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„Talent acquisition in professional Football – A return on investment analysis for the European market."

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Roman Pieroth, BSc.

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Roman Pieroth

Wien, im September 2015

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List of abbreviations

CDR	-	Cumulated Deflation Rate
DMV	-	Deflated Market Value
ECA	-	European Club Association
e.g.	-	exempli gratia; (for example)
EU	-	European Union
FIFA	-	Fédération Internationale de Football Association
GPS	-	Global Positioning System
i.e.	-	id est; (that is)
IR	-	Inflation Rate
MV	-	Market Value
TPO	-	Third Party Ownership
UEFA	-	Union of European Football Associations

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1. Introduction

Football can be considered the most popular sport in the world as it is the national sport in Europe and South America and experiences rising attention in Asia (Frick, 2007, p. 422). In Europe, 82% of the adults state that they are "interested" in football, of which a quarter claims to be "very interested" (Perry, 2012, p. 8). Since the late 19th century football emerged as a spectator sport in England. The profession of a football player was firstly recognized as early as 1888 by the English Football Association (Sloane, 1969, p. 181).

Representative for the worldwide importance and popularity of football is its financial value. This paper focuses on three of the most successful leagues of the last decade in Europe, based on the rankings of the UEFA (Union of European Football Associations): Spain, England, and Germany (UEFA, 2013, p. 13). The UEFA, whose headquarter is located in Nyon, Switzerland, is the governing institution of European football (UEFA, 2014). In the top division clubs of those three leagues, the average club revenues were not just the highest across the members of the UEFA, but also showed an increase in revenues. In the financial year 2012, England lead the list of average top division club revenues with 139 million Euros and a two percent increase compared to the previous season. Germany held the second spot with 108 million Euros (7% increase), followed by Spain (93/9) (Perry, 2012, p. 60ff).

As clubs are battling for the most talented players in order to be successful, the expenditures for transfer fees in European football clubs are rising and have exceeded 10,8 billion Euros in the financial year 2012. The clubs of the top division leagues in England, Spain and Germany invested a total of 5,4 billion Euros in the acquisition of new players, which accounts for a share of 50% of all transfer expenditures in all European top division leagues. England (2,860 billion Euros) is on top of that list, followed by Spain (1,665) and Germany (0,878) (Perry, 2012, p. 46).

One of the reasons for the increased financial expenditures is the interest in European football as indicated above, which leads to higher incomes for the clubs. Wide media coverage of football events has a high importance for the revenues of European top division football clubs. From the financial years 2011 to 2012 domestic broadcasting revenues increased by an average of 8% across the European top division leagues.

This led to an amplified importance of income through broadcasting. Around 31% of the clubs' revenues are generated by domestic broadcasting. This displays the biggest share amongst the different sources of revenue (followed by sponsorship) (Perry, 2012, p. 58).

As one of the effects of the indicated multidimensional financial growth, the regulation of expenditures in professional football clubs gained more attention recently. Consequently, the UEFA introduced the Financial Fair Play program to monitor cost efficiency. It was presented by Michel Platini, the president of the UEFA, and restricts and monitors the financials of soccer clubs to enforce a balance between football-related revenues and expenditures. Rational financial decisions are incentivized by those regulations. The reason for the introduction of the program is that many investors see football clubs as leisure and don't care about financial setbacks, e.g. AS Monaco or Paris St. Germain (Barros, et al., 2014, p. 781).

In order to foster the own position in the respective league, to ensure talented up-and-coming players and to scoop financial potential, many clubs set up youth education centres. This aspect of professional football business has also experienced more scientific attention, as research in elite youth football has increased (Mills, et al., 2012, p. 1593). Due to inflationary development of transfer fees, the identification, development and nurturance of young football players become a priority for football clubs (Williams, 2000, p. 737). The athlete is nowadays seen as a multifaceted and dynamic system, which requires thorough analysis and evaluation (Phillips, et al., 2010, p. 272). The European Club Association (ECA), an independent representative of European football clubs, declares the youth development as a central and crucial element of the football development. Here, the biggest challenge is the optimal transition of players of the youth camp into the professional teams. Some success has already been made, as an average of six players from the youth academy play for the first team of their club. Also from a financial standpoint the youth academies play an important role, as almost one third of the youth academies have a budget bigger than 1,25 million Euros and the clubs invest more than 8% of their budget into the academies. This budget is used to develop the players from a young age. Most of the elite schools start their youth teams with players as young as 13 years (European Club Association, 2012, p. 11ff). The reason for the complexity of player development

in such a young age is the non-linearity between practice and performance, which makes talent assessment and development a challenging task (Baker, et al., 2005, p. 76).

Another aspect which plays a role in player assessment is the fact that innovative information and communication technology facilitates the scouting and evaluation of players and therefore the assessment of their financial potential. Schumaker, Solieman & Chen (2010) state that information plays a crucial role for the evaluation and development of young players. Nowadays, across all domains of sport, there exists a large amount of data to be analysed. The range of tools, which can facilitate scouting of young talents, goes from video collections to analytics tools of e.g. in-game performance or biomedical data (Schumaker, et al., 2010, p. 1ff).

In the circumstances of increasing financial importance and research attention towards the development and transfer of young players, this master thesis is dedicated to answer the question whether the acquisition of a young player (less than 20 years of age) is financially beneficial for the acquiring club. The return on the investment into a young player via a transfer will be measured by the market value development of the player after the trade.

The evaluation of the return on investment is restricted towards the financial value of a player, therefore not considering time consumption, social challenges and physical and psychological pressure for the adolescents when they follow the path to become a professional football player. In several talent detection models the perception dominates that athletes reach their peak performance ability with 18 to 20 years of age. They had to go through at least eight to ten years of training and therefore had to be detected and start training at eight to nine years of age (Durand-Bush & Salmela, 2001, p. 271). As a reaction to the emerging professionalization and monetization of young players, the ECA (2014) stated recommendations to strengthen the protective rights for young players to increase transparency and understanding (European Club Association, 2014, p. 34).

This paper will be divided into seven sections. After the introduction, the theoretical background will be laid out, including the outline of the research question, the football labour market and a brief overview over previously conducted research on

the topic of the financial value of young football players. Section three will explain the methodology, which will be used to analyse the research approach. Afterwards, the analysis will be outlined including an examination of the matching quality. The fifth section contains the presentation of the findings. Section six will present the discussion, where further research approaches will be introduced. The last chapter will give a summary of the thesis.

2. Theoretical background

The following chapter will give an insight into the historical background and research development of labour markets in professional football. Furthermore, the structure of those markets will be lined out, firstly in a general manner and then covering the various dimension with a focus on the transfer regulations. In the third section, the research insights regarding talent identification and evaluation will be presented.

2.1 Historical background and research development

One of the unique aspects of professional sports is that income is depending on competition among teams and sportsmen (Neale, 1964, p. 2). The interdependence of teams within sport leagues is the difference to the regular business competition (Dietl, et al., 2008, p. 354). This results in a paradox of a positive correlation between economic collusion and sporting competition on the one and profits on the other side (Neale, 1964, p. 2). In the case that a single team has an on-pitch monopoly, the team's profits will be lower, the championship will be less challenged and the demand subsequently decreased (Dietl, et al., 2009, p. 129). There is little interest in poorly matched competitors, where the quality of the game is lower due to the substantially and decisively higher quality of one contestant. The spectator value of a contest is defined by relative and absolute quality of the contestants. For all the reasons mentioned above, sport can be seen as an outstanding field for applied economics (Rosen & Sanderson, 2001, p. 48ff).

There exist several reasons, why football has not experienced the same academic attention as the big team sports in America (basketball, (American) football, baseball and ice hockey). Firstly, salaries of individual players were kept a secret for a long time, though this situation is improving since the mid-1990s. Furthermore excessive restrictions with regard to player mobility implied a lack of comparability to general labour markets (Frick, 2007, p. 424f).

The first discourse about the economy of labour markets in professional sports was published by Rottenberg (1964), who analysed the industrial structure and

contractual framework of American baseball. It laid the groundwork for future research work in this field (Rosen & Sanderson, 2001, p. 47). In the following, Neale (1964) outlined the peculiarities of the labour market of professional football with regard to the governance and self-regulation of the governing bodies (Dietl, et al., 2008, p. 130). In the adjoining approaches economists dealt with decision making models of sports leagues and included certain features, such as player draft, reserve clauses and transfers of player contracts (El-Hodiri & Quirk, 1971; Fort & Quirk, 1995). Recently, the academic research on labour markets in professional sports focused on the contest theory (Dietl, et al., 2012, p. 339). Here, those authors present corresponding literature: The research looks at the optimal design of sports leagues (Szymanski, 2003), the profit maximization approach of football clubs (Szymanski & Kesenne, 2004) and the effects of revenue sharing (Dietl & Lang, 2008) (Dietl, et al., 2012, p. 339).

This brief literature review shows that the recent research focuses on the competitive balance of teams and the labour market effects that are associated with them, such as e.g. revenue sharing and cross-subsidization (Dietl, et al., 2012, p. 339). This thesis is supposed to carry on the research, focusing on competition between teams for the acquisition of young and talented players and their financial value.

2.2 Labour market structure in professional football

The structure of the professional team sport industry is unique, because it is the only industry that is organized by leagues. The reason for this set up is the specific competition and production process. Here, production and competition are complementary. This implies that without competition a team cannot produce, because it needs an opponent to generate a marketable product. However, even a single match is not going to lead to a constant output, the teams still need an organized championship race. In a broader view, the championship race, organized by a league, displays a platform for the interaction of several parties, such as fans, the media, sponsors and merchandising companies (Dietl, et al., 2012, p. 336f). The competing teams should be of approximately similar size and strength to be most successful, as briefly described in the previous section (Rottenberg, 1964, p. 242).

An event that changed the labour market structure in professional football in Europe took place in 1995. In the trial known as the 'Bosman case', the legislation regarding contracts and transfers changed dramatically. Bosman, a professional soccer player for the Belgian club R.C. Liegois declined to extend his expired contract with his club due to a proposed salary reduction of 75% compared to his old contract (Antonioni & Cubbin, 2000, p. 158). Instead of signing a new contract in Liegois, he intended to transfer to the French club U.S. Dunkerque. In that time, the club, where the player had his last contract, had to agree to a transfer of the player, even if the contract had expired. This led to the situation that R.C. Liegeois declined to accept the transfer fee offer from U.S. Dunkerque and the Belgian Football Association did not forward the registration certificate to the French Football Association, which was necessary for an employment of Bosman in France. Bosman took his case to court and won, which ultimately resulted in the change of the transfer rights in a way that they were not anymore applicable for free agents (players with an expired contract) (Dietl, et al., 2008, p. 130). Naturally, this market liberalization led to changes in individual transfer payments, remuneration, contracts and mobility of players (Frick, 2007, p. 425).

Another important legal matter regarding the contract rights was the introduction of the so-called 'Monti-system' in 2001 (named after the former European Union (EU) commissioner for competition Monti). Its most important paragraph limits contract durations of professional football players to five years (Dietl, et al., 2008, p. 130). As a consequence of the 'Monti-system' the former EU commissioner for Education and Culture Viviane Reding emphasized the importance of a professional youth education system for clubs, as a contrary approach to the inflationary transfer fees paid on the market (Feess & Muehlheußer, 2002, p. 222).

In accordance to Frick (2007) the following sections will describe the most important market dimensions: Transfers, remuneration, contracts and mobility (Frick, 2007, p. 422). In this paper, the focus will be on transfers of players. The other dimensions will be outlined briefly.

2.2.1 Transfers in professional football

The first economic analysis in professional team sports dealing with transfer restrictions was conducted by Rottenberg (1964), who looked into ties of players with their baseball clubs and the compensations that those clubs could demand (Rottenberg, 1964, quoted in Dietl, et al., 2008, p. 132). Even though the transfer regulations changed in the last 20 years (see section 2.2 about the Bosman-case/Monti-system), it was always common in European professional football to conduct trades, usually through cash transfers. This system was therefore contrary to the US-American sports, where drafts were the dominant type of player acquisition (Frick, 2007, p. 430). Good performance on the pitch led to interest of other clubs to acquire the respective player (Feess & Muehlheusser, 2003, p. 647).

In order to give more insights in accordance to the transfer of young players, the following subsections will explain the types of transfers, property rights and special issues regarding the transfer of adolescent players.

2.2.1.1 Types of transfers

In general, there are two types of transfers. On the one hand, the player can be 'sold' to another club or sign with a different club as a free agent. On the other hand, a player can be loaned from club A to club B for a certain time (but not longer than his contract with club A runs). In case of a loan the same regulations concerning registration of the transfer, salary etc. apply as if the player gets transferred (FIFA, 2010, p. 13).

As the player's performance (his productivity) can vary in the course of a season, without a possibility to predict certain deviations from his performance capability, risk allocation becomes an essential detail with regard to transfer decisions (Dietl, et al., 2008, p. 133). Here, a loan (eventually with an option to purchase the player after the expiration of the loan agreement) is an interesting option for a club. The best example for an extensive loan strategy is Chelsea F.C. from the English Premier League. A total of 26 players were on loan during the 2014/2015 season (figure 1).

Interestingly, several of those players were young prospects of under 20 years of age (Gibson, 2014). Chelsea's technical director Michael Emenalo explained the motive as follows:

"We identified that for young players, the ages of 18 to 21 are the most difficult time as they wonder if they are good enough for the Chelsea first team. We felt it is better for them at that age to go on loan to somewhere where they get visibility and good competition. For psychological and physical reasons that is the best thing to do at that age." (Gibson, 2014)

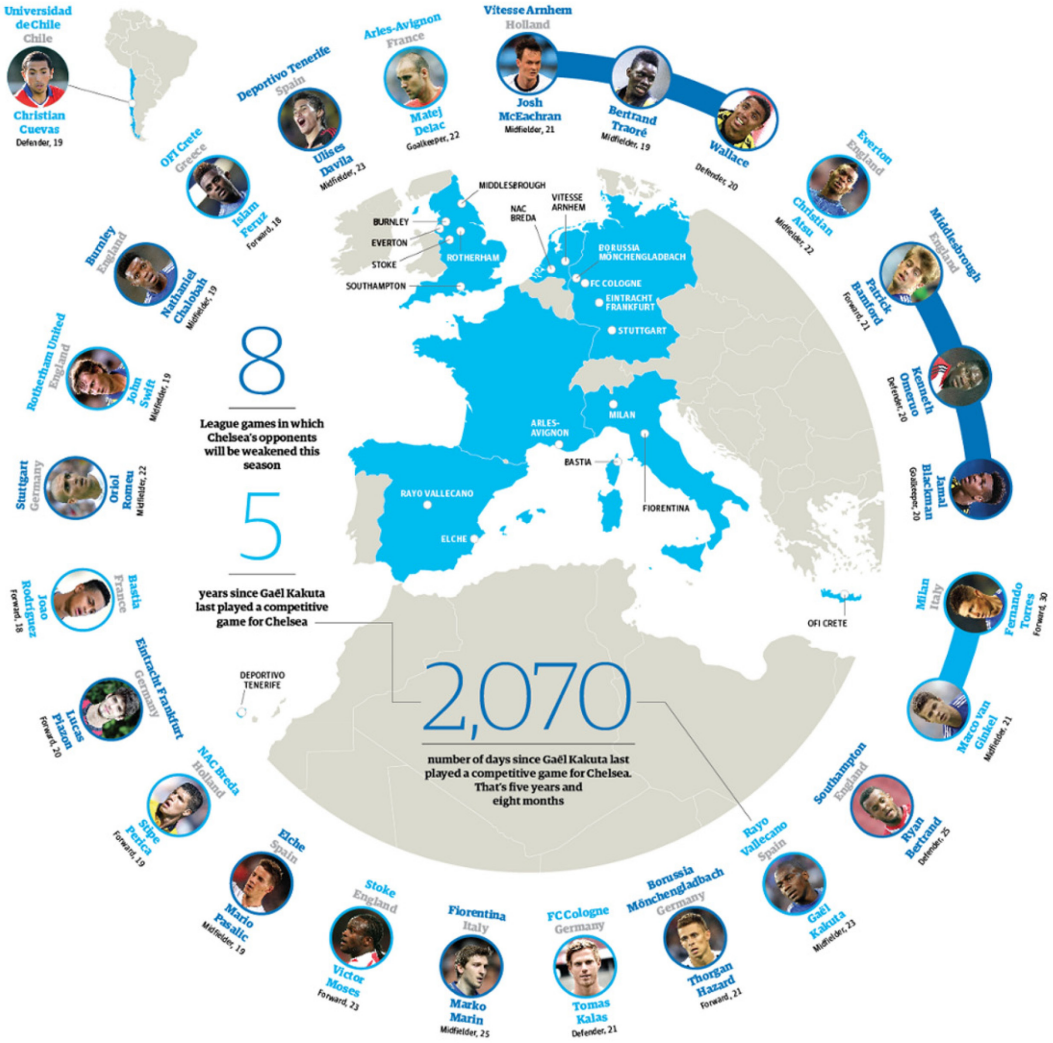

Figure 1: Chelsea's loans during the 2014/2015 season
Source: Gibson, 2014, last access 10/07/2015

2.2.1.2 Property rights

The two main changes in transfer and contract law (initiated by the Bosman case and the Monti-system), as discussed above, ameliorated the freedom of players. The independence of players from their clubs increased and the players were not considered clubs property in the same degree as before (Dietl, et al., 2008, p. 130). The former EU commissioner Reding phrased it even more dramatically, when she called the pre-Monti system a "system of slavery" (Feess & Muehlheußer, 2002, p. 222). Nowadays, it is not possible for an employer to prevent a player from taking an alternative job which the player considers to be superior. As we learned, that was not the case before 1995 and the Bosman case.

This leads to the conclusion that there exists a factual asymmetry regarding the contracts between players and clubs. Both are legally bound to the contract, but only the employee has a chance to exit a contractual agreement (e.g. if another club acquires him via a transfer) (Dietl, et al., 2008, p. 131ff). An exemplary case with regard to this asymmetric relationship is the one of Albert Streit, a former player for the German club Schalke 04. Streit signed a contract in January 2008, which guaranteed him a yearly salary of 2,5 million Euros for four years. After only one year, the relationship between Streit and Schalke 04 was irreversibly dysfunctional which led to a demotion of the player to the second team of Schalke 04. In the following, the club wanted to get rid of Streit to save the salary, which he declined. Schalke 04 did not have an alternative than to resume payments and eventually pay him a gratuity (Schmieder, 2010).

2.2.1.3 Special issues regarding the transfer of adolescent players

In accordance to the research question about the effects of transfers of adolescent players on their market value development, the following section will look into special issues regarding transfers of adolescent players, more specifically the

protection mechanisms of under aged players, the hold-up problem and compensation schemes for the education of a player.

Protection mechanisms: The Fédération Internationale de Football Association (FIFA) ensures protection of under aged players by prohibiting international transfers of players younger than 18 years of age. There are several exemptions though. Transfers of under aged players are allowed in case the parents move with the player (not due to football-related reasons), the transfer takes place within the European Union or the player lives close to the border of the country, where he wants to join a club (FIFA, 2010, p. 20f). Severe penalties punish clubs, which don't follow the rules in that regard. A prominent case where those regulations were violated was the one of the FC Barcelona. The club was sued for transferring non-Spanish players under the age of 18, for whom the three exceptions mentioned did not apply (FIFA Transfer Matching System, 2014).

Hold-up: A problem that clubs face when investing in youth academies is the hold-up problem. It is originated in the New Institutional Economics and describes a problem that principal (club) and agent (player) tackle. Generally speaking this problem terms the hazard of opportunistic behaviour of a partner (Picot, et al., 2012, p. 92ff). In the context of this paper, the player could benefit from the training and education he receives at the training centre of the club and then transfer to another team as soon as he wants to become a professional. This inefficient situation can lead to the problem of underinvestment into young players (Feess & Muehlheusser, 2003, p. 661). In contrast, some research has also looked into aspects which indicate that an investment (even though in danger of a hold-up situation) can lead to a beneficial relationship for both sides. Here, three main aspects have been examined by researchers. Firstly, Acemoglu (1997) outlines that high transaction costs (search and contractual costs) for the worker can result in a certain reluctance to leave the current employer (Acemoglu, 1997, p. 445). Furthermore the investments into general skills of the player can lead to the improvement of specific skills, which will be most helpful for both sides if they continue their relationship, i.e. when the player stays with his current club (Acemoglu & Pischke, 1999, p. 540). Hence, this creates an incentive for the player to continue his career with the current club. Lastly, the club

has an information advantage over the true skill level of the player compared to potential new clubs (Acemoglu & Pischke, 1998, p. 79).

Compensation payments: Those payments are part of transfer fees paid for players. The acquiring club has to compensate the club(s), which trained the player during the course of his career (Carbonell-Nicolau & Comin, 2005, p. 29). In the FIFA regulations regarding compensation payments, two cases are most significant. Firstly, there is the general compensation payment to the former club. Secondly a solitary surcharge exists for all clubs responsible for the training of the player from 12 to 23 years of age (FIFA, 2010, p. 23ff).

General compensation payment: The determination of the value of payments follows specific regulations, stated by the FIFA. Generally, this payment is due in two situations: Firstly it occurs when the player signs his first professional contract and secondly for every transfer until the end of the season in which he turns 23. The duration of chargeable training years reaches from 12 to 23 years of age. The calculation of the amount of money owed is calculated on a pro-rata-basis. The clubs' education quality is divided into four categories with a category one club providing the best (and therefore 'most expensive') education. Per year of education the former clubs get paid the respective amount. Table 1 shows the different money values for one year of education of the categories of clubs within the UEFA. In other confederations, the categories vary (FIFA, 2010, p. 60ff). Exemplarily, it's undoubted that FC Bayern Munich is among category one clubs, providing very good education for young players.

Table 1: Training costs (€, p.a.) and categorization for clubs for the year 2013
Source: Own illustration, based on Kattner, 2013

Confederation	Category 1	Category 2	Category 3	Category 4
UEFA	90,000	60,000	30,000	10,000

Solitary surcharge: Furthermore, a solitary surcharge has to be given to all clubs responsible for the training of the player by the club which acquires the respective player. This surcharge is calculated based on the total payment of the new club for the

transfer of a player. Table 2 shows the percentages which build the foundation of the calculations (FIFA, 2010, p. 65).

Table 2: Calculation method of solitary surcharge
Source: Own illustration, based on FIFA, 2010, p. 65

Season of birthday...	**12th**	**13th**	**14th**	**15th**			
% of transfer fee	0,25	0,25	0,25	0,25			

Season of birthday...	**16th**	**17th**	**18th**	**19th**	**20th**	**21st**	**22nd**	**23rd**
% of transfer fee	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5

The previous sections about transfers as the first dimension of labour markets in professional sports outlined topics regarding the transfer of players with a focus on adolescent talents in the context of labour market dimensions of professional sports. The main insights gained so far show that there exist several types of acquisition for clubs. In this context, changes of the Bosman case and Monti system influenced property rights, contract and transfer regulations towards a higher degree of freedom for the players. The last section dealt with special issues when transferring young players. Here, it became obvious that clubs have many legal and financial matters to consider when transferring young players.

2.2.2 Remuneration in professional football

The second dimension of labour markets in professional football as described by Frick (2007) is the remuneration of players. It will be outlined briefly in the following section.

In the open and quite liberal labour market of European professional football, fewer restrictions cause that salaries of players are mostly aligned with the respective performance of the player. This is contrary to the labour markets of American sports,

e.g. American Football (Simmons, 2007, p. 457). In the context of possible salary increases the players intend to acquire additional skills and improve their performance, e.g. by training towards two-footedness (Bryson, et al., 2013, p. 607).

The two previously mentioned events of the Bosman case in 1995 and the Monti-system influenced this labour market dimension. The Bosman case caused a rise in salaries also in the small leagues, where the increase was not backed up by financial capabilities, which led to several bankruptcies in those leagues. The most important reason for this rise was not just the higher mobility of players, but also the additional revenues from television rights in the UEFA Champions League (Kesenne, 2007, p. 397f). The essential restriction of the Monti system was the contract limitation to five years. Again, this meant an increased freedom of players, which resulted in more market power for the players. Higher salaries were the consequence (Dietl, et al., 2008, p. 130).

In reference to the leagues observed in this paper's study, of the 50 clubs with the highest wage bills, 29 came from the included leagues in England, Germany and Spain. The five year increases in those leagues from 2008 to 2012 accounted for +67% (England), +58% (Germany) and +44% (Spain) (Perry, 2012, p. 70ff).

2.2.3 Contracts and career length in professional football

Young football players go through different stages of career development before they finally reach the 'investment phase', which is characterized by an intensive focus on high-quality training (Baker, et al., 2013, p. 63f). Several developments in the last years had a significant influence on contracts and career length of professional Football players. Again, the Bosman case initiated several changes. Firstly, after the ruling it became easier for the clubs to replace and transfer new players, which implies that clubs can exchange poorly performing players more easily with cheaper labour from e.g. Eastern Europe. This can lead to shorter contracts and even shorter careers. Secondly, the pressure on domestic players increased due to the regulation that a team can use five non-EU players per single game (Frick, et al., 2007, p. 429f).

Exemplarily, the career duration in the German Bundesliga accounts for four years on average when ignoring exits and re-entries, and 3,4 years as an uninterrupted time span. A third of the Bundesliga careers does not last longer than one season. Additionally, there exists evidence that the age positively correlates with the probability for a player to be eliminated from the Bundesliga (Frick, 2007, p. 432ff). Regarding the contract length, further research shows that contract length positively influences the annual salary of a player (Feess, et al., 2004, p. 45). Also the transfer fee plays an important role for the contract length of the player, as transfers of a value above one million Euros mean a 76% probability to sign a contract with a length of four or five years (Perry, 2012, p. 55).

2.2.4 Mobility in professional football

Academic research about labour immigration and the professional sports mobility has been on-going for several decades (Bale & Maguire, 1994; Maguire & Falcous, 2011, qouted in Roderick, 2012, p. 387). The European Football market of today is characterized by high mobility of international players. This is beneficial, because this high degree of mobility facilitates it for players to play at the club where they reach their highest level of productivity (Kesenne, 2007, p. 388ff). As stated earlier, this increased possibilities for mobility result in a market power gain and consequently higher salaries (Dietl, et al., 2008, p. 130).

2.3 Scope of talent identification

2.3.1 Background and recent development

Talent identification and development gained first mentionable scientific interest during the 1990s, but is still somehow limited in sports (Morris, 2000, p. 720ff). This lack of penetration of scientific research is evident in several types of team sports and is mostly caused by the complexity of talent assessment (Pearson, et al., 2006, p. 277f). In football one does not find any specific measures of performance as for

example in swimming or track and field (Reilly, et al., 2000, p. 695). A wide range of characteristics, biological and behavioural, are determining the success of a football player, and therefore need assessment in a young age (Figueiredo, et al., 2009, p. 883).

The costs for transfers are increasing as mentioned above and therefore the identification, development and nursing of talented players gain more importance (Williams, 2000, p. 737). To ensure the successful development, specialized coaching and training is mandatory, preferably focusing the resources on a smaller number of players to guarantee an efficient management (Williams & Reilly, 2000, p. 657). This effort is ultimately dedicated towards success as an adult. Early identification of talent increases the chances to gain a competitive edge (Morris, 2000, p. 715). This is important, because teams consisting of more talented players outperform, ceteris paribus, the opponent with less talented players (Franck & Nuesch, 2010, p. 219).

Exemplarily, the efforts of the Germany Bundesliga with regard to youth development programs will be outlined briefly. In 2002 each of the 36 Bundesliga (1st and 2nd) teams introduced Youth Performance Centres. As of today a total of nearly one billion Euros were invested, with a steady rise in expenditures, from 47,85 million Euros in the 2002/2003 season to 120,15 million Euros in the 2013/2014 season (DFL Deutsche Fußball Liga GmbH, 2015, p. 15).

2.3.2 Specific aspects of talent identification

In the course of a player's development, the initial involvement with sport contains unstructured enjoyment and mostly includes trying out several sports. It is called 'sampling' phase. Afterwards the 'specializing' phase lays his focus on a small number of sports and emphasizes dedicated and effortful training in the respective sport. Finally, the 'investment' stage is characterized by intense, high-quality and solitary training in one sport, assisted by coaches and trainers (Baker, et al., 2013, p. 64). In those stages, the children and adolescents are divided in accordance to their chronological age, with a start date of the first of January of the respective year for international competitions (Helsen, et al., 2005, p. 629). In the end, the players are

considered adults when they turn 18, according to the FIFA regulations. Starting with the age of 12, youth teams and players are registered (FIFA, 2010, p. 6ff). Before the age of 18, certain transfer limitations apply, as outlined above.

The process of identification and development is divided into four stages: Detection, Identification, Selection and Development. To predict which of the players have the highest probability to become a professional player, talent is a factor of high importance. Even though it is very hard to detect talent, there still exist indicators of talent which can deliver a basis for prediction (Williams & Reilly, 2000, p. 658). For the first three stages (detection, identification and selection) a sophisticated network of scouts is necessary. The English club Aston Villa, for example, uses this scouting network to identify potential players, invite the promising ones to a 4-week try out and eventually select them to enrol in an internal centre of excellence (Burns, 1996, quoted in Morris, 2000, p. 720f). The fourth stage, the development, is not just influenced by the player, as external factors play an important role too. Practise opportunities, injuries, coaching and mentoring quality and social factors are very important (Reilly, et al., 2000, p. 695).

During the long and challenging youth career, certain risks come up for both the player and the club. Firstly, for the club, the assessment of a player's talent is still rather an intuitional and subjective (and therefore speculative) process conducted by coaches, trainers and scouts (Williams, 2000, p. 737). This speculative assessment means a certain risk when acquiring players for the somewhat limited spots in the club's education centre. Secondly, the incomplete contractual relationship is a problem for the club, as the player can benefit from a superb education and then transfer to another club (Feess & Muehlheusser, 2003, p. 661). This, as described above, is not always the case, as the current club still has some advantages over the competing club (e.g. an informative advantage). For the player, new regulations such as additional non-EU players in the squad can limit chances to gather important experience (Frick, et al., 2007, p. 430).

The section 'scope of talent identification' showed how much monetary value and importance talent identification has for clubs. Reforms initiated a rise in transfer fees which emphasized the investment into young players. It became obvious, that the setup of youth education facilities is mandatory in the world of professional football

nowadays. Still, as talent identification bases on mostly subjective criteria and requires complex processes, there exists the need for further academic research.

3. Methodology

Does the trade of a young professional football player influence his market value development? This question, as a focal point of talent acquisition in the competitive market of European Football, displays a case of the estimation of a causal treatment effect. Here, the treatment is the trade of the player, who gets transferred to a different club and therefore takes over a more professional role compared to the youth team. The dependent variable is the market development of the player. It shows how well the player performs in his first professional years and hence displays the payoff for the club which acquired him. In short, this chapter will introduce a way to answer the question whether there is a causal relationship between the trade and the market value development of a player. It also aims at determining how high this financial effect of a trade is in case it exists.

After this short introduction, the estimation of causal effects with a focus on matching in general will be outlined. Following, propensity score matching as the central approach of this paper will be presented in a theoretical and applied way. Lastly, approaches for the estimation of the treatment effect after the propensity score matching will be described.

3.1 Estimation of causal treatment effects

The estimation of a causal effect (e.g. the effect of a trade on the market value development) is the comparison of outcomes of individuals which received treatment versus individuals which did not. Particularly, individual *i*'s outcome in case of a received treatment ($Y_i(1)$) has to be compared to its hypothetical outcome ($Y_i(0)$) if it does not experience the treatment. The essential problem of this inference is that individual *i* can either receive treatment or not. Gaining insight into both outcomes $Y_i(1)$ and $Y_i(0)$ for the same individual is not possible (Stuart, 2010, p. 2f).

The concept of matching is an adequate approach to overcome the problem of evaluating the possible outcomes. Basically, matching tries to find a large number of

non-treated individuals, which are as similar as possible to the individuals in the treatment group. Hereby, the similarity is based on a certain set of pre-treatment criteria. The comparison of the outcomes of the treatment and non-treatment group (also called control group) then displays the effect of the treatment, due to the similarity of all other parameters of the individuals. The treatment indicator gets isolated (Caliendo & Kopeinig, 2005, p. 1). In this setup the aim of the researcher is then to find treatment and control groups which have a high degree of similarity with regard to the criteria. This allows a good estimation of the causal effect (Stuart, 2010, p. 3).

In this paper, a certain matching approach, namely the propensity score matching approach, is used and will be explained in further detail in the next section.

3.2 Propensity score matching

The propensity score matching is the key element to analysing the casual effect of a trade on the market value development of a young player. Therefore its most important aspects will be outlined in the following subsection. After the introduction of the concept, the calculation will be explained and its quality, in form of balance tests, outlined.

3.2.1 The concept of propensity score matching

The propensity score describes the "probability of treatment for each individual" (Harder, et al., 2010, p. 235). In other words, it says how likely is it for a young player, based on certain pre-treatment criteria (see also 4.1.4), to experience treatment, i.e. a trade. The score ranges from 0 to 1, with 1 as the 100% (hypothetical) probability that the respective player would receive treatment based on the pre-treatment set of variables. In case both control and treatment group have the same propensity score distribution, they also have the same distribution of the observed set of variables, similar to a randomized experiment (Rubin, 2001, p. 171).

Academic interest in the methods of propensity score matching evolved in the 1970s after being eschewed for several decades after the first mentioning of it and its application (Rubin, 2001, p. 172). In general matching is used nowadays in economics, medicine, epidemiology and political research (Stuart, 2010, p. 1). When dealing with human objects, drug and vaccine studies are the most familiar applications, even though e.g. family and neighbourhood studies experience increasing academic interest (Hansen & Bowers, 2008, p. 220).

3.2.2 The process of propensity score matching

There are several aspects to be considered when conducting a propensity score matching, which will be discussed on the next pages based on the following structure: Defining closeness (variable selection and distance measure), matching method and the diagnosis of the matching quality (Stuart, 2010, p. 4ff).

3.2.2.1 Defining closeness

As the first step of a propensity score matching process, two main aspects determine the distance measure between matched individuals. Firstly the variables which should be included in the matching process have to be determined. Secondly, the distance measure which describes the matched individuals' degree of similarity must be defined.

Variables to include: A theoretical or empirical potential of variables to explain a certain relationship of treatment and control group is necessary for them to be included into the propensity score matching (Harder, et al., 2010, p. 235). Here, previous scientific research and its understanding should be the basis for the collection of variables. An extensive list of observed covariates is recommendable to lessen adjustments for hidden covariates (Rubin, 2001, p. 172). The key requirement for the selection of the covariates is the assumption of strong ignorability. This assumption expresses "that that there are no unobserved differences between the

treatment and control groups, conditional on the observed covariates" (Stuart, 2010, p. 5). Conclusively, all variables which are related to the assignment for treatment and the respective outcome have to be included into the matching process (Stuart, 2010, p. 235). The second crucial assumption for propensity score matching is the 'stable unit-treatment value assumption'. It says that the treatment effect for one individual *i* is independent of treatment selection of other individuals (Caliendo & Kopeinig, 2005, p. 3).

Distance measure: In a next step, the distance measure has to be set. It describes the propensity score's distance between two matched individuals. Here a tolerance level for the maximum distance in the propensity score of the two prospective matched individuals is imposed. It leads to an increased quality, as bad matches are avoided (Caliendo & Kopeinig, 2005, p. 10). Here, a caliper of 0,2 is a common and recommended value (Austin, 2011, p. 151ff).

3.2.2.2 Matching method

The set of individuals and the occurrences of the variables form a vector. In the process of propensity score matching the vectors will be transformed into a scalar. The scalar can be calculated using a logistic regression (King, et al., 2011, p. 4). It is the most commonly used method for propensity score matching (Stuart, 2010, p. 7).

In the next step, the process of matching the individuals via their propensity score and group belonging has to be determined. The most direct approach is the nearest neighbour matching (Caliendo & Kopeinig, 2005, p. 9). It is also seen as the most effective way of matching individuals for selection for follow-up analyses. Furthermore, the 1:1 nearest neighbour matching is the simplest form within this type of matching. It says that a treated individual gets matched to the control (no treatment) individual with the smallest propensity score distance (Stuart, 2010, p. 8).

In the next step, it can be selected whether the matching shall be conducted with replacement or without. To match with replacement means that an individual can be

used again after being matched (Caliendo & Kopeinig, 2005, p. 9). Here, matching without replacement is the most common form (Austin, 2009, p. 173).

In addition to implementing replacements to increase matching quality, the caliper, as explained in subsection 3.2.2.1, helps to avoid bad matches (Stuart, 2010, p. 8).

3.2.2.3 Diagnosis of the matching quality

The most significant part of the diagnosis of matching quality is balance. Balance defines how similar the empirical distributions of the full variable sets are between the matched treatment and control groups. The testing for balance is the crucial part after calculating a propensity score (Stuart, 2010, p. 11). With the help of certain balance tests, misspecifications can be detected and adjustments to the model conducted (Shaikh, et al., 2009, p. 34). In the following paragraphs, the five commonly used balance tests for propensity score matching, conducted with the statistic software SPSS, will be presented (Liu & Ripley, 2014, p. 94). This also includes histograms for visual testing and plots. Those two graphical balance tests will be described in this chapter and presented in chapter four.

1. Overall balance test by Hansen and Bowers (2008): This test is only applicable when the propensity score matching is conducted with 1:1 nearest neighbour matching and without replacement. A poor balance of covariates exists if the test value is significant, i.e. $p < 0.05$, in combination with the chi-square value (Liu & Ripley, 2014, p. 94). The chi-square value indicates a fit between the two group distributions and is meaningful in combination with the p-value (Vandenberg & Scarpello, 1990, p. 64).

2. Relative Multivariate Imbalance L1: This imbalance measure compares the histograms of the control and treatment group and varies between zero (global balance) and one (multidimensional histogram separation) (Iacus, et al., 2009, p. 3f). Still, those numbers don't give an indication about good or bad balance. It is just desirable that the L1 measure is smaller after matching than before matching (Thoemmes, 2012, p. 12).

3. Summary of unbalanced covariates: The key figure for the summary of unbalanced covariates is Cohen's d. This value is representative for the imbalance of the covariates, as it describes the standardized differences between the covariates' means (Rubin, 2001, p. 177). The summary displays all combinations of covariates that are in imbalance after the matching (Liu & Ripley, 2014, p. 94). They are considered to be imbalanced if their Cohen's d is bigger than 0,25, based on Rubin's (2001) recommendation (Rubin, 2001, p. 174).

4. Plots: Dotplots and other types of plots show the changes in Cohen's d after matching compared to the situation before matching (Liu & Ripley, 2014, p. 95).

5. Histograms: Histograms display whether common support exists between the two groups (Liu & Ripley, 2014, p. 95). The common support assumption says that the distributions of treatment and control group have a substantial overlap (Stuart, 2010, p. 10). In order to verify that the common support assumption holds, the distributions can be inspected and compared and no complicated estimator is required (Caliendo & Kopeinig, 2005, p. 12).

As soon as the balance tests indicate covariate balance (and therefore experimental conditions), the researchers can go forward and conduct any statistical test with the dataset to analyse the treatment effect (Liu & Ripley, 2014, p. 95).

3.3 Approaches for the analysis of the treatment effect

The final goal of a causal analysis is the estimation of a certain effect and not just balancing a certain set of individuals (Harder, et al., 2010, p. 235). The matching process itself is not estimating any causal effects (Stuart, 2010, p. 12). Therefore the following subsection will present the approaches to answer the research question after the completion of the propensity score matching as described above. The detailed results of the propensity score matching will be outlined in the 'analysis'

chapter followed by the 'findings' which display the effect of a trade on the market value development.

In this paper, the dataset after propensity score matching will be evaluated in three ways. Firstly, a comparison of the pooled treatment and control group will be conducted to estimate the mean treatment effect. In academic research pooling of all matches into a control and treatment group is more common than comparing all matched samples individually (Stuart, 2010, p. 13). For that matter, a two-sample t-test with equal variances will be conducted (Müller, 2012, p. 21). The analysis of the outcome will help to answer the question whether there is an effect of a trade on the market value development.

Secondly, the mean treatment effect for the occurrences of the different covariates will be analysed. This promises more specific insights regarding the differences of the treatment effects for e.g. positions or age groups.

Lastly, it is also possible to pool the groups in a process called stratification, so that for each strata of propensity scores (e.g. for the individuals in strata 0 – 0,2 score) analyses can be run to gain more specific insights (Austin, 2011, p. 126).

4. Analysis

In the following chapter the analysis of the dataset to calculate the propensity score will be presented. It will contain three subsections. Firstly, the characteristics of the analysis will be introduced, which include the data source, software, sample size, set of covariates, treatment indicator and market value. Secondly, the implementation of the analysis to obtain the propensity score and its quality will be assessed. The last subsection explains restrictions regarding the analysis.

4.1 Characteristics of the analysis

4.1.1 Data source

This paper includes data from three of the best European football leagues, England, Germany and Spain. As described in the introduction, those leagues are extraordinary not just with regard to their sport performance but also because they consist of the highest financial value. The collection of detailed data about the clubs and players of those leagues is a crucial part of the propensity score analysis. It has the ultimate goal of evaluating the monetary effect of trades of young professional football players. To ensure sufficient data quality, this paper's analysis relies on a proven source for academic publications, i.e. the database of www.transfermarkt.com.

Firstly, the database provides a detailed coverage of the respective leagues and their players. The scope ranges from high- to low-profile players, presenting information on 190.000 players in 330 football competitions. The high quality of the data is ensured by an assessment of up to 190.000 registered users, which name market value recommendations for the players. Eventual disagreements are solved by web managers of www.transfermarkt.com, who examine the suggestions of the users and determine the values (Bryson, et al., 2013, p. 611). Secondly, the assessments of www.transfermarkt.com are backed up by another source of information, the magazine 'kicker', where experienced experts determine the values. There exists a high correlation between kicker and www.transfermarkt.com values regarding

important data characteristics (Torgler, et al., 2006, qouted in Frick, 2011, p. 92; Bryson, et al., 2013, p. 611).

To collect the necessary data, each player with the right prerequisites was found and the important information transferred into an excel file. In a next step, the transfer from the excel file into SPSS was executed and the calculation steps conducted, which will be shown in a later section of the paper.

4.1.2 Software

For the propensity score matching two types of software were used.

On the one hand, SPSS (Version 20), a software for predictive analytics, is implemented (IBM, 2015). A free R-plugin was used to allow propensity score matching and extend the possibilities of matching, but also graphically display the results (Stuart, 2010, p. 16f). SPSS provides a familiar point-and-click interface, which is one of the reasons for the increased practice in the social sciences (Thoemmes, 2012, p. 2).

On the other hand, insights gained from Stata (Version 13), another analysis and statistical software, enriched the analysis (StataCorp LP, 2015). Though propensity score matching is not included in the standard version, Stata offers the possibility to download certain plugins (e.g. psmatch2) and extend the software in that way (Müller, 2012, p. 18). Unfortunately, it was not possible to install this extension on the working station of the computer labs of the University of Vienna (see Appendix 2). Therefore the propensity score matching was conducted only via SPSS and this score for each individual then used in combination with the regular Stata software in the computer lab. However, Stata was used to display statistical tests after the propensity score matching was successfully conducted.

4.1.3 Sample size

Good data quality includes precise covariate selection and measurement, the correct usage of the method and a sufficient sample size (Müller, 2012, p. 8). The three introduced countries' top leagues contain 58 clubs in total, whereof 20 are each in the English Premier Leauge and Spain's La Liga, and 18 in the German Bundesliga. The clubs selected are the ones which compete in the 2015/2016 season in those leagues. Table 3 gives an overview over the included clubs:

Table 3: Clubs of the captured European Leagues season 15/16
Source: Own illustration, based on Transfermarkt.com, 2015, last access 5/8/2015

Germany (Bundesliga)	England (Premier League)	Spain (La Liga)
Bayern Munich	Chelsea FC	Real Madrid
Bor. Dortmund	Manchester Utd.	FC Barcelona
VfL Wolfsburg	Manchester City	Atlético Madrid
FC Schalke 04	Arsenal FC	Valencia CF
Bay. Leverkusen	Liverpool	Sevilla FC
Bor. M'gladbach	Spurs	Athletic Bilbao
TSG Hoffenheim	Southampton FC	Real Sociedad
VfB Stuttgart	Everton	Villarreal CF
E. Frankfurt	Newcastle	Málaga CF
Hertha BSC	West Ham	Celta de Vigo
Hannover 96	Swansea	Espanyol
1.FSV Mainz 05	Crystal Palace	Getafe CF
Hamburger SV	Aston Villa	Dep. La Coruña
1. FC Köln	Stoke City	Real Betis
Werder Bremen	Sunderland	Granada CF
FC Augsburg	Leicester City	Levante UD
FC Ingolstadt	Watford	Rayo Vallecano
SV Darmstadt 98	Norwich	SD Eibar
	West Brom	Sporting Gijón
	Bournemouth	UD Las Palmas

Due to the fact that the transfer from the database to the excel file had to be done manually, it was not possible to do it in one day. Therefore some players, which were listed in one of the clubs shown above, will still be in the sample, but not actually play for the club anymore. Also players, which are added in the course of the pre-season cannot be included. Appendix 3 shows a complete list of all players captured in this

analysis. Based on the database of www.transfermarkt.com, a total of 552 players are listed (see table 4 for an overview of players per league).

Table 4: Share of players captured per league
Source: Own illustration, based on Transfermarkt.com, 2015, last access 7/8/2015

	Total players*	Players captured*	Players captured (%)
Germany (Bundesliga)	515	209	41
England (Premier League)	550	249	45
Spain (La Liga)	504	94	19
Total	1569	552	35

* as of 7/8/15

As can be seen, this list does not include all players of the respective clubs, due to restrictions that had to be made to ensure the sufficient data quality. Following are the defined restrictions:

Year of birth: The list does include all players born between 1986 and 1992. The lower boundary is set at 1986, because based on pretest results (N=146 with all players of the first five German clubs of the list (see table 3)) a higher degree of lacking data was diagnosed for players born before this lower boundary. The reasons are most probably the limited possibilities of recording and documenting data as well as a lack of professional interest in football statistics in earlier years. The upper boundary is set at 1992, because after that a sufficient coverage of the market value development is not given. Data of the market value development is necessary for all three years after the trade, which is rarely possible for players born in and after the year 1993.

International players: Players, which were transferred to one of the observed clubs from outside the EU after turning 20 are not listed, even if they were traded before that date within their international league. The reason is simply that there exists a lack of data about international (non-European) leagues, as most the www.transfermarkt.com database just covers the European top leagues on a extensive (and therefore sufficient) level (Bryson, et al., 2013, p. 611).

General insufficient data coverage: The required level of data coverage cannot be guaranteed for all players in the listed clubs. This is especially the case for players near the age boundaries, which were professionalized in or traded from one of the minor European leagues. In case of missing data (especially the market value development), players were excluded. This avoided assumptions about the occasionally unpredictable market value developments. Furthermore, players for whom the first data entry dates back after they turn 20 years, are not considered.

4.1.4 Set of covariates

There are several important requirements for the selection of covariates. Firstly, selected variables should have an influence on both the treatment probability, i.e. the propensity score, and the outcome. Secondly, the variables must clearly be measured or fixed before the treatment. Any variable which included post-treatment data is not valid. Lastly, the data for the variables should originate from the same source (Caliendo & Kopeinig, 2005, p. 6).

An overview of the selection of covariates is based on empirical study and academic research and is shown in table 5, followed by a more detailed description. The complete detailed list of the players used for matching can be found in appendix 4.

Table 5: Covariates used in propensity model
Source: Own illustration

Covariates used in propensity model
position
international
foot
height
age_p_t (age of professionalization / trade)
education
experience
scorer
injury

- Position: 4 types of positions (1=Goalkeeper; 2=Defender; 3=Midfielder; 4=Attacker).
- International: Nationality of player (0=born in Europe (geogr.); 1=born outside Europe (geogr.)).
- Foot: Strong foot of the player (Left=1; Right=2; Both=3).
- Height: Height in cm.
- Age_p_t: Age of the player when professionalized/traded (range: 16-19). Here, in case of several trades of the player before turning 20, the first professionalization / trade counts. Did the professionalization take place after the 20th birthday, the player is not considered in the dataset.
- Education: Level to describe the education of the player prior to his professionalization/trade. It ranges from 5-15 and includes five years prior to professionalization/trade. There are three levels of education. Those education levels are based on the status of the educating club. Examples: Extraordinary = top clubs from major first leagues in Europe; professional = remaining first and second league teams; regular = lower leagues and minor/international first leagues. An exemption to the declaration of clubs from international leagues are the prestigious clubs in Brasil and Argentina, e.g. Boca Juniors and Fluminense, which are declared to offer professional education. For each player education points are cumulated: Regular=1 point; professional=2 points; extraordniary=3 points.
- Experience: High level of experience (0=No; 1=Yes). The played minutes of the player in all club competitions prior to his professionalization/trade are cumulated. In case of missing data, the average value for the respective age_p_t class is taken. If a player exceeds the average minutes of his age_p_t class (e.g. class of 19 year olds), the player is considered to be experienced.
- Scorer: Existing scoring ability of a player (0=No; 1=Yes). The scored goals of the player in all club competitions prior to his professionalization/trade are cumulated. In case of missing data, the average value for the respective age_p_t

class is taken. If a player exceeds the average goals of his age_p_t class (e.g. class of 19 year olds), the player is considered to be a scorer.

- Injury: Severe injury before professionalization/trade (0=No; 1=Yes). In case the player missed consecutive four months/120 days after an injury, the injury is considered severe and therefore influential on the player's career, e.g due to missed training/experience (see appendix 5).

4.1.5 Treatment indicator

The treatment indicator in this paper's setting is the binary variable 'trade', which determines whether a player received treatment, i.e. a trade to another team before turning 20 (=1), or if he got professionalized into one of the professional teams (1st or 2nd team) of his current club (=0). During the input of the individuals' datasets, the variables 'loan' and 'second team' were registered. They are not included into the propensity model, because they are not pre-treatment variables, but can be used in the later analysis to determine differences in certain transfer strategies (see also 2.1.1.1). A transfer via a loan means that club A lends the player to club B for a certain time. The occurence 'second team' stands for a transfer into the second team of a club. Both variables are binary with 0=No and 1=Yes.

4.1.6 Market value development

In addition to the treatment variable 'trade' and the set of covariates for the propensity model, the outcome variable 'market value development' is of high significance for the analysis. Those values are not related to the propensity score matching, but are rather required for the estimation of the treatment effect in the subsequent analysis. In the following paragraphs the most important characteristics of this variable are listed:

- Data source: The market values of the players are found in the same data source as the covariates. The data coverage of www.transfermarkt.com is extensive also with regard to the market values.
- Covered timespan to evaluate the market value development: The market value of the player is registered for the point of time right after the professionalization or trade and the following three years. The reason for the extended (> 1 year) coverage is that a player might need some time to find his true potential (and therefore increased performance) after getting accustomed to the professional sorroundings. Therefore a market value observation of one or two years might not be meaningful for the real treatment outcome. The average of the respective four values is taken to generate an average market value.
- Deflation of values: The obtained values about the players differ in several aspects, one of which is the year in which the player was professionalized or traded for the first time. Inflation causes the monetary market value (and therefore the mean value) to be different depending on the year of professionalization or trade. In order to ensure weighted values, the obtained data is deflated. Hence the annual inflation rate of the Euro zone was considered for the years 2000 – 2015 based on the European Commission (Eurostat) and European Central Bank calculations with Eurostat data (see table 6) (European Commission (Eurostat) and European Central Bank, 2015).

Table 6: Inflation and Deflation Rate Overview
Source: Own illustration, based on European Commission (Eurostat) and European Central Bank, 2015

Year	Inflation Rate (%)	Cumulated Deflation Rate (%)
2000	2,1%	33,8728%
2001	2,3%	31,1193%
2002	2,2%	28,1713%
2003	2,1%	25,4122%
2004	2,1%	22,8328%
2005	2,2%	20,3063%
2006	2,2%	17,7166%
2007	2,1%	15,1825%
2008	3,3%	12,8135%
2009	0,3%	9,2096%
2010	1,6%	8,8829%
2011	2,7%	7,1682%
2012	2,5%	4,3507%
2013	1,4%	1,8056%
2014	0,4%	0,4000%
2015	0,0%	0,0000%

The applied formula for the mean deflated market value (4.1) and the cumulated deflation rate (4.2) can be seen below:

Equation 1: Mean Deflated Market Value
Source: Own illustration

$$\overline{DMV} = \frac{1}{n} \sum_{t=0}^{3} MV_t * (1 + CDR_t) \qquad (4.1)$$

Equation 2: Cumulated Deflation Rate in t
Source: Own illustration

$$CDR_t = IR_t + CDR_{t+1} * (1 + IR_t) \qquad (4.2)$$

DMV = Deflated Market Value; MV = Market Value; CDR = Cumulated Deflation Ratio (%); IR = Inflation Ratio (%)

As an example for the mean deflated market value, table 7 displays the calculation for Jerome Boateng, who was traded in 2007 from Hertha BSC Berlin to Hamburger SV:

Table 7: Calculation of mean deflated market value for Jerome Boateng
Source: Own illustration

t	MV_t (Mio. €)	IR_t (%)	CDR_t (%)*	DMV_t (Mio. €)
0 (2007)	0,75	2,10%	15,1825%	0,8639
1 (2008)	4,5	3,30%	12,8135%	5,0766
2 (2009)	5,5	0,30%	9,2095%	6,0065
3 (2010)	15	1,60%	8,8829%	16,3324
Mean	6,44			7,07
* CDR_{2011}	7,1682%			

- Due date for determination of market value: The official end of a season in professional Football is the 30th of June, which implies that players can change clubs starting on the 1st of July. Prearranged transfers (after the end of the winter break transfer deadline) won't be conducted until then. For that reason, the preferred date to register a market value of a player is the 1st of July. In an optimal scenario, t_0 would be the 1st of July 2010, t_1 the 1st of July 2011 etc. The display of market values is not always available on the exact date 1st of July, but mostly for some day in June or August. In this case the respective value is obtained. There exists also the case of player movements during the winter break in January. In that case, t_0 is the January value, t_1 is the 1st of July value of the same year, t_2 is the 1st of July value of the next year etc..
- Missing values: In the case of missing values about the market value of players, a basic rule applies. If there is more than one value missing for a player, this player won't be taken into the sample. For just one value missing within the whole four year span, an assumed value is used under consideration of a linear development based on the previos and later value. As an example, if there is no value available for player A for the year 2011 and that player has a market value of one million Euro in July 2010 and three million Euros in 2012, the value registered for 2011 would be two million Euros.

4.2 Propensity score matching

Based on the methodological explanations, this subsection will describe the propensity score analysis following the three outlined aspects in subsection 3.2.2 ('process of propensity score matching'). To ensure the proper understanding of the process, screenshots which were taken during the analysis with SPSS will be shown. Figure 2 shows the dashboard for the propensity score matching in SPSS. The numbers relate to the aspects described in the 'analysis' and 'methodology' section.

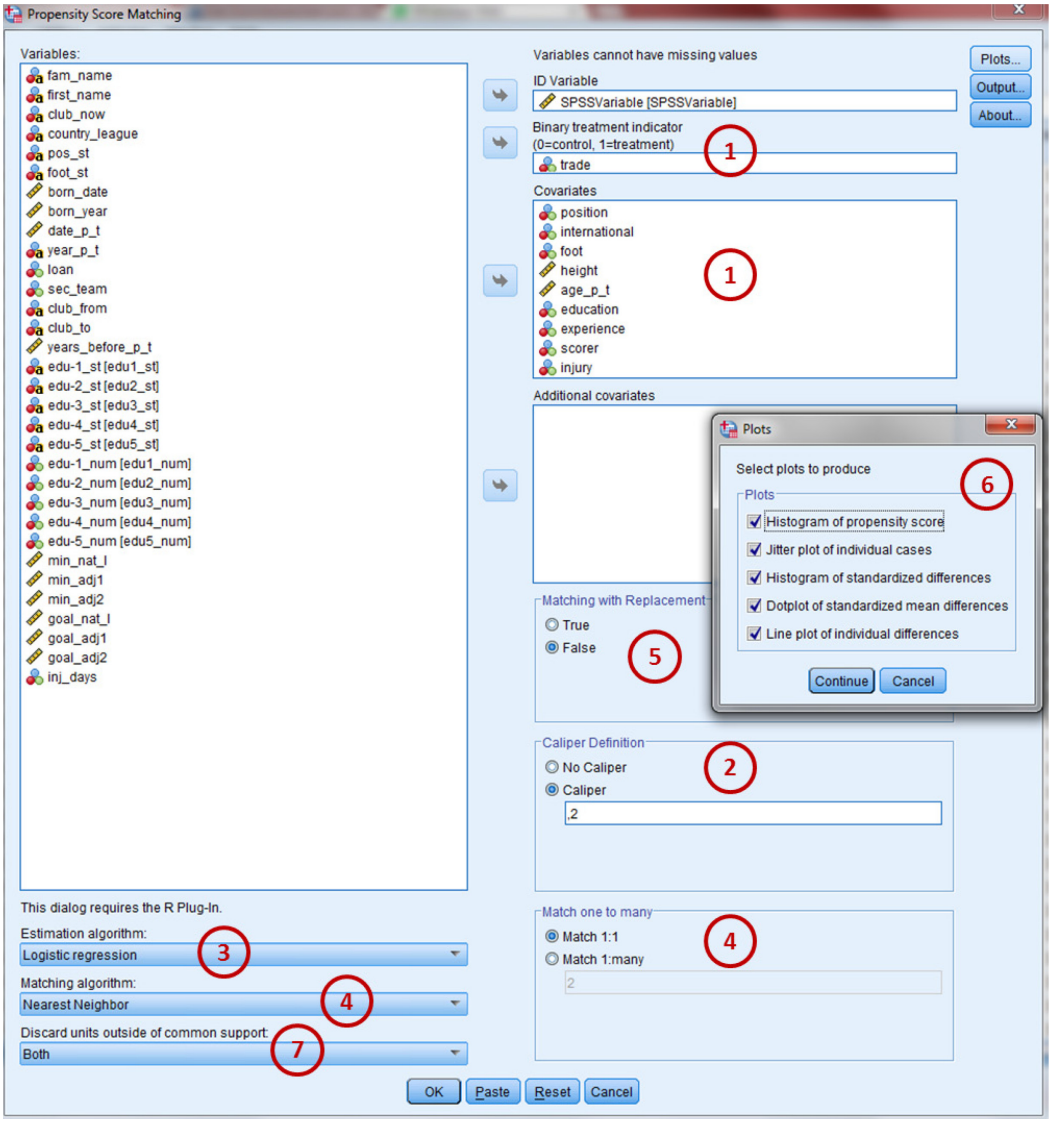

Figure 2: User interface for propensity score matching in SPSS
Source: Own illustration, based on SPSS, generated 10/8/15

4.2.1 Defining closeness

1. Variables to include: List of the nine selected covariates (see 4.1.4) and treatment variable (see 4.1.5).
2. Distance measure: Following the common practice, the caliper in this matching is set at 0.2 (see 3.2.2.1).

4.2.2 Matching method

3. Estimation algorithm: Logistic regression (see 3.2.2.2).
4. Matching algorithm: 1:1 nearest neighbour (see 3.2.2.2).
5. Replacement: 'Without replacement' is selected, due to a lower bias compared to matching with replacement (see 3.2.2.2).

4.2.3 Diagnosis of the matching quality

A well balanced analysis is very significant for a meaningful analysis. To ensure the matching quality, SPSS provides certain plots (see 6 in figure 2) supporting the testing process as introduced in 3.2.2.3. Those plots require a plug in; the installation is described in Thoemmes (2012). Before diagnosing the matching quality, figure 3 shows the sample size summary of the matching.

Sample Sizes

	Control	Treated
All	246	306
Matched	194	194
Unmatched	51	89
Discarded	1	23

Figure 3: Sample size summary
Source: SPSS, generated 10/8/15

Of the 552 players in the sample size, 388 were matched, 140 were unmatched and 24 discarded because they were not in the area of common support. In the histogram shown in the fifth part of the diagnosis (see below) the common support exists, so discarding units is valid based on Liu's &

Ripley's (2014) assumptions (Liu & Ripley, 2014, p. 95). This discard was conducted for both control and treatment group (see 7 in figure 2).

Aligned with the testing process steps, the following paragraphs will show the assessment of the matching quality under the prerequisites stated in the previous chapters and displayed in figure 2.

1. Overall balance test by Hansen and Bowers (2008)[1]:

Overall balance test (Hansen & Bowers, 2010)

	chisquare	df	p.value
Overall	2,988	8,000	,935

Figure 4: Overall balance test
Source: SPSS, generated 10/8/15

Due to the insignificance of the p value ($p > 0.05$) and a moderate chi square, the overall balance test shows a good balance of covariates (figure 4, see also 3.2.2.3 point 1)

2. Relative Multivariate Imbalance:

Relative multivariate imbalance L1 (Iacus, King, & Porro, 2010)

	Before matching	After matching
Multivariate imbalance measure L1	,905	,902

Figure 5: Relative Multivariate Imbalance
Source: SPSS, generated 10/8/15

The L1 value decreases after the matching process (figure 5), which is desired as stated in academic literature, even though the difference is just incremental in this case (see also 3.2.2.3 point 2) (Thoemmes, 2012, p. 12).

[1] Note: The Hanson & Bowers test is dated to be from 2010 in the SPSS balance testing interface. The relevant article in the journal 'Statistical Science' was published in 2008 though (see also bibliography).

3. Summary of unbalanced covariates:

Summary of unbalanced covariates (|d| > .25)

No covariate exhibits a large imbalance (|d| > .25).

Figure 6: Summary of unbalanced covariates
Source: SPSS, generated 10/8/15

There are no imbalanced covariates after matching (figure 6). This means that Cohen's d does not exceed 0.25 for any covariate, which is the threshold for the standardized differences between the covariates' means.

4. Plot:

Figure 7 shows a plot displaying the covariate balance before and after matching.

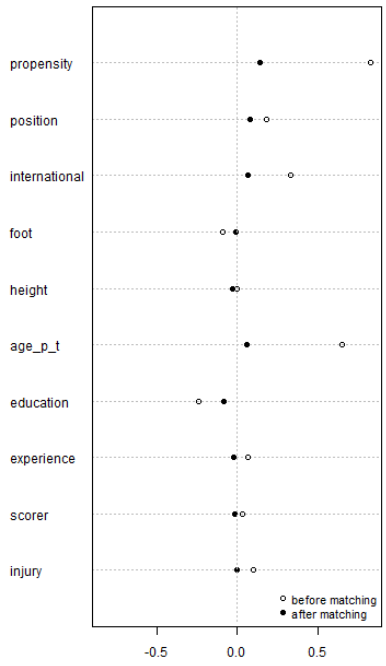

Figure 7: Covariate balance before and after matching
Source: SPSS, generated 10/8/15

The standardized differences of the covariates have decreased after matching, i.e. they moved closer to 0. This implies that on each covariate the matched samples have a higher similarity than the unmatched subjects (Liu & Ripley,

2014, p. 98). Only the covariate 'height' shows a slight increase after matching, but is still very close to 0.

5. Histograms:

As discussed the common support assumption does require that the distributions of treatment and control group have significant overlap. Comparing the two distributions on the right side in figure 8, it shows that this assumption holds because the distributions are very similar and almost identically shaped (Caliendo & Kopeinig, 2005, p. 4).

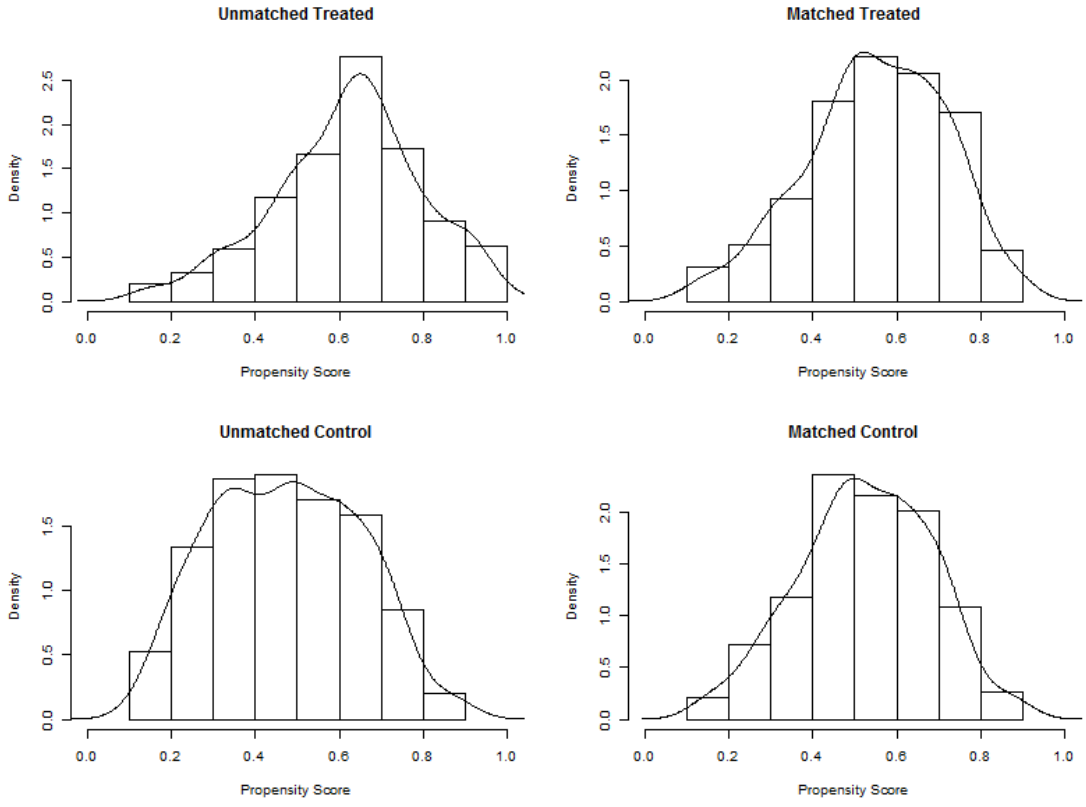

Figure 8: Common support histogram for 1:1 nearest neighbour matching
Source: SPSS, generated 10/8/15

The high degree of similarity between the control and treatment group is also proven by comparing the standardized differences, see figure 9.

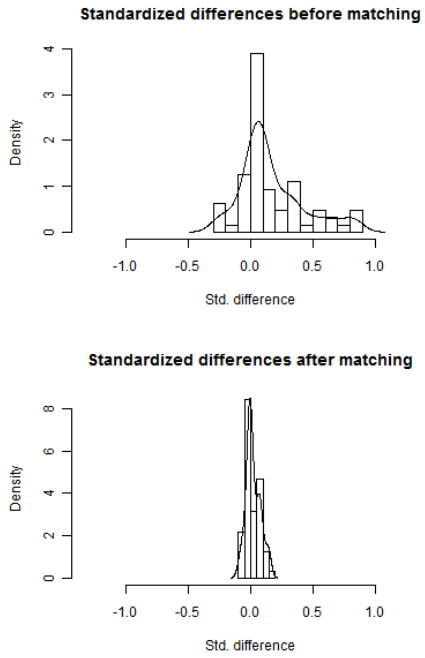

Figure 9: Standardized differences before and after matching
Source: SPSS, generated 10/8/15

In summary, based on the graphical illustration and the conducted imbalance test, it can be concluded that the choices regarding the propensity score matching methods were confirmed and covariate balance exists.

Therefore, further analysis and statistical testing can now be conducted to estimate the treatment effect, using the calculated propensity score.

4.3 Restrictions to the model

Even though the propensity score matching resulted in a balanced sample, several restrictions apply, which will be outlined in the following paragraphs.

4.3.1 Scope of the approach

The scope of this paper is purely orientated towards the financial implications of talent development. Efforts of the players regarding time consumption, social

challenges, physical and psychological pressure are not considered (see also section 1).

4.3.2 Talent identification

The assessment of talent is still limited in sports (Morris, 2000, p. 720ff). One of the reasons is that there are no special measurements for the performance as they exist in other sports, such as track and field or swimming (Reilly, et al., 2000, p. 695). The wide range of influential aspects includes biological and behavioural characteristics which require complex evaluation (Figueiredo, et al., 2009, p. 883). Therefore the inclusion of a talent covariate into the set of covariates is not possible. Such an unreliable and subjective parameter would mean a high risk of increasing the bias of the model.

4.3.3 Confounders

External factors such as opportunities to practise, mentorship and coaching, injuries and cultural, personal and social issues can influence the development of young players (Reilly, et al., 2000, p. 695). Possible confounders such as opportunities to practise, coaching and injuries are avoided via the covariates 'education' and 'injury', but it is not possible to include covariates covering cultural, personal and social issues. It has to be remarked here that those factors are impossible to cover in any study, if this study is not focusing its attention on those specific topic alone. And even then balanced results are difficult to obtain due to the inclusion of psychological factors.

4.3.4 Limited outcome interpretation

In order to cover the whole spectrum of financial implications of a trade, this study also registered listed transfer fees for the trades of young players. This value can give an insight into the payoff for a club to acquire the player considering the market value development of the player. In its easiest form the transfer fee can be subtracted from the deflated market value to show a payoff for the club. This would, of course, not include productivity and other income gains caused by the player. Including the aspects of more detailed payoff calculations could not be achieved in this study due to a lack of sufficient data about transfer fees. Because some of the players were traded fairly early in their career and sometimes from minor leagues, there seemed to be little statistical interest in the recording of those figures.

5. Findings

The following chapter will present insights to answer the research question about outcome effects of trades of young professional football players. After the propensity score matching was successfully conducted and a balanced sample was gained as shown in the previous chapter, the list of players in the sample consisted of 388 players divided into a treatment and a control group with 194 players each. Due to the propensity score matching, both groups have the same prerequisites for getting traded, but just the players in the treatment group actually were traded. Hence, a comparison of market values can be conducted.

In the following subsections, a detailed presentation of the estimation of the treatment effect and some observations on transfer strategies, made with the help of the analysis, will be presented. Furthermore, the outcome variable 'market value development' will be replaced by variables describing the minutes a player played and goals scored in his first three years as a professional. On the one hand it is supposed to evaluate the insights gained by the previous analysis with the market value variable. On the other hand it provides an approach for further research, as the 'minutes played' and 'goals scored' are further outcome variables.

5.1 Estimation of the treatment effect

Firstly the overall mean treatment effect will be presented, answering the research question in a general manner. Secondly the mean treatment effect per category (covariate) will be displayed, including descriptive characteristics. Lastly the mean treatment effects by strata are exhibited.

5.1.1 Overall mean treatment effect

The mean treatment effect, when comparing the treatment and the control group, accounts for 0,85 million Euros (see figure 10). This represents an increase in the deflated mean market value of about 46 %. The calculations apply when observing mean deflated market values of the groups as a whole, as recommended in the scientific literature (Stuart, 2010, p. 13).

Group	DMV (Mio. €)	Players	Mean DMV (Mio. €)
Treatment group	523,49	194	2,70
Control group	358,87	194	1,85
Treatment effect (absolute)			**0,85**
Treatment effect (%)			**45,87%**

Figure 10: Deflated market values and treatment effect for the pooled group comparison
Source: Own illustration

This means that the difference between the mean deflated market value of the treatment group and the control group is almost one million Euros, with mean values per group of 2,7 million Euros (treatment) and 1,84 million Euros (control). This means that the value difference is considerable, as the absolute deflated market values of the traded players are almost 46% higher than the ones of the control group. Figure 11 shows the results of a two-sample t-test with equal variances conducted with Stata. As we can see, the difference is highly significant ($p = 0,006$, therefore $< 0,1$), which leads to the conclusion that the probability is high that the trade results in a higher market value than without a trade (see also Müller, 2012, p. 21).

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	194	1.849859	.1890752	2.633513	1.47694	2.222778
1	194	2.698426	.2777238	3.868246	2.150663	3.24619
combined	388	2.274143	.1691515	3.331898	1.941572	2.606714
diff		-.848567	.3359761		-1.509139	-.1879946

diff = mean(0) - mean(1) t = -2.5257
Ho: diff = 0 degrees of freedom = 386

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0060 Pr(|T| > |t|) = 0.0119 Pr(T > t) = 0.9940

Figure 11: Two-sample T-Test with equal variances for 'Market value development'
Source: Stata, generated 12/8/15

Even though this higher difference in market values comparing traded and untraded players indicates a recommendation towards the acquisition of players via a trade, some factors are not considered. Firstly, transfer fees can reduce the monetary benefit gains of a club when acquiring talent via a trade. Secondly, the opportunity costs, i.e. the costs for the second best alternative (players from the own youth teams), can't be included in the observation due to insufficient data. This means that trades make the most sense when both the transfer fees and the opportunity costs are low. In a practical example external players can be preferred in case they exceed in certain desired qualities such as one of the covariates. Here benefits and costs have to be weighted, but from a financial standpoint a trade displays an average gain in market value of 0,85 million Euros. The treatment effects observable in certain categories (covariate occurrences) will be outlined in the next subsection.

5.1.2 Mean treatment effects per category

The mean treatment effect was displayed in a general manner in the previous subsection. Now, this effect will be outlined for all occurrences of the nine different covariates and the two additional variables 'loan' and 'second team' (see 4.1.5). Here,

Excel was used to filter of covariates with regard to their occurrences and market value.

A more detailed analysis of, for example, stratification within the different occurrences of the covariates is not possible. The sample size does not provide the necessary depth to gain valid insights.

5.1.2.1 Position

Figure 12 shows the effect of the transfer on the players, filtered for the covariate 'position'.

Category	Occurences	Number of players		Sum of MV		Mean outcome effect		Delta = treatment effect
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
Position	1=Goalkeeper	22	21	24,89	45,52	1,13	2,17	1,04
	2=Defender	67	61	102,94	125,91	1,54	2,06	0,53
	3=Midfielder	73	73	160,56	229,07	2,20	3,14	0,94
	4=Attacker	32	39	70,48	122,99	2,20	3,15	0,95
		194	194	358,87	523,49			

Figure 12: Treatment effect results sorted by 'position'
Source: Own illustration

The treatment effect is high for all positions except defenders. A lack of performance indicators for defenders could lead to a more difficult evaluation of the market value and therefore indicate a more conservative estimation. The other positions have more or less telling indicators, such as goals admitted for the keepers, assists for the midfielders and goals scored for the attackers.

Furthermore, the share of attackers who got transferred is the highest among the positions. One of the reasons could be the relatively high transparency with regard to the attacker's performance. Goals and assists are simple to register statistically. Therefore the most important performance indicator is accessible. This is less likely the case for other positions.

5.1.2.2 International

Figure 13 shows the effect of the transfer on the players, filtered for the covariate 'international'.

Category	Occurences	Number of players		Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
International	0=European	182	177	322,08	426,79	1,77	2,41	0,64
	1=Non-European	12	17	36,79	96,70	3,07	5,69	2,62
		194	194	358,87	523,49			

Figure 13: Treatment effect results sorted by 'international'
Source: Own illustration

International players are more likely to join a professional club via a trade than professionalization in their respective youth club.

If an international player joins a team, the treatment effect is very high (approximately three times of the mean). This could mean that clubs which acquire an international player via a trade select more cautiously and therefore lessen the risk of picking poor performing players. This would lead to transferred players with a higher probability of an above average market value development.

5.1.2.3 Foot

Category	Occurences	Number of players		Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
Foot	1=Left	43	48	75,69	163,11	1,76	3,40	1,64
	2=Right	130	121	219,48	302,72	1,69	2,50	0,81
	3=Both	21	25	63,70	57,67	3,03	2,31	-0,73
		194	194	358,87	523,49			

Figure 14: Treatment effect results sorted by 'foot'
Source: Own illustration

Figure 14 shows the effect of the transfer on the players, filtered for the covariate 'foot'.

Players with a strong left foot or even the capability of playing well with both feet are more likely to get traded. Still, those two groups just account for 35% of the players. The group of two-footed players is the smallest with a share of approximately 12%.

The treatment effect is fairly extreme in both directions in this category. Players with a left foot affinity have a high treatment effect (almost double the average). Players with the ability to play with both feed have a negative treatment effect, i.e. a trade leads on average to a -0,73 million € smaller deflated market value. Interestingly the players with two-footedness which stay in their respective youth club have a fairly high market value development. This indicates that there exists a value premium on this special skill, but a trade is not beneficial with regard to the value development.

5.1.2.4 Height

Figure 15 shows the effect of the transfer on the players, filtered for the covariate 'height'.

Category	Occurences	Number of players		Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
Height	160-170	4	7	15,17	36,34	3,79	5,19	1,40
	171-180	73	69	137,72	213,24	1,89	3,09	1,20
	181-190	91	90	168,88	206,16	1,86	2,29	0,43
	191-200	24	28	35,81	67,75	1,49	2,42	0,93
	201-210	2	0	1,29	0,00	0,64	NA	NA
		194	194	358,87	523,49			

Figure 15: Treatment effect results sorted by 'height'
Source: Own illustration

About 83% of the sampled players are between 171 and 190 centimetres tall. The two extreme values don't have a considerable sample size to interpret the results. The share of traded and non-traded players is quite similar in all height groups.

The biggest group of the 181 - 190 centimetres tall players (47%) has the lowest trade effect, which also ranks lower than the total group average of 0,85 million Euros. The other two groups (171-180 and 191-200) show an average trade effect.

5.1.2.5 Age of trade or professionalization

Category	Occurences	Number of players		Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
Age_p_t	16	7	9	26,09	25,61	3,73	2,85	-0,88
	17	31	29	51,68	45,18	1,67	1,56	-0,11
	18	79	67	159,79	195,37	2,02	2,92	0,89
	19	77	89	121,31	257,34	1,58	2,89	1,32
		194	194	358,87	523,49			

Figure 16: Treatment effect results sorted by 'age_p_t'
Source: Own illustration

Figure 16 shows the effect of the transfer on the players, filtered for the covariate 'age_p_t'.

The most common age to get either traded or professionalized is 19 with a share of 42% of the sample. The younger the players get, the lower is the number of players which leave their youth team.

In case of a 16 year old player the market value development is extraordinary in case he stays with his youth club and gets professionalized in the respective first or second team. Interestingly, the treatment effect for those young players is negative. It implies that a trade is not beneficial from a financial perspective in such a young age. Even though the market value is still fairly high (3,37 million Euros), the negative effect of a treatment is also high with almost one million Euros. Also, there still is a (slightly) negative treatment effect for 17 years old players. The older the players get, the higher is the treatment effect. Trading players when they are 19 is optimal and means a delta between trade and no-trade outcome of +1,32 million Euros.

5.1.2.6 Education

Figure 17 shows the effect of the transfer on the players, filtered for the covariate 'education'.

Category	Occurences	Number of players		Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
Education	5	24	41	23,88	54,20	0,99	1,32	0,33
	6	5	8	6,22	14,61	1,24	1,83	0,58
	7	20	14	32,10	56,74	1,61	4,05	2,45
	8	41	30	71,43	87,75	1,74	2,92	1,18
	9	19	11	36,15	38,26	1,90	3,48	1,58
	10	39	43	51,18	140,79	1,31	3,27	1,96
	11	12	7	21,30	8,95	1,77	1,28	-0,50
	12	3	9	7,35	9,49	2,45	1,05	-1,40
	13	10	10	24,39	39,41	2,44	3,94	1,50
	14	0	6	0,00	13,01	NA	2,17	NA
	15	21	15	84,88	60,29	4,04	4,02	-0,02
		194	194	358,87	523,49			

Figure 17: Treatment effect results sorted by 'education'
Source: Own illustration

Most of the players have an education level of 5-10 (76%). In contrast, a completely extraordinary education is rare. The best educated players (15 points) have a share of 9% of the sample size. For those players, the education level pays off, as their market value is very high in both cases (trade/no-trade) with a figure of approximately four million Euros. In this case it has to be noted that there exists no considerable treatment effect. This can be explained by the fact that such players, in the event of a trade, most likely trade between highly professional and competitive clubs, where the challenges are similar and expectations already high. On the contrary, for players with lower education scores who get traded, this trade mostly means a step up with regard to professionalism and opportunities to excel. Here, the average treatment effect is +1,35 million Euros for the levels 5-10.

5.1.2.7 Experience

Category	Occurences	Number of players		Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
Experience	0=No	135	137	237,47	328,11	1,76	2,39	0,64
	1=Yes	59	57	121,40	195,39	2,06	3,43	1,37
		194	194	358,87	523,49			

Figure 18: Treatment effect results sorted by 'experience'
Source: Own illustration

Figure 18 shows the effect of the transfer on the players, filtered for the covariate 'experience'.

The number of experienced players is limited. Just short to 30% of the players can be declared as experienced under the assumptions made in chapter 4.1.4. In case a young player already gained experience in his career before being traded or professionalized, this results in both a higher mean outcome effect as well as a higher treatment effect for the traded players. In comparison to the mean outcome, an experienced player is worth 2,06 million Euros, a player without experience just 1,76. Also the effect of a trade is significantly higher, with a delta of 1,37 million Euros for experienced players compared to 0,64 million Euros without experience.

5.1.2.8 Scorer

Figure 19 shows the effect of the transfer on the players, filtered for the covariate 'scorer'.

Category	Occurences	Number of players		Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
		0 = no trade	1 = trade	0 = no trade	1 = trade	0 = no trade	1 = trade	
Scorer	0=No	164	165	274,87	421,20	1,68	2,55	0,88
	1=Yes	30	29	84,00	102,29	2,80	3,53	0,73
		194	194	358,87	523,49			

Figure 19: Treatment effect results sorted by 'scorer'
Source: Own illustration

In the total sample, just 15 % of the players can be identified as scorers based on the assumptions made in 4.1.4. Still, this small number of experienced players shows a significantly higher mean market value of 2,8 million Euros if not traded and 3,53 million Euros in case the player got traded. For the treatment effect this means that the trade leads to a 0,73 million Euros increase for scorers and a 0,88 million Euros higher value in case of a trade for non-scorers players. This indicates that the scorers are initially seen as more valuable, but don't develop faster than the players not considered to be scorers.

5.1.2.9 Injury

There was no player in the sample after propensity score matching, so no evaluation of the mean outcome or treatment effect was possible.

5.1.2.10 Loan

In addition to the filter for the treatment effects for the different covariates, an analysis of the type of transfer can provide interesting insights (see figure 20).

Category	Occurences	Type of transfer	Sum of DMV (Mio. €)	Mean DMV (Mio. €)	Delta (Mio. €)
Transfer as Loan	0=No	109	324,94	2,98	-0,65
	1=Yes	85	198,55	2,34	
		194	523,49		

Figure 20: Mean outcome effect of a loan as transfer type
Source: Own illustration

Approximately 44% of all transfers of young players were conducted as a loan (see also chapter 2.1.1.1). The analysis' approach wants to assess and compare the mean outcome effect for players on loan and directly transferred players. For players who were transferred not as a loan, the mean outcome effect accounts for 2,98 million Euros, which displays a higher value than the 2,34 mean outcome effect a player has when being transferred as a loan. The loan system does not seem to have a positive effect on the market value development. Certainly, this might have to do with the fact that players have to get to know a new professional surrounding and have a limited time to get accustomed to it, but need to perform right from the start. It has to be remarked, that this does not necessarily condemn the strategy of a loan. There could be a more long-term approach, which does not prioritize a market value gain in the first three years.

5.1.2.11 Second team

In addition to a loan system, there also exists the approach of sending a player from the youth team to the second team of the professionals. This is a common method in the European football environment. Undoubtedly successful players such as Lionel Messi started their professional career in a second team.

Category	Occurences	Type of transfer (Players)	Different club's 2nd team (Players)	Sum of DMV (Mio. €)	Mean DMV (Mio. €)	Delta (Mio. €)
Second team	0=No	281	86	106,68	1,24	0,27
	1=Yes	107	21	20,31	0,97	
		→	107			

Figure 21: Mean outcome effect of players transferred into 2nd teams
Source: Own illustration

In this sample, as figure 21 shows, almost 30% of all transfers or professionalizations lead the player to a professional club's second team. This happened in 86 out of 107 cases (80%) as a transfer to the second team of the player's youth club. In terms of financial consequences this paid off, as the mean outcome of a player who stayed in his youth club and started his career in the second team was 0,27 million Euros higher than if the player was transferred into a different club's second team (1,24 vs. 0,97). This underlines the hypothesis, which states that familiar structures for a young player seem to be favourable, as he can get accustomed to the professional environment.

5.1.3 Mean treatment effects by strata

The outcome analysis can also be based on different strata of the propensity score. Here, figure 22 shows the treatment effect of a transfer for different propensity score ranges.

Strata	Number of players			Sum of DMV (Mio. €)		Mean DMV (Mio. €)		Delta = treatment effect (Mio. €)
	0 = no trade	1 = trade	% of Strata	0 = no trade	1 = trade	0 = no trade	1 = trade	
0,00-0,1	0	0	0,00%	0,00	0,00	NA	NA	0,00
0,11-0,2	4	6	2,58%	12,11	17,64	3,03	2,94	-0,09
0,21-0,3	14	10	6,19%	50,18	16,33	3,58	1,63	-1,95
0,31-0,4	23	18	10,57%	35,40	26,14	1,54	1,45	-0,09
0,41-0,5	46	35	20,88%	86,27	102,01	1,88	2,91	1,04
0,51-0,6	42	43	21,91%	72,70	89,09	1,73	2,07	0,34
0,61-0,7	39	40	20,36%	58,68	104,99	1,50	2,62	1,12
0,71-0,8	21	33	13,92%	31,88	93,10	1,52	2,82	1,30
0,81-0,9	5	9	3,61%	11,65	74,19	2,33	8,24	5,91
0,91-1,0	0	0	0,00%	0,00	0,00	NA	NA	0,00
	194	194	100%	358,87	523,49			

Figure 22: Treatment effect for different propensity score strata
Source: Own illustration

The propensity scores were divided into ten strata in steps of 0,1 of the score. As can be seen in the histogram, the propensity scores are distributed normally, and almost 94% of the players have a propensity score between 0,21 and 0,8. There were no players in the two extreme strata. It can also be observed that the number of traded players increases, the higher the propensity score is.

The mean deflated market value shows that the treatment effect correlates positively with the propensity score strata (see figure 23). So the number of traded players and also the treatment effect rises in case of an increasing propensity score. For the highest propensity values (within strata 0,81-0,9) the treatment effect accounts for 5,91 million Euros.

The observations can be interpreted that the propensity score accurately forecasts the actual trade activity. Furthermore it shows that the lower the putative quality of a player (expressed by a low propensity score) is, the less it is worth it to trade a player. The clubs already focus on players who promise a positive market value development. That this actually pays off (not considering the transfer fees etc., see 5.1.1) is validated by this analysis.

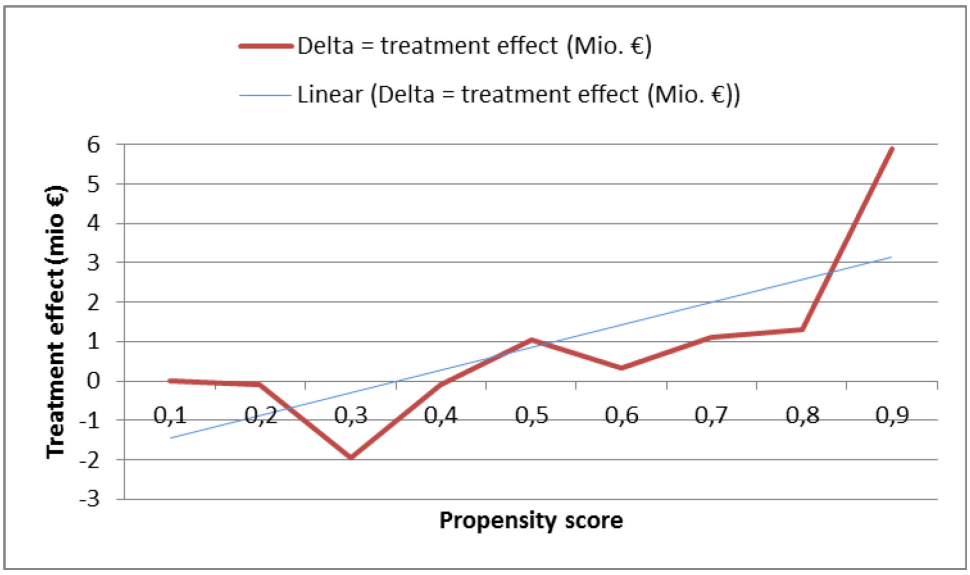

Figure 23: Treatment effect development
Source: Own illustration

5.2 Transfer strategies

The analysis reveals that the transfer strategies with regard to young players vary in the observed leagues. Whereas in England, the number and share of players who were transferred as a loan is very high (97/58%), this number is far lower in Germany (26/28%) and Spain (12/25%) (see figure 24). Those numbers were calculated by observing the whole sample size before propensity score matching (N=552) and also assumes that a high share of the players still play in the country to which they were transferred for the first time. As we have seen in section 5.1.2.10, the transfer of a loan does not lead to a positive treatment effect. Again, other intentions of the youth club can be the reason for such a loan strategy.

	Loans	Transfers	Share of Loans
Germany (Bundesliga)	26	92	28%
England (Premier League)	97	166	58%
Spain (La Liga)	12	48	25%
	135	306	

Figure 24: Loans in observed leagues
Source: Own illustration

The most extreme example is the one of Chelsea London, with 26 players on loan in the 2014/2015 season (see also 2.1.1.1).

5.3 Alternative outcome variable 'minutes played' and 'goals scored'

In the following subsection, the two-sample T-Test with equal variances will be conducted using the total minutes played and goals scored of a player in his first three seasons as a pro. The goal is to confirm the positive treatment effect as seen in subsection 5.1.1.

Firstly the test with the variable 'minutes played' is done (see figure 25). Here, the same principle as for the market value applies. If a player gets traded or professionalized in January, the rest of the on-going season is measured as the first year of professionalism.

The results confirm the positive effect of a treatment in form of a higher mean of minutes played. The relational (4,38%) and the absolute (222 minutes) increases are fairly small.

Group	DMV (Mio. €)	Players	Mean minutes
Treatment group	523,49	194	5288,24
Control group	358,87	194	5066,24
Treatment effect (absolute)			**222,00**
Treatment effect (%)			**4,38%**

Figure 25: 'Minutes played' effect for the pooled group comparison
Source: Own illustration

In this case, and in contrast to the market value, the test results are not significant though (p = 0,1677 > 0,1) (see figure 26). A general statement about the probability of a positive effect of a treatment on the minutes played is therefore not possible.

```
Two-sample t test with equal variances

   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |     194    5066.237    153.9363    2144.085    4762.624    5369.851
       1 |     194    5288.242    171.0757    2382.808    4950.824     5625.66
---------+--------------------------------------------------------------------
combined |     388     5177.24    115.0584    2266.388    4951.022    5403.458
---------+--------------------------------------------------------------------
    diff |           -222.0052    230.1375               -674.4851    230.4748
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.9647
Ho: diff = 0                                     degrees of freedom =      386

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1677         Pr(|T| > |t|) = 0.3353          Pr(T > t) = 0.8323
```

Figure 26: Two-sample T-Test with equal variances for 'Minutes played'
Source: Stata, generated 12/8/15

There could be several reasons for this result. The different leagues have a different amount of games to play per season. In England and Spain the regular season takes 38 games, in Germany it is just 34. Furthermore, counting the minutes played does not consider the level of competitiveness. A player might play regularly in a second team, but would not in the first, due to a different intensity and competitiveness.

The same applies for the second test with 'goals scored' in the first three seasons. The tendency is positive as well, as traded players have a higher mean of goals scored in

the first three years as a professional. The relational (14,51%) and the absolute (1,12 goals) increases are small (see figure 27).

Group	DMV (Mio. €)	Players	Mean goals
Treatment group	523,49	194	8,84
Control group	358,87	194	7,72
Treatment effect (absolute)			**1,12**
Treatment effect (%)			**14,51%**

Figure 27: 'Goals scored' effect for the pooled group comparison
Source: Own illustration

Also this result is not significant though (p = 0,1264) (see figure 28). The reasons are similar to the test with 'minutes played'. It is not said in which league a player scored and with an obvious quality gap of the defences, this is a considerable factor. Also, a player does have better chances to score goals, if he has more games.

```
Two-sample t test with equal variances

   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |     194    7.716495    .6415248    8.935406    6.451195    8.981795
       1 |     194    8.835052    .7365176     10.2585    7.382394    10.28771
---------+--------------------------------------------------------------------
combined |     388    8.275773    .4885643      9.6236    7.315201    9.236346
---------+--------------------------------------------------------------------
    diff |           -1.118557    .9767355                -3.038945    .8018311
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.1452
Ho: diff = 0                     degrees of freedom =       386

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1264         Pr(|T| > |t|) = 0.2528          Pr(T > t) = 0.8736
```

Figure 28: Two-sample T-Test with equal variances for 'Goals scored'
Source: Stata, generated 12/8/15

Even though the results of 'minutes played' and 'goals scored' are not significant, both show a tendency towards a positive effect of the trade.

6. Discussion

As the second to last section, the discussion is supposed to give indications about potential directions of further research. It will be divided into four subsections.

Firstly, future research could include cost estimations and therefore give a complete payoff observation. The cost side is not transparent enough so far to be evaluated validly. Secondly, the effect of transfer fees could be assessed in a more detailed way (see also 4.3.4). Here, so far the data quality is not provided to research further. Next, the concept of third party ownership is a topic, which gains more and more attention. Lastly, a possible application of the regression results will be introduced.

6.1 Cost estimations

Including cost estimation in the evaluation of business decisions is fundamental. In professional Football, this approach has been considered as well. Sloane (1969) set up a basic calculation to answer the general question whether it is financially profitable for clubs to invest into new players. The total costs of a player were defined as: transfer fee + salary + risk premium – (deductible) tax (Sloane, 1969, p. 195). The approach of calculation player costs would exceed the scope of this paper and has therefore not been outlined further, but would be an interesting topic to look into more closely.

6.2 Performance indicators and generated income of players

In addition to cost estimation, also the income side of player transfers play an important role. Here, further research could look into the detailed performance indicators, which are available due to technological progress (e.g. GPS sensors to track covered distances of players in a game). Then the financial implications of those

performance measures could be examined. Other incomes such as merchandising, media coverage could be influenced by certain players as well.

6.3 Third party ownerships of young talents

A third party ownership (TPO) contains the agreement that "a Third Party, whether or not in relation with an actual payment in favour of a club, acquires an economic participation or a future credit related to the eventual transfer of a certain football player" (KPMG, 2013, p. 5).

In contrast to South America, this model has not been popular in Europe so far, but gets more attention in the last years (KPMG, 2013, p. 6). Further research could possibly evaluate the benefits and risks of such a system for the European market.

6.4 Application of regression results

The application of results from a multiple regression with the covariates (independent) and the propensity score (dependent) could be used for the estimation of financial values of players, who have not been traded yet.

The coefficients for the different covariates would be used to calculate a propensity score of a random player younger than 16. After that the propensity score of the respective player could be classified into the distinctive strata. The treatment effect value for that strata would then tell, which market value gain can be expected for the player, when he gets traded. Again, this is just the basic approach, which would require further and more detailed research.

7. Summary

Talent acquisition in professional Football is a multi-dimensional approach. This paper tackles the most important facets in order to provide an overview and guide towards the research question. Hereby, the research question orients itself towards the return on an investment into young players, i.e. their market value development.

This paper gives an introduction into the importance of economic decisions in professional football, the rising importance of talent development and the high investments related to it. Furthermore the research question is introduced. An important aspect of talent acquisition is the transfer of young players. Here, the research question focuses on the effect of a trade on the market value development of a young player.

Afterwards, the theoretical background provides the necessary information to understand the analysis and its findings. The labour market in general is introduced, followed by more detailed explanations regarding transfers and their different types, regulations that apply for the trades of young talents and the wide scope of talent identification nowadays.

The third chapter looks into the methodology, i.e. the propensity score matching. Here, the concept is outlined chronologically, starting with the general concept of the measurement of causal effects, before introducing the concept of propensity score matching, which is the approach selected for the analysis. The intentions about the usage of the propensity score are defined afterwards.

The following chapter describes the analysis. The characteristics of the dataset, software and covariates are presented, which build the framework for the propensity score matching. Here the quality of the results is assessed in a detailed process. Lastly, restrictions to the analysis, such as the limitation to the financial considerations of talent development, are explained.

The next chapter presents the findings. The mean treatment effect is outlined considering the treatment and control group as a pooled unit, with filters on the different covariates and also the strata.

In the chapter discussion, further research approaches in the field of talent acquisition are suggested, including a forecast model, different outcome variables and other income and cost considerations of talent recruitment.

Several insights were gained, which contribute to on-going discussions about young players and how their development should be handled. Here, the transfers of underage players are a sensitive topic. This analysis shows that the transfer of 16 or 17 year old players does not result in a positive market value development after a trade, when comparing them to players which stay in their club for some more years. The trades of 19 year olds have the highest treatment effect. Also experienced players show a high treatment effect. Attackers are the group of players which have the highest probability of being targeted for a trade. For other positions there is an approximate balance between players in the treatment and control groups.

Furthermore, the transfer strategies vary highly in the different leagues. English teams focus on loans of young players to provide the chance to gain experience in other clubs.

The main insight of this paper is that young players, who get traded before their 20th birthday, have a higher mean market value compared to players who don't change their club in the respective timeframe. In summary, a highly positive treatment effect exists considering the trade as the treatment, as the mean market value is 46% higher for traded players. It can be seen that the propensity score and treatment effect are positively correlated.

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Appendices

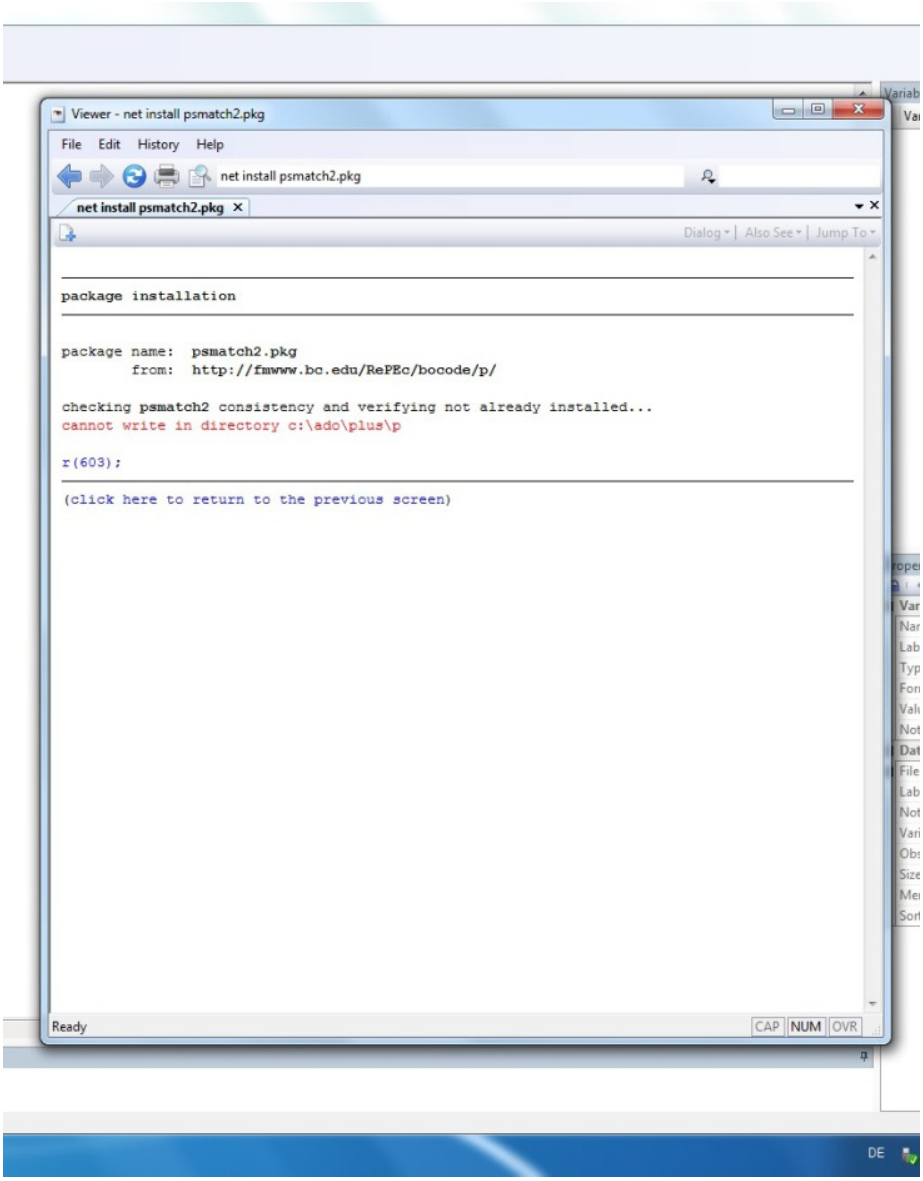
Appendix I – Abstracts

This paper evaluates the talent acquisition in European Football leagues via transfers of young players. Therefore the research question is pointed at the effects of those transfers on the market value development of young players and compares it to players who did not experience a transfer. A propensity score matching is conducted, including 388 players from the three major European Football leagues from Germany, England and Spain in the season 2015/2016. It shows that the mean treatment effect of a transfer accounts for an increase of 46% in market value, comparing the group of transferred players with the players who stayed in their respective club. Additionally, several other insights were gained. It was found that the transfer of 16 and 17 year old players is not beneficial from a market value development perspective. Also, attackers were the most targeted group for transfers. Furthermore, the transfer strategies of the leagues were compared, revealing that English clubs favour loans as a strategy of talent recruitment and development, whereas German and Spanish clubs lean towards either a transfer or the professionalization in the respective 2nd team.

Die vorliegende Arbeit untersucht die Auswirkungen von Transfers von jungen Fußballspielern in Europa. Die zentrale Fragestellung zielt auf den Effekt von Transfers auf die Marktwertentwicklung von jungen Talenten ab, indem sie die transferierten Spieler mit nicht-transferierten Spielern vergleicht. Ein propensity score matching Verfahren wurde durchgeführt, das 388 Spieler aus den drei größten Europäischen Fußballligen in der Saison 2015/2016 umfasst. Es wird gezeigt, dass der durchschnittliche Effekt eines Transfers eine 46% Steigung des Marktwerts der jungen Spieler zur Folge hat. Des Weiteren wird deutlich, dass der Transfer von 16- und 17-jährigen Spielern keine Marktwertsteigerung bedeutet, sondern einen leichten Abfall zur Folge hat. Auch wird gezeigt, dass Angreifer anteilsmäßig am häufigsten transferiert werden. Zusätzlich offenbart diese Arbeit die

unterschiedlichen Transferstrategien bezüglich der Talente in den unterschiedlichen Ligen. Während in England viel auf Leihgeschäfte zur Entwicklung von Spielern gesetzt wird, präferieren Deutsche und Spanische Vereine Kaufgeschäfte oder die Entwicklung in der zweiten Mannschaft.

Appendix II – Install error Stata



Appendix III – Complete player list before matching

Last name	First name	Club	League	Position	International	Foot	Height	Age_p_t	Loan	Second team	Education	Experience	Scorer	Injury	Trade	DMV
-	-			Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €
Badstuber	Holger	Bayern Munich	GER	2	0	1	190	18	0	1	15	0	0	0	0	2,67
Neuer	Manuel	Bayern Munich	GER	1	0	3	193	19	0	0	15	1	0	0	0	2,96
Fuchs	Christian	FC Schalke 04	GER	2	0	1	186	17	0	0	5	0	0	0	1	0,45
Obasi	Chinedu	FC Schalke 04	GER	4	1	2	188	18	0	0	5	0	0	0	1	1,60
Benatia	Medhi	Bayern Munich	GER	2	1	2	190	19	1	0	11	0	0	0	1	0,38
Aogo	Dennis	FC Schalke 04	GER	2	0	1	184	17	0	0	9	0	0	0	0	0,98
Boateng	Kevin-Prince	FC Schalke 04	GER	3	0	2	186	17	0	1	10	0	0	0	0	3,30
Boenisch	Sebastian	Bay. Leverkusen	GER	2	0	3	191	19	0	0	13	1	1	0	0	2,07
Castro	Gonzalo	Bay. Leverkusen	GER	3	0	2	172	17	0	0	15	1	1	0	0	3,77
Grün	Max	Vfl Wolfsburg	GER	1	0	2	190	19	0	1	13	0	0	0	0	0,07
Felipe	Lopes	Vfl Wolfsburg	GER	2	1	2	188	18	0	0	5	0	0	0	1	0,71
Träsch	Christian	Vfl Wolfsburg	GER	2	0	3	180	19	0	1	10	1	0	0	1	2,29
Boateng	Jerome	Bayern Munich	GER	2	0	3	192	18	0	0	10	1	0	0	1	7,07
Martinez	Javier	Bayern Munich	GER	2	0	2	190	17	0	0	8	0	0	0	1	6,45
Lewandowski	Robert	Bayern Munich	GER	4	0	2	185	16	0	1	6	0	0	0	1	0,35
Hummels	Mats	Bor. Dortmund	GER	2	0	2	191	19	1	0	15	1	1	0	1	8,94
Papastathopoulos	Sokratis	Bor. Dortmund	GER	2	0	2	186	17	1	0	6	0	0	0	1	2,50
Subotic	Neven	Bor. Dortmund	GER	2	0	2	192	17	0	1	5	0	0	0	1	2,77
Schmelzer	Marcel	Bor. Dortmund	GER	2	0	1	180	19	0	1	13	1	0	0	0	1,30
Sahin	Nuri	Bor. Dortmund	GER	3	0	1	180	18	1	0	15	1	0	0	1	6,75
Grosskreutz	Kevin	Bor. Dortmund	GER	3	0	2	186	17	0	0	5	1	1	0	0	0,51
Fährmann	Ralf	FC Schalke 04	GER	1	0	2	196	18	0	0	13	1	0	0	0	0,46
Höwedes	Benedikt	FC Schalke 04	GER	2	0	2	187	19	0	0	15	1	1	0	0	4,61
Neustädter	Roman	FC Schalke 04	GER	3	0	2	190	18	0	1	10	1	0	0	0	0,24
Sam	Sidney	FC Schalke 04	GER	3	0	1	174	18	0	1	9	1	0	0	0	0,45
Klose	Timm	Vfl Wolfsburg	GER	2	0	2	195	19	0	1	10	0	0	0	1	0,12
Müller	Thomas	Bayern Munich	GER	4	0	2	186	18	0	0	15	1	1	0	0	14,00
Bender	Sven	Bor. Dortmund	GER	3	0	2	186	17	0	0	9	0	0	0	0	0,74
Mkhitaryan	Henrikh	Bor. Dortmund	GER	3	0	3	178	16	0	1	5	0	0	0	0	0,00
Reus	Marco	Bor. Dortmund	GER	3	0	3	180	19	0	0	9	1	1	0	0	5,54
Aubameyang	Pierre-Emerici	Bor. Dortmund	GER	4	1	2	187	19	1	0	12	0	0	0	1	1,72
Höger	Marco	FC Schalke 04	GER	3	0	2	182	18	0	1	12	1	0	0	0	0,69
Choupo-Moting	Eric-Maxim	FC Schalke 04	GER	4	0	3	191	18	0	0	9	0	0	0	0	1,09
Toprak	Ömer	Bay. Leverkusen	GER	2	0	2	186	18	0	0	8	1	0	0	0	3,04
Bender	Lars	Bay. Leverkusen	GER	3	0	2	184	17	0	0	9	0	0	0	0	0,86
Reinartz	Stefan	Bay. Leverkusen	GER	3	0	2	189	19	0	1	15	1	0	0	0	4,01
Rode	Sebastian	Bayern Munich	GER	3	0	2	179	19	0	0	5	0	0	1	1	3,55
Gündogan	Ilkay	Bor. Dortmund	GER	3	0	2	180	18	0	0	9	1	1	0	1	4,66
Kampl	Kevin	Bor. Dortmund	GER	3	0	2	178	19	0	0	10	1	0	0	1	1,21
Immobile	Ciro	Bor. Dortmund	GER	4	0	2	181	18	0	0	5	0	0	0	1	0,22
Giefer	Fabian	FC Schalke 04	GER	1	0	2	196	18	0	1	15	0	0	0	0	0,27
Kirchhoff	Jan	FC Schalke 04	GER	3	0	2	195	18	0	0	10	1	0	0	0	1,16
Donati	Giulio	Bay. Leverkusen	GER	2	0	2	179	18	0	0	5	0	0	0	1	0,33
Bellarabi	Karim	Bay. Leverkusen	GER	3	0	2	183	19	0	0	7	0	0	0	0	0,58
Jung	Sebastian	Vfl Wolfsburg	GER	2	0	2	179	18	0	1	10	0	0	0	0	1,57
Acantara	Thiago	Bayern Munich	GER	3	0	2	174	16	0	1	12	0	0	0	0	1,40
Alomerovic	Zlatan	Bor. Dortmund	GER	1	0	2	187	19	0	1	13	1	0	0	0	0,12
Matip	Joel	FC Schalke 04	GER	2	0	2	195	18	0	0	15	1	1	0	0	4,27
Alaba	David	Bayern Munich	GER	2	0	1	180	16	0	0	10	0	0	0	1	2,16
Götze	Mario	Bayern Munich	GER	3	0	3	176	18	0	0	15	1	1	0	0	24,51
Durm	Erik	Bor. Dortmund	GER	2	0	2	183	19	0	1	6	1	1	0	0	1,59
Jojic	Milos	Bor. Dortmund	GER	3	0	3	177	18	0	0	10	0	0	0	1	0,47
Leno	Bernd	Bay. Leverkusen	GER	1	0	2	190	19	1	0	10	1	0	0	1	9,18
Papadopoulos	Kyriakos	Bay. Leverkusen	GER	2	0	2	183	18	0	0	8	0	0	0	1	9,59
Son	Heung-Min	Bay. Leverkusen	GER	4	1	3	183	17	0	0	7	1	1	0	0	5,58
Drmic	Josip	Bay. Leverkusen	GER	4	0	3	181	16	0	1	10	0	0	0	0	0,29
Knoche	Robin	Vfl Wolfsburg	GER	2	0	3	190	19	0	0	10	1	0	0	0	2,59
Sommer	Yann	Bor. M'gladbach	GER	1	0	2	183	18	1	0	10	1	0	0	1	0,68
Sippel	Tobias	Bor. M'gladbach	GER	1	0	2	180	17	0	1	10	0	0	0	0	0,38
Dominguez	Alvaro	Bor. M'gladbach	GER	2	0	1	189	18	0	1	15	0	0	0	0	1,56
Jantschke	Tony	Bor. M'gladbach	GER	2	0	2	177	19	0	0	11	1	0	0	0	1,95
Korb	Julian	Bor. M'gladbach	GER	2	0	2	177	18	0	1	14	1	0	0	0	0,16
Nordtveit	Havard	Bor. M'gladbach	GER	3	0	2	188	17	0	1	5	0	0	0	1	1,40
Xhaka	Granit	Bor. M'gladbach	GER	3	0	1	185	19	0	0	10	1	1	0	1	11,64
Stindl	Lars	Bor. M'gladbach	GER	3	0	2	180	18	0	0	10	1	1	0	0	0,83
Johnson	Fabian	Bor. M'gladbach	GER	3	0	3	183	17	0	1	10	0	0	0	0	0,33
Traore	Ibrahima	Bor. M'gladbach	GER	3	0	1	172	18	0	1	5	0	0	0	1	0,70
Herrmann	Patrick	Bor. M'gladbach	GER	3	0	2	179	19	0	0	12	1	1	0	0	5,26
Hahn	Andre	Bor. M'gladbach	GER	3	0	2	185	17	0	1	5	0	0	0	1	0,09
Mlapa	Penile	Bor. M'gladbach	GER	4	0	2	193	19	0	0	10	1	1	0	1	2,49
Baumann	Oliver	TSG Hoffenheim	GER	1	0	3	187	19	0	0	10	1	0	0	0	2,51
Grahl	Jens	TSG Hoffenheim	GER	1	0	3	193	17	0	1	10	0	0	0	1	0,07
Bicakcic	Ermin	TSG Hoffenheim	GER	2	0	3	185	19	0	1	9	1	0	0	0	0,34
Strobl	Tobias	TSG Hoffenheim	GER	2	0	2	188	19	0	1	10	1	0	0	0	0,17
Kaderabek	Pavel	TSG Hoffenheim	GER	2	0	2	182	19	1	0	10	1	0	0	1	0,90
Polanski	Eugen	TSG Hoffenheim	GER	3	0	2	183	18	0	1	15	0	0	0	0	1,24
Schwegler	Pirmin	TSG Hoffenheim	GER	3	0	2	178	18	0	0	8	0	0	0	1	2,14
Rudy	Sebastian	TSG Hoffenheim	GER	3	0	2	179	17	0	1	10	0	0	0	0	3,06
Elyounoussi	Tarik	TSG Hoffenheim	GER	3	0	2	172	17	0	0	5	0	0	0	0	1,02
Zuber	Steven	TSG Hoffenheim	GER	3	0	2	182	17	0	1	7	0	0	0	0	0,44
Schmid	Jonathan	TSG Hoffenheim	GER	3	0	2	179	19	0	1	6	1	1	0	0	0,66
Hamad	Jiloan	TSG Hoffenheim	GER	3	0	2	173	17	0	0	5	0	0	0	1	0,33
Volland	Kevin	TSG Hoffenheim	GER	4	0	1	179	17	0	0	8	1	1	0	0	3,58
Malbasic	Filip	TSG Hoffenheim	GER	4	0	2	182	19	0	0	5	0	0	0	1	0,53
Szalai	Adam	TSG Hoffenheim	GER	4	0	2	193	19	0	1	8	1	1	0	1	1,06
Schipplock	Sven	TSG Hoffenheim	GER	4	0	2	186	19	0	1	5	1	1	0	1	0,30
Uth	Mark	TSG Hoffenheim	GER	4	0	1	185	18	0	1	8	0	1	0	0	0,14
Tyton	Przemyslaw	VfB Stuttgart	GER	1	0	2	195	18	0	0	5	0	0	0	1	0,29
Insua	Emiliano	VfB Stuttgart	GER	2	1	1	179	17	1	0	7	0	0	0	1	2,00
Hlousek	Adam	VfB Stuttgart	GER	2	0	1	188	17	0	0	5	0	0	0	0	0,36
Heise	Philip	VfB Stuttgart	GER	2	0	1	184	19	0	0	12	1	0	0	1	0,11
Schwaab	Daniel	VfB Stuttgart	GER	2	0	2	186	17	0	0	10	0	0	0	0	1,68
Klein	Florian	VfB Stuttgart	GER	2	0	2	182	17	0	0	5	0	0	0	0	0,26
Niedermeier	Georg	VfB Stuttgart	GER	2	0	2	190	19	0	1	15	1	1	0	0	0,14
Rupp	Lukas	VfB Stuttgart	GER	3	0	2	178	19	0	0	10	1	1	0	0	0,81
Didavi	Daniel	VfB Stuttgart	GER	3	0	1	180	18	0	1	10	1	1	0	0	0,51
Kostic	Filip	VfB Stuttgart	GER	3	0	1	184	19	0	0	5	1	0	0	1	3,60
Harnik	Martin	VfB Stuttgart	GER	4	0	2	185	18	0	1	5	0	0	0	1	0,52
Ginczek	Daniel	VfB Stuttgart	GER	4	0	2	191	17	0	1	11	1	1	0	0	0,45
Lindner	Heinz	E. Frankfurt	GER	1	0	2	187	17	0	1	9	0	0	0	0	0,22
Zambrano	Carlos	E. Frankfurt	GER	2	1	2	185	18	0	0	9	1	0	0	0	1,98
Oczipka	Bastian	E. Frankfurt	GER	2	0	1	185	19	1	0	15	1	0	0	1	1,26
Chandler	Timothy	E. Frankfurt	GER	2	0	2	186	18	0	1	10	0	0	0	0	0,60
Ignjovski	Aleksandar	E. Frankfurt	GER	2	0	3	175	18	1	0	10	0	0	0	1	2,35
Medojevic	Slobodan	E. Frankfurt	GER	3	0	2	182	16	0	0	5	0	0	0	0	0,45
Flum	Johannes	E. Frankfurt	GER	3	0	2	190	18	0	0	10	1	0	0	1	0,45
Aigner	Stefan	E. Frankfurt	GER	3	0	2	183	18	0	0	10	0	0	0	1	0,55
Kadlec	Vaclav	E. Frankfurt	GER	4	0	2	181	16	0	0	5	0	0	0	1	1,92
Seferovic	Haris	E. Frankfurt	GER	4	0	1	185	17	0	0	8	0	0	0	1	0,66
Castaignos	Luc	E. Frankfurt	GER	4	0	2	188	18	0	0	13	1	1	0	1	5,66

Last name	First name	Club	League	Position	International	Foot	Height	Age_p_t	Loan	Second team	Education	Experience	Scorer	Injury	Trade	DMV
-	-			Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €
Kraft	Thomas	Hertha BSC	GER	1	0	2	187	17	0	1	9	0	0	0	0	0,20
Burchert	Sascha	Hertha BSC	GER	1	0	2	187	18	0	0	10	1	0	0	0	0,22
Langkamp	Sebastian	Hertha BSC	GER	2	0	2	191	19	0	0	12	1	1	0	1	0,56
Plattenhardt	Marvin	Hertha BSC	GER	2	0	1	181	18	0	1	7	1	0	0	0	0,80
Van den Bergh	Johannes	Hertha BSC	GER	2	0	1	183	18	0	1	15	1	0	0	0	0,26
Lustenberger	Fabian	Hertha BSC	GER	3	0	2	180	19	0	0	5	1	0	0	1	2,03
Darida	Vladimir	Hertha BSC	GER	3	0	2	171	19	0	0	10	0	0	0	0	0,70
Skjelbred	Per Ciljan	Hertha BSC	GER	3	0	2	175	16	0	0	6	0	0	0	0	0,92
Cigerci	Tolga	Hertha BSC	GER	3	0	2	185	19	1	0	15	1	1	0	1	1,49
Hegeler	Jens	Hertha BSC	GER	3	0	2	193	19	0	1	9	1	0	0	0	0,38
Stocker	Valentin	Hertha BSC	GER	3	0	1	179	16	0	1	5	0	0	0	1	0,27
Baumjohann	Alexander	Hertha BSC	GER	3	0	2	178	19	0	0	15	1	1	0	1	0,81
Ben-Hatira	Änis	Hertha BSC	GER	3	0	3	181	17	0	1	7	0	1	0	1	0,38
Beerens	Roy	Hertha BSC	GER	4	0	2	173	19	1	0	13	0	0	0	1	2,25
Schieber	Julian	Hertha BSC	GER	4	0	1	186	19	0	1	7	1	1	0	0	2,48
Allagui	Sami	Hertha BSC	GER	4	0	2	184	19	0	0	10	1	1	0	1	0,26
Wagner	Sandro	Hertha BSC	GER	4	0	3	194	18	0	1	15	1	1	0	0	0,42
Wiedwald	Felix	Werder Bremen	GER	1	0	2	190	19	0	1	10	1	0	0	0	0,44
Wolf	Raphael	Werder Bremen	GER	1	0	2	190	19	0	0	8	1	0	0	0	0,30
Vestergaard	Jannik	Werder Bremen	GER	2	0	1	199	17	0	1	7	0	0	0	1	1,71
Lukimya	Assani	Werder Bremen	GER	2	1	2	190	19	0	1	6	1	1	0	0	0,14
Pavlovic	Mateo	Werder Bremen	GER	2	0	2	196	18	0	0	8	0	0	0	0	0,32
Sternberg	Janek	Werder Bremen	GER	2	0	1	182	18	0	1	9	1	0	0	0	0,13
Kroos	Felix	Werder Bremen	GER	3	0	2	184	19	0	0	10	1	1	0	1	0,48
Bargfrede	Philipp	Werder Bremen	GER	3	0	2	174	19	0	0	9	0	0	0	0	2,26
Junuzovic	Zlatko	Werder Bremen	GER	3	0	2	172	19	0	0	5	1	1	0	1	1,44
Bartels	Fin	Werder Bremen	GER	3	0	2	176	18	0	1	8	0	1	0	0	0,24
Elia	Eljero	Werder Bremen	GER	4	0	2	176	18	0	0	9	0	0	0	0	0,77
Zieler	Ron-Robert	Hannover 96	GER	1	0	2	188	19	1	0	13	0	0	0	1	1,19
Radlinger	Samuel	Hannover 96	GER	1	0	2	198	18	0	0	5	1	0	0	1	0,26
Albornoz	Miiko	Hannover 96	GER	2	0	1	180	17	0	0	5	0	0	0	0	0,37
Sorg	Oliver	Hannover 96	GER	2	0	2	175	19	0	1	8	1	0	0	0	0,41
Sane	Salif	Hannover 96	GER	3	0	2	196	19	0	0	5	0	0	0	0	1,19
Schmiedebach	Manuel	Hannover 96	GER	3	0	2	171	19	0	1	10	1	1	0	1	1,67
Gülselam	Ceyhun	Hannover 96	GER	3	0	2	192	17	0	1	13	0	0	0	0	0,33
Prib	Edgar	Hannover 96	GER	3	0	1	180	18	0	1	10	1	1	0	0	0,53
Klaus	Felix	Hannover 96	GER	3	0	2	179	17	0	0	9	1	1	0	0	0,70
Benschop	Charlie	Hannover 96	GER	4	0	2	191	18	0	0	5	0	0	0	0	0,42
Sobiech	Artur	Hannover 96	GER	4	0	2	185	18	0	0	5	0	0	0	0	0,92
Bell	Stefan	1. FSV Mainz 05	GER	2	0	2	192	18	1	0	8	1	0	0	1	1,04
Bungert	Niko	1. FSV Mainz 05	GER	2	0	2	188	19	1	0	12	1	0	0	1	0,89
Bengtsson	Pierre	1. FSV Mainz 05	GER	2	0	1	177	19	0	0	5	0	0	0	1	0,56
Brosinski	Daniel	1. FSV Mainz 05	GER	2	0	3	178	19	0	0	10	1	1	0	1	0,45
Balogun	Leon	1. FSV Mainz 05	GER	2	0	2	190	19	0	0	5	0	0	0	1	0,11
Baumgartlinger	Julian	1. FSV Mainz 05	GER	3	0	2	183	19	0	0	10	1	0	0	0	0,53
Frei	Fabian	1. FSV Mainz 05	GER	3	0	2	183	16	0	1	6	0	0	0	0	0,16
Moritz	Christoph	1. FSV Mainz 05	GER	3	0	2	186	19	0	0	8	1	0	0	1	2,07
Latza	Danny	1. FSV Mainz 05	GER	3	0	3	179	18	0	1	15	1	1	0	0	0,27
Malli	Yunus	1. FSV Mainz 05	GER	3	0	2	179	19	0	0	13	1	1	0	1	1,21
Ede	Chinedu	1. FSV Mainz 05	GER	3	0	3	178	19	0	0	10	1	1	0	0	0,54
Clemens	Christian	1. FSV Mainz 05	GER	3	0	2	180	17	0	1	10	1	1	0	0	1,49
Beister	Maximilian	1. FSV Mainz 05	GER	4	0	1	180	19	1	0	10	1	1	0	1	1,82
Niederlechner	Florian	1. FSV Mainz 05	GER	4	0	3	188	19	0	0	5	0	0	0	1	0,23
Kessler	Thomas	1. FC Köln	GER	1	0	2	197	18	0	1	8	0	0	0	0	0,13
Sörensen	Frederik	1. FC Köln	GER	2	0	2	194	19	0	0	9	0	0	0	1	3,30
Maroh	Dominic	1. FC Köln	GER	2	0	2	186	19	0	0	5	0	0	0	0	0,36
Mavraj	Mergim	1. FC Köln	GER	2	0	1	189	19	0	0	5	0	0	0	0	0,24
Vogt	Kevin	1. FC Köln	GER	3	0	2	194	17	0	0	10	1	0	0	0	0,61
Risse	Marcel	1. FC Köln	GER	3	0	3	183	19	1	0	15	1	1	0	1	0,89
Modeste	Anthony	1. FC Köln	GER	4	0	2	186	19	0	0	5	0	0	0	1	1,73
Zoller	Simon	1. FC Köln	GER	4	0	2	179	18	0	1	8	0	1	0	0	0,15
Hosiner	Philipp	1. FC Köln	GER	4	0	2	179	19	0	1	7	1	1	0	0	0,22
Hitz	Marwin	FC Augsburg	GER	1	0	2	193	19	1	0	5	1	0	0	1	0,25
Philp	Ronny	FC Augsburg	GER	2	0	2	183	19	0	1	10	1	0	0	0	0,07
Moravek	Jan	FC Augsburg	GER	3	0	2	180	19	0	0	5	1	1	0	1	2,09
Esswein	Alexander	FC Augsburg	GER	4	0	2	183	18	0	0	10	0	0	0	1	0,46
Matavz	Tim	FC Augsburg	GER	4	0	2	188	19	1	0	6	1	1	0	1	2,18
Djourou	Johan	Hamburger SV	GER	2	0	2	191	17	0	0	7	0	0	0	0	1,48
Ostrzolek	Matthias	Hamburger SV	GER	2	0	1	178	19	0	1	10	0	0	0	0	0,63
Diekmeier	Dennis	Hamburger SV	GER	2	0	2	188	19	0	0	10	1	1	0	1	2,23
Ekdal	Albin	Hamburger SV	GER	3	0	2	186	19	1	0	7	1	0	0	1	2,73
Holtby	Lewis	Hamburger SV	GER	3	0	1	176	19	1	0	10	1	1	0	1	6,80
Ilicevic	Ivo	Hamburger SV	GER	3	0	3	174	19	0	0	7	1	1	0	1	0,95
Müller	Nicolai	Hamburger SV	GER	3	0	2	173	18	0	1	10	1	1	0	0	0,15
Lasogga	Pierre-Michel	Hamburger SV	GER	4	0	2	189	18	0	0	12	1	1	0	1	3,22
Zoua	Jaques	Hamburger SV	GER	4	1	2	186	17	0	0	5	0	0	0	1	0,69
Hübner	Benjamin	FC Ingolstadt	GER	2	0	1	193	18	0	1	5	0	0	0	0	0,23
Bregerie	Romain	FC Ingolstadt	GER	2	0	2	190	19	0	0	5	0	0	0	0	0,68
Soares	Danilo	FC Ingolstadt	GER	2	1	1	170	18	0	0	5	0	0	0	1	0,23
Suttner	Markus	FC Ingolstadt	GER	2	0	1	179	17	0	1	8	0	0	0	0	0,12
Levels	Tobias	FC Ingolstadt	GER	2	0	2	185	18	0	1	15	1	0	0	0	0,46
Engel	Konstantin	FC Ingolstadt	GER	2	0	2	179	17	0	1	7	0	0	0	0	0,15
Groß	Pascal	FC Ingolstadt	GER	3	0	3	181	19	0	0	13	1	1	0	1	0,61
Morales	Alfredo	FC Ingolstadt	GER	3	0	2	183	19	0	1	10	1	0	0	0	0,25
Wannenwetsch	Stefan	FC Ingolstadt	GER	3	0	2	177	19	0	1	9	1	1	0	0	0,19
Kachunga	Elias	FC Ingolstadt	GER	4	0	2	178	19	1	0	15	1	1	0	1	0,62
Hinterseer	Lukas	FC Ingolstadt	GER	4	0	2	192	17	0	1	5	0	0	0	1	0,06
Pekhart	Tomas	FC Ingolstadt	GER	4	0	2	194	19	1	0	10	0	0	0	1	1,05
Mathenia	Christian	SV Darmstadt 98	GER	1	0	2	189	19	0	1	10	1	0	0	0	0,06
Caldirola	Luca	SV Darmstadt 98	GER	2	0	1	189	19	1	0	15	0	0	0	1	1,72
Holland	Fabian	SV Darmstadt 98	GER	2	0	1	172	18	0	1	10	1	1	0	0	0,15
Sirigu	Sandro	SV Darmstadt 98	GER	2	0	2	182	17	0	0	10	1	0	0	0	0,15
Jungwirth	Florian	SV Darmstadt 98	GER	3	0	2	181	18	0	1	10	0	0	0	0	0,30
Vrancic	Mario	SV Darmstadt 98	GER	3	0	1	187	17	0	0	7	0	0	0	0	0,23
Stark	Yannick	SV Darmstadt 98	GER	3	0	2	186	19	1	0	9	1	1	0	1	0,47
Kempe	Tobias	SV Darmstadt 98	GER	3	0	2	184	19	0	1	13	1	0	0	0	0,40
Heller	Marcel	SV Darmstadt 98	GER	3	0	3	173	19	0	1	5	0	1	0	1	0,44
Rausch	Konstantin	SV Darmstadt 98	GER	3	0	1	182	18	0	0	8	1	0	0	0	2,18
Rosenthal	Jan	SV Darmstadt 98	GER	3	0	3	186	19	0	0	10	0	1	0	0	1,79
Courtois	Thibaut	Chelsea FC	ENG	1	0	1	199	19	1	0	10	1	0	0	1	15,84
Begovic	Asmir	Chelsea FC	ENG	1	0	2	198	19	1	0	8	0	0	0	1	0,28
Delac	Matej	Chelsea FC	ENG	1	0	2	190	19	1	0	7	1	0	0	1	0,71
Azpilicueata	Cesar	Chelsea FC	ENG	2	0	2	178	16	0	1	8	0	0	0	0	1,96
Matic	Nemanja	Chelsea FC	ENG	3	0	1	194	18	0	0	5	0	0	0	1	1,05
Mikel	Jon Obi	Chelsea FC	ENG	3	1	3	188	19	0	0	7	0	0	0	1	13,80
Romeu	Oriel	Chelsea FC	ENG	3	0	2	183	19	0	0	15	0	0	0	1	5,67
Fabregas	Cesc	Chelsea FC	ENG	3	0	2	175	16	0	0	15	0	0	0	1	7,62
Marin	Marki	Chelsea FC	ENG	3	0	2	170	17	0	1	11	0	0	0	0	4,45
Hazard	Eden	Chelsea FC	ENG	3	0	3	173	16	0	0	7	0	0	0	0	5,59
Willian	Borges	Chelsea FC	ENG	3	1	3	175	19	0	0	8	0	0	0	1	11,40
Moses	Victor	Chelsea FC	ENG	4	1	3	177	19	0	0	8	1	1	0	1	3,31
Costa	Diego	Chelsea FC	ENG	4	0	2	188	19	1	0	10	1	1	0	1	3,64
Remy	Loic	Chelsea FC	ENG	4	0	2	185	19	0	0	8	0	0	0	0	4,11
Hart	Joe	Manchester City	ENG	1	0	2	196	19	1	0	7	1	0	0	1	5,89
Kompany	Vincent	Manchester City	ENG	2	0	2	193	17	0	0	13	0	0	0	0	13,12
Mangala	Eliaquim	Manchester City	ENG	2	0	1	186	17	0	0	7	0	0	0	0	2,51
Fernando	Francisco	Manchester City	ENG	3	1	2	183	19	0	0	5	0	0	0	1	4,84
Delph	Fabian	Manchester City	ENG	3	0	1	174	19	0	0	10	1	0	0	1	2,83
Silva	David	Manchester City	ENG	3	0	1	170	19	1	0	10	0	0	0	1	10,91
Nasri	Samir	Manchester City	ENG	3	0	2	175	17	0	0	8	0	0	0	0	4,42
Jovetic	Stevan	Manchester City	ENG	4	0	2	183	18	0	0	10	1	1	0	1	14,02
Aguero	Sergio	Manchester City	ENG	4	1	2	173	18	0	0	8	0	0	0	1	24,96
Bony	Wilfried	Manchester City	ENG	4	1	2	181	19	0	0	6	0	0	0	1	2,59
Dzeko	Edin	Manchester City	ENG	4	0	3	192	19	1	0	5	0	0	0	1	2,74

Last name	First name	Club	League	Position	International	Foot	Height	Age_p_t	Loan	Second team	Education	Experience	Scorer	Injury	Trade	DMV
-	-			Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €
De Gea	David	Manchester Utd.	ENG	1	0	2	189	18	0	1	15	0	0	0	0	3,36
Jones	Phil	Manchester Utd.	ENG	2	0	2	185	19	0	0	10	1	0	0	1	13,98
Smalling	Chris	Manchester Utd.	ENG	2	0	2	194	18	0	1	6	0	0	0	0	2,99
Evans	Johnny	Manchester Utd.	ENG	2	0	2	188	19	1	0	14	0	0	0	1	1,98
Darmian	Matteo	Manchester Utd.	ENG	2	0	2	182	19	1	0	15	0	0	0	1	0,80
Rafael	Pereira	Manchester Utd.	ENG	2	1	2	172	17	0	0	11	0	0	0	0	5,50
Schneiderlin	Morgan	Manchester Utd.	ENG	3	0	2	181	18	0	0	10	0	0	0	1	1,42
Blind	Daley	Manchester Utd.	ENG	3	0	1	180	19	1	0	15	0	0	0	1	1,14
Herrera	Ander	Manchester Utd.	ENG	3	0	2	182	19	0	0	10	0	0	0	0	4,63
Fellaini	Marouane	Manchester Utd.	ENG	3	0	2	194	18	0	0	10	0	0	0	0	7,66
Mata	Juan	Manchester Utd.	ENG	3	0	1	170	19	0	0	13	0	0	0	1	13,73
Lingard	Jesse	Manchester Utd.	ENG	3	0	2	174	19	1	0	15	1	0	0	1	0,89
Di Maria	Angel	Manchester Utd.	ENG	3	1	1	180	19	0	0	5	0	0	0	1	9,47
Szczesny	Wojciech	Arsenal FC	ENG	1	0	2	196	19	1	0	13	0	0	0	1	5,27
Ospina	David	Arsenal FC	ENG	1	1	2	183	19	0	0	5	0	0	0	1	4,24
Gibbs	Kieran	Arsenal FC	ENG	2	0	1	179	18	1	0	13	0	0	0	1	1,83
Coquelin	Francis	Arsenal FC	ENG	3	0	2	178	19	1	0	12	0	0	0	1	2,20
Ramsey	Aaron	Arsenal FC	ENG	3	0	3	182	19	1	0	12	1	0	1	1	9,82
Wilshere	Jack	Arsenal FC	ENG	3	0	1	172	18	1	0	15	0	0	0	1	12,71
Özil	Mesut	Arsenal FC	ENG	3	0	1	183	19	0	0	13	1	0	0	1	11,89
Sanchez	Alexis	Arsenal FC	ENG	4	1	2	169	18	1	0	6	0	0	0	1	5,45
Walcott	Theo	Arsenal FC	ENG	4	0	3	176	16	0	0	9	0	1	0	1	6,70
Campbell	Joel	Arsenal FC	ENG	4	1	1	178	19	1	0	5	0	0	0	1	3,11
Welbeck	Danny	Arsenal FC	ENG	4	0	2	183	19	1	0	14	0	0	0	1	10,29
Mignolet	Simon	Liverpool	ENG	1	0	2	193	19	0	0	5	0	0	0	0	0,99
Bogdan	Adam	Liverpool	ENG	1	0	2	194	19	0	1	5	0	0	0	1	0,06
Sakho	Mamadou	Liverpool	ENG	2	0	1	187	17	0	0	15	0	0	0	0	4,65
Lovren	Dejan	Liverpool	ENG	2	0	3	188	17	1	0	7	0	0	0	1	1,54
Moreno	Alberto	Liverpool	ENG	2	0	1	171	19	0	1	8	0	0	0	0	4,93
Enrique	Jose	Liverpool	ENG	2	0	1	184	19	1	0	10	0	0	0	1	4,24
Clyne	Nathaniel	Liverpool	ENG	2	0	2	175	17	0	0	8	0	0	0	0	0,80
Henderson	Jordan	Liverpool	ENG	3	0	2	182	18	1	0	8	0	0	0	1	5,02
Allen	Joe	Liverpool	ENG	3	0	2	168	18	1	0	8	0	0	0	1	0,76
Milner	James	Liverpool	ENG	3	0	2	176	19	1	0	10	1	0	0	1	7,74
Coutinho	Philippe	Liverpool	ENG	3	1	2	171	18	0	0	5	0	0	0	1	8,34
Firmino	Roberto	Liverpool	ENG	3	1	2	181	19	0	0	5	1	0	0	1	5,53
Lallana	Adam	Liverpool	ENG	3	0	3	172	19	1	0	8	0	0	0	1	0,53
Sturridge	Daniel	Liverpool	ENG	4	0	1	188	19	0	0	15	0	0	0	1	8,23
Ings	Danny	Liverpool	ENG	4	0	2	178	19	0	0	8	0	0	0	1	1,28
Balotelli	Mario	Liverpool	ENG	4	0	2	189	16	0	1	5	0	0	0	1	5,50
Borini	Fabio	Liverpool	ENG	4	0	2	180	19	1	0	14	0	1	0	1	5,09
Lloris	Hugo	Spurs	ENG	1	0	1	188	18	0	0	8	0	0	0	0	3,92
Verthongen	Jan	Spurs	ENG	2	0	1	189	19	1	0	9	0	0	0	1	2,75
Alderweireld	Toby	Spurs	ENG	2	0	2	186	19	0	1	11	0	0	0	0	3,37
Fazio	Frederico	Spurs	ENG	2	1	2	195	19	0	0	5	0	0	0	1	4,28
Wimmer	Kevin	Spurs	ENG	2	0	1	187	19	0	0	5	1	0	0	1	2,58
Chiriches	Vlad	Spurs	ENG	2	0	2	184	18	0	0	7	0	0	0	1	0,41
Hall	Grant	Spurs	ENG	2	0	2	192	17	0	0	5	0	0	0	1	0,05
Rose	Danny	Spurs	ENG	2	0	1	173	19	1	0	10	0	0	0	1	1,59
Walker	Kyle	Spurs	ENG	2	0	2	178	19	1	0	8	0	0	0	1	6,21
Trippier	Kieran	Spurs	ENG	2	0	2	178	19	1	0	11	0	0	0	1	1,02
Dembele	Moussa	Spurs	ENG	3	0	1	185	18	0	0	6	1	1	0	1	6,39
Mason	Ryan	Spurs	ENG	3	0	2	175	19	1	0	10	1	0	0	1	0,12
Carroll	Tom	Spurs	ENG	3	0	1	177	19	1	0	10	0	0	0	1	0,90
Eriksen	Christian	Spurs	ENG	3	0	2	177	17	0	0	7	0	0	0	0	6,76
Chadli	Nacer	Spurs	ENG	3	0	2	187	17	0	0	8	0	0	0	1	0,34
Lamela	Erik	Spurs	ENG	3	1	1	183	19	0	0	5	1	0	0	1	17,00
Lennon	Aaron	Spurs	ENG	3	0	2	165	18	0	0	9	0	0	0	1	7,53
Townsend	Andros	Spurs	ENG	3	0	1	181	19	1	0	10	1	0	0	1	2,53
Robles	Joel	Everton	ENG	1	0	2	195	17	0	1	5	0	0	0	1	0,28
Oviedo	Bryan	Everton	ENG	2	1	1	172	19	0	0	5	0	0	0	1	0,39
Coleman	Seamus	Everton	ENG	2	0	2	178	17	0	0	5	0	0	0	1	0,18
Besic	Muhamed	Everton	ENG	3	0	2	180	19	0	0	7	1	0	0	1	2,21
McCarthy	James	Everton	ENG	3	0	2	180	18	0	0	5	1	1	0	1	3,80
Cleverley	Tom	Everton	ENG	3	0	3	175	19	1	0	12	0	0	0	1	1,60
Gibson	Darron	Everton	ENG	3	0	2	183	19	1	0	11	0	0	0	1	1,35
McGeady	Aiden	Everton	ENG	3	0	3	180	18	0	0	8	0	0	0	0	2,08
Mirallas	Kevin	Everton	ENG	4	0	2	182	16	0	0	10	0	0	0	0	0,88
Naismith	Steven	Everton	ENG	4	0	2	178	16	0	0	5	0	0	0	0	0,36
Forster	Fraser	Southampton FC	ENG	1	0	2	201	18	0	0	8	0	0	0	0	0,22
Gazzaniga	Paulo	Southampton FC	ENG	1	1	2	196	19	0	0	8	0	0	0	1	2,06
Bertrand	Ryan	Southampton FC	ENG	2	0	1	179	19	1	0	9	1	0	0	1	1,60
Soares	Cedric	Southampton FC	ENG	2	0	2	172	19	1	0	11	0	0	0	1	3,65
Martina	Cuco	Southampton FC	ENG	2	0	2	185	17	0	1	11	0	0	0	1	0,08
Wanyama	Victor	Southampton FC	ENG	3	1	1	188	17	0	0	5	0	0	0	1	0,30
Clasie	Jordy	Southampton FC	ENG	3	0	3	169	19	1	0	15	0	0	0	1	3,11
Ramirez	Gaston	Southampton FC	ENG	3	1	1	183	19	0	0	5	1	0	0	1	8,53
Mane	Sadio	Southampton FC	ENG	3	1	2	175	19	0	0	8	0	0	0	0	7,34
Tadic	Dusan	Southampton FC	ENG	3	0	3	181	17	0	0	5	0	0	0	0	1,08
Rodriguez	Jay	Southampton FC	ENG	4	0	2	185	18	1	0	7	0	0	0	1	0,15
Long	Shane	Southampton FC	ENG	4	0	3	180	18	0	0	5	0	0	0	1	1,22
Mayuka	Emmanuel	Southampton FC	ENG	4	1	2	176	19	0	0	7	1	0	0	1	2,96
Krul	Tim	Newcastle	ENG	1	0	1	193	19	1	0	7	0	0	0	1	0,70
Darlow	Karl	Newcastle	ENG	1	0	2	185	17	0	0	8	0	0	0	0	0,07
Elliot	Rob	Newcastle	ENG	1	0	2	190	19	1	0	6	0	0	0	1	0,09
Taylor	Steven	Newcastle	ENG	2	0	2	186	17	1	0	10	0	0	0	1	0,98
Dummett	Paul	Newcastle	ENG	2	0	1	183	18	0	0	8	0	0	0	0	0,09
Haidara	Massadio	Newcastle	ENG	2	0	1	179	17	0	0	7	0	0	0	0	1,06
Janmaat	Daryl	Newcastle	ENG	2	0	2	185	18	0	0	14	1	0	0	1	0,94
Tiote	Cheik	Newcastle	ENG	3	1	2	180	19	0	0	7	0	0	0	0	1,63
Anita	Vurnon	Newcastle	ENG	3	0	2	166	16	0	0	15	0	0	0	0	0,78
Colback	Jack	Newcastle	ENG	3	0	1	177	19	1	0	8	0	0	0	1	1,59
Abeid	Mehdi	Newcastle	ENG	3	0	2	180	18	0	0	9	0	0	0	1	0,29
Ferguson	Shane	Newcastle	ENG	3	0	1	175	17	0	0	8	0	0	0	0	0,30
Wijnaldum	Georginio	Newcastle	ENG	3	0	2	175	16	0	0	11	0	0	0	0	3,16
Sissoko	Moussa	Newcastle	ENG	3	0	2	187	18	0	0	10	0	0	0	0	5,86
De Jong	Siem	Newcastle	ENG	3	0	2	185	18	0	0	9	0	0	0	0	2,35
Cabella	Remy	Newcastle	ENG	3	0	2	171	19	0	0	8	0	0	0	0	1,01
Obertain	Gabriel	Newcastle	ENG	3	0	2	186	17	0	0	8	0	0	0	0	2,18
Gouffran	Yoan	Newcastle	ENG	4	0	2	175	17	0	0	8	0	0	0	0	0,80
Riviere	Emmanuel	Newcastle	ENG	4	0	2	182	18	0	0	8	0	0	0	0	2,73
Randolph	Darren	West Ham	ENG	1	0	2	187	19	1	0	8	0	0	0	1	0,14
Ogbonna	Angelo	West Ham	ENG	2	0	1	189	19	1	0	10	0	0	0	1	0,83
Reid	Winston	West Ham	ENG	2	1	2	190	17	0	0	5	0	0	0	0	0,36
Tomkins	James	West Ham	ENG	2	0	2	191	19	1	0	8	1	0	0	1	3,07
Cresswell	Aaron	West Ham	ENG	2	0	1	170	18	0	0	5	0	0	0	1	0,09
Jenkinson	Carlos	West Ham	ENG	2	0	2	185	19	0	0	10	0	0	0	1	3,06
O'Brien	Joey	West Ham	ENG	2	0	2	180	18	1	0	8	0	0	0	1	0,89
Kouyate	Cheikhou	West Ham	ENG	3	1	2	189	18	1	0	7	0	0	0	1	2,02
Obiang	Pedro	West Ham	ENG	3	0	2	185	16	0	0	15	0	0	0	1	0,27
Noble	Mark	West Ham	ENG	3	0	2	180	19	1	0	9	0	0	0	1	4,60
Payet	Dimitri	West Ham	ENG	3	0	2	175	18	0	0	7	0	0	0	0	2,00
Jarvis	Matt	West Ham	ENG	3	0	3	173	17	0	0	5	0	0	0	0	0,06
Carroll	Andy	West Ham	ENG	4	0	1	193	18	1	0	9	0	0	0	1	1,14
Sakho	Diafra	West Ham	ENG	4	1	2	184	16	0	1	5	0	0	0	1	0,06
Maiga	Modibo	West Ham	ENG	4	1	1	185	19	1	0	5	0	0	0	1	1,21

Last name	First name	Club	League	Position	International	Foot	Height	Age_p_t	Loan	Second team	Education	Experience	Scorer	Injury	Trade	DMV
-	-			Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €
Nordfeldt	Kristoffer	Swansea	ENG	1	0	2	190	18	0	0	5	0	0	0	0	0,60
Amat	Jordi	Swansea	ENG	2	0	2	184	17	0	1	10	0	0	0	0	1,17
Bartley	Kyle	Swansea	ENG	2	0	2	194	19	1	0	12	0	0	0	1	0,71
Tabanou	Franck	Swansea	ENG	2	0	1	178	18	0	1	6	0	0	0	0	0,84
Naughton	Kyle	Swansea	ENG	2	0	2	181	19	1	0	7	0	0	0	1	1,65
Cork	Jack	Swansea	ENG	3	0	2	185	19	1	0	12	1	0	0	1	0,94
Shelvey	Jonjo	Swansea	ENG	3	0	2	184	19	1	0	10	1	1	1	1	5,23
Sigurdsson	Gylfi	Swansea	ENG	3	0	2	186	19	1	0	9	0	0	0	1	3,35
Ayew	Andre	Swansea	ENG	3	0	1	176	19	1	0	9	0	0	0	1	7,74
Dyer	Nathan	Swansea	ENG	3	0	2	165	17	1	0	8	0	0	0	1	0,21
Montero	Jefferson	Swansea	ENG	4	1	3	173	19	0	1	7	0	0	0	1	1,79
Eder	Antonio	Swansea	ENG	4	0	3	188	19	0	0	5	0	0	0	1	0,69
Emnes	Marvin	Swansea	ENG	4	0	3	180	17	0	0	5	0	0	0	0	1,04
Hennessy	Wayne	Crystal Palace	ENG	1	0	2	197	19	1	0	8	0	0	0	1	0,66
Kettings	Chris	Crystal Palace	ENG	1	0	2	193	19	1	0	7	0	0	0	1	0,16
Souare	Pape	Crystal Palace	ENG	2	1	1	178	19	0	0	8	0	0	0	0	0,31
Ward	Joel	Crystal Palace	ENG	2	0	2	188	18	1	0	8	0	0	0	1	0,35
Fryers	Zeki	Crystal Palace	ENG	2	0	1	183	19	0	0	10	0	0	0	1	2,14
Kelly	Martin	Crystal Palace	ENG	2	0	2	191	18	1	0	11	0	0	0	1	2,26
Mariappa	Adrian	Crystal Palace	ENG	2	0	2	178	18	0	0	5	0	0	0	0	0,35
Cabaye	Yohan	Crystal Palace	ENG	3	0	2	173	17	0	1	10	0	0	0	0	0,78
Mutch	Jordon	Crystal Palace	ENG	3	0	2	184	18	1	0	9	0	0	0	1	0,89
Ledley	Joey	Crystal Palace	ENG	3	0	1	183	17	0	0	5	0	0	0	1	0,56
Bannan	Barry	Crystal Palace	ENG	3	0	1	170	19	1	0	10	0	0	0	1	2,12
Zaha	Wilfried	Crystal Palace	ENG	3	0	2	180	16	0	0	8	0	0	0	0	1,67
Campbell	Frazier	Crystal Palace	ENG	4	0	2	172	18	1	0	11	0	0	0	1	1,16
Pantilimon	Costel	Sunderland	ENG	1	0	2	202	19	0	0	5	0	0	0	0	1,07
Mannone	Vito	Sunderland	ENG	1	0	2	188	18	1	0	11	0	0	0	1	0,43
Kaboul	Younes	Sunderland	ENG	2	0	2	192	18	0	0	9	0	0	0	0	4,17
Van Aanholt	Patrick	Sunderland	ENG	2	0	1	176	19	1	0	14	0	0	0	1	0,68
Matthews	Adam	Sunderland	ENG	2	0	2	178	19	0	0	9	1	0	0	1	2,00
Cattermole	Lee	Sunderland	ENG	3	0	2	177	17	0	0	8	0	0	0	0	1,18
Rodwell	Jack	Sunderland	ENG	3	0	2	188	17	0	0	8	0	0	0	0	8,02
Johnson	Adam	Sunderland	ENG	3	0	1	182	19	1	0	8	0	0	0	1	1,40
Lens	Jeremain	Sunderland	ENG	4	0	2	178	19	1	0	8	0	0	0	1	2,13
Buckley	Will	Sunderland	ENG	4	0	3	183	18	0	0	5	0	0	0	0	0,20
Fletcher	Steven	Sunderland	ENG	4	0	1	185	17	0	0	5	0	0	0	0	0,40
Steer	Jed	Aston Villa	ENG	1	0	1	182	18	1	0	8	0	0	0	1	0,52
Richards	Micah	Aston Villa	ENG	2	0	2	180	17	0	0	13	0	0	0	0	5,26
Okore	Jores	Aston Villa	ENG	2	0	2	183	18	0	0	5	1	0	0	0	2,68
Clark	Ciaran	Aston Villa	ENG	2	0	1	188	19	0	0	9	0	0	0	0	1,74
Baker	Nathan	Aston Villa	ENG	2	0	1	189	18	1	0	8	0	0	0	1	0,45
Cissokho	Aly	Aston Villa	ENG	2	0	1	181	19	0	0	5	0	0	0	0	5,75
Bennett	Joe	Aston Villa	ENG	2	0	1	177	18	0	0	8	0	0	0	0	0,30
Gueye	Idrissa	Aston Villa	ENG	3	1	2	174	18	0	1	5	0	0	0	1	0,26
Gardner	Gary	Aston Villa	ENG	3	0	2	186	19	1	0	8	1	1	0	1	1,16
Bacuna	Leandro	Aston Villa	ENG	3	0	2	187	17	0	0	10	0	0	0	0	0,68
N'Zogbia	Charles	Aston Villa	ENG	3	0	1	171	18	0	0	10	0	0	0	1	2,75
Sinclair	Scott	Aston Villa	ENG	3	0	2	177	19	1	0	12	1	0	0	1	1,82
Tonev	Aleksandar	Aston Villa	ENG	3	0	3	178	19	1	0	5	0	0	0	1	0,60
Gil	Carles	Aston Villa	ENG	3	0	1	170	19	1	0	9	0	0	0	1	2,94
Agbonlahor	Gabriel	Aston Villa	ENG	4	0	2	180	19	1	0	8	0	0	0	1	3,98
Kozak	Libor	Aston Villa	ENG	4	0	2	193	19	0	0	5	0	0	0	1	1,60
Schmeichel	Kasper	Leicester City	ENG	1	0	2	185	19	1	0	14	1	0	0	1	0,85
De Laet	Ritchie	Leicester City	ENG	2	0	3	186	19	1	0	6	0	0	0	1	0,68
Simpson	Danny	Leicester City	ENG	2	0	2	177	19	1	0	12	0	0	0	1	0,49
Drinkwater	Danny	Leicester City	ENG	3	0	2	177	19	1	0	12	0	0	0	1	0,85
King	Andy	Leicester City	ENG	3	0	2	183	18	0	0	13	0	0	0	0	0,40
James	Matty	Leicester City	ENG	3	0	2	178	18	1	0	12	0	0	0	1	0,96
Albrighton	Marc	Leicester City	ENG	3	0	2	174	19	0	0	8	0	0	0	0	3,47
Schlupp	Jeffrey	Leicester City	ENG	3	0	1	178	18	1	0	10	0	0	0	1	0,73
Kramaric	Andrej	Leicester City	ENG	4	0	3	180	18	0	0	10	0	0	0	0	0,62
Arlauskis	Giedrius	Watford	ENG	1	0	1	191	18	0	0	5	0	0	0	1	0,56
Prödl	Sebastian	Watford	ENG	2	0	2	194	18	0	1	8	0	0	0	0	0,82
Angella	Gabriele	Watford	ENG	2	0	2	189	19	0	0	8	0	0	0	0	0,72
Ekstrand	Joel	Watford	ENG	2	0	2	188	19	0	0	5	0	0	0	0	1,09
Capoue	Etienne	Watford	ENG	3	0	2	189	18	0	0	7	0	0	0	0	3,41
Battocchio	Christian	Watford	ENG	3	0	2	169	19	0	0	7	0	0	0	0	0,82
Jurado	Jose Manuel	Watford	ENG	3	0	2	176	19	0	0	15	0	0	0	0	4,06
Abdi	Almen	Watford	ENG	3	0	2	182	16	0	0	10	0	0	0	0	0,15
Fabbrini	Diego	Watford	ENG	4	0	2	181	18	0	0	10	0	0	0	0	2,24
Forestieri	Fernando	Watford	ENG	4	0	3	173	19	1	0	10	0	0	0	1	1,10
Vydra	Matej	Watford	ENG	4	0	2	180	19	1	0	6	1	1	0	1	2,14
Ighalo	Odion	Watford	ENG	4	1	2	188	19	0	0	5	0	1	0	1	1,19
Pocognoli	Sebastien	West Brom	ENG	2	0	1	182	19	0	0	10	1	0	0	1	4,25
Gardner	Craig	West Brom	ENG	3	0	2	176	19	0	0	8	0	0	0	0	0,84
Morrison	James	West Brom	ENG	3	0	2	183	17	0	0	8	0	0	0	0	1,22
McManaman	Callum	West Brom	ENG	4	0	2	174	18	0	0	10	0	0	0	0	0,30
Ideye	Brown	West Brom	ENG	4	1	2	181	19	0	0	5	0	0	0	1	1,31
Anichebe	Victor	West Brom	ENG	4	1	2	190	17	0	0	8	0	0	0	0	0,99
Ruddy	John	Norwich	ENG	1	0	2	192	19	1	0	7	1	0	0	1	0,50
Rudd	Declan	Norwich	ENG	1	0	2	191	17	0	0	8	0	0	0	0	0,17
Bassong	Sebastian	Norwich	ENG	2	0	1	187	18	0	0	8	0	0	0	0	1,15
Bennett	Ryan	Norwich	ENG	2	0	2	188	19	0	0	7	1	0	0	1	1,05
Miquel	Ignasi	Norwich	ENG	2	0	1	193	18	0	0	11	0	0	0	0	0,57
Olsson	Martin	Norwich	ENG	2	0	1	178	19	0	0	7	0	0	0	0	0,75
Mulumbu	Youssuf	Norwich	ENG	3	1	2	177	18	0	1	11	0	0	0	0	0,69
Odjidja-Ofoe	Vadis	Norwich	ENG	3	0	2	185	19	0	0	10	0	0	0	1	2,90
Tettey	Alexander	Norwich	ENG	3	0	2	181	18	1	0	11	0	0	0	1	0,66
Howson	Jonathan	Norwich	ENG	3	0	3	180	18	0	0	8	0	0	0	0	0,42
Dorrans	Graham	Norwich	ENG	3	0	3	177	18	1	0	6	0	0	0	1	0,29
Andreu	Anthony	Norwich	ENG	3	0	2	176	19	0	0	8	0	0	0	1	0,10
Bennett	Elliott	Norwich	ENG	3	0	2	179	19	1	0	8	0	0	0	1	0,14
Van Wolfswinkel	Ricky	Norwich	ENG	4	0	2	186	18	0	0	9	0	0	0	0	1,88
Hooper	Gary	Norwich	ENG	4	0	2	177	19	1	0	7	0	0	0	1	0,91
Grabban	Lewis	Norwich	ENG	4	0	3	183	19	0	0	10	0	0	0	1	0,44
Jerome	Cameron	Norwich	ENG	4	0	2	185	19	0	0	10	1	1	0	1	5,17
Lafferty	Kyle	Norwich	ENG	4	0	2	193	18	1	0	8	0	0	0	1	1,76
Allsop	Ryan	Bournemouth	ENG	1	0	2	189	19	0	0	10	0	0	0	1	0,19
Smith	Adam	Bournemouth	ENG	2	0	2	174	19	1	0	10	0	0	0	1	0,20
Gosling	Dan	Bournemouth	ENG	3	0	3	180	17	0	0	7	1	0	0	1	1,98
Arter	Harry	Bournemouth	ENG	3	0	1	178	19	0	0	7	0	0	0	1	0,10
Surman	Andrew	Bournemouth	ENG	3	0	1	178	18	1	0	9	0	0	0	1	1,10
Ritchie	Matt	Bournemouth	ENG	3	0	1	173	19	1	0	8	1	1	0	1	0,13
Stanislas	Junior	Bournemouth	ENG	3	0	3	183	19	1	0	9	0	0	0	1	1,79
King	Joshua	Bournemouth	ENG	4	0	2	181	19	1	0	11	0	0	0	1	0,72
Atsu	Christian	Bournemouth	ENG	4	1	1	172	19	1	0	9	0	0	0	1	3,69
Wilson	Callum	Bournemouth	ENG	4	0	3	180	19	1	0	7	0	0	0	1	0,70
Pacheco	Fernando	Real Madrid	ESP	1	0	1	186	19	0	1	11	0	0	0	0	0,46
Ramos	Sergio	Real Madrid	ESP	2	0	2	183	19	0	0	10	1	0	0	1	30,17
Marcelo	Vieria	Real Madrid	ESP	2	1	1	174	18	0	0	10	0	0	0	1	8,06
Coentrao	Fabio	Real Madrid	ESP	2	0	1	179	19	1	0	9	1	1	0	1	3,27
Carvajal	Daniel	Real Madrid	ESP	2	0	2	173	18	0	0	15	0	0	0	0	5,45
Danilo	Luiz	Real Madrid	ESP	2	1	2	184	19	0	0	6	1	1	0	1	10,39
Illarramendi	Asier	Real Madrid	ESP	3	0	2	179	18	0	1	8	0	0	0	0	0,22
Kroos	Toni	Real Madrid	ESP	3	0	3	182	16	0	0	9	0	0	0	0	3,64
Rodriguez	James	Real Madrid	ESP	3	1	1	180	18	0	0	5	1	1	0	1	16,12
Isco	Roman	Real Madrid	ESP	3	0	2	176	19	0	0	7	0	0	0	1	18,81
Bale	Gareth	Real Madrid	ESP	4	0	1	183	17	0	0	10	1	0	0	1	9,88
Vazquez	Lucas	Real Madrid	ESP	4	0	2	173	19	0	1	10	0	0	0	0	0,34
Benzema	Karim	Real Madrid	ESP	4	0	3	187	17	0	0	15	0	0	0	0	2,18

Last name	First name	Club	League	Position	International	Foot	Height	Age_p_t	Loan	Second team	Education	Experience	Scorer	Injury	Trade	DMV
-	-			Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €
Ter Stegen	Marc-Andre	FC Barcelona	ESP	1	0	2	187	18	0	0	15	1	0	0	0	6,11
Masip	Jordi	FC Barcelona	ESP	1	0	2	179	19	0	1	13	0	0	0	0	0,30
Pique	Gerard	FC Barcelona	ESP	2	0	2	193	17	0	0	13	0	0	0	1	4,10
Bartra	Marc	FC Barcelona	ESP	2	0	2	183	18	0	1	15	0	0	0	0	2,52
Alba	Jordi	FC Barcelona	ESP	2	0	1	170	19	1	0	10	0	0	0	1	4,14
Vidal	Aleix	FC Barcelona	ESP	2	0	2	176	19	1	0	10	0	0	0	1	0,45
Busquets	Sergio	FC Barcelona	ESP	3	0	2	189	18	0	1	13	0	0	0	0	9,10
Song	Alex	FC Barcelona	ESP	3	1	2	185	17	0	0	8	1	0	0	1	3,26
Rakitic	Ivan	FC Barcelona	ESP	3	0	2	184	19	0	0	10	1	1	0	1	8,68
Roberto	Sergio	FC Barcelona	ESP	3	0	2	178	17	0	1	13	0	0	0	0	2,46
Turan	Arda	FC Barcelona	ESP	3	0	3	177	18	1	0	10	0	0	0	1	6,64
Messi	Lionel	FC Barcelona	ESP	4	1	1	170	16	0	1	13	0	0	0	0	10,03
Pedro	Rodriguez	FC Barcelona	ESP	4	0	3	167	18	0	1	9	0	0	0	0	0,73
Suarez	Luis	FC Barcelona	ESP	4	1	2	182	19	0	0	5	0	0	0	1	9,11
Savic	Diego	Atletico Madrid	ESP	2	0	2	186	19	0	0	5	0	0	0	1	6,36
Siqueira	Guilherme	Atletico Madrid	ESP	2	1	1	183	18	0	0	5	0	0	0	1	0,33
Griezmann	Antoine	Atletico Madrid	ESP	4	0	1	176	18	0	1	9	0	0	0	0	6,39
Mustafi	Shkodran	Valencia CF	ESP	2	0	2	184	19	0	0	10	1	0	0	1	2,05
Barragan	Antonio	Valencia CF	ESP	2	0	2	186	19	0	0	10	0	0	0	1	1,00
Parejo	Dani	Valencia CF	ESP	3	0	2	180	19	1	0	15	0	0	0	1	4,49
Piatti	Pablo	Valencia CF	ESP	3	1	3	165	19	0	0	5	1	1	0	1	7,79
Feghouli	Sofiane	Valencia CF	ESP	3	0	3	177	17	0	0	8	0	0	0	0	1,89
Rodrigo	Machado	Valencia CF	ESP	4	1	1	181	19	1	0	10	0	0	0	1	7,32
Carrico	Daniel	Sevilla FC	ESP	2	0	2	180	18	1	0	10	0	0	0	1	3,03
Kolodziejczak	Timothee	Sevilla FC	ESP	2	0	1	185	16	1	0	8	0	0	0	1	0,83
Escudero	Sergio	Sevilla FC	ESP	2	0	1	176	18	0	0	7	0	0	0	0	1,23
N'Zonzi	Steven	Sevilla FC	ESP	3	0	2	190	19	0	0	5	0	0	0	0	2,68
Banega	Ever	Sevilla FC	ESP	3	1	2	174	19	0	0	8	0	0	0	1	13,44
Iborra	Vincent	Sevilla FC	ESP	3	0	2	195	19	0	1	7	0	0	0	0	0,96
Konoplyanka	Evgen	Sevilla FC	ESP	3	0	3	176	16	0	1	5	0	0	0	0	0,28
Vitolo	Victor	Sevilla FC	ESP	3	0	2	184	19	0	0	5	0	0	0	0	0,50
Kakuta	Gael	Sevilla FC	ESP	3	0	1	173	19	1	0	14	0	0	0	1	3,46
Immobile	Ciro	Sevilla FC	ESP	4	0	2	181	18	0	0	5	0	0	0	1	0,22
Aurtenetxe	Jon	Athletic Bilbao	ESP	2	0	1	182	18	0	0	8	0	0	0	0	3,01
De Marcos	Oscar	Athletic Bilbao	ESP	2	0	2	180	19	0	0	5	0	0	0	0	1,38
Iturraspe	Ander	Athletic Bilbao	ESP	3	0	2	187	18	0	0	8	0	0	0	1	0,72
Muniain	Iker	Athletic Bilbao	ESP	4	0	2	169	16	0	0	9	0	0	0	0	3,59
Granero	Esteban	Real Sociedad	ESP	3	0	2	180	18	0	1	11	0	0	0	0	1,19
Canales	Sergio	Real Sociedad	ESP	3	0	1	179	17	0	1	8	0	0	0	0	4,06
Vela	Carlos	Real Sociedad	ESP	4	1	1	177	16	0	0	5	0	0	0	1	3,57
Jonathas	Christian	Real Sociedad	ESP	4	1	2	192	19	0	1	5	0	0	0	1	0,42
Asenjo	Sergio	Villareal CF	ESP	1	0	2	189	17	0	0	8	0	0	0	0	3,34
Musacchio	Mateo	Villareal CF	ESP	2	1	2	182	18	0	0	7	0	0	0	1	4,18
Ruiz	Victor	Villareal CF	ESP	2	0	1	185	19	0	1	7	0	0	0	0	3,07
Pantic	Aleksandar	Villareal CF	ESP	2	0	2	185	19	0	0	7	0	0	0	1	0,66
Dos Santos	Jonathan	Villareal CF	ESP	3	1	2	172	19	0	1	11	0	0	0	0	2,23
Espinosa	Javier	Villareal CF	ESP	3	0	2	174	18	0	1	15	0	0	0	0	1,53
Filipenko	Egor	Malaga CF	ESP	2	0	2	194	19	0	0	5	0	0	0	1	0,85
Rosales	Roberto	Malaga CF	ESP	2	1	2	174	18	0	0	5	0	0	0	1	1,18
Torres	Miguel	Malaga CF	ESP	2	0	2	184	19	0	1	10	0	0	0	0	3,02
Tissone	Fernando	Malaga CF	ESP	3	1	2	182	18	0	0	5	0	0	0	1	3,38
Recio	Luis	Malaga CF	ESP	3	0	2	183	19	0	1	8	0	0	0	0	1,65
Amrabat	Nordin	Malaga CF	ESP	4	0	3	179	19	0	0	10	0	0	0	1	2,05
Tighadouini	Adnane	Malaga CF	ESP	4	0	3	179	19	1	0	8	0	0	0	1	0,25
Cop	Duje	Malaga CF	ESP	4	0	2	187	18	0	0	10	0	0	0	1	0,57
Fontas	Andreu	Celta de Vigo	ESP	2	0	1	186	18	0	1	10	0	0	0	0	1,71
Gomez	Sergi	Celta de Vigo	ESP	2	0	2	185	17	0	1	13	0	0	0	0	0,60
Planas	Carles	Celta de Vigo	ESP	2	0	1	173	18	0	1	15	0	0	0	0	0,63
Mallo	Hugo	Celta de Vigo	ESP	2	0	2	173	18	0	0	8	0	0	0	0	1,56
Wass	Daniel	Celta de Vigo	ESP	3	0	2	181	17	0	0	8	0	0	0	0	1,22
Guidetti	John	Celta de Vigo	ESP	4	0	2	185	17	1	0	13	0	0	0	1	3,58
Bardi	Francesco	Espanyol	ESP	1	0	2	188	18	1	0	7	0	0	0	1	2,13
Moreno	Hector	Espanyol	ESP	2	1	1	184	19	0	0	5	0	0	0	1	3,47
Sanchez	Victor	Espanyol	ESP	3	0	2	174	19	0	1	11	0	0	0	0	0,69
Caicedo	Felipe	Espanyol	ESP	4	1	1	183	17	0	0	5	0	0	0	1	2,65
Bifouma	Thievy	Espanyol	ESP	4	0	2	180	19	0	0	9	0	0	0	0	1,95
Fabri	Ramirez	Dep. La Coruna	ESP	1	0	2	184	19	0	1	7	0	0	0	0	0,37
Sidnei	Rechel	Dep. La Coruna	ESP	2	1	2	186	18	0	0	5	0	0	0	1	4,14
Megyeri	Balazs	Getafe CF	ESP	1	0	2	187	18	0	0	5	0	0	0	1	0,27
Fernandez	Andres	Granada CF	ESP	1	0	2	185	19	0	1	7	0	0	0	0	0,21
Olazabal	Oier	Granada CF	ESP	1	0	1	190	17	0	1	5	0	0	0	1	0,30
Martins	Luis	Granada CF	ESP	2	0	1	176	19	0	0	11	0	0	0	0	1,03
Tarek	Amro	Real Betis	ESP	2	1	1	189	19	0	1	5	0	0	0	1	0,10
Piccini	Christiano	Real Betis	ESP	2	0	2	183	18	0	0	8	1	0	0	1	0,63
Simao	Junior	Levante UD	ESP	3	1	2	183	18	0	0	5	0	0	0	1	3,17
Ebert	Patrick	Rayo Vallecano	ESP	3	0	2	175	18	0	1	10	1	1	0	0	1,10
Bangoura	Lass	Rayo Vallecano	ESP	4	1	2	174	18	0	0	5	0	0	0	1	2,00
Nieto	Dani	SD Eibar	ESP	3	0	1	173	19	0	1	10	0	0	0	0	0,29
Baston	Borja	SD Eibar	ESP	4	0	2	184	17	0	1	10	0	0	0	0	0,42
Espinosa	Bernardo	Sporting Gijon	ESP	1	0	2	192	18	0	1	8	0	0	0	0	0,19
Alvarez	Sergio	Sporting Gijon	ESP	3	0	2	180	17	0	1	7	0	0	0	0	0,25

Appendix IV - Complete player list after matching

Last Name	First Name	Position	International	Foot	Height	Age_p_t	Loan	Second Team	Education	Experience	Scorer	Injury	Trade	DMV	Transfer Fee	PS	PS Weight
	-	Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €	Mio. €		
Badstuber	Holger	2	0	1	190	18	0	1	15	0	0	0	0	2,67	0	0,40	1
Neuer	Manuel	1	0	3	193	19	0	0	15	1	0	0	0	2,96	0	0,42	1
Fuchs	Christian	2	0	1	186	17	0	0	5	0	0	0	1	0,45	0	0,38	1
Obasi	Chinedu	4	1	2	188	18	0	0	5	0	0	0	1	1,60	0	0,87	1
Boenisch	Sebastian	2	0	3	191	19	0	0	13	1	1	0	0	2,07	0	0,48	1
Grün	Max	1	0	2	190	19	0	1	13	0	0	0	0	0,07	0	0,50	1
Felipe	Lopes	2	1	2	188	18	0	0	5	0	0	0	1	0,71	0	0,78	1
Träsch	Christian	2	0	3	180	19	0	1	10	1	0	0	1	2,29	0	0,56	1
Boateng	Jerome	2	0	3	192	18	0	0	10	1	0	0	1	7,07	1,1	0,40	1
Martinez	Javier	2	0	2	190	17	0	0	8	0	0	0	1	6,45	6	0,30	1
Lewandowski	Robert	4	0	2	185	16	0	1	6	0	0	0	1	0,35	0	0,29	1
Hummels	Mats	2	0	2	191	19	1	0	15	1	1	0	1	8,94	0,25	0,49	1
Papastathopoulos	Sokratis	2	0	2	186	17	1	0	6	0	0	0	1	2,50	0,15	0,32	1
Subotic	Neven	2	0	2	192	17	0	1	5	0	0	0	1	2,77	0	0,35	1
Schmelzer	Marcel	2	0	1	180	19	0	1	13	1	0	0	0	1,30	0	0,59	1
Sahin	Nuri	3	0	1	180	18	1	0	15	1	0	0	1	6,75	0,1	0,45	1
Höwedes	Benedikt	2	0	2	187	19	0	0	15	1	1	0	0	4,61	0	0,47	1
Neustädter	Roman	3	0	2	190	18	0	1	10	1	0	0	0	0,24	0	0,52	1
Sam	Sidney	3	0	1	174	18	0	1	9	1	0	0	0	0,45	0	0,54	1
Klose	Timm	2	0	2	195	19	0	1	10	0	0	0	1	0,12	0	0,64	1
Müller	Thomas	4	0	2	186	18	0	0	15	1	1	0	0	14,00	0	0,44	1
Reus	Marco	3	0	3	180	19	0	0	9	1	1	0	0	5,54	0	0,60	1
Höger	Marco	3	0	2	182	18	0	1	12	1	0	0	0	0,69	0	0,46	1
Choupo-Moting	Eric-Maxim	4	0	3	191	18	0	0	9	0	0	0	0	1,09	0	0,57	1
Toprak	Ömer	2	0	2	186	18	0	0	8	1	0	0	0	3,04	0	0,47	1
Reinartz	Stefan	3	0	2	189	19	0	1	15	1	0	0	0	4,01	0	0,61	1
Gündogan	Ilkay	3	0	2	180	18	0	0	9	1	1	0	1	4,66	0,85	0,45	1
Kampl	Kevin	3	0	2	178	19	0	0	10	1	0	0	1	1,21	0	0,67	1
Immobile	Ciro	4	0	2	181	18	0	0	5	0	0	0	1	0,22	0,1	0,66	1
Giefer	Fabian	1	0	2	196	18	0	1	15	0	0	0	0	0,27	0	0,30	1
Kirchhoff	Jan	3	0	2	195	18	0	0	10	1	0	0	0	1,16	0	0,54	1
Donati	Giulio	2	0	2	179	18	0	0	5	0	0	0	1	0,33	0	0,50	1
Bellarabi	Karim	3	0	2	183	19	0	0	7	0	0	0	0	0,58	0	0,73	1
Jung	Sebastian	2	0	2	179	18	0	1	10	0	0	0	0	1,57	0	0,41	1
Acantara	Thiago	3	0	2	174	16	0	1	12	0	0	0	0	1,40	0	0,14	1
Alomerovic	Zlatan	1	0	2	187	19	0	1	13	1	0	0	0	0,12	0	0,49	1
Matip	Joel	2	0	2	195	18	0	0	15	1	1	0	0	4,27	0	0,32	1
Alaba	David	2	0	1	180	16	0	0	10	0	0	0	1	2,16	0,15	0,15	1
Götze	Mario	3	0	3	176	18	0	0	15	1	1	0	0	24,51	0	0,29	1
Durm	Erik	2	0	2	183	19	0	1	6	1	1	0	0	1,59	0	0,63	1
Jojic	Milos	3	0	3	177	18	0	0	10	0	0	0	1	0,47	0	0,43	1
Leno	Bernd	1	0	2	190	19	1	0	10	1	0	0	1	9,18	0,5	0,56	1
Papadopoulos	Kyriakos	2	0	2	183	18	0	0	8	0	0	0	1	9,59	2	0,46	1
Son	Heung-Min	4	1	3	183	17	0	0	7	1	1	0	0	5,58	0	0,63	1
Knoche	Robin	2	0	3	190	19	0	0	10	1	0	0	0	2,59	0	0,59	1
Sommer	Yann	1	0	2	183	18	1	0	10	1	0	0	1	0,68	0	0,35	1
Dominguez	Alvaro	2	0	1	189	18	0	1	15	0	0	0	0	1,56	0	0,39	1
Jantschke	Tony	2	0	2	177	19	0	0	11	1	0	0	0	1,95	0	0,58	1
Nordtveit	Havard	3	0	2	188	17	0	1	5	0	0	0	1	1,40	3	0,42	1
Stindl	Lars	3	0	2	180	18	0	0	10	1	1	0	0	0,83	0	0,43	1
Traore	Ibrahima	3	0	1	172	18	0	1	5	0	0	0	1	0,70	0	0,60	1
Herrmann	Patrick	3	0	2	179	19	0	0	12	1	1	0	0	5,26	0	0,58	1
Hahn	Andre	3	0	2	185	17	0	1	5	0	0	0	1	0,09	0	0,41	1
Mlapa	Penile	4	0	2	193	19	0	0	10	1	1	0	1	2,49	1,3	0,73	1
Baumann	Oliver	1	0	3	187	19	0	0	10	1	0	0	0	2,51	0	0,50	1
Grahl	Jens	1	0	3	193	17	0	1	10	0	0	0	1	0,07	0	0,19	1
Bicakcic	Ermin	2	0	3	185	19	0	1	9	1	0	0	0	0,34	0	0,59	1
Strobl	Tobias	2	0	2	188	19	0	1	10	1	0	0	0	0,17	0	0,63	1
Polanski	Eugen	3	0	2	183	18	0	1	15	0	0	0	0	1,24	0	0,41	1
Schwegler	Pirmin	3	0	2	178	18	0	0	8	0	0	0	1	2,14	0	0,52	1
Rudy	Sebastian	3	0	2	179	17	0	1	10	0	0	0	0	3,06	0	0,31	1
Elyounoussi	Tarik	3	0	2	172	17	0	0	5	0	0	0	0	1,02	0	0,37	1
Zuber	Steven	3	0	2	182	17	0	1	7	0	0	0	0	0,44	0	0,36	1
Schmid	Jonathan	3	0	2	179	19	0	1	6	1	1	0	0	0,66	0	0,69	1
Hamad	Jiloan	3	0	2	173	17	0	0	5	0	0	0	1	0,33	0	0,37	1
Volland	Kevin	4	0	1	179	17	0	0	8	1	1	0	0	3,58	0	0,40	1
Szalai	Adam	4	0	2	193	19	0	1	8	1	1	0	1	1,06	0,5	0,75	1
Uth	Mark	4	0	1	185	18	0	1	8	0	1	0	0	0,14	0	0,61	1
Tyton	Przemyslaw	1	0	2	195	18	0	0	5	0	0	0	1	0,29	0	0,47	1
Hlousek	Adam	2	0	1	188	17	0	0	5	0	0	0	0	0,36	0	0,39	1
Heise	Philip	2	0	1	184	19	0	0	12	1	0	0	1	0,11	0	0,62	1
Niedermeier	Georg	2	0	2	190	19	0	1	15	1	1	0	0	0,14	0	0,48	1
Rupp	Lukas	3	0	2	178	19	0	0	10	1	1	0	0	0,81	0	0,62	1
Didavi	Daniel	3	0	1	180	18	0	1	10	1	1	0	0	0,51	0	0,48	1
Kostic	Filip	3	0	1	184	19	0	0	5	1	0	0	1	3,60	1,25	0,79	1
Harnik	Martin	4	0	2	185	18	0	1	5	0	0	0	1	0,52	0,012	0,67	1
Ginczek	Daniel	4	0	2	191	17	0	1	11	1	1	0	0	0,45	0	0,34	1
Heinz	Lindner	1	0	2	187	17	0	1	9	0	0	0	0	0,22	0	0,22	1
Zambrano	Carlos	2	1	2	185	18	0	0	9	1	0	0	0	1,98	0	0,73	1
Oczipka	Bastian	2	0	1	185	19	1	0	15	1	0	0	1	1,26	0	0,57	1
Chandler	Timothy	2	0	2	186	18	0	1	10	0	0	0	0	0,60	0	0,43	1
Ignjovski	Aleksandar	2	0	3	175	18	1	0	10	0	0	0	1	2,35	0,5	0,35	1
Flum	Johannes	3	0	2	190	18	0	0	10	1	0	0	1	0,45	0	0,52	1
Aigner	Stefan	3	0	2	183	18	0	0	10	0	0	0	1	0,55	0	0,50	1
Kadlec	Vaclav	4	0	2	181	16	0	0	5	0	0	0	1	1,92	0,5	0,30	1
Seferovic	Haris	4	0	1	185	17	0	0	8	0	0	0	1	0,66	1,35	0,48	1
Castaignos	Luc	4	0	2	188	18	0	0	13	1	1	0	1	5,66	1,5	0,48	1
Langkamp	Sebastian	2	0	2	191	19	0	0	12	1	1	0	1	0,56	0	0,54	1
Plattenhardt	Marvin	2	0	1	181	18	0	1	7	1	0	0	0	0,80	0	0,52	1
Van den Bergh	Johannes	2	0	1	183	18	0	1	15	1	0	0	0	0,26	0	0,38	1
Darida	Vladimir	3	0	2	171	19	0	0	10	0	0	0	0	0,70	0	0,65	1
Cigerci	Tolga	3	0	2	185	19	1	0	15	1	1	0	1	1,49	0,35	0,55	1
Hegeler	Jens	3	0	2	193	19	0	1	9	1	0	0	0	0,38	0	0,72	1
Stocker	Valentin	3	0	1	179	16	0	1	5	0	0	0	1	0,27	0	0,26	1
Baumjohann	Alexander	3	0	2	178	19	0	0	15	1	1	0	1	0,81	0,25	0,53	1
Ben-Hatira	Änis	3	0	3	181	17	0	1	7	0	1	0	1	0,38	0,025	0,27	1
Beerens	Roy	4	0	2	173	19	1	0	13	0	0	0	1	2,25	0,25	0,67	1
Schieber	Julian	4	0	1	186	19	0	1	7	1	1	0	0	2,48	0	0,79	1
Wagner	Sandro	4	0	3	194	18	0	1	15	1	1	0	0	0,42	0	0,42	1
Wiedwald	Felix	1	0	2	190	19	0	1	10	1	0	0	0	0,44	0	0,56	1
Wolf	Raphael	1	0	2	190	19	0	0	8	1	0	0	0	0,30	0	0,59	1
Vestergaard	Jannik	2	0	1	199	17	0	1	7	0	0	0	1	1,71	0	0,38	1
Lukimya	Assani	2	1	2	190	19	0	1	6	1	1	0	0	0,14	0	0,86	1
Pavlovic	Mateo	2	0	2	196	18	0	0	8	0	0	0	0	0,32	0	0,50	1
Sternberg	Janek	2	0	1	182	18	0	1	9	1	0	0	0	0,13	0	0,49	1
Kroos	Felix	3	0	2	184	19	0	0	10	1	1	0	1	0,48	0,24	0,63	1
Bargfrede	Philipp	3	0	2	174	19	0	0	9	0	0	0	0	2,26	0	0,67	1
Bartels	Fin	3	0	2	176	18	0	1	8	0	1	0	0	0,24	0	0,46	1
Elija	Eljero	4	0	2	176	18	0	0	9	0	0	0	0	0,77	0	0,57	1
Zieler	Ron-Robert	1	0	2	188	19	1	0	13	0	0	0	1	1,19	0	0,49	1
Radlinger	Samuel	1	0	2	198	18	0	0	5	1	0	0	1	0,26	0,25	0,48	1
Sorg	Oliver	2	0	2	175	19	0	1	8	1	0	0	0	0,41	0	0,62	1
Sane	Salif	3	0	2	196	19	0	0	5	0	0	0	0	1,19	0	0,78	1
Schmiedebach	Manuel	3	0	2	171	19	0	1	10	1	1	0	1	1,67	0	0,60	1

Last Name	First Name	Position	International	Foot	Height	Age_p_t	Loan	Second Team	Education	Experience	Scorer	Injury	Trade	DMV	Transfer Fee	PS	PS Weight
	-	Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €	Mio. €		
Prib	Edgar	3	0	1	180	18	0	1	10	1	1	0	0	0,53	0	0,48	1
Benschop	Charlie	4	0	2	191	18	0	0	5	0	0	0	0	0,42	0	0,69	1
Sobiech	Artur	4	0	2	185	18	0	0	5	0	0	0	0	0,92	0	0,67	1
Bell	Stefan	2	0	2	192	18	1	0	8	1	0	0	1	1,04	0	0,49	1
Bungert	Niko	2	0	2	188	19	1	0	12	1	0	0	1	0,89	0,015	0,59	1
Bengtsson	Pierre	2	0	1	177	19	0	0	5	0	0	0	1	0,56	0	0,72	1
Brosinski	Daniel	2	0	3	178	19	0	0	10	1	1	0	1	0,45	0	0,49	1
Balgoun	Leon	2	0	2	190	19	0	0	5	0	0	0	1	0,11	0	0,71	1
Baumgartlinger	Julian	3	0	2	183	19	0	0	10	1	0	0	0	0,53	0	0,68	1
Moritz	Christoph	3	0	2	186	19	0	0	8	1	0	0	1	2,07	0	0,72	1
Mali	Yunus	3	0	2	179	19	0	0	13	1	1	0	1	1,21	0	0,57	1
Ede	Chinedu	3	0	3	178	19	0	0	10	1	1	0	0	0,54	0	0,57	1
Clemens	Christian	3	0	2	180	17	0	1	10	1	1	0	0	1,49	0	0,26	1
Kessler	Thomas	1	0	2	197	18	0	1	8	0	0	0	0	0,13	0	0,42	1
Maroh	Dominic	2	0	2	186	19	0	0	5	0	0	0	0	0,36	0	0,70	1
Mavraj	Mergim	2	0	1	189	19	0	0	5	0	0	0	0	0,24	0	0,75	1
Vogt	Kevin	3	0	2	194	17	0	0	10	1	0	0	0	0,61	0	0,35	1
Risse	Marcel	3	0	3	183	19	1	0	15	1	1	0	1	0,89	0	0,49	1
Zoller	Simon	4	0	2	179	18	0	1	8	0	1	0	0	0,15	0	0,54	1
Hosiner	Philipp	4	0	2	179	19	0	1	7	1	1	0	0	0,22	0	0,74	1
Philip	Ronny	2	0	2	183	19	0	1	10	1	0	0	0	0,08	0	0,61	1
Matavz	Tim	4	0	2	188	19	1	0	6	1	1	0	1	2,18	0	0,77	1
Djourou	Johan	2	0	2	191	17	0	0	7	0	0	0	0	1,48	0	0,32	1
Ostrzolek	Matthias	2	0	1	178	19	0	1	10	0	0	0	0	0,63	0	0,64	1
Ekdal	Albin	3	0	2	186	19	1	0	7	1	0	0	1	2,73	0	0,74	1
Müller	Nicolai	3	0	2	173	18	0	1	10	1	1	0	0	0,15	0	0,41	1
Lasogga	Pierre-Michel	4	0	2	189	18	0	0	12	1	1	0	1	3,22	0	0,50	1
Zoua	Jaques	4	1	2	186	17	0	0	5	0	0	0	1	0,69	0	0,76	1
Hübner	Benjamin	2	0	1	193	18	0	1	5	0	0	0	0	0,23	0	0,59	1
Bregiere	Romain	2	0	2	190	19	0	0	5	0	0	0	0	0,68	0	0,71	1
Suttner	Markus	2	0	1	179	17	0	1	8	0	0	0	0	0,12	0	0,31	1
Levels	Tobias	2	0	2	185	18	0	1	15	1	0	0	0	0,46	0	0,34	1
Gross	Pascal	3	0	3	181	19	0	0	13	1	1	0	1	0,61	0	0,52	1
Morales	Alfredo	3	0	2	183	19	0	1	10	1	0	0	0	0,25	0	0,68	1
Wannewetsch	Stefan	3	0	2	177	19	0	1	9	1	1	0	0	0,19	0	0,63	1
Kachunga	Elias	4	0	2	178	19	1	0	15	1	1	0	1	0,62	0,03	0,60	1
Hinterseer	Lukas	4	0	2	192	17	0	1	5	0	0	0	1	0,06	0	0,51	1
Pekhart	Tomas	4	0	2	194	19	1	0	10	0	0	0	1	1,05	0	0,77	1
Mathenia	Christian	1	0	2	189	19	0	1	10	1	0	0	0	0,06	0	0,55	1
Sirigu	Sandro	2	0	2	182	17	0	0	10	1	0	0	0	0,15	0	0,25	1
Jungwirth	Florian	3	0	2	181	18	0	1	10	0	0	0	0	0,30	0	0,49	1
Vrancic	Mario	3	0	1	187	17	0	0	7	0	0	0	0	0,23	0	0,42	1
Kempe	Tobias	3	0	2	184	19	0	1	13	1	0	0	0	0,40	0	0,63	1
Heller	Marcel	3	0	3	173	19	0	1	5	0	1	0	1	0,44	0	0,64	1
Rausch	Konstantin	3	0	1	182	18	0	0	8	1	0	0	0	2,18	0	0,58	1
Rosenthal	Jan	3	0	3	186	19	0	0	10	0	1	0	0	1,79	0	0,59	1
Courtois	Thibaut	1	0	1	199	19	1	0	10	1	0	0	1	15,84	1,2	0,63	1
Delac	Matej	1	0	2	190	19	1	0	7	1	0	0	1	0,71	0	0,61	1
Azpilicueata	Cesar	2	0	2	178	16	0	1	8	0	0	0	0	1,96	0	0,15	1
Matic	Nemanja	3	0	1	194	18	0	0	5	0	0	0	1	1,05	0	0,67	1
Mikel	Jon Obi	3	1	3	188	19	0	0	7	0	0	0	1	13,80	20	0,88	1
Romeu	Oriel	3	0	2	183	19	0	0	15	0	0	0	1	5,67	5	0,59	1
Fabregas	Cesc	3	0	2	175	16	0	0	15	0	0	0	1	7,62	3,2	0,12	1
Hazard	Eden	3	0	3	173	16	0	0	7	0	0	0	0	5,59	0	0,17	1
Moses	Victor	4	1	3	177	19	0	0	8	1	1	0	1	3,31	3	0,87	1
Costa	Diego	4	0	2	188	19	1	0	10	1	1	0	1	3,64	0	0,71	1
Remy	Loic	4	0	2	185	19	0	0	8	0	0	0	0	4,11	0	0,78	1
Hart	Joe	1	0	2	196	19	1	0	7	1	0	0	1	5,89	0	0,63	1
Silva	David	3	0	1	170	19	1	0	10	0	0	0	1	10,91	0	0,69	1
Jovetic	Stevan	4	0	2	183	18	0	0	10	1	1	0	1	14,02	8	0,52	1
Aguero	Sergio	4	1	2	173	18	0	0	8	0	0	0	1	24,96	21,7	0,82	1
De Gea	David	1	0	2	189	18	0	1	15	0	0	0	0	3,36	0	0,28	1
Jones	Phil	2	0	2	185	19	0	0	10	1	0	0	1	13,98	19,3	0,62	1
Smalling	Chris	2	0	2	194	18	0	1	6	0	0	0	0	2,99	0	0,53	1
Evans	Johnny	2	0	2	188	19	1	0	14	0	0	0	1	1,98	0	0,55	1
Darmian	Matteo	2	0	2	182	19	1	0	15	0	0	0	1	0,80	0	0,51	1
Rafael	Pereira	2	1	2	172	17	0	0	11	0	0	0	0	5,50	3	0,47	1
Schneiderlin	Morgan	3	0	2	181	18	0	0	10	0	0	0	1	1,42	1,5	0,49	1
Blind	Daley	3	0	1	180	19	1	0	15	0	0	0	1	1,14	0,5	0,63	1
Herrera	Ander	3	0	2	182	19	0	0	10	0	0	0	0	4,63	0	0,68	1
Fellaini	Marouane	3	0	2	194	18	0	0	10	0	0	0	0	7,66	0	0,53	1
Mata	Juan	3	0	1	170	19	0	0	13	0	0	0	1	13,73	0	0,64	1
Szczesny	Wojciech	1	0	2	196	19	1	0	13	0	0	0	1	5,27	0	0,52	1
Gibbs	Kieran	2	0	1	179	18	1	0	13	0	0	0	1	1,83	0	0,40	1
Wilshere	Jack	3	0	1	172	18	1	0	15	0	0	0	1	12,71	0	0,42	1
Walcott	Theo	4	0	3	176	16	0	0	9	0	1	0	1	6,70	10,5	0,16	1
Mignolet	Simon	1	0	2	193	19	0	0	5	0	0	0	0	0,99	0	0,65	1
Sakho	Mamadou	2	0	1	187	17	0	0	15	0	0	0	0	4,65	0	0,23	1
Lovren	Dejan	2	0	3	188	17	1	0	7	0	0	0	1	1,54	0	0,27	1
Moreno	Alberto	2	0	1	171	19	0	1	8	0	0	0	0	4,93	0	0,65	1
Clyne	Nathaniel	2	0	2	175	17	0	0	8	0	0	0	0	0,80	0	0,26	1
Henderson	Jordan	3	0	2	182	18	1	0	8	0	0	0	1	5,02	0	0,53	1
Allen	Joe	3	0	2	168	18	1	0	8	0	0	0	1	0,76	0	0,49	1
Lallana	Adam	3	0	3	172	19	1	0	8	0	0	0	1	0,53	0	0,64	1
Sturridge	Daniel	4	0	1	188	19	0	0	15	0	0	0	1	8,23	7,25	0,72	1
Ings	Danny	4	0	2	178	19	0	0	8	0	0	0	1	1,28	1,16	0,76	1
Balotelli	Mario	4	0	2	189	16	0	1	5	0	0	0	1	5,50	0,36	0,32	1
Borini	Fabio	4	0	2	180	19	1	0	14	0	1	0	1	5,09	0	0,62	1
Lloris	Hugo	1	0	1	188	18	0	0	8	0	0	0	0	3,92	0	0,44	1
Alderweireld	Toby	2	0	2	186	19	0	1	11	0	0	0	0	3,37	0	0,60	1
Hall	Grant	2	0	2	192	17	0	0	5	0	0	0	1	0,05	0	0,35	1
Rose	Danny	2	0	1	173	19	1	0	10	0	0	0	1	1,59	0	0,62	1
Dembele	Moussa	3	0	1	185	18	0	0	6	1	1	0	1	6,39	5	0,57	1
Mason	Ryan	3	0	2	175	19	1	0	10	1	0	0	1	0,12	0	0,66	1
Chadli	Nacer	3	0	2	187	17	0	0	8	0	0	0	1	0,34	0	0,36	1
Lennon	Aaron	3	0	2	165	18	0	0	9	0	0	0	1	7,53	1,2	0,46	1
Townsend	Andros	3	0	1	181	19	1	0	10	1	0	0	1	2,53	0	0,72	1
Robles	Joel	1	0	2	195	17	0	1	5	0	0	0	1	0,28	0,1	0,29	1
Oviedo	Bryan	2	1	1	172	19	0	0	5	0	0	0	1	0,39	0,4	0,89	1
Coleman	Seamus	2	0	2	178	17	0	0	5	0	0	0	1	0,18	0	0,32	1
Besic	Muhamed	3	0	2	180	19	0	0	7	1	0	0	1	2,21	0	0,72	1
McCarthy	James	3	0	2	180	18	0	0	5	1	1	0	1	3,80	5,1	0,53	1
Cleverley	Tom	3	0	3	175	19	1	0	12	0	0	0	1	1,60	0	0,58	1
McGeady	Aiden	3	0	3	180	18	0	0	8	0	0	0	0	2,08	0	0,48	1
Naismith	Steven	4	0	2	178	16	0	0	5	0	0	0	0	0,36	0	0,29	1
Forster	Fraser	1	0	2	201	18	0	0	8	0	0	0	0	0,22	0	0,43	1
Bertrand	Ryan	2	0	1	179	19	1	0	9	1	0	0	1	1,60	0	0,66	1
Soares	Cedric	2	0	2	172	19	1	0	11	0	0	0	1	3,65	0	0,56	1
Martina	Cuco	2	0	2	185	17	0	1	11	0	0	0	1	0,08	0	0,24	1
Wanyama	Victor	3	1	1	188	17	0	0	5	0	0	0	1	0,30	0	0,74	1
Clasie	Jordy	3	0	3	169	19	1	0	15	0	0	0	1	3,11	0	0,50	1
Mane	Sadio	3	1	2	175	19	0	0	8	0	0	0	0	7,34	0	0,88	1
Rodriguez	Jay	4	0	2	185	18	1	0	7	0	0	0	1	0,15	0	0,64	1
Elliot	Rob	1	0	2	190	19	1	0	6	0	0	0	1	0,09	0	0,63	1
Taylor	Steven	2	0	2	186	17	1	0	10	0	0	0	1	0,98	0	0,26	1
Dummett	Paul	2	0	1	183	18	0	0	8	0	0	0	0	0,09	0	0,50	1
Janmaat	Daryl	2	0	2	185	18	0	0	14	1	0	0	1	0,94	0	0,36	1
Tiote	Cheik	3	1	2	180	19	0	0	7	0	0	0	0	1,63	0	0,89	1
Colback	Jack	3	0	1	177	19	1	0	8	0	0	0	1	1,59	0	0,73	1

Last Name	First Name	Position	International	Foot	Height	Age_p_t	Loan	Second Team	Education	Experience	Scorer	Injury	Trade	DMV	Transfer Fee	PS	PS Weight
	-	Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €	Mio. €		
Abeid	Mehdi	3	0	2	180	18	0	0	9	0	0	0	1	0,29	0	0,51	1
Wijnaldum	Georginio	3	0	2	175	16	0	0	11	0	0	0	0	3,16	0	0,15	1
Sissoko	Moussa	3	0	2	187	18	0	0	10	0	0	0	0	5,86	0	0,51	1
De Jong	Siem	3	0	2	185	18	0	0	9	0	0	0	0	2,35	0	0,52	1
Cabella	Remy	3	0	2	171	19	0	0	8	0	0	0	0	1,01	0	0,68	1
Gouffran	Yoan	4	0	2	175	17	0	0	8	0	0	0	0	0,80	0	0,40	1
Riviere	Emmanuel	4	0	2	182	18	0	0	8	0	0	0	0	2,73	0	0,61	1
Ogbonna	Angelo	2	0	1	189	19	1	0	10	0	0	0	1	0,83	0	0,67	1
Reid	Winston	2	1	2	190	17	0	0	5	0	0	0	0	0,36	0	0,64	1
Cresswell	Aaron	2	0	1	170	18	0	0	5	0	0	0	1	0,09	0	0,52	1
O'Brien	Joey	2	0	2	180	18	1	0	8	0	0	0	1	0,89	0	0,45	1
Obiang	Pedro	3	0	2	185	16	0	0	15	0	0	0	1	0,27	0,13	0,13	1
Payet	Dimitri	3	0	2	175	18	0	0	7	0	0	0	0	2,00	0	0,53	1
Jarvis	Matt	3	0	3	173	17	0	0	5	0	0	0	0	0,06	0	0,33	1
Carroll	Andy	4	0	1	193	18	1	0	9	0	0	0	1	1,14	0	0,67	1
Nordfeldt	Kristoffer	1	0	2	190	18	0	0	5	0	0	0	0	0,60	0	0,46	1
Bartley	Kyle	2	0	2	194	19	1	0	12	0	0	0	1	0,71	0	0,60	1
Tabanou	Franck	2	0	1	178	18	0	1	6	0	0	0	0	0,84	0	0,53	1
Cork	Jack	3	0	2	185	19	1	0	12	1	0	0	1	0,94	0	0,65	1
Sigurdsson	Gylfi	3	0	2	186	19	1	0	9	0	0	0	1	3,35	0	0,70	1
Ayew	Andre	3	0	1	176	19	1	0	9	0	0	0	1	7,74	0	0,72	1
Dyer	Nathan	3	0	2	165	17	1	0	8	0	0	0	1	0,21	0	0,30	1
Eder	Antonio	4	0	3	188	19	0	0	5	0	0	0	1	0,69	0	0,79	1
Souare	Pape	2	1	1	178	19	0	0	8	0	0	0	0	0,31	0	0,87	1
Ward	Joel	2	0	2	188	18	1	0	8	0	0	0	1	0,35	0	0,47	1
Kelly	Martin	2	0	2	191	18	1	0	11	0	0	0	1	2,26	0	0,43	1
Mariappa	Adrian	2	0	2	178	18	0	0	5	0	0	0	0	0,35	0	0,50	1
Mutch	Jordon	3	0	2	184	18	1	0	9	0	0	0	1	0,89	0	0,52	1
Ledley	Joey	3	0	1	183	17	0	0	5	0	0	0	1	0,56	0	0,45	1
Campbell	Frazier	4	0	2	172	18	1	0	11	0	0	0	1	1,16	0	0,52	1
Pantilimon	Costel	1	0	2	202	19	0	0	5	0	0	0	0	1,07	0	0,68	1
Mannone	Vito	1	0	2	188	18	1	0	11	0	0	0	1	0,43	0	0,34	1
Kaboul	Younes	2	0	2	192	18	0	0	9	0	0	0	0	4,17	0	0,47	1
Van Aanholt	Patrick	2	0	1	176	19	1	0	14	0	0	0	1	0,68	0	0,56	1
Rodwell	Jack	3	0	2	188	17	0	0	8	0	0	0	0	8,02	0	0,36	1
Johnson	Adam	3	0	1	182	19	1	0	8	0	0	0	1	1,40	0	0,75	1
Lens	Jeremain	4	0	2	178	19	1	0	8	0	0	0	1	2,13	0	0,76	1
Buckley	Will	4	0	3	183	18	0	0	5	0	0	0	0	0,20	0	0,62	1
Fletcher	Steven	4	0	1	185	17	0	0	5	0	0	0	0	0,40	0	0,53	1
Steer	Jed	1	0	1	182	18	1	0	8	0	0	0	1	0,52	0	0,42	1
Okore	Jores	2	0	2	183	18	0	0	5	1	0	0	0	2,68	0	0,52	1
Clark	Ciaran	2	0	1	188	19	0	0	9	0	0	0	0	1,74	0	0,68	1
Baker	Nathan	2	0	1	189	18	1	0	8	0	0	0	1	0,45	0	0,52	1
Cissokho	Aly	2	0	1	181	19	0	0	5	0	0	0	0	5,75	0	0,73	1
Bennett	Joe	2	0	1	177	18	0	0	8	0	0	0	0	0,30	0	0,49	1
Gueye	Idrissa	3	1	2	174	18	0	1	5	0	0	0	1	0,26	0	0,81	1
Bacuna	Leandro	3	0	2	187	17	0	0	10	0	0	0	0	0,68	0	0,33	1
N'Zogbia	Charles	3	0	1	171	18	0	0	10	0	0	0	1	2,75	1	0,51	1
Schmeichel	Kasper	1	0	2	185	19	1	0	14	1	0	0	1	0,85	0	0,47	1
De Laet	Ritchie	2	0	3	186	19	1	0	6	0	0	0	1	0,68	0	0,64	1
Simpson	Danny	2	0	2	177	19	1	0	12	0	0	0	1	0,49	0	0,55	1
King	Andy	3	0	2	183	18	0	0	13	0	0	0	0	0,40	0	0,44	1
James	Matty	3	0	2	178	18	1	0	12	0	0	0	1	0,96	0	0,45	1
Albrighton	Marc	3	0	2	174	19	0	0	8	0	0	0	0	3,47	0	0,69	1
Schlupp	Jeffrey	3	0	1	178	18	1	0	10	0	0	0	1	0,73	0	0,53	1
Kramaric	Andrej	4	0	3	180	18	0	0	10	0	0	0	0	0,62	0	0,52	1
Arlauskis	Giedrius	1	0	1	191	18	0	0	5	0	0	0	1	0,56	0	0,51	1
Prödl	Sebastian	2	0	2	194	18	0	1	8	0	0	0	0	0,82	0	0,49	1
Angella	Gabriele	2	0	2	189	19	0	0	8	0	0	0	0	0,72	0	0,66	1
Ekstrand	Joel	2	0	2	188	19	0	0	5	0	0	0	0	1,09	0	0,71	1
Capoue	Etienne	3	0	2	189	18	0	0	7	0	0	0	0	3,41	0	0,57	1
Battochio	Christian	3	0	2	169	19	0	0	7	0	0	0	0	0,82	0	0,69	1
Jurado	Jose Manuel	3	0	2	176	19	0	0	15	0	0	0	0	4,06	0	0,57	1
Fabrini	Diego	4	0	2	181	18	0	0	10	0	0	0	0	2,24	0	0,57	1
Forestieri	Fernando	4	0	3	173	19	1	0	10	0	0	0	1	1,10	0	0,68	1
Vydra	Matej	4	0	2	180	19	1	0	6	1	1	0	1	2,14	0	0,75	1
Pocognoli	Sebastien	2	0	1	182	19	0	0	10	1	0	0	1	4,25	2,75	0,65	1
Gardner	Chris	3	0	2	176	19	0	0	8	0	0	0	0	0,84	0	0,69	1
McManaman	Callum	4	0	2	174	18	0	0	10	0	0	0	0	0,30	0	0,55	1
Anichebe	Victor	4	1	2	190	17	0	0	8	0	0	0	0	0,99	0	0,72	1
Ruddy	John	1	0	2	192	19	1	0	7	1	0	0	1	0,50	0	0,62	1
Bassong	Sebastian	2	0	1	187	18	0	0	8	0	0	0	0	1,15	0	0,52	1
Miquel	Ignasi	2	0	1	193	18	0	0	11	0	0	0	0	0,57	0	0,48	1
Olsson	Martin	2	0	1	178	19	0	0	7	0	0	0	0	0,75	0	0,69	1
Mulumbu	Youssuf	3	1	2	177	18	0	1	11	0	0	0	0	0,69	0	0,74	1
Odjidja-Ofoe	Vadis	3	0	2	185	19	0	0	10	0	0	0	1	2,90	0,9	0,69	1
Tettey	Alexander	3	0	2	181	18	1	0	11	0	0	0	1	0,66	0	0,47	1
Howson	Jonathan	3	0	3	180	18	0	0	8	0	0	0	0	0,42	0	0,48	1
Dorrans	Graham	3	0	3	177	18	1	0	6	0	0	0	1	0,29	0	0,51	1
Andreu	Anthony	3	0	2	176	19	0	0	8	0	0	0	1	0,10	0	0,69	1
Van Wolfswinkel	Ricky	4	0	2	186	18	0	0	9	0	0	0	0	1,88	0	0,60	1
Grabban	Lewis	4	0	3	183	19	0	0	10	0	0	0	1	0,44	0,225	0,71	1
Lafferty	Kyle	4	0	2	193	18	1	0	8	0	0	0	1	1,76	0	0,64	1
Allsop	Ryan	1	0	2	189	19	0	0	10	0	0	0	1	0,19	0,1	0,55	1
Smith	Adam	2	0	2	174	19	1	0	10	0	0	0	1	0,20	0	0,58	1
Gosling	Dan	3	0	3	180	17	0	0	7	1	0	0	1	1,98	1,5	0,32	1
Surman	Andrew	3	0	1	178	18	1	0	9	0	0	0	1	1,10	0	0,55	1
King	Joshua	4	0	2	181	19	1	0	11	0	0	0	1	0,72	0,1	0,72	1
Pacheco	Fernando	1	0	1	186	19	0	1	11	0	0	0	0	0,46	0	0,57	1
Marcelo	Vieira	2	1	1	174	18	0	0	10	0	0	0	1	8,06	6,5	0,72	1
Coentrao	Fabio	2	0	1	179	19	1	0	9	1	1	0	1	3,27	0	0,61	1
Illarramendi	Asier	3	0	2	179	18	0	1	8	0	0	0	0	0,22	0	0,52	1
Rodriguez	James	3	1	1	180	18	0	0	5	1	1	0	1	16,12	7,35	0,82	1
Isco	Roman	3	0	2	176	19	0	0	7	0	0	0	1	18,81	6	0,71	1
Bale	Gareth	4	0	1	183	17	0	0	10	1	0	0	1	9,88	14,7	0,44	1
Vazquez	Lucas	4	0	2	173	19	0	1	10	0	0	0	0	0,34	0	0,72	1
Benzema	Karim	4	0	3	187	17	0	0	15	0	0	0	0	2,18	0	0,27	1
Ter-Stegen	Marc-Andre	1	0	2	187	18	0	0	15	1	0	0	0	6,11	0	0,28	1
Masip	Jordi	1	0	2	179	19	0	1	13	0	0	0	0	0,30	0	0,46	1
Pique	Gerard	2	0	2	193	17	0	0	13	0	0	0	1	4,10	5,25	0,23	1
Bartra	Marc	2	0	2	183	18	0	1	15	0	0	0	0	2,52	0	0,33	1
Vidal	Aleix	2	0	2	176	19	1	0	10	0	0	0	1	0,45	0	0,59	1
Busquets	Sergio	3	0	2	189	18	0	1	13	0	0	0	0	9,10	0	0,46	1
Song	Alex	3	1	2	185	17	0	0	8	1	0	0	1	3,26	4	0,64	1
Turan	Arda	3	0	3	177	18	1	0	10	0	0	0	1	6,64	0,5	0,43	1
Messi	Lionel	4	1	1	170	16	0	1	13	0	0	0	0	10,03	0	0,44	1
Pedro	Rodriguez	4	0	3	167	18	0	1	9	0	0	0	0	0,73	0	0,50	1
Siquera	Guilherme	2	1	1	183	18	0	0	5	0	0	0	1	0,33	0	0,81	1
Griezmann	Antoine	4	0	1	176	18	0	1	9	0	0	0	0	6,39	0	0,62	1
Barragan	Antonio	2	0	2	186	19	0	0	10	0	0	0	1	1,00	2,5	0,62	1
Feghouli	Sofiane	3	0	3	177	17	0	0	8	0	0	0	0	1,89	0	0,29	1
Carrico	Daniel	2	0	2	180	18	1	0	10	0	0	0	1	3,03	0	0,41	1
Kolodziejczak	Timothee	2	0	1	185	16	1	0	8	0	0	0	1	0,83	0	0,18	1
Escudero	Sergio	2	0	1	176	18	0	0	7	0	0	0	0	1,23	0	0,50	1
N'Zonzi	Steven	3	0	2	190	19	0	0	5	0	0	0	0	2,68	0	0,77	1
Banega	Ever	3	1	2	174	19	0	0	8	0	0	0	1	13,44	18	0,88	1
Iborra	Vincent	3	0	2	195	19	0	1	7	0	0	0	0	0,96	0	0,76	1

Last Name	First Name	Position	International	Foot	Height	Age_p_t	Loan	Second Team	Education	Experience	Scorer	Injury	Trade	DMV	Transfer Fee	PS	PS Weight
	-	Gk = 1 Def = 2 Mf = 3 Att = 4	0=No 1=Yes	Left = 1 Right = 2 Both = 3	cm	-	0=no 1=yes	0=no 1=yes	5-15	0 = no 1 = yes	0 = no 1 = yes	0=no 1=yes	0=no 1=yes	Mio. €	Mio. €		
Vitolo	Victor	3	0	2	184	19	0	0	5	0	0	0	0	0,50	0	0,76	1
Kakuta	Gael	3	0	1	173	19	1	0	14	0	0	0	1	3,46	0	0,63	1
Aurtenetxe	Jon	2	0	1	182	18	0	0	8	0	0	0	0	3,01	0	0,50	1
De Marcos	Oscar	2	0	2	180	19	0	0	5	0	0	0	0	1,38	0	0,69	1
Iturraspe	Ander	3	0	2	187	18	0	0	8	0	0	0	1	0,72	0	0,55	1
Muniain	Iker	4	0	2	169	16	0	0	9	0	0	0	0	3,59	0	0,21	1
Granero	Esteban	3	0	2	180	18	0	1	11	0	0	0	0	1,19	0	0,47	1
Canales	Sergio	3	0	1	179	17	0	1	8	0	0	0	0	4,06	0	0,38	1
Musacchio	Mateo	2	1	2	182	18	0	0	7	0	0	0	1	4,18	0	0,74	1
Ruiz	Victor	2	0	1	185	19	0	1	7	0	0	0	0	3,07	0	0,71	1
Dos Santos	Jonathan	3	1	2	172	19	0	1	11	0	0	0	0	2,23	0	0,85	1
Filipenko	Egor	2	0	2	194	19	0	0	5	0	0	0	1	0,85	0,75	0,72	1
Rosales	Roberto	2	1	2	174	18	0	0	5	0	0	0	1	1,18	0	0,75	1
Torres	Miguel	2	0	2	184	19	0	1	10	0	0	0	0	3,02	0	0,61	1
Recio	Luis	3	0	2	183	19	0	1	8	0	0	0	0	1,65	0	0,71	1
Tighadouini	Adnane	4	0	3	179	19	1	0	8	0	0	0	1	0,25	0	0,73	1
Cop	Duje	4	0	2	187	18	0	0	10	0	0	0	1	0,57	0,18	0,59	1
Fontas	Andreu	2	0	1	186	18	0	1	10	0	0	0	0	1,71	0	0,48	1
Gomez	Sergi	2	0	2	185	17	0	1	13	0	0	0	0	0,60	0	0,22	1
Planas	Carles	2	0	1	173	18	0	1	15	0	0	0	0	0,63	0	0,35	1
Mallo	Hugo	2	0	2	173	18	0	0	8	0	0	0	0	1,56	0	0,43	1
Wass	Daniel	3	0	2	181	17	0	0	8	0	0	0	0	1,22	0	0,34	1
Guidetti	John	4	0	2	185	17	1	0	13	0	0	0	1	3,58	0	0,34	1
Bardi	Francesco	1	0	2	188	18	1	0	7	0	0	0	1	2,13	0,1	0,41	1
Sanchez	Victor	3	0	2	174	19	0	1	11	0	0	0	0	0,69	0	0,64	1
Bifouma	Thievy	4	0	2	180	19	0	0	9	0	0	0	0	1,95	0	0,75	1
Fabri	Ramirez	1	0	2	184	19	0	1	7	0	0	0	0	0,37	0	0,59	1
Sidnei	Rechel	2	1	2	186	18	0	0	5	0	0	0	1	4,14	7	0,78	1
Megyeri	Balazs	1	0	2	187	18	0	0	5	0	0	0	1	0,27	0	0,45	1
Fernandez	Andres	1	0	2	185	19	0	1	7	0	0	0	0	0,21	0	0,59	1
Olazabal	Oier	1	0	1	190	17	0	1	5	0	0	0	1	0,30	0	0,32	1
Martins	Luis	2	0	1	176	19	0	0	11	0	0	0	0	1,03	0	0,61	1
Piccini	Christiano	2	0	2	183	18	0	0	8	1	0	0	1	0,63	0	0,46	1
Ebert	Patrick	3	0	2	175	18	0	1	10	1	1	0	0	1,10	0	0,42	1
Nieto	Dani	3	0	1	173	19	0	1	10	0	0	0	0	0,29	0	0,69	1
Baston	Borja	4	0	2	184	17	0	1	10	0	0	0	0	0,42	0	0,39	1
Espinosa	Bernardo	1	0	2	192	18	0	1	8	0	0	0	0	0,19	0	0,41	1
Alvarez	Sergio	3	0	2	180	17	0	1	7	0	0	0	0	0,25	0	0,36	1

Appendix V – Determination of threshold for covariate ‘injury’

GMX FreeMail

AW: Schwere Sportverletzungen im Jugendfußball

Von:

"Johannes.Glasbrenner@ukmuenster.de" <Johannes.Glasbrenner@ukmuenster.de>

An:

"'Roman Pieroth'" <rpieroth@gmx.de>

Datum:

17.08.2015 18:28:48

Sehr geehrter Herr Pieroth,

gerne nehme ich zu ihrer Frage Stellung.

Scores und Klassifizierung sind in der Unfallchirurgie ein wichtiges Hilfsmittel zur fundierten individuellen Therapieentscheidung sowie zur Evaluation des Outcomes einer Behandlung. Grundlage für die Klassifikation von Verletzungen ist in der Regel das Verletzungsmuster (Beispiel AO-Klassifikation für Frakturen).
In ihrem Fall wird eine binäre Einteilung in „schwere Verletzung: Ja oder Nein“ gesucht. Maßgeblich beeinflusst wird die Schwere einer Verletzung hinsichtlich der sportlichen Entwicklung von der Dauer des Ausfalls sowie den Verletzungsfolgen.
Da es sich in dem von Ihnen untersuchten Fallkollektiv um die retrospektive Beurteilung von Profisportlern handelt, kann davon ausgegangen werden, dass bei keinem der im Jugendalter verletzen Fußballern relevanten Verletzungsfolgen vorliegen. Eine Einteilung anhand der Dauer des Ausfalls erscheint somit für Ihre Fragestellung zielführend.

Mit freundlichen Grüßen

Dr. med. Johannes Glasbrenner

Klinik und Poliklinik für Unfall-, Hand- und Wiederherstellungschirurgie
Universitätsklinikum Münster
Direktor: Univ.-Prof. Dr. med. Michael J. Raschke
Waldeyerstraße 1
48149 Münster
www.traumacentrum.de

Dienstlich: +49 251 83 59229
E-Mail: Johannes.glasbrenner@ukmuenster.de

Von: Roman Pieroth [mailto:rpieroth@gmx.de]
Gesendet: Mittwoch, 5. August 2015 16:57
An: Glasbrenner, Johannes
Betreff: Schwere Sportverletzungen im Jugendfußball

Sehr geehrter Herr Dr. Glasbrenner,

vielen Dank für das interessante Telefonat vorhin. Wie beschrieben beschäftige ich mich im Rahmen meiner Masterarbeit an der Universität Wien mit Talententwicklung im professionellen Fußball und den einhergehenden sportlichen und wirtschaftlichen Folgen erfolgreicher Jugendarbeit.

Hierbei errechne ich über ein sogenanntes Matching Verfahren einen Wahrscheinlichkeitswert für Transfers junger Spieler (U20). Dieser Wahrscheinlichkeitswert basiert auf einem Satz von Variablen, der die Situation des Spielers vor seinem Transfer beschreiben.

Eine der Variablen ist die Binärvariable "Verletzung", die beschreibt, ob ein junger Spieler in seiner Jugendkarriere eine schwere Verletzung erlitten hat. Dies kann für junge Spieler je nach Schwere der Verletzung die weitere Karriere beeinflussen. Hierbei stellt sich mir die Frage, ab wann ich eine Verletzung als schwer klassifiziere, sodass sie den Spieler in seiner Entwicklung hemmt (u.a. durch verpasstes Training/Erfahrung). Ich denke hierbei an Verletzungen wie Risse oder auch Brüche. Für mich wären 4 Monate ein angemessener Schwellwert. Dauert die Regeneration nach einer Verletzung länger als diese 4 Monate, stufe ich sie als schwer ein.

Wie wäre Ihre persönliche Meinung zu diesem Wert? Ich werde Ihre Antwort selbstverständlich als persönliche Meinung kennzeichnen bzw. diesen Mailverkehr an meine Arbeit anhängen.

Vielen Dank im Vorab.

Freundliche Grüße,

Roman Pieroth

Appendix VI – CV Roman Pieroth

Roman Pieroth

Bildungsweg

03/2013 – laufend	**Universität Wien, Wien/Österreich** Master of Science International Business Administration
10/2008 – 08/2012	**Universität Münster, Münster/Deutschland** Bachelor of Science Betriebswirtschaftlehre, Note 2.7
08/1999 - 06/2008	**Schillergymnasium, Münster/Deutschland** Abitur, Note 1.6

Berufserfahrung

03/2014 – laufend	**Siemens AG – Urban Transport, Wien/Österreich** *Werksstudent Light Rail Vehicle Platform & eBus / eBRT*
08/2013 – 02/2014	**Siemens Inc. - Rail Systems, Sacramento, CA/USA** *Praktikant Rail Systems Strategy*
09/2012 – 07/2013	**Siemens AG – Urban Transport, Wien/Österreich** *Werksstudent Light Rail Vehicles Strategie*
03/2011 – 09/2011	**Volkswagen Nutzahrzeuge, Hannover/Deutschland** *Praktikant Strategisches Marketing*

Auslandserfahrung

08/2009 - 12/2009	**Virginia Polytechnic Institute and State University (Virginia Tech)/USA** Austauschstudent am Pamplin College of Business
06/2008 - 07/2008	**Asunción/Paraguay** Praktikant für die "Fundación Ko'émbota"

Außerschulische Aktivitäten

05/2010 – 10/2011	Students In Free Enterprise (SIFE) Münster
08/2007 - 08/2008	Freier Mitarbeiter "Muenstersche Zeitung"

Zusatzqualifikationen

Sprachen:	Deutsch (Muttersprache); Englisch (verhandlungssicher); Spanisch (Grundkenntnisse); Italienisch (Grundkenntnisse); Latein (Qualifikation)
EDV:	Microsoft Office (sehr gute Kenntnisse); Photoshop, SPSS, Virtual Basic (Grundkenntnisse)

Persönliche Interessen

Sport, Reisen, Lesen

Wien, September 2015