price of the buying club on the longer term (-10, 10) and (-20, 20) after buying a former champion. This could be due to overpricing, which will be tested later on.

Part 5.2.2.1 General results

Dummy effects on stock prices of buying clubs for acquisitions	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Coming from top league	-0.182	-0.008	**-1.357****	**-0.592***	**2.400****	**-4.701****	2.195
	(0.34)	(0.26)	**(0.65)**	**(0.34)**	**(1.09)**	**(1.83)**	(1.60)
Going to top league	-0.049	0.159	0.288	0.139	1.684	-5.644	1.351
	(0.33)	(0.35)	(0.65)	(0.47)	(1.79)	(4.98)	(3.35)
Last year champion	0.484	-0.661	-1.344	**-0.948****	0.360	**-6.054****	**-5.645****
	(0.47)	(0.50)	(1.02)	**(0.47)**	(1.52)	**(2.54)**	**(2.25)**
International	0.075	0.008	0.482	0.300	**-2.139****	**12.858*****	**-6.364*****
	(0.31)	(0.33)	(0.53)	(0.31)	**(0.97)**	**(1.62)**	**(1.40)**
Individual awards (prize)	0.000	(0.000)	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
International transfer	-0.470	-0.039	0.544	-0.455	**-2.009***	1.222	**7.520*****
	(0.34)	(0.35)	(0.63)	(0.33)	**(1.07)**	(1.78)	**(1.55)**
Intercontinental transfer	**0.817***	-0.131	-0.914	0.494	**2.653***	**-8.835*****	**-23.814*****
	(0.45)	(0.48)	(0.82)	(0.46)	**(1.46)**	**(2.47)**	**(2.14)**
Constant	0.234	0.071	0.532	0.414	0.393	-0.596	1.849
	(0.29)	(0.30)	(0.50)	(0.36)	(1.30)	(3.31)	(2.30)
N	537	590	199	634	634	634	634
Adjusted R^2	0.0116	0.0037	0.0301	0.0070	0.0054	0.0181	0.0122

Table 17: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Dummy effects on stock prices of selling clubs for sales	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Coming from top league	3.558 (3.70)	0.233 (0.52)	-0.328 (0.51)	2.590 (2.64)	**6.323**** **(3.02)**	1.293 (7.10)	2.177 (2.86)
Going to top league	-3.412 (3.51)	0.458 (0.36)	-0.530 (0.48)	-1.969 (1.79)	**-5.656***** **(1.59**	**-8.645***** **(1.52)**	-0.772 (0.80)
Last year champion	3.060 (3.42)	0.569 (0.35)	**-1.125**** **(0.46)**	3.402* (1.83)	**6.757***** **(1.67)**	**10.328***** **(1.62)**	**3.407***** **(0.85)**
International	-2.443 (3.50)	-0.365 (0.35)	-0.152 (0.48)	-2.034 (1.81)	**2.632*** **(1.60)**	**6.923***** **(1.52)**	-1.036 (0.80)
Individual awards (prize)	2.550 (33.03)	2.762 (3.52)	0.000 (0.00)	4.402 (14.10)	1.204 (12.13)	-8.808 (11.00)	**11.388**** **(5.43)**
International transfer	0.421 (3.84)	0.181 (0.39)	0.067 (0.55)	0.975 (2.02)	0.677 (1.81)	0.392 (1.75)	**2.253**** **(0.93)**
Intercontinental transfer	1.289 (6.24)	-0.920 (0.62)	-0.293 (0.86)	-0.233 (3.25)	0.030 (2.88)	3.288 (2.75)	**10.246***** **(1.46)**
Constant	-0.672 (3.72)	-0.029 (0.44)	**0.919*** **(0.52)**	-1.108 (2.33)	**-6.379***** **(2.43)**	-1.692 (4.73)	**-4.394**** **(1.97)**
N	455	526	175	574	574	574	574
Adjusted R^2	0.0071	0.0176	0.0438	0.0049	0.0099	0.0134	0.0086

Table 18: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Internationals however, have a positive effect on stock prices of buying clubs on the longer term (-10, 10), while negative effects are found on the shorter term (-5, 5). Internationals are expected to have more experience and be better players than non-internationals. International transfers have positive effects on the share price of buying clubs on the longer term, while intercontinental transfers have negative effects on the same interval (-20, 20). This could be explained by the fact that it is more expensive for European clubs to buy non-European players.

Positive abnormal returns for selling clubs (table 18) are found on the (-5, 5) interval after players were sold by top league clubs. This sounds paradoxical but could be explained by the fact that most listed clubs incorporated in the dataset are top league clubs. The fact that selling players to top league clubs has a negative effect on abnormal returns of the selling clubs could be triggered by the fact that the selling club is losing one of its best players, since he is moving towards a better league. The sale of a last year champion has a positive effect on the share price of the selling club, both on the short and the longer term. This is an unexpected result which could be due to the effect of overpricing. Selling an international player triggers positive abnormal returns on the mid-long term for the selling team, which is unexpected for selling an experienced player.

The effects of individual awards are not taken into account, since only two transfers were dealing with that. Both selling towards a club from another country and another continent has positive effects on stock prices of selling clubs.

No significant effects are found for the three interactional dummies in table 19. The first interactional dummy is whenever a top league club is buying a player who was a champion last season. The second dummy is the case whenever a top league club is buying an international player who was also champion last year. For neither of those interactional dummies significant results are found. This also holds for the third dummy, whenever a player is bought from a club from another continent who were champions last season (except on the long term (-20, 20)). Championships in other continents are not that important for investors of the buying team.

Dummy effects on stock prices of buying clubs for acquisitions	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Going to top league	0.138 (3.25)	0.050 (0.34)	-0.423 (061)	0.016 (0.44)	2.748 (1.68)	-7.436 (5.62)	0.253 (3.25)
Last year champion	1.109 (0.69)	-1.084 (0.74)	-2.008 (1.42)	**-1.314*** **(0.71)**	0.785 (2.25)	-4.903 (3.71)	**-7.996**** **(3.26)**
*Going to top league * Last year champion*	-0.867 (0.95)	0.833 (1.02)	1.359 (2.07)	0.444 (0.94)	-0.752 (3.03)	4.100 (5.06)	2.750 (4.52)
International	-0.109 (0.29)	0.026 (0.31)	0.299 (0.53)	0.020 (0.29)	**-2.335**** **(0.93)**	**11.827***** **(1.54)**	**-3.818***** **(1.34)**
*Going to top league * Last year champion * International*	-0.229 (0.96)	-0.313 (1.02)	2.504 (2.42)	0.520 (0.98)	-0.362 (3.15)	-1.720 (5.25)	3.467 (4.71)
Intercontinental transfer	**0.914**** **(0.42)**	-0.307 (0.44)	-0.230 (0.74)	0.543 (0.43)	1.483 (1.37)	**11.911***** **(2.33)**	**-22.604***** **(2.00)**
*Intercontinental transfer * Last year champion*	**-2.414*** **(1.45)**	1.564 (1.59)	0.766 (2.64)	-0.278 (1.42)	-5.768 (4.53)	-10.704 (7.60)	**15.874***** **(6.72)**
Constant	-0.087 (0.24)	0.092 (0.25)	0.516 (0.41)	0.114 (0.31)	-0.144 (1.14)	-0.826 (3.61)	**5.941***** **(2.13)**
N	537	590	199	634	634	634	634
Adjusted R^2	0.0143	0.0073	0.0157	0.0039	0.0034	0.0176	0.0106

Table 19: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

The results are different for the stock prices of clubs that sell a player (table 20). Whenever an international player is sold from a team that were champions last season to a team that are playing in one of the top leagues, a significant negative effect on the selling clubs' stock price is found on the intervals (-5,5), (-10, 10) and (-20, 20). Investors are not happy with the selling of an international player who helped the team become national champions. However, selling a player

who became champion last season to a team from a top league from another continent yields positive significant returns. Investors expect these players to be overpriced.

Dummy effects on stock prices of selling clubs for sales	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Going to top league	-4.321 (3.97)	**0.734*** **(0.42)**	**-1.066**** **(0.54)**	-2.910 (2.04)	**-8.041***** **(1.86)**	**-6.634***** **(1.79)**	**-2.387**** **(0.94)**
Last year champion	-0.467 (5.10)	0.821 (0.52)	**1.686**** **(0.68)**	0.110 (2.66)	**4.437*** **(2.43)**	**18.875***** **(2.34)**	1.031 (1.22)
*Going to top league * last year champion*	5.929 (6.99)	-0.714 (0.70)	1.599* (0.95)	4.380 (3.59)	**8.050**** **(3.22)**	**-8.470***** **(3.07)**	**4.792***** **(1.63)**
International	-2.648 (3.34)	-0.269 (0.34)	-0.093 (0.45)	-2.015 (1.70)	**3.598**** **(1.52)**	8.912 (1.44)	-0.085 (0.76)
*Going to top league * last year champion * international*	0.994 (7.20)	-0.290 (0.78)	0.200 (1.16)	-0.010 (3.77)	**-9.802***** **(3.62)**	**-17.357***** **(3.54)**	**-3.484*** **(1.86)**
Intercontinental transfer	0.820 (6.87)	**-1.390**** **(0.70)**	0.220 (0.96)	-0.471 (3.71)	-0.952 (3.23)	**6.447**** **(3.06)**	**9.334***** **(1.63)**
*Intercontinental transfer * last year champion*	-1.765 (14.82)	1.974 (1.33)	-2.335 (1.94)	0.255 (7.13)	2.814 (6.53)	-10.996 (6.31)	5.418 (3.35)
Constant	1.706 (3.25)	0.034 (0.38)	**1.055**** **(0.45)**	1.409 (1.70)	-2.594 (1.89)	-3.530 (3.73)	-1.451 (1.14)
N	455	526	175	574	574	574	574
Adjusted R^2	0.0067	0.0244	0.0715	0.0044	0.0065	0.0188	0.0081

Table 20: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Part 5.2.2.2 Age and fee

Another interesting difference in transfers to examine is when the age of players is taken into account. Three different groups have been made. This also holds for the fee paid / received. These groups can be found in table 21.

Age group	**Range**		**Fee group**	**Range**
Young players	< 23 years		Lowest fees	< €1 million
Middle aged players	≥ 23 years, < 28 years		Middle fees	≥ €1 million, <€5 million
Old players	≥ 28 years		Highest fees	≥ €5 million

Table 21: Age and Fee group groups (must be considered separately)

These ranges are used to get equally large groups in terms of number of observations. These dummies have been used to test for differences in effects of transfers with young or older players. Moreover, the differences between 'cheap' and more expensive players as well as combinations of these could be tested.

Part 5.2.2.2.1 Young players

The effects found for the sales of young players (<23 years) on the stock price of the selling team are collected in table A2 in appendix 2.1. Selling a young international is not rewarded with positive stock returns and even significant negative returns arise on the longer term (-10, 10). The sales of young players to teams from other countries does yield positive returns for the listed selling club on the middle long (-5, 5) and long (-20, 20) interval.

Selling a young international that is playing for a team from a top league has negative effects on the stock price of the selling team on the (-20, 20) interval, but this effect is only significant on a 90% basis. As known from table 14 there has been incorporated a dummy for the position of a player. Selling a young player did not yield positive returns, not for all four different positions used. Selling a young international who became champion in a top league yields negative effects on stock prices of the listed selling clubs, but these effects are not significant. However, selling a young player for a high fee confirms the findings of Fotaki et al. (2007), because investors think these players are overpriced. At the day of selling a young player for more than €5 million, a positive significant (90%) effect on the stock price is found. These effects are even stronger on the long term, since strongly positive significant (99%) effects are found on the (-10, 10) and (-20, 20) interval.

The interactional dummies have also been tested for their effects on the stock price of the listed buying club (table A3 in appendix 2.2). The result found by Fotaki et al. (2007) is also found for these transfers. Again, investors reckon that young players are overpriced, which is confirmed by the strongly negative effects of buying young internationals on stock prices of buying clubs on the (-5, 5) and the (-20, 20) interval. Similar results are found for buying a young player from a club from another country. The effects of buying young strikers are expected. Also for young midfielders and young defenders, negative (significant) effects on the share price of the buying clubs are found. Therefore, no distinction in position is made when it comes to young players. Young players that are bought for a high fee (>€5 million) have a positive effect on the short run (-5, 5), while its effect is negative on the somewhat longer interval (-10, 10). Again, the expectation that young players are overpriced is confirmed by these findings.

Part 5.2.2.2.2 Middle aged players

The same regressions have been executed for the transfers of middle aged players (older than 23, but younger than 28 years old). The effects for selling teams and buying teams are collected in table A4 and table A5 in appendix 2.3 and 2.4, respectively.

The effects of selling a middle aged player is appreciated by investors, since the effects of selling a middle aged striker and defender is followed by a positive significant effect on the stock prices of the selling teams on the longer term (-20, 20). This positive effect is not found for middle aged midfielders. It will be clear that selling middle aged internationals has a positive effect on the stock price of listed selling clubs on the longer term (-10, 10). This probably holds since investors expect them to be very expensive as they are in their best years and also play for their country. However, selling middle aged players to teams from other countries has a negative effect on stock returns of the selling clubs. This could be explained by the fact that investors think that selling these kinds of players to other countries are not overpriced. That is confirmed by the strongly significant negative effect of selling middle aged players for high fees. This is due to the fact that investors reckon that one of the best players of the team is sold.

The acquisitions of middle aged players yield very different results compared to the selling of middle aged players. Buying a middle aged international is followed by a strongly negative significant effect on the stock price of the buying team on the (-10, 10) and (-20, 20) intervals, as will be clear from the middle aged striker, midfielder and defender results. Middle aged internationals however are expected to be direct improvements by investors of buying teams, since the significant positive effects on share prices of buying clubs. Moreover, the effect of buying a player this age coming from a team from another country yields positive returns for the buying club on the middle long and longer term (-5, 5) and (-20, 20).

However, an unexpected result is found for middle aged internationals coming from a top league club. These transfers are followed by negative significant effects on the stock prices of buying teams on the longer term (-10, 10) and (-20, 20). Overpricing could play a role here. This is rejected by the effect found for buying expensive middle aged players on the (-10, 10) interval. A strong positive significant effect on the buying teams' stock price is found after buying a middle aged player for more than €5 million. Investors like the acquisitions of middle aged players, especially when the fee is high (due to experience).

Part 5.2.2.2.3 Older players

The last part of this paragraph contains the same regressions as performed for the young and middle aged players, but then for 'older' players. Players are considered 'old' whenever they were 28 years or older at the time of their transfer. The results of selling older players on the stock price of the selling club can be found in table A6 in appendix 2.5. Selling an old player seems to trigger negative stock returns for the buying club as will be clear from the regression table. Selling a player who is older than 28 years seems to be followed by negative stock returns on the longer term (-20, 20) for the selling team. This could be because of the experience teams lose when they sell an older player. This does not hold for the effects of selling an old international since positive significant effects (90%) are found for the long term (-20, 20), while negative effects are found on shorter intervals.

Unexpected results are found for the acquisition of older players (table A7 in appendix 2.6), since old strikers as well as old midfielders and defenders trigger positive significant results for the buying team on the longer team. This could be explained by the fact that investors expect that teams buy experienced good players who could improve the team directly. In most cases players that are at the end of their career are transferred for low fees. The average fee paid for an 'old' player is lower than the fee paid for a young or middle aged player in this study. Important to state is that investors do not seem to like acquisitions of old players for more than €5 million, since negative effects on the stock price of the buying club are found on the (-10, 10) interval. In conclusion, investors are most satisfied with the acquisitions of older experienced players whenever the fee is not high. This relationship also holds for sales. Investors are comfortable with selling old players for a high fee.

Part 5.2.2.2.4 Fees

From Chapter 5.1.3 it is clear that fees play an important role in transferring players. The conclusion there was that more *net fees received* (fees received on trading day T – fees paid on trading day T) has a positive influence on the stock returns of listed clubs. In this chapter fee dummies are used in regressions (table 21), to test whether interactional dummies play a role. The results for the effect of fees on stock returns of the selling listed club can be found in table 22.

From table 22 it will be clear that selling an international player is mostly not appreciated by investors. This holds for sales of internationals for both a high and a low fee. After these

transfers, abnormal returns will be lower on the longer term (-10, 10) and (-20, 20). Selling an international player who also became champion the season before yields a positive significant effect on the stock price of the selling club when sold for a high fee around the event date (-1, 1), but its' effect on the longer term is negative (-10, 10). This effect is stronger for selling an international player who became champion the season before for a low fee, as expected. Investors are concerned that the club did not receive enough funds for the player.

Dummy effects for sales	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Transfers over €5 million fee	3.703 (12.48)	0.746 (1.21)	-0.027 (1.76)	2.627 (6.29)	0.008 (5.80)	-1.146 (5.57)	1.724 (2.98)
International	(-0.587 (5.69)	0.328 (0.57)	0.263 (0.80)	0.003 (2.94)	-0.362 (2.62)	**17.180***** **(2.48)**	**3.794***** **(1.33)**
*High Fee * International*	-13.832 (13.63)	-1.223 (1.32)	-0.207 (1.91)	-10.342 (6.87)	-6.818 (6.28)	**-11.420*** **(6.02)**	**-8.518***** **(3.22)**
Transfers under €1 million fee	-0.381 (5.44)	0.015 (0.54)	0.384 (0.75)	-0.080 (2.80)	**-6.845***** **(2.53)**	**4.608*** **(2.40)**	1.298 (1.27)
*Low Fee * International*	1.222 (8.20)	0.089 (0.82)	0.161 (1.12)	0.878 (4.18)	**8.309**** **(3.68)**	**-11.108***** **(3.47)**	**-5.767***** **(1.84)**
Last year champion	0.002 (4.34)	**0.753*** **(0.43)**	-0.601 (0.63)	1.374 (2.28)	**8.208***** **(2.13)**	**17.345***** **(2.06)**	**2.155*** **(1.10)**
*High Fee * International * Last year champion*	10.900 (7.86)	-0.718 (-0.78)	-0.680 (1.08)	**6.778*** **(4.06)**	2.805 (3.63)	**-9.611***** **(3.45)**	2.572 (1.84)
*Low Fee * International * Last year champion*	-0.703 (9.85)	**-1.952*** **(1.01)**	-0.978 (1.29)	-2.740 (4.95)	**-8.026*** **(4.37)**	**-13.824***** **(4.11)**	**4.319**** **(2.17)**
constant	0.611 (4.72)	0.061 (0.47)	0.134 (0.69)	0.248 (2.50)	-1.280 (2.62)	**-8.766***** **(3.40)**	-2.502 (1.77)
N	537	590	199	634	634	634	634
Adjusted R^2	0.0139	0.0145	0.0432	0.0112	0.0048	0.0211	0.0031

Table 22: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

The effect of buying players and the influence of fee height on the stock price of the buying club is summarized in table 23.

Buying an international for a high fee (≥ €5 million) has a negative effect on the buying teams' stock price on the longer term (-10, 10), while the acquisition of internationals for a low fee gives strongly significant higher (cumulative) abnormal returns on the long term (-20, 20). This effect is expected since investors expect to buy an experienced player for a low fee (no overpricing).

The effect of buying an international player who became also national champion last season for a low fee has strongly positive effects on the share prices of buying clubs on the longer term. This

effect was also expected since investors believe the club has bought a player for a low fee who could directly strengthen the team.

Dummy effects for acquisitions	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Transfers over €5 million fee	-0.850 (0.88)	-0.743 (0.91)	-0.834 (1.39)	**-2.007**** **(0.86)**	-3.639 (2.74)	3.749 (4.60)	-2.292 (4.09)
International	0.148 (0.43)	-0.013 (0.45)	0.733 (0.75)	0.362 (0.43)	**-3.186**** **(1.37)**	**17.504***** **(2.28)**	**-8.499***** **(1.99)**
*High Fee * International*	1.184 (0.98)	-0.031 (1.02)	-0.515 (1.64)	1.047 (0.96)	4.256 (3.08)	**-16.879***** **(5.17)**	5.970 (4.61)
Transfers under €1 million fee	0.594 (0.45)	-0.723 (0.47)	0.785 (0.75)	0.099 (0.44)	0.058 (1.39)	**9.666***** **(2.28)**	2.491 (1.97)
*Low Fee * International*	-0.870 (0.71)	0.090 (0.75)	0.152 (1.21)	-0.644 (0.69)	2.701 (2.15)	4.539 (3.55)	**24.646***** **(3.11)**
Last year champion	**1.342**** **(0.60)**	-1.057 (0.66)	-1.242 (1.19)	-0.867 (0.62)	-0.425 (1.98)	-4.951 (3.27)	-3.394 (2.88)
*High Fee * International * Last year champion*	**-2.415**** **(1.03)**	0.866 (1.08)	1.405 (2.87)	-0.173 (1.03)	0.596 (3.34)	8.688 (5.56)	4.753 (5.07)
*Low Fee * International * Last year champion*	-1.905 (1.54)	1.060 (1.68)	1.173 (2.51)	0.626 (1.45)	0.051 (4.56)	**12.520*** **(7.56)**	**13.128**** **(6.64)**
constant	-0.207 (0.33)	0.493 (0.35)	0.078 (0.55)	0.324 (0.34)	1.231 (1.26)	**-5.975*** **(3.45)**	1.001 (2.19)
N	455	526	175	574	574	574	574
Adjusted R^2	0.0203	0.0128	0.0462	0.0106	0.0018	**0.0143**	**0.0002**

Table 23: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Part 5.3 Club characteristics

After testing the effects of player and transfer characteristics on the relationship between the transfer and the stock return of the buying or selling club, it is now time to test whether club characteristics play a role in transfer making. Once again, database 4 (table 3 for explanation) was used to test the effects on clubs' stock prices. Different variables have been incorporated to test profitability and financial distress. These variables are explained in table 24.

Club characteristic	Meaning
ROA	Defined as *'Net income / Total assets'* at trading day T for listed club I.
Total assets	Defined as '*Total assets'* at trading day T for listed club I.
Total debt as % of total capital	Defined as *'Total Debt / Total capital *100%'*at trading day T for listed club I.
Interest coverage	Defined as *'Earnings before interest and taxes (EBIT) / Interest expense'* at trading day T for listed club I.

Table 24: Club characteristics.

From table 25 it becomes clear that the higher the return on assets of the selling club is, the more investors appreciate the selling of a player on the long term (-20, 20). Larger total assets have in case of selling a player a positive effect on the stock price of the selling club. The effect for interest coverage is as expected.

Club characteristic effects for sales	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
ROA	0.002 (0.00)	0.002 (0.02)	0.006 (0.01)	0.016 (0.02)	0.016 (0.02)	0.029 (0.02)	**0.052***** **(0.01)**
Total Assets	0.000 (0.00)	**0.000***** **(0.00)**	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	-0.000 (0.00)	0.000 (0.00)
Total Debt as % of Total Capital	0.003 (0.01)	0.000 (0.00)	0.000 (0.00)	-0.002 (0.00)	-0.001 (0.01)	-0.003 (0.01)	0.002 (0.00)
Interest Coverage	**-1.186*** **(0.63)**	0.039 (0.06)	-0.010 (0.09)	**-0.432*** **(0.25)**	-0.301 (0.37)	**-2.014***** **(0.38)**	**-1.693***** **(0.20)**
Constant	-0.177 (2.19)	0.082 (0.22)	0.347 (0.36)	0.222 (0.84)	-2.430 (1.94)	4.444 (3.57)	0.347 (1.72)
N	483	422	175	450	450	450	450
Adjusted R^2	0.0109	0.0348	0.0051	0.0056	0.0049	0.0004	0.0087

Table 25: The results of a simple OLS regression of different club characteristic variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Whenever interest coverage is high, investors of the selling club do not appreciate the selling of one of the players, since the strongly negative significant effects on both the short (-1, 1) and the

longer term (-10, 10) and (-20, 20). Investors think it is not necessary to sell, since interest coverage is an aspect of a company's solvency and therefore important for shareholders.

Also for the stock prices of the buying clubs, club characteristics have been examined. Very strong significant positive effects are found for return or assets. With higher return on assets, investors trust the listed club more to spend their money. They appreciate acquisitions of buying clubs whenever profitability is high (on the longer term). Total debt as a percentage of total capital does also have a positive impact on the relationship between buying players and the stock prices of the buying club. Contrary to these effects is the impact of interest coverage. On the middle long term (-5, 5) and (-10, 10) there is a negative relationship between interest coverage and cumulative abnormal returns. However, on the short (-1, 1) and the long (-20, 20) intervals the relationship is positive, as expected. This holds since the more revenues a club has to pay its' interest expenses, the lower financial distress tends to be. Therefore, a club has more revenues to invest in new players.

Club characteristic effects for acquisitions	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
ROA	0.002 (0.00)	0.001 (0.00)	0.001 (0.01)	0.005 (0.00)	**0.027**** **(0.01)**	**0.055***** **(0.02)**	**0.053***** **(0.02)**
Total Assets	0.000 (0.00)	-0.000 (0.00)	**0.000*** **(0.00)**	0.000 (0.00)	0.000 (0.00)	-0.000 (0.00)	-0.000 (0.00)
Total Debt as % of Total Capital	**0.002**** **(0.00)**	0.001 (0.00)	0.001 (0.00)	**0.004***** **(0.00)**	0.001 (0.00)	-0.006 (0.01)	-0.003 (0.01)
Interest Coverage	0.002 (0.05)	0.027 (0.06)	-0.013 (0.09)	**0.122*** **(0.06)**	**-0.441**** **(0.21)**	**-2.500***** **(0.37)**	**0.770**** **(0.30)**
Constant	-0.053 (0.18)	-0.066 (0.21)	0.268 (0.30)	-0.079 (0.28)	0.005 (1.00)	**7.118**** **(3.30)**	0.534 (1.72)
N	389	377	154	412	412	412	412
Adjusted R^2	0.0116	0.0021	0.0232	0.0126	0.0025	**0.0005**	0.0007

Table 26: The results of a simple OLS regression of different club characteristic variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The dataset used for this regression is dataset 4 from table 3. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Part 5.4 Sponsors

Part 5.4.1 Global effects of transfers on sponsors' stock prices

Transfer Type	N	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	379	0.005 (0.05)	0.076 (0.06)	0.026 (0.06)	0.023 (0.16)	-0.099 (-0.56)	-0.390 (0.98)	-0.763 (1.68)
Sales (2)	420	0.011 (0.05)	0.041 (0.07)	-0.017 (0.05)	0.014 (0.13)	-0.184 (0.40)	-0.419 (0.73)	-0.883 (0.125)
Sales – Acquisitions (3)	649	0.017 (0.05)	0.050 (0.05)	0.016 (0.05)	0.067 (0.05)	0.029 (0.31)	-0.069 (0.53)	-0.157 (0.96)
Loans in (5)	40	0.011 (0.05)	-0.164 (0.18)	0.035 (0.04)	-0.024 (0.11)	-0.165 (0.53)	-0.323 (1.03)	-0.639 (2.04)
Loans out (6)	83	0.003 (0.05)	-0.006 (0.04)	0.012 (0.05)	-0.020 (0.14)	-0.157 (0.52)	-0.315 (1.00)	-0.559 (2.00)

Table 27: The results of a simple OLS regression of using only a dependent variable are summarized for abnormal (cumulative) returns (the number between parentheses in the first column denotes which database is used from table 3). This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Hanke and Kirchler (2013) found positive effects on the stock prices for sponsors of national teams after they won a knock-out World Championship game. The effect of player transfers on stock prices of a clubs' main sponsor has never been examined before (not recognized). The only known effects are the effect of 'closeness to sports discipline' and 'mere-exposure'. The closer the sponsors' activities are linked to the clubs' sport discipline, the higher the stock returns of these sponsors will be. The same holds for the amount of TV-time a sponsor gets (Clark et al., 2009). This effect was explicitly found in racing sports. The more a sponsor is filmed during a race (so when its' racer is in the lead), the higher stock returns tend to be.

Part 5.4.2 The effect of seasonality

Transfer Type		N	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	*Summer*	253	-0.005 (0.03)	0.032 (0.03)	0.022 (0.05)	0.006 (0.10)	-0.049 (0.43)	-0.254 (0.74)	-0.333 (0.94)
	Winter	126	0.023 (0.02)	0.048 (0.05)	0.003 (0.02)	0.034 (0.06)	-0.040 (0.16)	-0.135 (0.31)	-0.142 (0.36)
Sales (2)	*Summer*	307	0.011 (0.04)	0.041 (0.06)	0.002 (0.04)	0.036 (0.10)	-0.013 (0.30)	-0.027 (0.53)	-0.040 (0.66)
	Winter	113	0.003 (0.02)	0.002 (0.02)	-0.022 (0.02)	-0.019 (0.02)	-0.168 (0.14)	-0.368 (0.25)	-0.511 (0.40)

Table 28: The results of a simple OLS regression of using only a dependent variable are summarized for abnormal (cumulative) returns (the number between parentheses in the first column denotes which database is used from table 3). This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

When considering abnormal returns, no significant effects on stock prices of sponsors are found. So it is safe to say that player transfers have no impact on the stock prices of the main sponsors of listed football clubs. This holds for acquisitions, sales and loan deals (table 27). This holds for both summer and winter transfers, as will be clear from table 28.

Also the effect of fees on sponsors' stock prices is tested. It should be noted that the effect of transfers on sponsors' stock prices is non-existent (since no significant abnormal returns are found), but the relationship could be influenced by fee height. This is confirmed by the results. From table 29 it will be clear that for the 'Sales (1)' and the 'Sales- Acquisitions (3)' datasets a negative relationship is found. So the more fees received for the sale of a player, the lower stock returns of main sponsors tend to be. This also holds for the main dataset (3), since the higher net fees received, the lower sponsor stock prices of sponsors tend to be.

Part 5.4.3 The effect of fees

Part 5.4.3.1 Absolute Fees

Transfer Type		N	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	*Total Fee spent on trading day t*	379	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)	**-0.03*** **(0.01)**	-0.05 (0.01)	-0.01 (0.01)
Panel A	*Constant*		0.056 (0.13	0.193 (0.12)	0.173 (0.15)	0.168 (0.23)	0.674 (0.73)	0.656 (1.12)	-0.96 (1.78)
	Adjusted R^2		0.0021	0.0005	0.0065	0.0009	0.0085	0.0088	0.0052
Sales (2)	*Total Fee received on trading day t*	**420**	**-0.05*** **(0.02)**	-0.03 (0.02)	-0.02 (0.04)	-0.01 (0.01)	**-0.04**** **(0.01)**	**-0.11***** **(0.01)**	**-0.12***** **(0.02)**
Panel B	*Constant*		0.158 (0.24)	0.269 (0.15)	0.150 (0.35)	0.491 (0.32)	**1.118*** **(0.47)**	0.329 (0.75)	-0.367 (1.32)
	Adjusted R^2		0.0153	0.0133	0.0008	0.0002	0.0009	0.0063	0.0054
Sales – Acquisitions (3)	*Net Fee received on trading day t*	649	-0.01 (0.02)	-0.02 (0.01)	-0.03 (0.03)	-0.01 (0.01)	**-0.03*** **(0.01)**	**-0.05**** **(0.01)**	**-0.12***** **(0.01)**
Panel C	*Constant*		0.293 (0.20)	0.139 (0.12)	0.189 (0.47)	0.53 (0.29)	**1.107**** **(0.42)**	0.728 (0.49)	0.625 (0.94)
	Adjusted R^2		0.0018	0.0046	0.0006	0.0000	0.0043	0.0054	0.0119

Table 29: The results of a simple OLS regression of using only a dependent variable are summarized (the number between parentheses in the first column denotes which database is used from table 3). This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

After that, also relative fees have been tested. It will be clear that the results are quite similar to the results found for absolute fees. When checking acquisitions, significant negative CAR's are found for the (-5, 5) and the (-10, 10) intervals. Also for the 'Sales (2)' dataset negative effects

are found on the long term (-10, 10) and (-20, 20). The conclusion may be: *The higher fees received / paid, the lower the stock price returns of the listed clubs' main sponsor will be.*

Part 5.4.3.2 Relative Fees

Transfer Type		N	AR (-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Acquisitions (1)	*Relative Fee spent on trading day t*	379	-1.476 (2.23)	0.620 (1.98)	-1.413 (2.92)	-0.301 (1.98)	**-6.385** (2.31)	**-12.281*** (2.66)**	1.386 (2.29)
Panel A	*Constant*		0.046 (0.14)	0.183 (0.12)	0.152 (0.15)	0.150 (0.24)	0.675 (0.73)	0.716 (1.17)	-0.935 (1.87)
	Adjusted R^2		0.0020	0.0010	0.0033	0.0001	0.0024	0.0070	0.0003
Sales (2)	*Relative Fee received on trading day t*	420	**8.604*** (2.54)**	-3.168 (2.47)	-1.520 (5.20)	**5.443* (2.15)**	-0.406 (2.05)	**-12.017*** (1.92)**	**-5.897** (2.01)**
Panel B	*Constant*		0.133 (0.24)	0.207 (0.15)	0.118 (0.33)	0.410 (0.35)	**0.961* (0.47)**	0.177 (0.75)	-0.706 (1.34)
	Adjusted R^2		0.0306	0.0084	0.0005	0.0036	0.0004	0.0052	0.0004
Sales – Acquisitions (3)	*Relative Net Fee recieved on trading day t*	649	2.658 (2.24)	**-3.838* (1.84)**	-0.416 (3.61)	1.064 (1.64)	1.184 (1.68)	**-7.709*** (1.75)**	**-13.088*** (1.71)**
Panel C	*Constant*		0.248 (0.17)	0.147 (0.12)	0.043 (0.32)	0.478 (0.31)	0.730 (0.41)	0.328 (0.55)	-0.168 (1.04)
	Adjusted R^2		0.0023	0.0062	0.0010	0.0003	0.0001	0.0027	0.0061
Loans in (5)	*# of players incoming on loan base*	40	0.015 (0.13)	0.041 (0.10)	0.062 (0.17)	0.092 (0.08)	0.022 (0.11)	**-0.209* (0.10)**	**-0.807*** (0.09)**
Panel D	*Constant*		0.318 (0.53)	-0.035 (0.41)	-0.771 (0.71)	-0.258 (0.34)	0.188 (1.18)	0.354 (1.34)	1.679 (2.12)
	Adjusted R^2		0.0087	0.0140	0.0120	0.0023	0.0055	0.0006	0.0835
Loans out (6)	*# of players outgoing on loan base*	83	0.041 (0.05)	-0.007 (0.03)	-0.050 (0.06)	-0.032 (0.03)	**-0.099** (0.04)**	**-0.075* (0.04)**	**0.260*** (0.03)**
Panel E	*Constant*		0.068 (0.42)	0.179 (0.23)	-0.091 (0.50)	0.206 (0.27)	0.785 (1.02)	0.319 (1.34)	-2.047 (2.09)
	Adjusted R^2		0.2089	0.0531	0.0015	0.0528	0.0032	0.0007	0.0325

Table 30: The results of a simple OLS regression of using only a dependent variable are summarized for abnormal (cumulative) returns (the number between parentheses in the first column denotes which database is used from table 3). This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

The effect of loans is quite interesting. The amount of loans does not affect the relationship between player loans and *clubs'* stock prices, but it does affect the relationship between player loans and *sponsors'* stock prices. The relationship is negative for both players that leave a club on a loan base as well as for players coming from another team on loan base. In the first case the effect is tested for the stock price of the sponsor of the club that is hiring a player. For the second case the effect is tested for the stock price of the sponsor of the team that is lending out a player.

Part 5.5 Sponsor 'signing' and 'long-term' effect

After testing the effect of player transfers on the stock prices of sponsors, this paper aims to give an answer to the other hypotheses, namely hypotheses 6 and 6a, which state that there is a 'long-term-effect' but no 'announcement-effect'. From Clark et al. (2009) it is expected that sponsor deals are closed at competitive prices. The 'long-term-effect' is also known as the 'mere-exposure'-effect of Cornwell et al. (2001), meaning that the more TV-time a sponsor gets, the higher their stock price returns should be. However, exact TV-time is not incorporated in this papers' dataset, so the effect will be tested for stock returns of sponsors on longer terms after the sponsor deal is signed. Only (cumulative) abnormal returns have been computed, since no event clustering is possible. This holds since the dataset only includes 11 sponsor signing deals as was stated in table 7 in Chapter 4. Moreover, only one sponsor deal per team was used, which cancels out event clustering completely.

Part 5.5.1 Sponsor signing effect

Transfer Type	N	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Sponsor Signing Effect Panel A	11	-0.614 (0.90)	0.068 (0.43)	0.310 (0.55)	-0.051 (1.20)	1.308 (1.59)	-0.037 (1.62)	**-5.962*** **(2.87)**
Adjusted R^2		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table 31: The results of a simple OLS regression of using only a dependent variable are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

As will be clear from table 31, the signing effect only leads towards significant negative CAR's for sponsors' stock prices on the (-20, 20) interval. This effect is only significant on a 90% base, so the 'announcement-effect' is considered to be very small or even non-existing.

Also the 'long-term-effect' is not significant as becomes clear from table 32 below. The intervals incorporated are always starting from the day the deal was closed. The intervals include one until eight years after the signing. The effect is negative for the first year and positive for the other intervals, but never on a significant base. This effect is especially positive for the first two years after deal completion, but again, the effect is not significant for those three intervals (0, 2 years), (0, 4 years) and (0, 8 years).

Part 5.5.2 Sponsor Long-term effect

Transfer Type	N	CAR(0,1 years)	CAR(0,2 years)	CAR(0,4 years)	CAR(0,8 years)
Sponsor Long-term Effect	11	-3.126 (5.07)	11.586 (17.62)	6.071 (26.00)	1.031 (17.74)
Panel A					
Adjusted R^2		0.0000	0.0000	0.0000	0.0000

Table 32: The results of a simple OLS regression of using only a dependent variable are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Chapter 6 Conclusion

In this part of the paper the conclusions and main findings will be discussed. Since very little research has been done on the subject, studies on other topics have been used to introduce the main purpose of the study. First of all, the mood of investors was discussed, which introduced the effects of mood and expectation. Nofsinger (2005) found that the general level of optimism / pessimism is reflected in the behavior of investors. Edmans et al. (2007) used a mood variable, namely match performance. Much more research has been performed on the effects of match performance on the stock price of the accompanying club (compared to player transfers). The main findings of, among others, Boidoa et al. (2006) and Stadtmann (2006) were rather similar. They all found a negative effect of lost matches on the share price of the club, while winning boosts stock returns. Moreover, Edmans et al. (2007) tested the effects of the results in international matches at World Championships with clearly significant higher returns for the Italian stock index after a win at the World Championship by the Italian national team. Consequently, the question arose whether transfers have any effect on the stock price of the concerned football club. This effect was examined before by Fotaki et al. (2007) as a sub question. Their paper used a smaller database of transfers to examine the effect of transfers on stock price returns. They only found significant results on the 4^{th} and 12^{th} day after the transfer deal was closed. This paper also found significant positive returns for other days and intervals. For the first two days after a player was acquired, abnormal returns were significantly positive. Similarly, for the (-1, 1) interval, positive effects were found after both acquisitions and sales for the buying club and selling club, respectively. This was the expected result for the second hypotheses, but not for the first. It was expected that acquiring new players would negatively affect the stock price of buying clubs due to overpricing. Taking into account all transfers (both sales and acquisitions) it became clear that higher stock prices after transfers occur for the concerned listed club. Moreover, this study tested whether seasonality plays a role. During the three months of summer transfer windows acquisitions have less often an effect than during the winter, while the result is the other way around for sales and the complete dataset (3). Thus, summer transfers seem to be more important to investors than winter transfers. Another important assumed moderating effect is the effect of fee height (hypotheses 1a and 2a). It was found that the more fees paid, the lesser the stock returns are. This confirms the idea of ‘overpricing’, where investors expect that players are too expensive and not able to earn back the fee they are paid for

(as was found by Fotaki et al., 2007). This is also confirmed by the positive relationship between net fees received and abnormal returns. This means that the more funds a team received at a trading day, the higher the stock return was. This holds for all intervals as well as for the day before a transfer deal is closed. The same effects were found when using relative fees. Hereby, fees are denoted as a percentage of total team value. After the first and second hypotheses were answered, the effect of lending was examined. In this study, no effects on stock prices were found for both lending players to other clubs and hiring players from other clubs for the concerned team. In addition, the number of loan deals completed on trading day *T* had no effect on this relationship. The effect of contract expiration was not tested, since most contracts expire at the first day of transfer windows, when many transfer deals are closed.

The main purpose of this study was (1) to test the relationship between player transfers and stock prices again, but with much more transfers and (2) to test whether the findings of Fotaki et al. (2007) can be confirmed. After that, investigated was whether player and club characteristics have any effect on the relationship between transfers and clubs' stock prices. Some players and club characteristics are assumed to be a transfer fee driver, but no research has been performed on the subject as far as we know. Many characteristics were incorporated in this study and the results were varying. When a player is bought from a top league team, (playing in Ligue 1, Bundesliga, La Liga, Serie A or Premier League), positive effects are only found on the (-5, 5) interval, while negative effects are found for three other intervals. The reverse effect was anticipated. This also holds for the negative relationship on the stock prices of buying teams after buying a last year champion or international. This could be explained by the idea that investors think the fees paid are too high (overpriced). For the selling team some unexpected results arose as well. For example, it was found that selling a player who became champion last season triggers significant positive returns for the selling team. Selling an international was also followed by a positive effect on the clubs' share price. Those two results could be also due to the expectation of 'overpricing', when investors are glad with the stipulated fee. When introducing the first interactional dummies (table 17 and 18), almost no significant results were found. For buying clubs, only buying a last year champion from another continent triggered negative effects on the long term, while it triggered higher stock prices on the long term (-20, 20). Overpricing was confirmed by the result that higher stock prices were found for the selling team after the selling of a last year champion to a top league team. Investors expect that the gains of selling the player are

higher than the losses of losing him to another team (as was found by Fotaki et al, 2007). These losses could occur because of lower league rankings or lower ticket revenues.

After testing for the first interactional dummies, also age was considered. Overpricing is mostly expected for younger players since fees are the highest for them, while they are less experienced compared to middle aged and older players. This was confirmed by strongly significant positive stock returns after selling a young player (< 23 years) to a club that plays in another country. However, the most convincing result in favor of the 'overpricing'-effect is formed by the highly strong positive significant effects on the stock price of the selling team after selling young players for a high fee. High fees involve transfers with a fee higher than €5 million. However, the opposite result was found for middle aged and older players, which suggests that investors think that old experienced players are underpriced, while youngsters are overpriced. This is also confirmed by the results for the buying teams, but this effect is less convincing compared to sales. Buying young players led to varying effects on the buying teams' stock price, just like buying old players for a high fee. For middle aged players, a positive effect was found on the (-10, 10) interval, which implies that investors do not think players are overpriced when they are middle aged (> 23 years and ≤ 28 years).

Selling an international who became champion last season for a low fee (< €1 million) was followed by negative stock returns. This could be due to 'underpricing' (investors think these players are worth more). This is confirmed by the highly significant positive effect on the stock price of buying teams after buying the same kind of player for a low fee.

After testing the moderating effects of player characteristics in transfer deals, the effects of club characteristics on the relationship between transfers and stock prices were examined. The most important characteristic impacting stock prices during sales is interest coverage. The higher interest coverage, the fewer investors appreciate sales. Investors think sales are unnecessary whenever EBIT is high enough to cope with interest payments. For acquisitions the role of interest coverage is not clear, while the higher the ROA, the higher stock returns on the long run will be after a player is acquired. This suggests that investors believe that the club's revenues are high enough to invest in the team and will not put the club in financial distress.

Another sub question of this study was whether the clubs' main sponsors are affected by transfers. Hanke and Kirchler (2013) found significant higher stock returns for sponsors after knockout matches of national teams at the World Championship (if they won). Moreover, the effects of 'closeness to sport discipline' and 'mere-exposure' play a major role (Hanke and Kirchler, 2013). The closer the activities of a sponsor are linked to a clubs' main sport, the stronger the relationship between match results and stock prices is. This also holds for the 'mere-exposure'- effect. The more a team is filmed during a race (this study focused on NASCAR-racing), the stronger the relationship (Clark et al., 2009). This relationship does not hold for transfers and sponsors of listed football clubs. No significant higher or lower stock prices were found after the completion of transfer deals. Besides that, no 'signing-effect' was found. This effect assumes that sponsors' stock prices are higher after signing a sponsor deal with listed football clubs. Moreover, the 'long-term effect' does not seem to exist. This effect implies that due to mere exposure, sponsors note higher share prices after a long term (tested until 8 years after deal signing). Closeness to sports discipline was not tested, because only 11 sponsor deals were used. Dividing them into classes denoting closeness to sports discipline (of sponsored club) would lead to insufficient results.

Future research could focus more on the effect of transfer, player and club characteristics. Perhaps other club or player characteristics, which were not included in this study, drive fees in transfer making and affect clubs' stock prices. Examples are the length of a player's contract and the salary he received at the club he is leaving. This study did not include these characteristics, because this data was not available. For professional researchers, this information might be easier to obtain. Another aspect that should be investigated is the effect of fees. Clearly, fees influence the relationship between transfers and the stock price of the club selling or buying the player. However, it could be interesting to investigate different clauses. It could for example be that the buying team has to pay a fee whenever the transferred player scores X goals for his new team. This study did not incorporate such details, since transfermarkt.com only provides information on the complete transfer fee and does not include all clauses. Another interesting aspect to investigate is the rumors around certain transfers. This study included a longer interval to control for this effect, but future research could focus more on the 'announcement'-effect. The effect of rumors could be more important to investors. All in all, future research should focus more on transfer, player and club characteristics.

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Appendix

Appendix 1 Abnormal returns per day

	Acq. + Sales	Acquisitions	Sales
Day	AR (SE)	AR (SE)	AR (SE)
N	1209	634	574
-20	-1.88 (1.73)	-3.26 (3.05)	-0.10 (0.35)
-19	-0.15 (0.17)	-0.27 (0.23)	-0.04 (0.27)
-18	1.66 (1.62)	0.18 (0.19)	4.06 (4.47)
-17	1.48 (1.59)	2.48 (2.79)	0.10 (0.26)
-16	-2.02 (1.55)	-3.19 (2.78)	**-0.61*** (0.28)**
-15	0.06 (0.13)	0.03 (0.18)	0.07 (0.19)
-14	-0.03 (0.13)	-0.05 (0.16)	0.03 (0.25)
-13	0.05 (0.13)	-0.03 (0.15)	0.13 (0.25)
-12	1.34 (1.33)	2.18 (2.34)	0.28 (0.34)
-11	-2.32 (1.74)	-2.05 (2.26)	-3.05 (3.46)
-10	-1.16 (1.19)	-1.96 (2.17)	-0.17 (0.23)
-9	-0.17 (0.13)	-0.26 (0.22)	-0.06 (0.20)
-8	1.53 (1.08)	**0.39*** (0.18)**	3.06 (2.64)
-7	0.84 (1.06)	1.73 (1.98)	-0.18 (0.28)
-6	-0.00 (0.14)	0.09 (0.16)	-0.12 (0.25)
-5	-0.11 (0.12)	0.08 (0.14)	-0.30 (0.20)
-4	-0.02 (0.13)	-0.06 (0.21)	0.04 (0.17)
-3	**0.21* (0.13)**	0.13 (0.15)	**0.36* (0.20)**
-2	-1.78 (1.35)	-1.81 (1.46)	-2.00 (2.02)
-1	-0.54 (0.7)	0.06 (0.14)	-1.18 (1.53)
0 (Deal signing)	0.13 (0.11)	0.012 (0.15)	0.27 (0.19)
1	**0.30* (0.18)**	**0.45* (0.25)**	0.14 (0.26)
2	**0.27* (0.16)**	**0.69*** (0.24)**	-0.19 (0.22)
3	-0.02 (0.16)	0.07 (0.23)	-0.13 (0.20)
4	0.02 (0.18)	0.13 (0.25)	-1.2 (0.24)
5	-0.10 (0.22)	0.14 (0.35)	**-0.39* (0.24)**
6	1.95 (2.27)	4.4 (5.13)	-0.07 (0.27)
7	0.01 (0.18)	-0.2 (0.29)	0.04 (0.22)
8	0.23 (0.18)	0.1 (0.23)	0.37 (0.27)
9	**0.39*** (0.16)**	**0.37* (0.22)**	**0.42** (0.22)**
10	4.32 (2.93)	3.84 (3.87)	4.88 (4.47)
11	-2.18 (2.07)	0.04 (0.21)	-4.74 (4.45)
12	0.20 (3.10)	-0.57 (6.49)	0.1 (0.33)
13	-2.10 (2.08)	-3.57 (3.88)	-0.4 (0.32)
14	0.04 (0.20)	-0.18 (0.28)	0.29 (0.27)
15	-0.10 (0.16)	-0.21 (0.23)	0.05 (0.27)
16	-0.11 (0.18)	-0.1 (0.27)	-0.12 (0.24)
17	1.97 (2.10)	4.01 (3.91)	-0.4 (0.30)
18	-0.08 (0.16)	-0.13 (0.19)	-0.03 (0.28)
19	0.16 (0.18)	0.26 (0.26)	0.04 (0.25)
20	-0.04 (0.18)	-0.12 (0.26)	0.05 (0.23)

Table A1: The results of a simple OLS regression of using only a dependent variable are summarized. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Appendix 2.1 Interactional dummy regression for sales of young players

Dummy effects on the stock price of selling clubs for sales	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Young players (< 23 years)	-8.962	-1.522	0.128	-7.105	-4.231	-1.897	1.948
	(16.25)	(1.63)	(2.49)	(8.31)	(7.16)	(6.76)	(3.50)
International	-1.936	0.508	-0.082	-0.825	**5.881****	**8.470*****	0.411
	(4.57)	(0.46)	(0.63)	(2.32)	**(2.03)**	**(1.92)**	(1.00)
*Young player * International*	1.043	-1.039	0.420	-0.236	-5.398	**-12.430****	-3.403
	(8.91)	(0.90)	(1.35)	(4.64)	(4.12)	**(3.97)**	(2.08)
International transfer	0.694	0.640	-0.377	0.664	-3.781	3.731	0.035
	(4.86)	(0.49)	(0.67)	(2.46)	(2.16)	(2.07)	(1.09)
*Young player * International transfer*	1.488	-0.982	1.160	1.239	**7.592***	0.443	**7.110*****
	(7.96)	(0.79)	(1.17)	(4.01)	**(3.57)**	(3.44)	**(1.80)**
Coming from top league	4.185	0.649	-0.466	3.036	**4.916****	-0.051	1.532
	(3.72)	(0.37)	(0.54)	(1.83)	**(1.62)**	(1.56)	(0.82)
*Young player * International * Coming from top league*	-2.191	-0.731	-0.630	-2.112	-4.254	1.391	**-5.746***
	(10.28)	(1.00)	(1.66)	(4.89)	(4.41)	(4.27)	**(2.26)**
Striker	-0.655	-1.442	-1.519	-2.577	-0.349	-2.924	**7.000****
	(9.76)	(0.97)	(1.71)	(5.28)	(4.70)	(4.58)	**(2.44)**
*Young player * Striker*	3.703	2.683	-0.437	4.506	3.136	7.181	-4.334
	(16.61)	(1.65)	(2.54)	(8.42)	(7.30)	(6.92)	(3.61)
Midfielder	-9.098	-0.846	-0.641	-7.346	-5.003	4.064	3.602
	(9.85)	(0.98)	(1.72)	(5.34)	(4.76)	(4.64)	(2.46)
*Young player * Midfielder*	12.030	2.738	-1.361	9.381	6.667	4.064	-2.755
	(16.97)	(1.69)	(2.58)	(8.55)	(7.40)	(4.64)	(3.64)
Defender	-1.377	-0.841	-0.291	-1.415	-6.333	-2.755	**8.565*****
	(9.96)	(0.99)	(1.78)	(5.42)	(4.83)	(7.01)	**(2.51)**
*Young player * Defender*	4.574	2.564	-1.304	3.981	7.835	-0.215	-5.599
	(17.09)	(1.70)	(2.66)	(8.67)	(7.54)	(4.72)	(3.74)
Keeper	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
*Young player * Keeper*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Last year champion	3.533	0.480	**-1.090***	2.532	**3.552***	**10.338*****	0.581
	(3.55)	(0.35)	**(0.48)**	(1.80)	**(1.61)**	**(1.55)**	(0.81)
*Young player * International * Coming from top league * Last year champion*	-1.624	-0.867	-0.231	-1.565	-1.754	-6.218	**7.760***
	(15.18)	(1.49)	(2.61)	(7.56)	(6.87)	(6.78)	**(3.56)**
High Fee (>€5 million)	**-9.474***	**-1.141***	-0.414	**-7.938****	**-5.961****	**-16.600*****	**-7.214*****
	(4.76)	**(0.47)**	(0.64)	**(2.43)**	**(2.13)**	**(2.03)**	**(1.06)**
*High Fee * Young player*	11.036	**1.883***	-0.660	**9.473***	6.199	**18.774*****	**11.048*****
	(8.46)	**(0.86)**	(1.23)	**(4.38)**	(3.93)	**(3.80)**	**(1.99)**
Constant	2.619	0.39	2.024	2.883	-2.687	-4.323	**-7.045****
	(9.94)	(0.98)	(1.71)	(5.35)	(4.77)	(4.63)	**(2.44)**
N	455	526	175	574	574	574	574
Adjusted R^2	0.0237	0.0379	0.0847	0.0187	0.0127	0.0212	0.0143

Table A2: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Appendix 2.2 Interactional dummy regression for acquisitions of young players

Dummy effects on stock price of buying clubs for acquisitions	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Young players (< 23 years)	-0.978 (1.20)	-0.935 (1.26)	-0.490 (1.84)	**1.899*** **(1.16)**	**8.625*** **(3.47)**	**-22.855***** **(4.76)**	0.824 (4.76)
International	0.168 (0.46)	-0.084 (0.49)	0.633 (0.73)	0.338 (0.44)	**2.725*** **(1.37)**	**17.213***** **(2.24)**	**12.490***** **(1.91)**
*Young player * International*	-0.282 (0.69)	0.618 (0.72)	0.035 (1.24)	0.392 (0.67)	**-11.276***** **(2.130**	4.183 (3.53)	**-45.602***** **(3.05)**
International transfer	-0.717 (0.43)	-0.516 (0.450	0.576 (0.74)	**-0.895*** **(0.42)**	0.722 (1.30)	4.536* (2.13)	**4.612*** **(1.82)**
*Young player * International transfer*	0.939 (0.62)	0.684 (0.64)	-1.463 (1.12)	0.806 (0.60)	**-5.987**** **(1.90)**	-2.856 (3.15)	**-6.296*** **(2.72)**
Coming from top league	-0.508 (0.38)	0.349 (0.40)	-0.872 (0.65)	-0.447 (0.37)	1.089 (1.15)	**-7.117***** **(1.91)**	**-6.965***** **(1.65)**
*Young player * International * Coming from top league*	0.408 (0.79)	-0.774 (0.80)	-0.136 (1.47)	-0.426 (0.74)	3.127 (2.36)	**-8.254*** **(3.95)**	**58.639***** **(3.49)**
Striker	-0.272 (0.78)	0.349 (0.84)	0.472 (1.17)	0.159 (0.73)	2.072 (2.20)	**-33.216***** **(3.55)**	**-10.418***** **(3.01)**
*Young player * Striker*	1.294 (1.26)	-0.051 (1.32)	1.229 (2.00)	1.62 (1.21)	-0.561 (3.68)	24.829 (5.96)	**11.428***** **(5.090**
Midfielder	-0.132 (0.79)	-0.016 (0.85)	0.095 (1.190	-0.237 (0.74)	2.944 (2.23)	-31.752 (3.62)	**-10.435***** **(3.06)**
*Young player * Midfielder*	0.532 (1.28)	0.389 (1.34)	1.017 (2.00)	1.426 (1.23)	**-10.082**** **(3.73)**	**41.295***** **(6.05)**	9.818 (5.17)
Defender	0.076 (0.78)	0.481 (0.85)	-0.701 (1.25)	-0.237 (0.74)	2.114 (2.25)	**-33.47***** **(3.64)**	**-12.055***** **(3.10)**
*Young player * Defender*	0.222 (1.27)	-0.032 (1.33)	1.357 (2.07)	1.426 (1.23)	0.686 (3.76)	**14.997*** **(6.13)**	0.890 (5.26)
Keeper	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
*Young player * Keeper*	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Last year champion	0.210 (0.50)	-0.407 (0.54)	-1.053 (1.14)	-0.811 (0.50)	-1.060 (1.59)	-5.143 (2.64)	-2.656 (2.34)
*Young player * International * Coming from top league * Last year champion*	1.276 (1.48)	-1.233 (1.59)	3.886 (3.15)	1.769 (1.51)	3.170 (4.92)	13.453 (8.39)	-13.561 (7.33)
High Fee (>€5 million)	0.275 (0.49)	-0.512 (0.51)	-0.943 (0.98)	-0.487 (0.480	-2.533 (1.54)	**-7.276**** **(2.58)**	**-5.240*** **(2.28)**
*High Fee * Young player*	-0.666 (0.72)	0.049 (0.75)	-0.764 (1.50)	-1.076 (0.71)	**6.120**** **(2.27)**	**-9.572*** **(3.83)**	3.527 (3.41)
Constant	0.598 (0.75)	0.307 (0.82)	0.406 (1.14)	1.016 (0.71)	-3.638 (2.12)	**26.290***** **(3.40)**	**6.999*** **(2.88)**
N	537	590	199	634	634	634	634
Adjusted R^2	0.0219	0.0170	0.0760	0.0202	0.0245	0.0473	0.0458

Table A3: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Appendix 2.3 Interactional dummy regression for sales of middle-aged players

Dummy effects on stock prices of selling clubs for sales	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Middle aged players (≥23 yars but < 28 years)	7.839 (15.62)	1.492 (1.57)	-0.446 (2.09)	6.920 (8.14)	3.798 (7.08)	3.642 (6.68)	-2.546 (3.46)
International	-1.066 (4.99)	-0.415 (0.50)	-0.038 (0.72)	-1.163 (2.54)	-0.871 (2.28)	**-3.945*** **(2.19)**	**-4.471***** **(1.16)**
*Middle aged player * International*	-3.598 (7.58)	0.897 (0.76)	-0.316 (1.07)	-2.204 (3.92)	**6.238*** **(3.48)**	**18.209***** **(3.32)**	**4.114**** **(1.73)**
International transfer	0.834 (5016)	-0.202 (0.52)	0.030 (0.76)	0.566 (2.63)	2.535 (2.36)	**4.257*** **(2.27)**	**4.572***** **(1.19)**
*Middle aged player * International transfer*	-0.503 (7.58)	1.036 (0.76)	-0.155 (1.08)	-0.076 (3.85)	**-8.760**** **(3.42)**	0.243 (3.28)	**-5.130***** **(1.72)**
Coming from top league	0.129 (4.21)	0.437 (0.42)	-0.824 (0.59)	-0.020 (2.05)	2.195 (1.83)	1.570 (1.75)	**-1.116** **(0.92)**
*Middle aged player * International * Coming from top league*	10.359 (7.86)	0.200 (0.78)	0.915 (1.12)	**8.325**** **(3.83)**	**7.040**** **(3.39)**	0.120 (3.24)	**8.605***** **(1.71)**
Striker	1.092 (11.60)	0.840 (1.18)	-1.797 (1.72)	0.935 (5.86)	0.662 (5.03)	2.972 (4.69)	0.635 (2.44)
*Middle aged player * Striker*	-2.097 (15.82)	-2.455 (1.59)	-0.065 (2.42)	-3.883 (8.19)	0.299 (7.15)	-7.038 (6.78)	**6.982**** **(3.53)**
Midfielder	0.971 (11.7)	1.540 (1.20)	-1.451 (1.71)	1.406 (5.93)	0.866 (5.08)	2.0541 (4.74)	1.389 (2.46)
*Middle aged player * Midfielder*	-12848 (15.97)	-2.467 (1.61)	0.456 (2.43)	-10.905 (8.27)	-7.042 (7.22)	3.509 (6.84)	0.244 (3.55)
Defender	1.492 (11.87)	1.156 (1.21)	-1.982 (1.78)	1.922 (6.03)	0.543 (5.19)	2.630 (4.86)	1.240 (2.53)
*Middle aged player * Defender*	-3.896 (16.10)	-2.547 (1.62)	2.430 (2.52)	-3.922 (8.39)	-7.892 (7.33)	-3.819 (6.98)	**7.509**** **(3.64)**
Keeper	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*Middle aged player * Keeper*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Last year champion	2.958 (3.66)	0.446 (0.36)	**-1.214**** **(0.50)**	2.343 (1.85)	**4.609***** **(1.67)**	**11.894***** **(1.60)**	**1.818**** **(0.83)**
*Middle aged player * International * Coming from top league * Last year champion*	1.257 (11.12)	-0.345 (1.16)	0.479 (1.72)	0.763 (5.91)	-4.677 (5.33)	-16.993 (5.10)	**-5.701**** **(2.67)**
High Fee (>€5 million)	1.263 (5.74)	0.161 (0.58)	-0.365 (0.77)	0.934 (2.92)	1.372 (2.61)	2.931 (2.51)	**6.270***** **(1.32)**
*High Fee * Middle aged player*	**-13.745*** **(8.01)**	**-1.428*** **(0.80)**	-0.310 (1.08)	**-11.186***** **(4.06)**	**-9.608***** **(3.600**	**-27.933***** **(3.44)**	**-18.680***** **(1.79)**
Constant	-2.259 (11.66)	-0.927 (1.20)	2.562 (1.75)	-1.635 (5.99)	-4.715 (5.13)	**-7.896*** **(4.79)**	-2.693 (2.50)
N	455	526	175	574	574	574	574
Adjusted R^2	0.0209	0.0205	0.0947	0.0153	0.0136	0.0133	0.0117

Table A4: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Appendix 2.4 Interactional dummy regression for acquisitions of middle-aged players

Dummy effects on stock prices of buying club for acquisitions	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Middle aged players (≥23 years but < 28 years)	-0.038 (1.22)	0.109 (1.31)	0.866 (1.87)	0.054 (1.15)	**-9.365***** **(3.48)**	**45.320***** **(5.57)**	**21.453***** **(4.79)**
International	-0.086 (0.41)	0.511 (0.43)	0.803 (0.75)	**0.764*** **(0.40)**	**-4.734***** **(1.29)**	**16.930***** **(2.12)**	**-0780***** **(1.87)**
*Middle aged player * International*	0.149 (0.75)	**-1.358*** **(0.79)**	0.164 (1.25)	-1.112 (0.72)	**7.296***** **(2.26)**	5.091 (3.69)	**29.535***** **(3.22)**
International transfer	0.221 (0.39)	-0.172 (0.41)	-0.452 (0.73)	-0.317 (0.38)	**-4.322***** **(1.22)**	0.976 (2.01)	**3.068*** **(1.76)**
*Middle aged player * International transfer*	**-1.246**** **(0.63)**	0.080 (0.66)	0.757 (1.13)	-0.352 (0.62)	**6.277***** **(1.96)**	2.488 (3.21)	**6.899**** **(2.81)**
Coming from top league	-0.537 (0.37)	-0.253 (0.39)	-0.475 (0.688)	**-0.879**** **(0.37)**	**3.070***** **(1.16)**	**-6.683***** **(1.91)**	**15.418***** **(1.67)**
*Middle aged player * International * Coming from top league*	0.540 (0.72)	1.249 (0.76)	-1.233 (1.28)	1.053 (0.70)	-1.667 (2.21)	**-6.777*** **(3.64)**	**-24.446***** **(3.22)**
Striker	-0.040 (0.79)	-0.020 (0.83)	1.000 (1.27)	0.190 (0.76)	1.537 (2.32)	-2.877 (3.70)	**10.420***** **(3.18)**
*Middle aged player * Striker*	0.509 (1.24)	0.728 (1.33)	-0.429 (1.89)	1.181 (1.17)	2.415 (3.56)	**-51.401***** **(5.71)**	**-35.015***** **(4.92)**
Midfielder	-0.65 (0.81)	0.045 (0.84)	0.979 (1.28)	0.006 (0.77)	**-3.983*** **(2.33)**	**9.750***** **(3.72)**	**8.342***** **(3.200**
*Middle aged player * Midfielder*	0.520 (1.26)	0.126 (1.35)	-1.148 (1.95)	0.175 (1.19)	**7.956**** **(3.64)**	**-60.919***** **(5.86)**	**-31.522***** **(5.06)**
Defender	-0.805 (0.80)	-0.044 (0.84)	0.005 (1.34)	-0.903 (0.78)	2.151 (2.37)	**-11.325***** **(3.81)**	-3.518 (3.29)
*Middle aged player * Defender*	1.759 (1.25)	1.180 (1.34)	-0.513 (2.00)	**2.665**** **(1.19)**	2.303 (3.66)	**-41.265***** **(5.89)**	**-23.045***** **(5.11)**
Keeper	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*Middle aged player * Keeper*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Last year champion	0627 (0.51)	-0.474 (0.54)	-0.646 (1.09)	-0.424 (0.51)	0.338 (1.63)	**-5.595**** **(2.69)**	-1.075 (2.39)
*Middle aged player * International * Coming from top league * Last year champion*	-1.071 (1.41)	-0.311 (1.45)	0.919 (3.89)	-0.301 (1.36)	-3.542 (4.31)	4.656 (7.16)	-3.388 (6.77)
High Fee (>€5 million)	-0.003 (0.46)	-0.428 (0.49)	**-1.841*** **(0.97)**	**-1.025**** **(0.46)**	1.371 (1.49)	**-15.471***** **(2.51)**	**-3.937*** **(2.27)**
*High Fee * Middle aged player*	-0.132 (0.73)	-0.191 (0.76)	0.940 (1.45)	0.074 (0.71)	-3.427 (2.30)	**9.182**** **(3.85)**	0.272 (3.47)
Constant	0.386 (0.74)	-0.051 (0.78)	-0.102 (1.14)	0.444 (0.71)	2.894 (2.13)	0.072 (3.39)	**-5.050*** **(2.90)**
N	537	590	199	634	634	634	634
Adjusted R^2	0.0247	0.071	0.0529	0.0237	0.0149	0.0488	0.0260

Table A5: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Appendix 2.5 Interactional dummy for sales of old players

Dummy effects for sales	AR(-1)	AR(0)	AR(1)	CAR(-1,1)	CAR(-5,5)	CAR(-10,10)	CAR(-20,20)
Old players (≥28 years)	-0.448	-1.080	-4.121	-2.865	-11.142	-6.711	**-21.868*** **
	(18.52)	(1.86)	(3.33)	(9.94)	(9.06)	(8.69)	**(4.55)**
International	-1.999	-0.254	-0.061	-1.686	**4.341****	**8.368*****	-0.480
	(4.29)	(0.43)	(0.60)	(2.18)	**(1.94)**	**(1.87)**	(0.98)
*Old player * International*	2.805	1.210	0.327	0.367	-1.748	**-10.065****	**3.753***
	(9.40)	(0.96)	(1.28)	(4.85)	(4.25)	**(4.01)**	**(2.08)**
International transfer	1.336	0.322	0.700	1.567	-3.180	**4.095****	**3.054*****
	(4.40)	(0.44)	(0.64)	(2.25)	(2.00)	**(1.94)**	**(1.03)**
*Old player * International transfer*	-0.168	-0.233	-1.742	-1.298	4.042	-1.623	-2.386
	(8.69)	(0.87)	(1.18)	(4.360	(3.88)	(3.69)	(1.91)
Coming from top league	3.545	0.526	-0.560	2.802	**4.329****	0.093	**1.862****
	(3.89)	(0.39)	(0.55)	(1.90)	**(1.68)**	(1.62)	**(0.85)**
*Old player * International * Coming from top league*	-2.726	-0.334	-0.100	-2.389	-3.039	1.962	**-4.002****
	(8.95)	(0.90)	(1.21)	(4.58)	(4.02)	(3.84)	**(2.01)**
Striker	2.103	0.447	**-2.613***	0.408	1.008	1.048	**3.985****
	(9.17)	(0.92)	**(1.34)**	(4.69)	(4.03)	(3.83)	**(2.00)**
*Old player * Striker*	-2.191	0.323	5.204	0.470	8.547	6.696	**17.119*****
	(18.24)	(1.81)	(3.23)	(9.73)	(8.880	(8.56)	**(4.49)**
Midfielder	-4.309	0.261	-1.938	-3.404	-3.718	4.255	-0.946
	(9.27)	(0.93)	(1.33)	(4.73)	(4.06)	(3.85)	(2.00)
*Old player * Midfielder*	3.348	0.114	5.106	4.837	12.989	5.240	**24.998*****
	(18.64)	(1.85)	(3.25)	(9.90)	(9.09)	(8.70)	**(4.56)**
Defender	2.189	0.108	-1.207	1.328	-5.822	0.955	**5.319*****
	(9.30)	(0.93)	(1.39)	(4.79)	(4.12)	(3.93)	**(2.05)**
*Old player * Defender*	-2.324	0.625	3.512	0.556	**17.010***	9.005	**14.440*****
	(18.87)	(1.88)	(3.36)	(10.11)	**(9.22)**	(8.89)	**(4.67)**
Keeper	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
*Old player * Keeper*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Last year champion	3.551	0.296	**-1.226****	2.520	**4.152*****	**10.868*****	**1.379***
	(3.59)	(0.36)	**(0.49)**	(1.83)	**(1.65)**	**(1.59)**	**(0.83)**
*Old player * International * Coming from top league * Last year champion*	-2.008	0.637	0.651	-1.187	-5.769	**-11.322****	-2.944
	(13.45)	(1.1)	(2.28)	(6.37)	(5.83)	**(5.61)**	(2.98)
High Fee (>€5 million)	-7.675	-0.369	-0.989	**-6.228*****	**-5.220****	**-17.627*****	**-7.944*****
	(4.72)	(0.47)	(0.66)	**(2.39)**	**(2.13)**	**(2.04)**	**(1.07)**
*High Fee * Old player*	7.327	-0.448	1.663	5.264	4.749	**19.840*****	**12.670*****
	(8.860	(0.89)	(1.18)	(4.53)	(3.99)	**(3.81)**	**(1.99)**
Constant	-1.914	0.119	2.526*	-0.725	-2.843	-5.583	**-4.315****
	(9.29)	(0.93)	(1.33)	(4.80)	(4.12)	(3.91)	**(2.03)**
N	455	526	175	574	574	574	574
Adjusted R^2	0.0187	0.0199	0.1119	0.0145	0.0112	**0.0217**	**0.0159**

Table A6: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**

Appendix 2.6 Interactional dummy for acquisitions of old players

Dummy effects for acquisitions	**AR(-1)**	**AR(0)**	**AR(1)**	**CAR(-1,1)**	**CAR(-5,5)**	**CAR(-10,10)**	**CAR(-20,20)**
Old players (≥28 years)	-0.337	1.435	-1.836	0.492	**-7.589****	**-41.568*****	**-45.126*****
	(1.25)	(1.36)	(1.88)	(1.17)	**(3.52)**	**(5.59)**	**(4.77)**
International	0.007	0.104	0.774	0.346	**-3.662*****	**19.711*****	**-6.639*****
	(0.36)	(0.38)	(0.61)	(0.35)	**(1.13)**	**(1.85)**	**(1.63)**
*Old player * International*	0.854	1.027	-1.365	1.399	**7.623****	**-12.830****	**22.509*****
	(1.04)	(1.09)	(1.96)	(0.99)	**(3.13)**	**(5.20)**	**(4.56)**
International transfer	-0.379	0.182	-0.288	-0.249	**-2.269****	**3.833****	-0.143
	(0.34)	(0.35)	(0.63)	(0.34)	**(1.08)**	**(1.78)**	(1.57)
*Old player * International transfer*	0.625	**-1.425***	1.482	-0.753	0.866	-3.964	-0.506
	(0.82)	**(0.87)**	(1.54)	(0.77)	(2.42)	(3.93)	(3.41)
Coming from top league	-0.202	0.340	-0.845	-0.134	**2.717****	**-9.670*****	**9.389*****
	(0.35)	(0.36)	(0.60)	(0.33)	**(1.07)**	**(1.77)**	**(1.56)**
*Old player * International * Coming from top league*	-0.622	-1.148	1.152	-1.001	-0.766	5.458	**-12.664*****
	(0.97)	(1.02)	(2.03)	(0.94)	(3.03)	(5.09)	**(4.52)**
Striker	0.594	0.605	0.490	**1.270***	0.394	**-41.564*****	**-20.772*****
	(0.71)	(0.75)	(1.09)	**(0.68)**	(2.10)	**(6.44)**	**(2.94)**
*Old player * Striker*	-1.973	-0.985	0.371	**-2.786****	2.459	**53.725*****	**38.161*****
	(1.42)	(1.51)	(2.22)	**(1.32)**	(4.01)	**(6.44)**	**(5.54)**
Midfielder	-0.046	0.619	-0.192	0.494	**-4.745****	**-29.716*****	**-22.278*****
	(0.73)	(0.77)	(1.12)	(0.70)	**(2.15)**	**(3.46)**	**(3.01)**
*Old player * Midfielder*	-0.033	-1.315	1.263	-1.083	**9.610****	**40.479*****	**36.942*****
	(1.39)	(1.50)	(2.22)	(1.30)	**(3.95)**	**(6.36)**	**(5.44)**
Defender	0.347	0.934	-0.705	0.923	0.703	**-46.451*****	**-33.079*****
	(0.72)	(0.76)	(1.14)	(0.69)	(2.15)	**(3.48)**	**(3.04)**
*Old player * Defender*	-1.467	-1.361	-0.113	**-2.644****	1.777	**54.165*****	**48.089*****
	(1.41)	(1.52)	(2.50)	**(1.33)**	(4.08)	**(6.55)**	**(5.67)**
Keeper	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
*Old player * Keeper*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Last year champion	0.452	-0.848	-0.784	-0.802	0.473	**-7.670*****	-2.791
	(0.51)	(0.55)	(1.03)	(0.50)	(1.59)	**(2.63)**	(2.36)
*Old player * International * Coming from top league * Last year champion*	-0.078	1.264	0.000	1.376	-1.202	6.344	-1.196
	(1.46)	(1.51)	(0.00)	(1.54)	(5.11)	(8.28)	(7.60)
High Fee (>€5 million)	-0.265	-0.614	**-1.634****	**-1.447*****	1.336	**-12.560*****	-1.741
	(0.40)	(0.42)	**(0.78)**	**(0.39)**	(1.28)	**(2.15)**	(1.94)
*High Fee * Old player*	0.982	0.605	0.986	**2.030****	**-5.620***	3.946	**-7.858***
	(0.92)	(0.96)	(2.10)	**(0.92)**	**(2.93)**	(4.86)	**(4.35)**
Constant	0.177	-0.656	1.055	-0.030	2.821	**34.597*****	**24.442*****
	(0.70)	(0.74)	(1.07)	(0.67)	(2.06)	**(3.31)**	**(2.89)**
N	537	590	199	634	634	634	634
Adjusted R^2	0.0251	0.0202	0.0718	**0.0315**	**0.0119**	0.0503	**0.0201**

Table A7: The results of a simple OLS regression of different dummy variables are summarized for abnormal (cumulative) returns. This means that the numbers displayed are the average values of the accompanying (cumulative) abnormal returns. The figures in parentheses in the upper row represent the event window. The statistical significance of the test statistic at the 1%, 5% and 10% level are denoted by respectively *, ** and *. The figures in parentheses under the regression statistics represent the standard errors.**