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ANALYSIS OF THE IMPACT OF THE NEYMAR TRANSFER ON THE
CHANGE IN THE MARKET VALUE OF FOOTBALL PLAYERS

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INTRODUCTION

Football is one of the biggest businesses in the world right now not only among sports, and it has a wide fan base all around the globe. The clubs' dealings off the pitch are all about economics: taxation, marketing, accounting, management etc. It is not even uncommon for a football club to be listed on the stock exchange. Thus, football, as an industry with significant economic potential, is also suitable for statistical research and financial analysis. At their clubs, players are recorded as assets, intangible assets in the financial statements, and the balance sheet. I have met the subject due to my work as a sports journalist, and I believe that finding the reason for the sudden change of the market values of players and transfer fees paid by the clubs is one of the most interesting questions in the sport today as the prices paid for players have reached sky high, however their real value is unknown for the most supporters even if they wear the specific player's jersey.

In this thesis I will examine how the world record transfer of Neymar da Silva Santos Júnior (also known as Neymar or Neymar Jr.), which took place in 2017, has affected the market values of the football players today.

The first question that arises is how such a huge transfer fee, which is more than double the amount of the previous world record set just a year prior, was even possible? I will examine how the transfer records were set in the previous two decades, and what could lead to the amount paid for Neymar, including the increasing income of top clubs. I will also take a look at the factors affecting the market value, the immediate effect of Neymar's transfer, the change in the player's transfer values afterwards, and how the change could be felt in the different player positions (goalkeeper, defender, midfielder, forward).

My first hypothesis is that the world record transfer fee of Neymar is the main reason for the change. I do not believe, that inflation could play such a big part, but I will try to examine every possible aspect, which could drive the revolution of market values.

My second hypothesis is that the market values of all the examined 400 players have increased by at least 15 million euros on average. The change of the market value of players in a course of time is statistical data and thus statistical analyses will need to be carried out.

The necessary information will be extracted from transfermarkt.com's database as the primary source of my thesis. It is widely used and often mentioned as an „authoritative source” by the journalists and sports media when they take a player's valuation and transfer price into

consideration. I have had e-mail conversations with Transfermarkt's employee about the process they use to evaluate a football player's market value, which I intend to use in the thesis.

I will analyse the change of the market value for each position, and the players will be put in different groups accordingly. I will examine four positions: goalkeepers, defenders, midfielders, forwards. For the main data, I will include the top 100 players on Transfermarkt's current lists for each position, while I will exclude all the players, who were below the age of 18 or did not have a significant market value before Neymar's transfer, as a 1000 percent change over two years, which is not as rare as it sounds, could affect the results. I will use those 400 players previous and current market values to analyse the change over the past 2.5 years.

1. IMPORTANT REGULATIONS, BACKGROUND

There are a number of factors that play part in a players' valuation and transfers. Over the past years there have been serious regulations carried out in order to defend the rights of the players and stop the clubs from spending more than what their financial power can allow.

1.1. What is the market value of a player?

1.1.1. Deciding factors

International Valuation Standards defines market value as "the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion".

Market value is a concept distinct from market price, which is "the price at which one can transact", while market value is "the true underlying value" according to theoretical standards. The concept is most commonly invoked in inefficient markets or disequilibrium situations where prevailing market prices are not reflective of true underlying market value. For market price to equal market value, the market must be informationally efficient and rational expectations must prevail.

Recently, it has been underscored the subtle but important difference between the firms' capacity to create value through correct operational choices and valid strategies, on the one hand, and the epiphenomenal manifestation of variations in stockholder value on the financial markets (notably on stock markets). In this perspective, they suggest to implement new methodologies able to bring strategy back into financial performance measures.

Market value is also distinct from fair value in that fair value depends on the parties involved, while market value does not. For example, IVSC (International Valuation Standards Council) currently notes fair value "requires the assessment of the price that is fair between two specific parties taking into account the respective advantages or disadvantages that each will gain from the transaction. Although market value may meet these criteria, this is not necessarily always the case. (ivsc.org, 2006)

Fair value is frequently used when undertaking due diligence in corporate transactions, where particular synergies between the two parties may mean that the price that is fair between them is higher than the price that might be obtainable in the wider market. In other words "special value" may be generated. Market value requires this element of "special value" to be disregarded, but it forms part of the assessment of fair value. (Investopedia, 2020)

However, in our case, market value is different in sports and especially in football. A player does not only mean goals and assists to a club. A player means much more: incomes of ticketing, more followers and bigger reach in media. In one word, a player means business to the right-owners. More fans will visit the home-games if their favourite athlete plays. More people will follow a club's life if their number one plays there.

When the Hungarian *Ádám Szalai* joined to the German club TSG Hoffenheim, more than 5 thousand people from Hungary started to follow the team on different social media channels in only one day. Since social media exists, there was no other Hungarians playing in blue-white (official colours of the side), thus only the Middle-European striker brought unwillingly those followers. The engagements of a player both online and offline are estimable. (weltfussball.com, 2020)

Although in the players' contract and salary it is remunerated, usually it is not even around the real value. The most valuable social media post ever belongs to the Portuguese Cristiano Ronaldo after he won the UEFA (Union of European Football Associations) European Championship in 2016 with his national team and shared a sketch which shows him and the Eiffel Tower drew together and with the motto and sign of the American company, Nike: "Just do it". This simple post attracted almost 1.7 million likes, nearly 13 thousand comments and worth 6 million American dollars to the company. (kormany sport.hu, 2018) When the Italian Juventus FC bought Cristiano Ronaldo in the summer of 2018, their followers' basis on Instagram grew with 31 million people in one year. Nowadays, Juventus FC has the most

followers on Instagram. These factors adds up when it comes to the market value without selling. (serrapresidente.blogsport.com, 2019)

The market value therefore not necessarily but usually higher than the fee that should be paid by the new employer of a player. Naturally, the market reacts to worldwide events such as the COVID-19 pandemic. The virus forced the analysts, such as the transfermarkt.com to decrease every player's value with average 15 percent which is a 9 billion pounds (10.1 billion euros) loss as the incomes of the teams, leagues are lower. (transfermarkt.com, 2020) Although downgrading happened quickly and the increase of the player's market value does not follow the teams' incomes as drastically as it followed the pandemic. However, as it will be shown in the upcoming points with the Neymar transfer in 2017, the thinking, the mind-set has changed in the whole world before the virus.

1.1.2. Is football in jeopardy?

As the main topic of my thesis is how the fees and values of the players changed in the last years, this question also fears the experts of football as the scissors open wider and wider between the smaller and bigger teams. By the meaning of smaller teams in football terms it is a club which has less opportunity on spending money, signing new contracts. While the bigger teams have much more space to offer better deals for players. In the American major leagues, to prevent such an inequality, they created the salary cap.

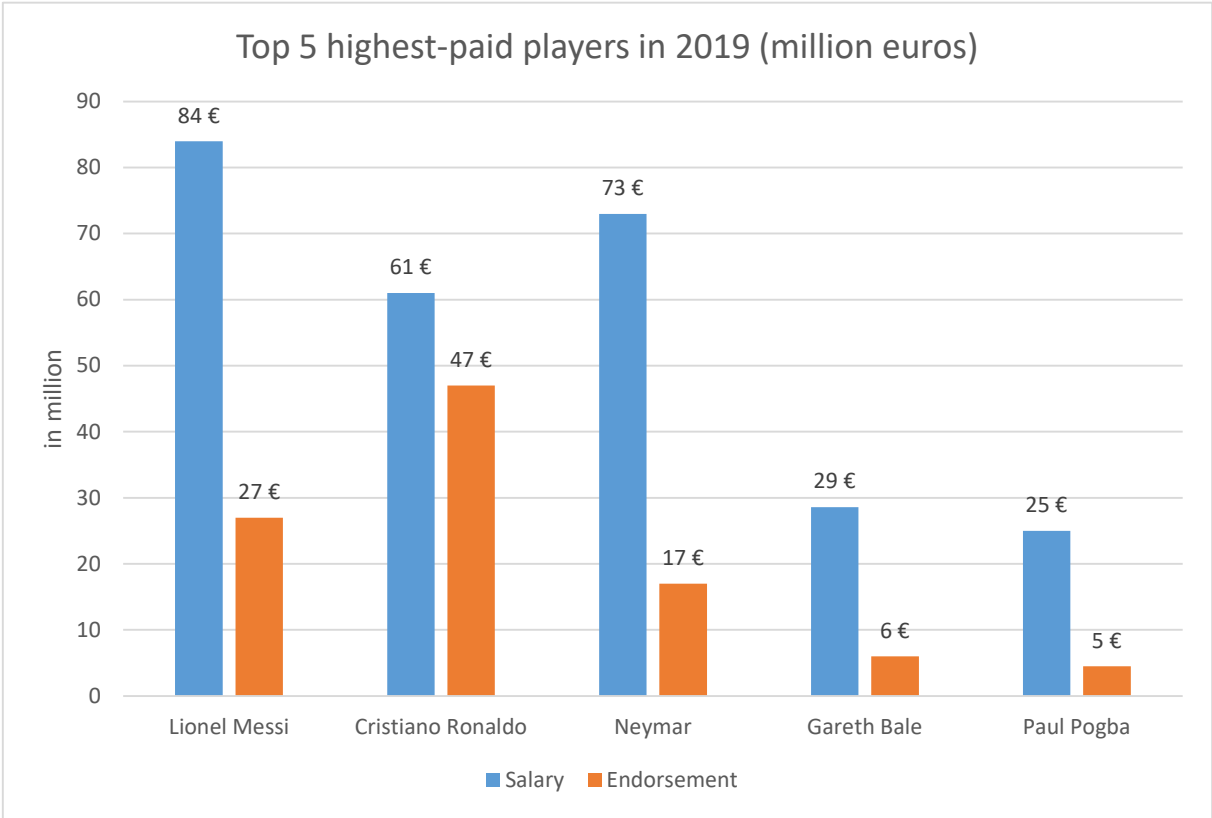
“A salary cap, which is also known as a wage cap, is a rule that is written out in a contract or otherwise legally stated that places a limit on how much an employee can earn. This means that the cap is well-known in the industry and professionals can earn salaries up until that number but not earn more than the number. The cap is different based on the industry where it is used and may be subjected to raises. All salary caps are enforced by the government or other professional organizations.” (sports-management-degrees.com, 2018)

In sports, the salary cap refers to how much a team can spend on its players. For example, in 2017, in the NFL (National Football League) the salary cap was \$167 million (€154 million). Certain positions in sports, such as a quarterback in American football or a point forward in NBA (National Basketball Association), have the highest salary caps. These position are considered as the most important ones in their own sport. In football, as I will highlight in the upcoming parts, the attackers are much more valued by the market then defenders, midfielders or goalkeepers. The point of having a salary cap is to create fair chances for every team in the league and to keep up the flow in crowning new and new clubs at the end of the season. This

could prevent domination by powerhouses such as Real Madrid CF and FC Barcelona in Spain who have won the domestic league title 59-times out of 91 years. With the same amount money that can be spent on salaries and transfer fees, even the newcomers would have the same chance to finish on top, on paper. In the American, Major leagues therefore acquiring players for money is very rare. Usually, they trade them and there are certain rules that both players should have the equal salary in order to be accepted by the judges of the league. (Steven Ruiz, 2018)

The upcoming chart will detail us why football may be in jeopardy as the salaries grow continuously as well as the transfer fees, however it is true for only a certain number of teams.

Figure 1. Top 5 highest paid players in 2019

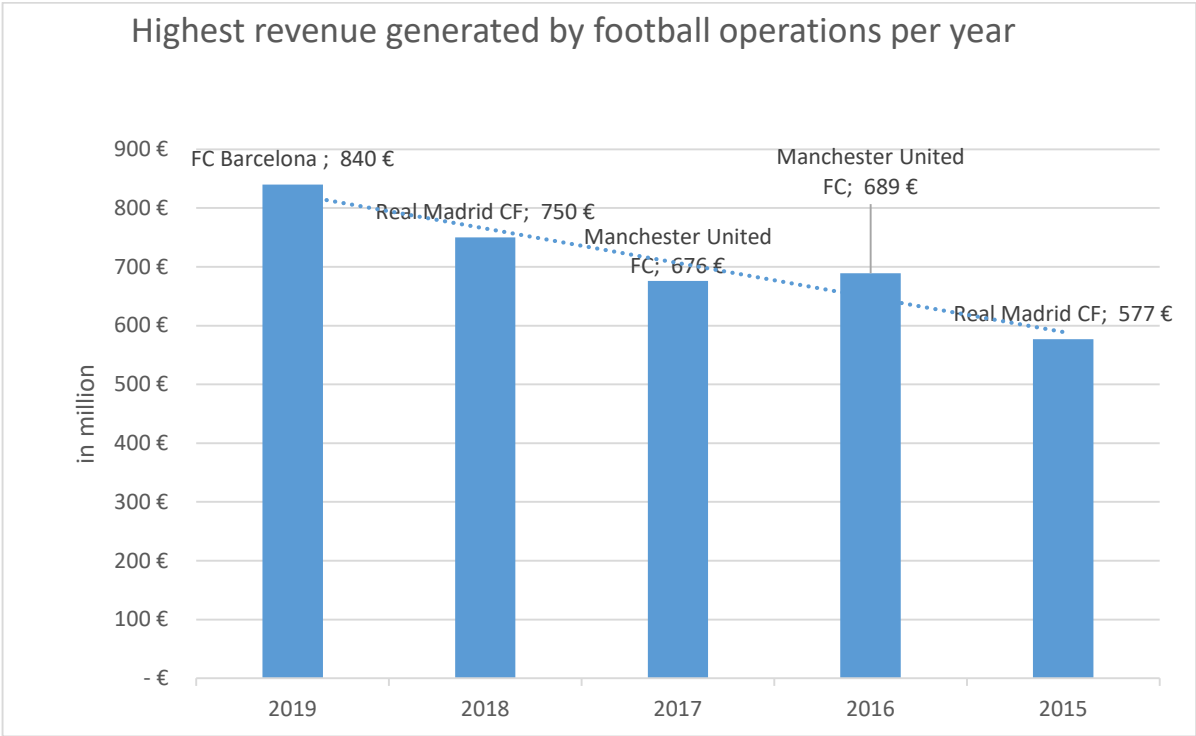


Source: (Anika Varty, 2019), graph figures researched by the author of thesis

Lionel Messi’s salary is the highest while Cristiano Ronaldo makes €61 million a year, his endorsement numbers are at the top of world among footballers. While the best athletes earn more, the clubs finish annually with new records in revenue. Deloitte firm releases the numbers of Deloitte Football Money League which is ranking the football clubs by revenue generated from football operations annually. The chart clearly details that the trend in football is growing.

A team’s revenue is put together from match day incomes such as ticketing and in-stadiums services, broadcasting which is paid by the TV channel to have the right to share the created digital content on their own channels, sponsorship and commercial in which the advertisement on the jersey makes a huge part and other commercial. Only ten years ago, in 2010 when Real Madrid CF finished at top of the list, the Spanish club closed the financial year with €401 million revenue. A decade later, FC Barcelona finished with €840 million which is a 209,4% grow. In the first season when the Deloitte Football Money League produced the numbers, Manchester United were on the top with £87.9 million. (€98.3 million) (new.bbc.co.uk, 1999) Although the inflation is always a fact in counting, it cannot be explained only by this one variable as the average inflation for dollar from 1999 till 2020 was 2.07%. (in2013dollars.com, 2020) However, the growing does not affect every participant. The smaller clubs do not increase their revenue in the same amount, therefore it is harder and harder for them to keep up with the bigger sides.

Figure 2. Highest revenue generated by football operations per year



According to deloitte.com (2020), created by myself

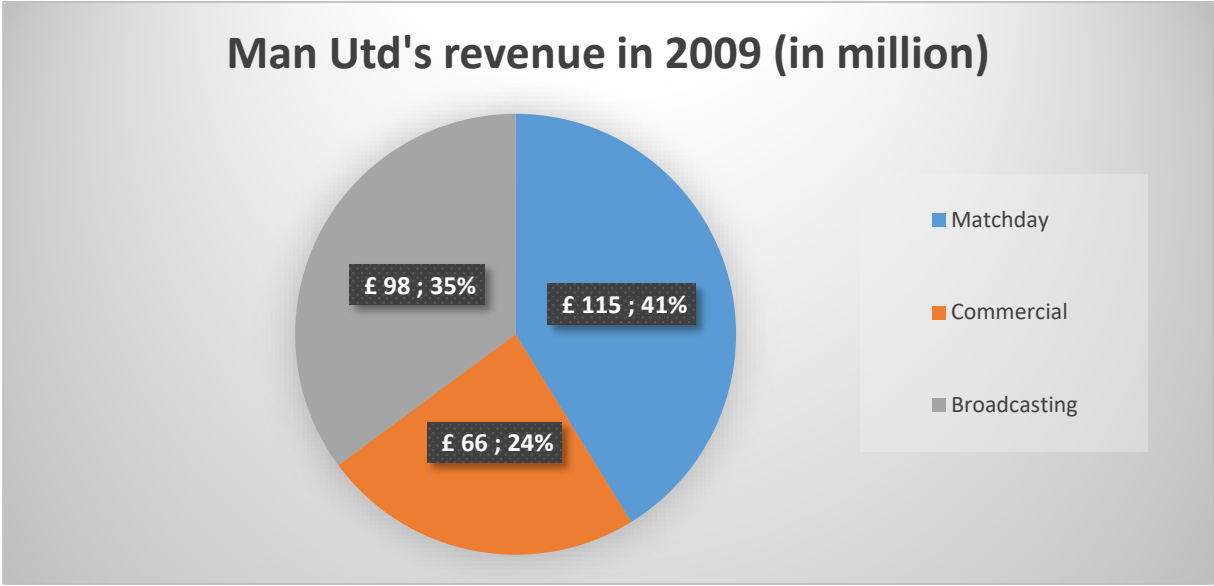
As the experts are looking for new solutions to stop the separation, COVID-19 may do a favour for football. According to accounting firm, KMPG, footballers’ value has already decreased by €6.6 billion while if the rest of the season will be cancelled the devaluation may

reach €10 billion. (hvg.hu, 2020) Although the transfer fees are expected to be lower, it may fire back as the clubs with more money can bid higher.

“Huddersfield Town FC’s head of football operations, David Webb said: "I think it will lead to a big change in recruitment. Even the big clubs will be looking at salary caps, and recruiting within certain levels and saying they won't be dictated to by the markets any more". From PR perspective it is also very questionable to spend millions to new arrivals while people lost their job and many of them fight against the pandemic. The desire to amend football finances already existed but the coronavirus pandemic has intensified that wish. Calls for reform range from salary caps to a wider distribution of broadcast income.

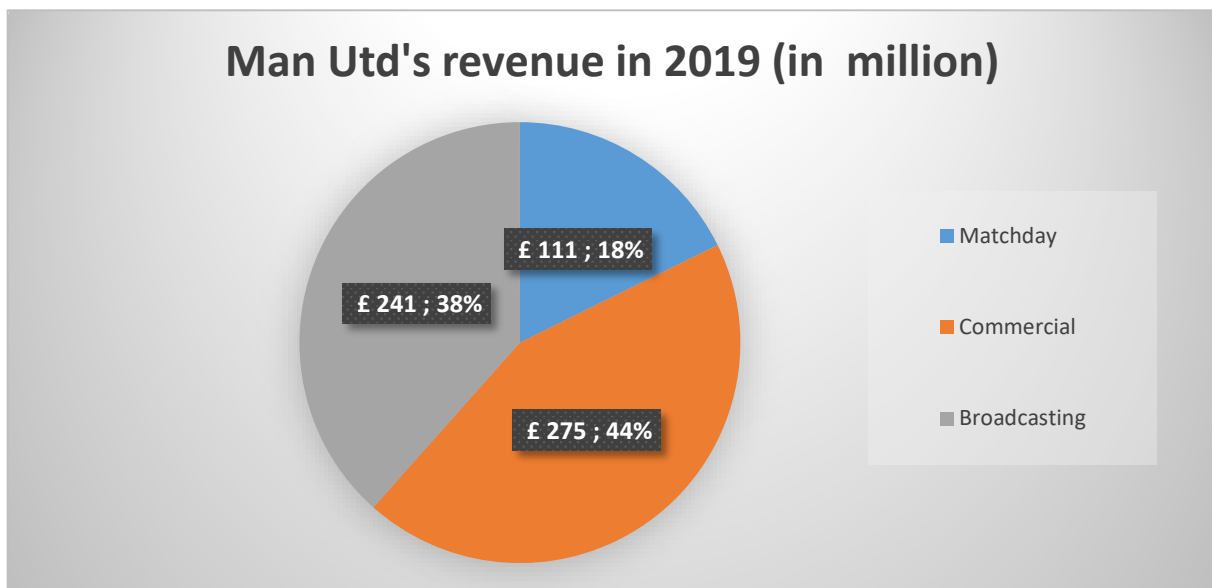
"Football has an opportunity, like a lot of society, just to press the pause and reset button," says Adrian Bevington, who was previously FC Middlesbrough's head of recruitment operations and former Football Association director of communications. (Alistair Magowan, 2020)

Figure 3. Manchester United FC’s revenue in 2019 (in million)



According to ir.manutd.com (2020), created by myself

Figure 4. Manchester United FC's revenue in 2019 (in million)



According to ir.manutd.com (2020), created by myself

The English powerhouse, Manchester United FC finished with total of £279m (€315m) revenue in 2009. Ten years later, there is a massive gap as the club closed the season with £627m (€707.9m) which is a 224% grow. Six month after the last numbers, in December 2019 the “Red devils” announced nearly 12% fall in revenue due to their absence from the UEFA Champions League 2019/20. (bbc.com, 2020). In order get a number after taking the effect of COVID-19, I will count with Manchester United’s digits from 2019. As 29 games were played from 38 in the English Premiere League (76%), I will cut 24% from the matchday’s and broadcasting’s revenue which leaves £85m (€95m) and £184m (€207m). Minus the 12% that was already announced, Manchester United will finish the season around £237m (€267m) from matchday’s and broadcasting’s revenue which is a massive cutback compared to last season’s number £352m (€397m) which is 33% loss if the season does not continue. I did not count with the commercial incomes as those cannot be counted yet, however, the analysts speculate significant relapse in these digits as well.

As the numbers will expectedly drop the high numbers in salaries, transfer fees could decrease as well and it might lead us to a fairer competition. Naturally, in this period, everything is uncertain and numbers are only speculations.

1.2. What is the transfer fee?

1.2.1. Deciding factors

In order to understand the business behind football, we should examine how transfers work in the life of the most beloved sport in the world. In football, we can talk about a transfer when a player under contract moves to another team. The whole process should be confirmed by the domestic and the international associations. The official transfer can be only happening during the transfer windows which was set by football's governing body, FIFA" (Fédération internationale de Football Association). (Miriam Quick, 2017) "Usually some sort of compensation is paid for the player's rights, which is known as a transfer fee. A transfer in football is a business transaction between two clubs which sees a player move from one club to the other. If a player is under contract, the club wishing to secure his or her services are usually expected to pay compensation - otherwise known as a transfer fee. The transfer fee takes into account a number of factors, including the perceived quality of a player, current contract length, commercial value and potential worth, among others." (goal.com, 2020) However, the commercial value used to be out of the conversation back then. Although the rule seems simple, it was created in a different era and went through many changes as everything started two centuries before, in 1885

As it is usually said, football was invented in England. Not surprisingly, the concept of football transfers first came into existence in England after domestic The Football Association (FA) introduced player registration sometime after 1885. Before that, a player could agree to play one or more matches for any football club. After the FA recognised professionalism in 1885, it sought to control professional players by introducing a player registration system. In 1893 a regulation was introduced that compelled all professional players to register annually with the FA. No player was allowed to play until he was registered, nor was he free to change clubs during the same season without the FA's permission. The Football League then introduced a new rule that stated that any professional player who wished to move on to another club had to obtain the permission of his present club. The Football League also insisted that once signed, a player was tied to his team for as long as the club wanted him. Therefore, if a player refused to sign a new contract at the beginning of the season, he could not sign for no one else unless the club gave permission. This measures introduced in 1893 created the transfer system that still exists today. However, in 1893, the players were not free to negotiate a new contract on anything like equal terms with their employers. The Football League had in fact abolished the free market and clubs could now reduce player wages without

losing their services. One of the consequences of these measures was that several top players moved to clubs in the Southern League. The Football League responded by trying to persuade these clubs to join their cartel. (John Simkin, 1997)

The Southern League's registration, transfer scheme was different compare to the Football League's. One of the biggest differences was, that the players needed their current club's permission in order to move to another team, even if their contract expired. This rule should have protect the smaller clubs because they could keep their best players until the buyer compensate them. Most of the sides understood the protocol, however there were occasions when parties were only motivated by meanness like in the case between Aston Villa and the player Herbert Kingaby. After Aston Villa purchased him for £300, only a few months after the team wanted to sell him back to his previous club, Clapton Orient, However, Clapton could not afford the amount of money and other clubs did not want to sign the player, while Aston Villa was keen not to lose their £300. Without any played minutes and new team, Kingaby did not receive any salary. For free, he could have join other lines, but his right's holder, Aston Villa would not have signed any document about it. Therefore, he brought his talent to Southern League where was no restriction. In the summer of 1910, he joined Leyton Orient from the second division of English League. His return meant that his living rights were still in Aston Villa's hands and the new club should pay £350 as Aston Villa recognised Kingaby's value. The English athlete went on court with the help from the Union (players union) which was created in 1907. His main focus was on Aston Villa's malicious act by not using the current transfer system as they supposed to. After many fails by the counsel the jury withdrew the case and obliged the Union to pay the costs of case.

A decade later, in 1923 the Union did achieve a great success in the courtroom when they were able to win the minimum and maximum wage case. In the same year, both of the leagues' participants had to implement in the contracts a £3 per week maximum cap, while the minimum could not be lower than the nation's average. (David McArdle, 2000)

During more than 100 years, the rules were simple and unchanged. In 1995 the Bosman ruling brought alteration. The ruling is named after Jean-Marc Bosman, a former Belgian footballer. His contract was coming to an end, and a better offer was on the table from Dunkirk in France. All that remained was for the clubs to arrange a fee. The year was 1990.

This is where the trouble started. Liege demanded around £250,000, far more than Dunkirk were willing to pay. When the deal collapsed, Liege cut Bosman's wages by 75 percent.

Bosman was trapped: unable to stay, unable to move. In desperation, he contacted a lawyer called Jean-Louis Dupont.

At the outset, Dupont reckoned the whole thing would be sorted out in a couple of weeks. But wherever they turned, they met with stony looks and slammed doors. As weeks turned into months and months into years, multiple attempts at a settlement fell on deaf ears. "The authorities refused to take us seriously," Dupont would later say.

If UEFA had foreseen a fraction of the turmoil that was about to be wreaked, it is highly likely they could have come to some sort of arrangement. Instead, the court ruled in Bosman's favour. He was free, but had spent the last two years living in his garage. His career was all but over. Meanwhile, the wheels had started turning on a revolution that would destroy the world of football as we knew it. The date was December 15, 1995.

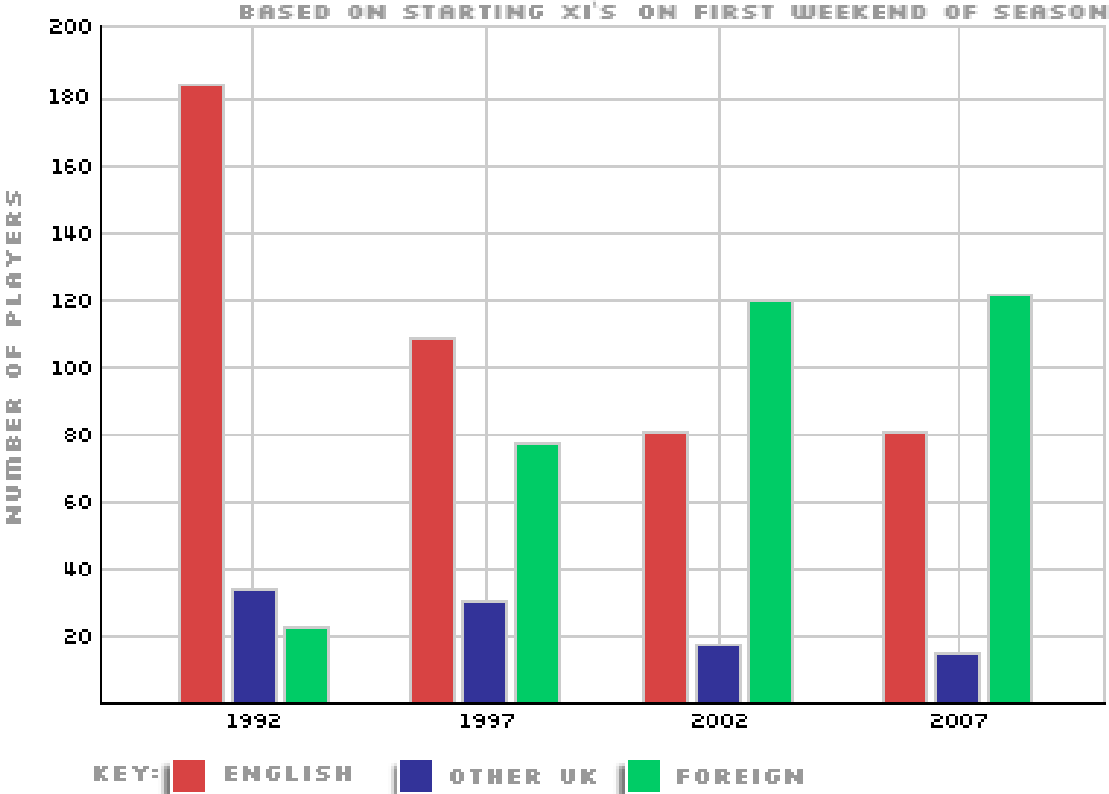
Bosman himself, whose compensation of £312,000 was barely enough to cover his legal fees and lost earnings. He suffered from depression, alcoholism, lost his father after a long battle with Alzheimer's disease, lost custody of his children, and now lives embittered and in relative penury in Belgium. "I won in court," he said once. "But I am the one who has paid and paid and paid." (Jonathan Liew. 2015)

The first high profile "Bosman transfer" was Edgar Davids, who departed AFC Ajax for AC Milan, but lasted just one year in Milan before moving to rivals Juventus FC for a fee of over £5 million. The same summer, Luis Enrique made the controversial decision to let his Real Madrid CF contract run down by signing for rivals FC Barcelona. In 1999, Steve McManaman departed his boyhood club Liverpool FC for Real Madrid, while Sol Campbell was arguably the most controversial Bosman transfer of all-time when he moved from Tottenham Hotspur to fierce rivals Arsenal. In 2014, it was announced Borussia Dortmund striker Robert Lewandowski would leave the club for FC Bayern Munich in the upcoming summer when his contract expired. (Debjyoti Samanta, 2018)

Another impact the case had was the rules regarding foreign players. Before the ruling was made, clubs throughout Europe were limited to the number of foreign players they could employ, and could only play a maximum of three in European competition. FIFA noted it was "disappointed" in the ruling. The new regulation ensured a team could now choose to play a team of 11 foreign players if it wanted, as was case when Chelsea broke new ground by fielding a starting team comprised of 11 foreign nationals, the first time that has happened in English football. (Conrad Leach, 1999) By 2007, the percentage of foreign players in England and

Germany had reached 57%, compared with 39% in Spain and France and 30% in Italy. (Matt Slater, 2007)

**Figure 5. Players by countries in the Premiere League
The Foreign Invasion**



Source: Matt Slater (2007)

Although there were leagues already implementing the practice, the governing body in Europe, UEFA decided to enforce a continental transfer window in time for the 2002–03 season. As the Italian league finally agreed on the terms a continental harmony was created in football. From 2002 to the present day, most leagues around Europe have two windows in which players may be purchased: the end of the season to 31 August, and then for the entirety of the month of January. In England, the club chairmen felt they were "reluctantly being forced" to accept the proposal, and FIFA relented somewhat by relaxing the rules regarding out-of-contract players, meaning they could be signed up to a new club at any time. This move created the official transfer window. (Andrew Warshaw, 2002)

Third-party ownership of players is whereby private investors, it can be an individual, company, or fund, own part of a player's economic rights. It first came to attention in the UK in 2006 with the transfer of two Argentines, Carlos Tevez and Javier Mascherano from Brazil to West Ham United. The process of transfers still did not take the final shape as on transfer

deadline day in August 2006, West Ham United FC pulled off what was described as a "major coup" by signing Argentina World Cup stars Carlos Tevez and Javier Mascherano from SC Corinthians Paulista. However, it later transpired that a clause in the Tevez deal said that the third-party investor could move the player on to another club, and could decide the fee involved. That broke Premier League rules, as it clearly "materially influenced" club policy. West Ham admitted it was in breach of the rules, and was fined £5.5m (€6.1m) for this and for hiding the details of the deal from the league. The Premier League said TPO caused questions to be asked about "the integrity of competition" and also the impact it could have on the development of young players. Because of the fallout from this case, and the issues it raised, the Football Association banned TPO at the beginning of the 2008-09 season. (Bill Wilson, 2016)

Then UEFA president Michel Platini released a statement in which plans to ban third-party ownership were revealed, stating that "the committee decided that the ownership of football players by third parties should be prohibited as a matter of principle". (Daniel Storey, 2012) In 2014, Platini again called for the practice to end: "If FIFA fails to act, we will address this issue in our own competitions in Europe. The UEFA Executive Committee has already adopted a position on this issue in principle, and we will see this through," also adding it is a "danger to our sport" and "threatens the integrity of our competitions, damages football's image, poses a long-term threat to clubs' finances and even raises questions about human dignity". (Mike Collett, 2014). He was backed by FIFPro, the worldwide representative organisation for 65,000 professional football players. The institution stated the rights of the players were "under attack" (fifpro.org, 2014). In September 2014, it was announced by then-FIFA president Sepp Blatter that third-party ownership is banned after an indeterminate transitional period. (Owen Gibson, 2014)

In April 2006, Hearts (Heart of Midlothian FC) player Andy Webster was placed on the transfer list by the club after Webster's agent attempted to engineer a move to Rangers FC. This was the beginning of the newest freedom-fight. Andy Webster, the Scotland international, has put himself in the same company as Jean-Marc Bosman after taking a lead in the most significant football freedom-of-contract case in more than a decade. The Court of Arbitration for Sport yesterday issued a landmark ruling that in effect means no players can be held to their contracts for more than three years. For players who join clubs or renew their contracts after their 28th birthday that comes down to two years.

Webster's test case came about after he quit Heart of Midlothian for Wigan Athletic in May 2006, having spent three years of a four-year contract with the Scottish club. In doing so he became the first player to invoke article 17 of FIFA's transfer regulations.

A FIFA ruling awarded Hearts £625,000 (€699,000) but the Scottish club were seeking £4.6m (€5.1m) - which they considered to be the player's market value at the time of his departure - and challenged FIFA's verdict at CAS (Court of Arbitration for Sport). The court revised the compensation figure downwards to £150,000 (€167,000), which was the value of the remaining term of his contract when he crossed the border.

FIFA's disputes-resolution chamber can multiply contract values by a factor of 1.5 in calculating compensation. But, with a player's value directly linked to his wages, the ruling is likely to cause transfer fees to plunge.

"My view has always been that this is the most significant case since Bosman," said Tony Higgins of Fifpro, director of European players' union. "The Webster case allows players, after a set period of time and if they so wish, to decide who their future employer will be. We now have a degree of certainty about what the value in question will be. Clubs have to re-evaluate their strategies in dealing with players on long-term contracts. If they are on four- or five-year contracts and fall into the relevant age bracket, clubs may now have to renegotiate after two years."

"It is a bit like Bosman, there will be worried clubs and clubs saying that this will ruin the game but after a period of time people will understand what their strategy will be and take due consideration. Once the clubs redefine their thinking, they will cope with this."

Higgins confirmed that clubs, as well as players, can unilaterally terminate contracts under the same terms. But it is likely also to cause clubs to suffer big accounting losses, since player contracts must now depreciate over a maximum of three years - the so-called "protected period" for players under 28 - rather than over durations of up to five years as now.

The CAS rejected Hearts' claim that the cost of replacing Webster should be a defining factor in the amount of compensation due. It further rejected the club's suggestion that, as in Scots law, commercial rather than basic employment values attached to football players' contracts should be primary. Hearts unsuccessfully argued that their development of Webster into an international player after he arrived for £75,000 (€83,800) from Arbroath in 2001 should be taken into account.

Those close to Hearts have been stunned by the outcome, with one leading sports lawyer remarking day that he feared no player would receive a contract longer than three years. "All we have now is more negotiation, more money to agents and more money going out of the game," he added. (Matt Scott, 2008)

The main character of my thesis, Neymar da Silva Santos Júnior was already a main pillar in creating the transfer process as it is today.

On 25 May 2013, FC Barcelona announced they had agreed a deal with Santos to sign Neymar. The transfer was confirmed on 3 June, with Neymar signing a five-year contract with Barcelona for a fee reported as £48.6 million (€54.3m), a fee later confirmed by Barcelona vice-president Josep Maria Bartomeu. (fcbarcelona.com, 2015). There has been confusion and court cases surrounding the total cost of the 2013 operation to bring the Brazilian to the Camp Nou (stadium of Barca) from Santos FC, but Susana Monje, Barcelona's financial vice-President outlined that the actual transfer fee paid is lower than first thought.

"Originally, the cost of the signing was 57.3m euros plus the 2m euros Ballon d'Or bonus. After the agreement with the public prosecutor's office, we have to remove 40m euros of the payout and categorise it as a salary. The cost of the transfer, therefore, is 19.3m euros, plus 24m euros gross salary per season. Taking into account the player Neymar is, the deal is clearly below market value." – explained to the reporters (Xavi Hernández, 2016)

Interim president Josep Bartomeu said the transfer was costing the club €57.1m – the €17.1m Santos transfer fee plus Neymar's €40m – although there were a series of bonus payments worth millions more to the player and his family. Neymar would receive €500,000 per year to be a so-called ambassador for Barcelona in Brazil and his father would receive €400,000 per year to scout three young Santos players. All the payments were on top of Neymar's annual salary of more than €10m. "We can't be any more transparent," Bartomeu told reporters.

Public prosecutor Jose Peral accused FC Barcelona of financial engineering by drawing up as many as nine separate agreements to avoid the club paying €12m in tax. Barcelona should have withheld 25% of all payments to Neymar as income tax on non-residents, he said. Five days later, Barcelona paid €14m to the tax authorities to cover a possible shortfall plus interest. (Alex Duff and Tariq Panja, 2017)

On 22 January, it was announced that judge Pablo Ruz would gather information as part of a lawsuit against Barcelona president Sandro Rosell. Rosell resigned from his position as president the next day, and a day later, the details of the transfer were revealed by Barcelona; the transfer had in fact cost them a total of €57.1 million (£48.6m), with Neymar's parents confirmed to have received a €40 million sum.

On 20 February, Barcelona and Bartomeu were charged with tax fraud, and paid a "voluntary" amount of €13.6 million in the same week in an attempt to save the image of the club. The tax charges which had been brought against Bartomeu were dropped in September. (thenational.ae, 2014)

The system is far from perfect. Nothing presents it better than in 2013, FIFPro launched a legal challenge against the transfer system. FIFPro president Phillipe Piat said that "the transfer system fails 99% of players around the world, it fails football as an industry and it fails the world's most beloved game".

“Thousands of players worldwide are not paid on time, or not at all, while 28% of the global transfer market (an estimated 750 million USD (€692m) annually) is paid to agents and lost to the game. Something is not right with this picture. Unpaid players are vulnerable targets of crime syndicates, who instigate match-fixing and threaten the very existence of credible football competitions. The current industrial model of football in general fails to ensure a professional management and compliance culture that is capable of safeguarding our game against internal and external abuse. In contrast, in the absence of competitive balance it encourages speculative, unsustainable, immoral and illegal investment models like Third Party Ownership of players.” said Bobby Barnes, European president of FIFPro. (fifpro.org, 2013) Since then, a new, an accepted by every participants, system is still not introduced.

However, a deal between two sides about a player's transfer can be cancelled even after everything is signed. Players will commonly undergo a medical examination and/or physical fitness test before a transfer can be completed. Occasionally, previously unknown medical problems will be detected, potentially jeopardizing the transfer or the size of the fee. Rarely, a player will still be signed by the interested club even if he fails a medical, as happened when the Italian Dominic Matteo failed a medical ahead of his move from Liverpool to Leeds United FC, who spent £4.75 million (€5.31m) on Matteo. (Daniel Taylor and Russel Thomas, 2000)

Even years after the transfer, there may be cash to be transferred between two clubs. In the upcoming topic, I will try to detail the circumstances.

1.2.2. Performance related add-ons

Performance-related add-ons or performance-related pay rise, not to be confused with performance-related pay or pay for performance, when a salary or wages paid system based on positioning the individual, on their pay band according to how well they perform. Car salesmen or production line workers, for example, may be paid in this way, or through commission. The aim of performance-related pay is to motivate employees to try harder, achieve more, perform better and be more effective, and to reward those who do. (unison.org.uk, 2019) Performance related add-ons, however is when a player in our case gets his salary though it can be increased after goals, clean sheets, assists, community work, number of minutes or games. This means that a player can earn more and the pay check may be different after each month.

For a team, the performance-related add-ons means, they need to pay more to the players' previous teams from they were acquired. These lifters can be team or individual achievements a player reached with the club such as advance to a cup final, finish in the top3 in the league, win cups or finish with more than 'X' goal, assist, minute, game moreover even the number of yellow or red cards may be factors. Players and their agents agreed on this terms with the one's new team before the new contract is signed.

When the Brazilian Philippe Coutinho was acquired by the Spanish powerhouse, FC Barcelona, the Catalan club paid €142 million to the English club, Liverpool FC, €36million of that is made up of performance-related add-ons.:

- 🌐 €18million is due for Coutinho's first 100 appearances for the club. Barcelona will pay €4.5million at each 25 match stage.
- 🌐 €4.5million will be due for if Barcelona qualify for the 2018/19 UEFA Champions League
- 🌐 €4.5million will be due for if Barcelona qualify for the 2019/20 UEFA Champions League.
- 🌐 €4.5million will be due for if Barcelona win the 2018/19 UEFA Champions League.
- 🌐 €4.5million will be due for if Barcelona win the 2019/20 UEFA Champions League. (mirror.co.uk, 2018)

As the example shows, FC Barcelona has paid only 25% of the official fee when the player moved the Spain and has left a window as the athlete was injury-prone.

1.2.3. Release clause

It is a clause in a player's contract that, subject to qualifying conditions (i.e. a particular transfer window or non-participation in the Champions League), automatically requires a club to accept an offer of a pre-determined contractual amount expressly set out in the contract from the offering club. If the minimum amount stipulated in the contract is triggered by the purchasing club, the player will be entitled to speak to that club. Although release clause and buy-out clause are usually referred as the same things, there is a slight difference.

Buy-out clauses are prevalent in Spain and are somewhat different to a release clause. They are a mandatory element of most Spanish contracts and are usually set at a very high figure which is not necessarily the true market value of the player. The player has to literally 'buy out' his contract at the stipulated amount, though in practice, it is the purchasing club who pays the amount via the player. This can be a complicated process because of the practical tax logistics of a purchasing club transferring the 'buy-out' fee to the player who will in turn buy out his contract. We saw this with Manchester United's reported failed bid with Anders Herrera and Javi Martinez's successful transfer to FC Bayern Munich. (danielgeey.com, 2019)

One such example of what the Court of Arbitration for Sport called a 'buy-out clause' but may be in fact closer to a 'release clause' became publically available in the case of Matuzalem (CAS 2008/A/1519) – at paragraph 70 which stated: "The relevant part of clause 3.3 of the employment contract between Player and Shakhtar Donetsk reads as follows: "During the validity of the Contract, the Club undertakes – in the case the Club receives a transfer offer in amount of 25,000,000 EUR or exceeding the some [recte: sum] above the Club undertakes to arrange the transfer within the agreed period." (jurisprudence.tas-cas.org, 2016)

Table 1. As of February 2020 the highest release clauses

1.	Karim Benzema	€1 billion (£ 846,7m)	Real Madrid CF
2.	Antoine Griezmann	€772,9m (£ 677,2m)	FC Barcelona
3.	Luka Modric	€723,2m (£634,9m)	Real Madrid CF
4.	Brahim Diaz	€634,9m (£723,2m)	Real Madrid CF
5.	Lionel Messi	€674,9m (£592.5m)	FC Barcelona
6.	Vinicius Jnr.	€674,9m (£592.5m)	Real Madrid CF
7.	Isco	€674,9m (£592.5m)	Real Madrid CF
8.	Marco Asensio	€674,9m (£592.5m)	Real Madrid CF
9.	Gareth Bale	€481,8m (£423m)	Real Madrid CF
10.	Gerard Pique	€481,8m (£423m)	FC Barcelona

Source: Will Griffiee (2020)

On the 3rd of August 2017, Paris Saint-Germain activated the buyout clause of Brazilian footballer Neymar from FC Barcelona, which was set at €222 million, making him the most expensive football player in history, ahead of the previous record set by Paul Pogba (€105 million) in 2016.

This transfer changed the game in football as nobody paid that much before.

1.3. Financial Fair Play

Football's European governing body, FIFA having seen the rises of mostly yet unsuccessful clubs from nothing, introduced a new concept that should help to equalize the chances of acquiring new players and to support the teams to be able to keep up with the redesigned and financially strengthened sides such as Manchester City FC or Paris Saint-Germain FC as these organisations had the background to level up just because their owner, supporter showed up with inexhaustible resources. The new rule was approved unanimously by the UEFA Executive Committee and then was first introduced in June 2010. In the last ten years, many updates followed the original regulations as new holes of the system were always found from time to time.

The rules are built around two main areas: an obligation for clubs, over a period of time, to balance their books (first assessed in the 2013/14 season) and an obligation for clubs to meet all their transfer and employee payment commitments at all times (first assessed in the summer of 2011).

The financial results of European clubs have improved in each and every one of the five years since the introduction of Financial Fair Play, with club balance sheets strengthening significantly (net equity doubling), and net debt to revenue plunging from 65% to 35%. The facts speak for themselves and answer many of the critics who considered the project too ambitious and challenging to implement. The results also explain why the project continues to receive almost universal support among football stakeholders. Financial Fair Play is considered to have specifically contributed to the turnaround in club football finances by:

- 🌐 Directly restricting some of the most excessive loss-making clubs, by concluding 28 settlement agreements designed to bring these clubs back to operating at break-even, in many cases featuring specific transfer and wage restrictions;

- ⚽ Preventing the build-up of debt by requiring the owners or shareholders of more than 50 clubs with smaller losses to raise or inject new capital to cover these losses;
- ⚽ Disincentivising clubs from delaying payments by applying tough sanctions, including the exclusion from UEFA club competitions;
- ⚽ Creating an environment that encourages new and continued owner investment, attracted by a properly regulated market;
- ⚽ Inspiring the introduction of parallel domestic rules, based on the principles of Financial Fair Play and tailored to the specific environment;
- ⚽ Increasing the public and media attention given to club finances, thereby increasing the accountability of club directors and owners to running clubs in a sustainable way. (uefa.com, 2020)

1.4. Neymar da Silva Santos Júnior

Born on February 5, 1992, in São Paulo, Brazil, Neymar drew attention for his impressive soccer abilities at an early age. He emerged as a star for Santos FC as a teenager, winning four straight Player of the Year awards while becoming one of Brazil's most popular public figures. Neymar made the leap to Europe to join FC Barcelona for the start of the 2013-14 season, and became a fixture for a club that claimed numerous domestic and international titles. After leading the Brazilian men to their first Olympic gold medal in 2016, the star forward transferred to France's Paris Saint-Germain the following year. (biography.com, 2016)

At the beginning of his career he was already compared to Pelé (Edson Arantes do Nascimento), the Brazilian forward who was voted World Player of the Century (Jeff Israely, 2000) and led the Selecao (Brazilian national team's nickname) to the world cup three times. He is the only player who tripled. Even the book about Neymar's career so far got the name: "Neymar, the new Pelé" by Illugi Jökulsson. Neymar once said that Pelé is his "role model" but also stated: "I don't like to make a comparison with Pelé". (peoplepill.com, 2019)

The expectations were high and his statistics and trophies highlight the fact, he lived up to those expectations. As of 11 March 2020, he scored 310 goals on 490 appearances. The numbers sum up his whole professional career in club competitions. (soccerway.com, 2020) It is not a surprise that teams were in lines to bring him to the old continent as it became a trend to buy the rights of young footballers from overseas as soon as possible. Apart his statistics, his game style, his dribbles are hard to compare. Neymar, in the 90 minutes does something no other

player in the world would even attempt (Reuben Pinder, 2019), which brings fame and attention but also hatred from other players. Off the pitch, he organises charity events and even started his own called Instituto Neymar Jr. (INJR) to help needy families. (thesportphilanthropy.com, 2018)

However, as the above mentioned stories seem to never end, his personality is controversial. In the time of social media, when everyone can express their feelings, he divides the sport fans with the money around him, and has been paid for him, not to mention the prosecutions of frauds that he is involved.

Great talents will always come and go. Although his performance belongs to one of the bests, the 222 million euros that was paid for him in 2017 set the tone and may change history as the amount is clearly closer to the player's real market value than at the previous transfers ever.

1.5. Transfer records

1.5.1. Chronological order

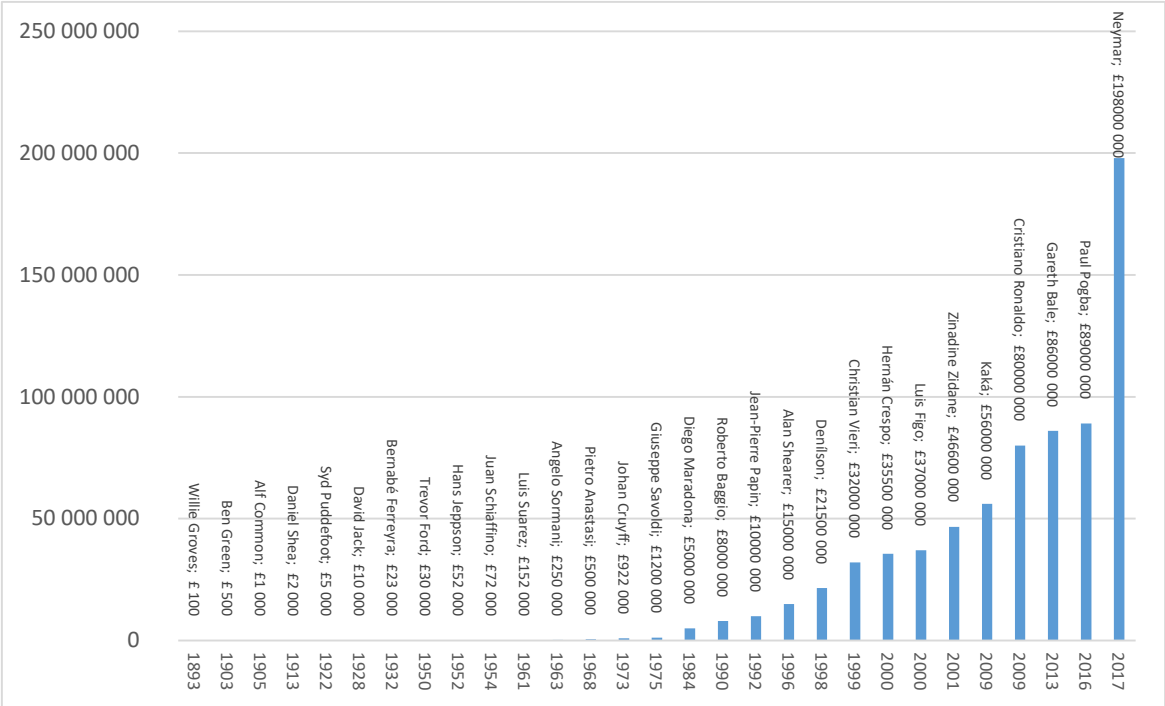
Patrick William “Willie” Groves is widely considered to be the first player that cost over £100 to be transferred from one club to another and also as the first player to be bought. It was Aston Villa FC who paid the £100 for him which would be £11,173 after adjusted inflation to take him to Villa Park in 1893. They also had to pay a fine as the Football Association believed that they had poached him illegally from West Brom Albion FC. It may not have been worth the money, with Groves returning to Scotland in 1894 after a dispute over his contract with Villa. The first million pound player was Trevor Francis, English player who joined to Nottingham Forest in 1979 for £1,150,000. (football-stadiums.co.uk, 2009) Until Jean-Pierre Papin's transfer, the fees never reached 8-digits. When the French player moved from Marseille to Milan, the Italian club paid £10 million (bbc.com, 2013)

The new era of transfers has begun in 2000 when Lazio acquired the striker Hernán Crespo from AC Parma for €58.5 million which broke the world football transfer record at the time. (new.bbc.co.uk, 2000) Only a week later Real Madrid CF paid €62 million for the Portuguese Luis Figo. (independent.co.uk, 2000) A year later the French midfielder, Zinedine Zidane followed Figo to Real Madrid from Juventus FC for €77.5 million.(Dominic Fifield, 2001) Eight seasons had to be waited for the record to be broken again when Kaká joined Real Madrid

for €67 million. (news.bbc.co.uk, 2009) Two whole days later Real Madrid’s name had to be added to record books repeatedly as they agreed on a deal with Manchester United FC where the Spanish club paid €94 million for Cristiano Ronaldo. (news.bbc.co.uk, 2009) In 2013 Real Madrid finally broke the €100 million borderline with Gareth Bale, the Welsh forward with €100,8 million. (bbc.com, 2013) Since the very first 9-digits transfer fee nine other players were acquired for the same amount or more. Three years later Manchester United jumped on the top of the records with the transfer of Paul Pogba as they wired €105 million for Juventus. (football-italia.net, 2016) Last but not least, the main character of my thesis closes the conversation with €222 as Paris Saint-Germain FC satisfied the release clause in Neymar’s contract and paid with one cheque. (Sam Wallace, 2017)

Interesting fact that the Spanish powerhouse, Real Madrid set the bar up higher and higher as they were the customers five-times of the last twenty years’ 8 records.

Figure 6. World record transfer fees



According to bbc.com (2013), created by myself

As the figure shows, Neymar’s transfer fee is salient. Although the figure I created by using BBC’s original statistics does not include all the world records only the biggest milestones, the amount of money that was wired for the Brazilian is unique by doubling the previous world record. By curiosity, the French club Paris Saint-Germain spent €367 million only for two players in the summer of 2017 as they bought the rights both for Neymar and Kylian Mbappé in the same transfer period.

1.5.2. The breaking point

Although Gareth Bale was the first hundred-million player, the next spreadsheet will show the effect of Neymar's 222 million. Every player on the list besides Gareth Bale and Paul Pogba – whose transfers were world records by that time – changed employer after the Brazil's transfer. Out of the 10 current most expensive football transfers, only three broke the world record, Bale, Pogba, Neymar. However, most of these transfer fees broke other records anyway. Kylian Mbappé still holds the world record for a teenager at the time of the transfer title (players under age 20). (goal.com, 2017) The only 19-year-old Joao Felix, the new attacker of Atlético Madrid set a new record in the Portuguese league when the Spaniards paid €126 million for him. (theguardian.com, 2019) Philippe Coutinho, whose contract was already mentioned and detailed in the section of 'Performance related add-ons', his transfer free broke the English national league record. Yet in this list, the amount of €120 million is not enough for the podium. (Phil McNulty, 2018). The French attacker, Antoine Griezmann's transfer did not set any record in 2019 despite the fee reached €120 million. (fcbarselona.com, 2019) His fellow in the national team and FC Barcelona, Ousmane Dembele is recognised as the most expensive transfer of the Bundesliga (German top-level football league). While Cristiano Ronaldo is still one of the biggest influencer of players in the world and has a market value that nobody else as I detailed in the section of 'Deciding factors' of 'What is the market value of a player', his transfer fee in 2018 barely make the top 10 list with exactly €100 million. (juventus.com, 2018) However, this agreement makes him the most expensive 30+ years old player ever. The Belgian Eden Hazard for the same amount like Ronaldo did not break any record.

Table 2. The 10 most expensive football transfers of all time (in parenthesis, the performance related add-ons)

Pos.	Player	Clubs	Year	Fee
1	Neymar	Barcelona - PSG	2017	€222m (world record)
2	Kylian Mbappe	Monaco - PSG	2017	€145m (+€35m)
3	Joao Felix	Benfica - Atletico Madrid	2019	€126m
4	Philippe Coutinho	Liverpool - Barcelona	2018	€120m (+€40m)
5	Antoine Griezmann	Atletico Madrid - Barcelona	2019	€120m
6	Ousmane Dembele	Borussia Dortmund - Barcelona	2017	€105m (+€45m)
7	Paul Pogba	Juventus - Manchester United	2016	€105m (world record)
8	Gareth Bale	Tottenham Hotspur - Real Madrid	2013	€100.8m (world record)
9	Cristiano Ronaldo	Real Madrid - Juventus	2018	€100m
9	Eden Hazard	Chelsea - Real Madrid	2019	€100m (+€40m)

Source: Mark Doyle (2020)

However, the list of most valuable players shows difference and brings up players who were not mentioned in the thesis before. This also proves that unlike the official definition of market value that I already used by the IVSC, the market value in sports is different.

Table 3. Highest market values

#	Player	Age	Market value
1	Kylian Mbappé	21	€180m
2	Raheem Sterling	25	€128m
3	Neymar	28	€128m
4	Sadio Mané	28	€120m
5	Mohamed Salah	27	€120m
6	Harry Kane	26	€120m
7	Kevin De Bruyne	28	€120m
8	Jadon Sancho	20	€117m
9	Lionel Messi	32	€112m
10	Trent Alexander-Arnold	21	€99m

According to transfermarkt.com (2020), created by myself

A player's market value is highly influenced by the age according to the independent institution's website, transfermarkt.com. What the system does not count are the off-pitch variables (online presence, advertisement values). These numbers were cut down by 15% due to COVID-19 as I mentioned earlier on page 5. Most of these athletes are under 30 besides the record holder with 6 wins on Ballon d'Or, the Argentinian Lionel Messi. (Tom Sanderson, 2019) Ballon d'Or is an annual football award which is presented by France Football, the French news magazine and recognised as the most prestigious individual award for football players. (Alfredo Relano, 2018) The South American player is still known as one of the most efficient footballers of the world and the leader of the Spanish powerhouse, FC Barcelona. On this list except one person, only strikers or players who help in attacking made the top 10. Trent Alexander-Arnold is the only 'outsider'. Whilst the famous saying is 'Buy a great goalkeeper' when it is about to start to build-up your own squad, nobody can be found in the top 10 from that position.

2. CHANGE IN THE MARKET VALUE OF PLAYERS SINCE THE SUMMER OF 2017

2.1. Goalkeeper statistics

In football, each position is worth different amount. Goalkeepers and defenders, for example, tend to have lower value than forwards or midfielders. However, even in this position there are some players who are worth far more than the others as the descriptive statistics show.

In the goalkeeper position, just like in any other position, I have examined 100 players, who are currently considered to be the top 100 by Transfermarkt. From the list, I excluded all the players who were born after the 31st of December, 1997. I also excluded two players, Gautier Larsonneur (nationality: France, football club: Stade Rennes) and Marek Rodak (Slovakia, Fulham FC) as Transfermarkt did not measure their market value before the Neymar transfer took place. If there were more players on the same market value, who were in contention for the last positions in the top 100, I chose based on age, thus the younger competitors took the last remaining positions on the list.

In the summer transfer market of 2017, the lowest market value was 100 thousand euros, and it belonged to Dean Henderson, an English goalkeeper, who is currently on loan and plays for Sheffield United in the English top flight, the Premier League. The highest market value was 40 million euros, but it belonged to four different goalkeepers: Jan Oblak (Slovenia, Atlético Madrid), Thibaut Courtois (Belgium, Real Madrid), David De Gea (Spain, Manchester United), Manuel Neuer (Bayern München). The range between the highest and lowest market values was 39.9 million euros. The sum of the top 100 goalkeepers' market value was 690.85 million euros, while the players' market value was 6.91 million euros on average. The standard deviation of the data was 9.02, which means that the market value of the goalkeepers differed from the sample mean by 9.02 million euros on average.

In the winter transfer market of 2018, the lowest market value grew to 150 thousand euros, and it belonged to David Raya, a Spaniard, who currently plays for Brentford. The highest market value was 50 million euros, and it belonged to three different goalkeepers: Jan Oblak (Slovenia, Atlético Madrid), Thibaut Courtois (Belgium, Real Madrid), David De Gea (Spain, Manchester United). The range between the highest and lowest market values was 49.85 million euros. The sum of the top 100 goalkeepers' market value was 853.83 million euros, while the players' market value was 8.54 million euros on average. The standard deviation of the data

was 10.85, which means that the market value of the goalkeepers differed from the sample mean by 10.85 million euros on average. Based on the descriptive statistics, it can be concluded that in only one transfer period (less than six months) the minimum, the maximum, the average, the sum and the standard deviation of the market value of the players have all increased.

In the summer transfer market of 2018, the lowest market value remained 150 thousand euros, and it belonged again to David Raya. The highest market value grew to 70 million euros, and it belonged to two different goalkeepers: Jan Oblak (Slovenia, Atlético Madrid), David De Gea (Spain, Manchester United). The range between the highest and lowest market values was 69.85 million euros. The sum of the top 100 goalkeepers' market value increased to 1132.65 million euros, while the players' market value was 11.33 million euros on average. The standard deviation of the data increased to 15.25, which means that the market value of the goalkeepers differed from the sample mean by 15.25 million euros on average. Based on the descriptive statistics, only one year after the Neymar transfer, the sum of the players market value increased by 441.8 million euros, the maximum market value increased by 30 million euros, while the average market value of the players increased by 4.418 million euros.

In the winter transfer market of 2019, the lowest market value grew to 500 thousand euros, and it belonged to Marco Silvestri, an Italian goalkeeper, who currently plays for Hellas Verona. The highest market value grew to 80 million euros, and it belonged to two different goalkeepers: Jan Oblak (Slovenia, Atlético Madrid), Marc-André ter Stegen (Germany, Barcelona). The range between the highest and lowest market values was 79.50 million euros. The sum of the top 100 goalkeepers' market value was 1357.30 million euros, while the players' market value was 13.57 million euros on average. The standard deviation of the data was 16.76, which means that the market value of the goalkeepers differed from the sample mean by 16.76 million euros on average. Based on the descriptive statistics, it can be concluded that the minimum, the maximum, the average, the sum and the standard deviation of the market value of the players kept on increasing.

In the summer transfer market of 2019, the lowest market value increased to 800 thousand euros, and it belonged again to Marco Silvestri. The highest market value grew to 100 million euros, and it belonged to Jan Oblak (Slovenia, Atlético Madrid). The range between the highest and lowest market values was 79.50 million euros. The sum of the top 100 goalkeepers market value increased to 1531.05 million euros, while the players' market value was 15.31 million euros on average. The standard deviation of the data increased to 18.33, which means that the market value of the goalkeepers differed from the sample mean by 18.33 million euros on

average. Based on the descriptive statistics, two years after the Neymar transfer, the sum of the players' market value increased by 840.2 million euros, the maximum market value increased by 60 million euros, while the average market value of the players increased by 8.402 million euros.

Based on the data extracted from Transfermarkt on the 18th of March, 2020, currently, the lowest market value is 5 million euros, which is a significant, 4.2 increase from the minimum market value measured in the summer of 2019. Nine goalkeepers reached this value in the top 100: David Raya (Spain, Brentford), Gregor Kobel (Switzerland, Stuttgart), Rui Silva (Portugal, Granada CF), Bono (Morocco, Sevilla FC), Jesse Joronen (Finland, Brescia Calcio), Luigi Sepe (Italy, Parma Calcio 1913), Alex McCarthy (England, Southampton FC), Loris Karius (Germany, Besiktas JK), Timo Horn (Germany, 1. FC Köln). The highest market value remains at 100 million euros, and it belongs to Jan Oblak (Slovenia, Atlético Madrid). The range between the highest and lowest market values is 95.00 million euros. The sum of the top 100 goalkeepers' market value increased to 1651.00 million euros, while the players' market value was 16.51 million euros on average. The standard deviation of the data decreased to 17.85, which means that the market value of the goalkeepers differed from the sample mean by 17.85 million euros on average. The average age of the players is 27.42 years, with a minimum of 22 and a maximum of 35.

Based on the averages, in my opinion it could be concluded that the goalkeepers' average market value has grown by at least 5 million euros. To conclude it, I made a hypothesis analysis, where μ_1 is the average market value of players in the summer transfer market of 2019, while μ_0 is the average market value of players in the summer transfer market of 2017.

$$H_0 : \mu_1 - \mu_0 \geq 5$$

$$H_1 : \mu_1 - \mu_0 < 5$$

Based on the sample, I used the Z hypothesis analysis, where the d value is the difference between the average market value of players in the summer transfer market of 2019 and the average market value of players in the summer transfer market of 2017; the σ value is 5; the sd

value is equal to $\sqrt{\frac{s_1}{n_1} + \frac{s_0}{n_0}} = 2.043$. Please find the result below:

$$Z = \frac{d - \sigma}{sd} = \frac{8.40 - 5}{2.043} = 1.6651$$

After taking a look at the Z table, we can conclude with at most 95.2 percent significance level, that from the summer transfer market of 2017 to the summer transfer market of 2019, the average market value of the goalkeepers increased by at least 5 million euros.

2.2. Defender statistics

Based on their market values, defenders are considered to be more valuable than goalkeepers. If we only take a look at the current values, the sum of the market value of goalkeepers is 1651 million euros, while the same measurement for defenders is 3807 million euros. The average market value tells the same story as it is 16.51 million euro for the goalkeepers, while it is 38.07 million euro for the defenders. The defenders are put into two groups on this list: there are either left- or right-backs and centre-backs. There are 61 players from the latter group on the list, while centre-backs also take 13 positions from the top 15.

In the defender position, just like in any other position, I have examined 100 players, who are currently considered to be the top 100 by Transfermarkt. From the list, I excluded all the players who were born after the 31st of December, 1997. I also excluded one right-back, Aaron Wan-Bissaka (England, Manchester United) as Transfermarkt did not measure his market value before the Neymar transfer took place. If there were more players on the same market value, who were in contention for the last positions in the top 100, I chose based on age, thus the younger competitors took the last remaining positions on the list.

In the summer transfer market of 2017, the lowest market value was 100 thousand euros, and it belonged to Júnior Firpo, a Spanish left-back, who currently plays for Barcelona. The highest market value was 45 million euros, which belonged to Leonardo Bonucci, an Italian centre-back, who currently plays for Juventus. The range between the highest and lowest market values was 44.9 million euros. The sum of the top 100 defenders' market value was 1519.35 million euros, while the players' market value was 15.19 million euros on average. The standard deviation of the data was 12.31, which means that the market value of the defenders differed from the sample mean by 12.31 million euros on average.

In the winter transfer market of 2018, the lowest market value remained at 100 thousand euros, and it belonged again to Júnior Firpo (Spain, Barcelona). The highest market value grew to 50 million euros, which belonged to Virgil van Dijk, a Dutch centre-back, who currently plays for Liverpool. The range between the highest and lowest market values was 49.9 million euros. The sum of the top 100 defenders' market value increased to 1931.05 million euros, while the players' market value was 19.31 million euros on average. The standard deviation of

the data was 13.53, which means that the market value of the defenders differed from the sample mean by 13.53 million euros on average. Based on the descriptive statistics, it can be concluded that in only one transfer period (less than six months) the maximum, the average, the sum and the standard deviation of the market value of the players have all increased.

In the summer transfer market of 2018, the lowest market value grew to 500 thousand euros, and it belonged to Pau Torres, a Spanish centre-back, who currently plays for Villarreal CF. The highest market value increased to 80 million euros, which belonged to Raphael Varane, a French centre-back, who currently plays for Real Madrid. The range between the highest and lowest market values was 79.5 million euros. The sum of the top 100 defenders' market value grew to 2763.9 million euros, while the players' market value was 27.64 million euros on average. The standard deviation of the data was 16.99, which means that the market value of the defenders differed from the sample mean by 16.99 million euros on average. Based on the descriptive statistics, we can conclude that only one year after the Neymar transfer, the sum of the players' market value increased by 1244.55 million euros, the maximum market value increased by 35 million euros, while the average market value of the players increased by 12.45 million euros.

In the winter transfer market of 2019, the lowest market value further increased to 600 thousand euros, and it belonged to Gabriel Magalhães (Brazil, LOSC Lille). The highest market value remained at 80 million euros, and it belonged again to Raphael Varane (France, Real Madrid). The range between the highest and lowest market values was 79.4 million euros. The sum of the top 100 defenders' market value increased to 3198.1 million euros, while the players' market value was 31.98 million euros on average. The standard deviation of the data was 17.81, which means that the market value of the defenders differed from the sample mean by 17.81 million euros on average. Based on the descriptive statistics, it can be concluded that the minimum, the average, the sum and the standard deviation of the market value of the players kept on increasing.

In the summer transfer market of 2019, there was a huge increase in the lowest market value, which grew to 4 million euros. It belonged to two defenders: Pau Torres (Spain, Villarreal CF), Gabriel Magalhães (Brazil, LOSC Lille). The highest market value increased as well to 90 million euros, which belonged to Virgil van Dijk (Netherlands, Liverpool). The range between the highest and lowest market values was 86 million euros. The sum of the top 100 defenders' market value grew to 3483.5 million euros, while the players' market value was 34.84 million euros on average. The standard deviation of the data was 17.14, which means that the market

value of the defenders differed from the sample mean by 17.14 million euros on average. Based on the descriptive statistics, we can conclude that two years after the Neymar transfer, the sum of the players' market value increased by 1964.15 million euros, the maximum market value increased by 55 million euros, while the average market value of the players increased by 19.64 million euros.

Based on the data extracted from Transfermarkt on the 18th of March, 2020, currently, the lowest market value is 20 million euros, which is a significant, 16 million euros increase from the minimum market value measured in the summer of 2019. Two defenders reached this value in the top 100: Luiz Felipe (Brazil, SS Lazio), Pau Torres (Spain, Villarreal CF). The highest market value grew to 100 million euros, and it belongs to Virgil van Dijk (Netherlands, Liverpool). The range between the highest and lowest market values is 80.00 million euros. The sum of the top 100 defenders' market value increased to 3842 million euros, while the players' market value was 38.42 million euros on average. The standard deviation of the data decreased to 15.90, which means that the market value of the defenders differed from the sample mean by 15.90 million euros on average. The average age of the players based on the current data is 25.65 years, with a minimum of 22 and a maximum of 33.

Based on the averages, in my opinion it could be concluded that the defenders' average market value has grown by at least 15 million euros. To conclude it, I made a hypothesis analysis, where μ_1 is the average market value of players in the summer transfer market of 2019, while μ_0 is the average market value of players in the summer transfer market of 2017.

$$H_0 : \mu_1 - \mu_0 \geq 15$$

$$H_1 : \mu_1 - \mu_0 < 15$$

Based on the sample, I used the Z hypothesis analysis, where the d value is the difference between the average market value of players in the summer transfer market of 2019 and the average market value of players in the summer transfer market of 2017; the σ value is 15; the sd value is equal to $\sqrt{\frac{s_1}{n_1} + \frac{s_0}{n_0}} = 2.1102$. Please find the result below:

$$Z = \frac{d - \sigma}{sd} = \frac{19.64 - 15}{2.1102} = 2.1996$$

After taking a look at the Z table, we can conclude with at most 98.61 percent significance level, that from the summer transfer market of 2017 to the summer transfer market of 2019, the average market value of the defenders increased by at least 15 million euros.

2.3. Midfielder statistics

Based on the sum values, midfielders are the second most expensive players in football. The midfielders are put into five groups on my top 100 list: left midfielder, right midfield, central midfield, attacking midfield and defensive midfield.

In the midfielder position, just like in any other position, I have examined 100 players, who are currently considered to be the top 100 by Transfermarkt. From the list, I excluded all the players who were born after the 31st of December, 1997. I also excluded two players, Bruno Guimarães (Brazil, Olympique Lyon) and Scott McTominay (Scotland, Manchester United) from the central midfield position and one player, David Brooks (Wales, AFC Bournemouth) from the attacking midfield position, as Transfermarkt did not measure their market value before the Neymar transfer took place. If there were more players on the same market value, who were in contention for the last positions in the top 100, I chose based on age, thus the younger competitors took the last remaining positions on the list.

In the summer transfer market of 2017, the lowest market value was 100 thousand euros, and it belonged to two players: Arthur (Brazil, Barcelona), Lucas Paquetá (Brazil, AC Milan). The highest market value was 75 million euros, which belonged to Paul Pogba, a French central midfielder, who currently plays for Manchester United, and who held the transfer record before the Neymar transfer took place. The range between the highest and lowest market values was 74.9 million euros. The sum of the top 100 midfielders' market value was 1876.75 million euros, while the players' market value was 18.77 million euros on average. The standard deviation of the data was 17.05, which means that the market value of the midfielders differed from the sample mean by 17.05 million euros on average.

In the winter transfer market of 2018, the lowest market value grew to 700 thousand euros, and it belonged to Gaetano Castrovilli (Italy, AFC Fiorentina). The highest market value increased by 35 million euros as it grew to 110 million euros, which belonged to Kevin De Bruyne, a Belgian attacking midfielder, who currently plays for Manchester City. The range between the highest and lowest market values was 109.3 million euros. The sum of the top 100 midfielders' market value increased to 2747.2 million euros, while the players' market value was 27.47 million euros on average. The standard deviation of the data was 23.55, which means

that the market value of the midfielders differed from the sample mean by 23.55 million euros on average. Based on the descriptive statistics, it can be concluded that in only one transfer period (less than six months) the minimum, the maximum, the average, the sum and the standard deviation of the market value of the players have all increased.

In the summer transfer market of 2018, the lowest market value doubled to 1.4 million euros, and it belonged again to Gaetano Castrovilli (Italy, AFC Fiorentina). The highest market value increased to 150 million euros, which belonged to Kevin De Bruyne (Belgium, Manchester City). The range between the highest and lowest market values was 148.6 million euros. The sum of the top 100 midfielders' market value grew to 3505.4 million euros, while the players' market value was 35.05 million euros on average. The standard deviation of the data was 26.80, which means that the market value of the midfielders differed from the sample mean by 26.80 million euros on average. Based on the descriptive statistics, we can conclude that only one year after the Neymar transfer, the sum of the players' market value increased by 1628.65 million euros, the maximum market value increased by 75 million euros, while the average market value of the players increased by 16.29 million euros.

In the winter transfer market of 2019, the lowest market value further increased to 1.8 million euros, and it belonged to Gaetano Castrovilli (Italy, AFC Fiorentina). The highest market value remained at 150 million euros, and it belonged again to Kevin De Bruyne (Belgium, Manchester City). The range between the highest and lowest market values was 148.2 million euros. The sum of the top 100 midfielders' market value increased to 3949.3 million euros, while the players' market value was 39.49 million euros on average. The standard deviation of the data was 26.82, which means that the market value of the midfielders differed from the sample mean by 26.82 million euros on average. Based on the descriptive statistics, it can be concluded that the minimum, the average, the sum and the standard deviation of the market value of the players kept on increasing.

In the summer transfer market of 2019, the lowest market value remained at 1.8 million euros. It belonged again to Gaetano Castrovilli (Italy, AFC Fiorentina), although it is worth to mention that the second lowest value was 10 million euros, which belonged to Amine Harit (Morocco, FC Schalke 04). The highest market value dropped back to 130 million euros, but it still belonged to Kevin De Bruyne (Belgium, Manchester City). The range between the highest and lowest market values was 128.2 million euros. The sum of the top 100 midfielders' market value grew to 4332.8 million euros, while the players' market value was 43.33 million euros on average. The standard deviation of the data was 23.26, which means that the market value of

the midfielders differed from the sample mean by 23.26 million euros on average. Based on the descriptive statistics, we can conclude that two years after the Neymar transfer, the sum of the players' market value increased by 2456.05 million euros, the maximum market value increased by 55 million euros, while the average market value of the players increased by 24.56 million euros.

Based on the data extracted from Transfermarkt on the 18th of March, 2020, currently, the lowest market value is 25 million euros, which is a significant, 23.2 million euros increase from the minimum market value measured in the summer of 2019. Thirteen midfielders reached this value in the top 100: André Zambo Anguissa (Cameroon, Villarreal CF), Gaetano Castrovilli (Italy, AFC Fiorentina), Franck Kessié (Cote d'Ivoire, AC Milan), Mauro Arambarri (Uruguay, Getafe CF), Nemanja Maksimovic (Serbia, Getafe CF), Aleksandr Golovin (Russia, AS Monaco), Jefferson Lerma (Colombia, AFC Bournemouth), Suat Serdar (Germany, FC Schalke 04), Rodrigo de Paul (Argentina, Udinese Calcio), Bryan Cristante (Italy, AS Roma), Florian Grillitsch (Austria, TSG 1899 Hoffenheim), Eric Dier (England, Tottenham), Leandro Paredes (Argentina, Paris Saint-Germain). The highest market value is back to 150 million euros, and it belongs to Kevin De Bruyne (Belgium, Manchester City). The range between the highest and lowest market values is 125 million euros. The sum of the top 100 midfielders' market value increased to 4564 million euros, while the players' market value is 46.64 million euros on average. The standard deviation of the data decreased to 21.97, which means that the market value of the midfielders differed from the sample mean by 21.97 million euros on average. The average age of the players based on the current data is 25.38 years, with a minimum of 22 and a maximum of 31.

Based on the averages, in my opinion it could be concluded that the midfielders' average market value has grown by at least 20 million euros. To conclude it, I made a hypothesis analysis, where μ_1 is the average market value of players in the summer transfer market of 2019, while μ_0 is the average market value of players in the summer transfer market of 2017.

$$H_0 : \mu_1 - \mu_0 \geq 20$$

$$H_1 : \mu_1 - \mu_0 < 20$$

Based on the sample, I used the Z hypothesis analysis, where the d value is the difference between the average market value of players in the summer transfer market of 2019 and the

average market value of players in the summer transfer market of 2017; the σ value is 20; the sd value is equal to $\sqrt{\frac{s_1}{n_1} + \frac{s_0}{n_0}} = 2.8838$. Please find the result below:

$$Z = \frac{d - \sigma}{sd} = \frac{24.56 - 20}{2.8838} = 1.5814$$

After taking a look at the Z table, we can conclude with at most 94.3 percent significance level, that from the summer transfer market of 2017 to the summer transfer market of 2019, the average market value of the defenders increased by at least 20 million euros.

2.4. Forward statistics

Based on the sum and average values, forwards are the most expensive players in football. The midfielders are put into four groups on my top 100 list: left winger, right winger, centre-forward, second striker.

In the forward position, just like in any other position, I have examined 100 players, who are currently considered to be the top 100 by Transfermarkt. From the list, I excluded all the players who were born after the 31st of December, 1997. I also excluded one player, Dan James (Wales, Manchester United) from the left winger position, as Transfermarkt did not measure his market value before the Neymar transfer took place. If there were more players on the same market value, who were in contention for the last positions in the top 100, I chose based on age, thus the younger competitors took the last remaining positions on the list.

In the summer transfer market of 2017, the lowest market value was 600 thousand euros, and it belonged to Marcus Thuram (France, Borussia Mönchengladbach). The highest market value was 120 million euros, which belonged to Lionel Messi, an Argentine right winger, who currently plays for Barcelona, and who has six Balon d'Or awards to his name now. The range between the highest and lowest market values was 119.4 million euros. The sum of the top 100 forwards' market value was 2777.6 million euros, while the players' market value was 27.78 million euros on average. The standard deviation of the data was 25.65, which means that the market value of the forwards differed from the sample mean by 25.65 million euros on average.

In the winter transfer market of 2018, the lowest market value grew to 900 thousand euros, and it belonged to Krzysztof Piątek (Poland, Hertha BSC). The highest market value grew to 180 million euros, which belonged to two players: Lionel Messi (Argentina, Barcelona), Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest market values was 179.1 million euros. The sum of the top 100 forwards' market value was 3850.9 million

euros, while the players' market value was 38.51 million euros on average. The standard deviation of the data was 34.94, which means that the market value of the forwards differed from the sample mean by 34.94 million euros on average. Based on the descriptive statistics, it can be concluded that in only one transfer period (less than six months) the minimum, the maximum, the average, the sum and the standard deviation of the market value of the players have all increased.

In the summer transfer market of 2018, the lowest market value grew to 2 million euros, and it belonged to Marcus Thuram (Borussia Mönchengladbach). The highest market value remained at 180 million euros, which belonged once again to two players: Lionel Messi (Argentina, Barcelona), Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest market values decreased slightly to 178 million euros. The sum of the top 100 forwards' market value increased again to 4687 million euros, while the players' market value also grew to 46.87 million euros on average. The standard deviation of the data was 37.26, which means that the market value of the defenders differed from the sample mean by 37.26 million euros on average. Based on the descriptive statistics, it can be concluded that only one year after the Neymar transfer, the sum of the forwards' market value increased by 1909.4 million euros, the maximum market value increased by 60 million euros, while the average market value of the players increased by 19.09 million euros.

In the winter transfer market of 2019, the lowest market value grew to 4.5 million euros, which belonged to two players: Milot Rashica (Kosovo, SV Werder Bremen), Marcus Thuram (France, Borussia Mönchengladbach). The highest market value remained at 180 million euros again, but it belonged to only one player: Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest market values decreased to 175.5 million euros. The sum of the top 100 forwards' market value grew to 4935 million euros, while the players' market value increased to 49.35 million euros on average. The standard deviation of the data was 35.78, which means that the market value of the forwards differed from the sample mean by 35.78 million euros on average. Based on the descriptive statistics, it can be concluded that the minimum, the average and the sum the market value of the players kept on increasing.

In the summer transfer market of 2019, the lowest market value grew to 9 million euros, which belonged to Marcus Thuram (France, Borussia Mönchengladbach). The highest market value remained at 180 million euros, as Neymar (Brazil, Paris Saint-Germain) stayed on the top of the list. The range between the highest and lowest market values decreased to 171 million euros. The sum of the top 100 forwards' market value increased to 5387 million euros, while

the players' market value also grew to 53.87 million euros on average. The standard deviation of the data was 33.7, which means that the market value of the forwards differed from the sample mean by 33.7 million euros on average. Based on the descriptive statistics, it can be concluded that two years after the Neymar transfer, the sum of the players' market value increased by 2609.4 million euros, the maximum market value increased by 60 million euros, while the average market value of the players increased by 26.09 million euros.

Based on the data extracted from Transfermarkt on the 18th of March, 2020, currently, the lowest market value of the top 100 players is 27 million euros, which is a significant, 18 million euros increase from the minimum market value measured in the summer of 2019. One player reached this value in the top 100: Krzysztof Piatek (Poland, Hertha BSC). The highest market value decreased to 160 million euros, and it currently belongs to two players: Raheem Sterling (England, Manchester City), Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest market values is 133 million euros. The sum of the top 100 forwards' market value increased to 5524 million euros, while the players' market value is 55.24 million euros on average. The standard deviation of the data decreased to 31.7, which means that the market value of the players differed from the sample mean by 31.7 million euros on average. The average age of the players based on the current data is 26.07 years, with a minimum of 22 and a maximum of 35.

Based on the averages, in my opinion it could be concluded that the top 100 forwards' average market value has grown by at least 20 million euros. To conclude it, I made a hypothesis analysis, where μ_1 is the average market value of players in the summer transfer market of 2019, while μ_0 is the average market value of players in the summer transfer market of 2017.

$$H_0 : \mu_1 - \mu_0 \geq 20$$

$$H_1 : \mu_1 - \mu_0 < 20$$

Based on the sample, I used the Z hypothesis analysis, where the d value is the difference between the average market value of players in the summer transfer market of 2019 and the average market value of players in the summer transfer market of 2017; the σ value is 20; the sd value is equal to $\sqrt{\frac{s_1}{n_1} + \frac{s_0}{n_0}} = 4.2355$. Please find the result below:

$$Z = \frac{d - \sigma}{sd} = \frac{26.09 - 20}{4.2355} = 1.4388$$

After taking a look at the Z table, we can conclude with at most 92.48 percent significance level, that from the summer transfer market of 2017 to the summer transfer market of 2019, the average market value of the players increased by at least 20 million euros.

2.5. All player statistics

If we take all the players into consideration, we get a large sample of 400, which gives a broader perspective on the change of the market values after the Neymar transfer. This sample includes the top 100 players from each position (goalkeepers, defenders, midfielders and forwards), whose data I extracted from Transfermarkt's database on the 18th of March, 2020.

In the summer transfer market of 2017, the lowest market value was 100 thousand euros, and it belonged to four different players: Arthur (Brazil, Barcelona), Lucas Paquetá (Brazil, AC Milan), Júnior Firpo (Spain, Barcelona), Dean Henderson (England, Sheffield United). The highest market value was 120 million euros, which belonged to Lionel Messi (Argentina, Barcelona). The range between the highest and lowest market values was 119.9 million euros. The sum of the 400 players' market value was 6864.55 million euros, while the players' market value was 17.16 million euros on average. The standard deviation of the data was 18.69, which means that the market value of the players differed from the sample mean by 18.69 million euros on average.

In the winter transfer market of 2018, the lowest market value remained at 100 thousand euros, but this time it only belonged to one player: Júnior Firpo (Spain, Barcelona). There was a significant increase in the highest market value as it grew to 180 million euros, which belonged to two players: Lionel Messi (Argentina, Barcelona), Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest market values increased to 179.9 million euros. The sum of the 400 players' market value also grew to 9382.98 million euros, while the players' market value jumped to 23.46 million euros on average. The standard deviation of the data was 25.22, which means that the market value of the players differed from the sample mean by 25.22 million euros on average. Based on the descriptive statistics, it can be concluded that in only one transfer period (less than six months) the maximum, the average, the sum and the standard deviation of the market value of the players have all increased.

In the summer transfer market of 2018, the lowest market value grew to 150 thousand euros, and it belonged to David Raya (Spain, Brentford FC). The highest market value remained at 180 million euros, which belonged once again to two players: Lionel Messi (Argentina, Barcelona), Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest

market values decreased slightly to 179.85 million euros. The sum of the 400 players' market value increased again to 12088.95 million euros, while the players' market value also grew to 30.22 million euros on average. The standard deviation of the data was 28.61, which means that the market value of the players differed from the sample mean by 28.61 million euros on average. Based on the descriptive statistics, it can be concluded that only one year after the Neymar transfer, the sum of the players' market value increased by 5224.4 million euros, the maximum market value increased by 60 million euros, while the average market value of the players increased by 13.06 million euros.

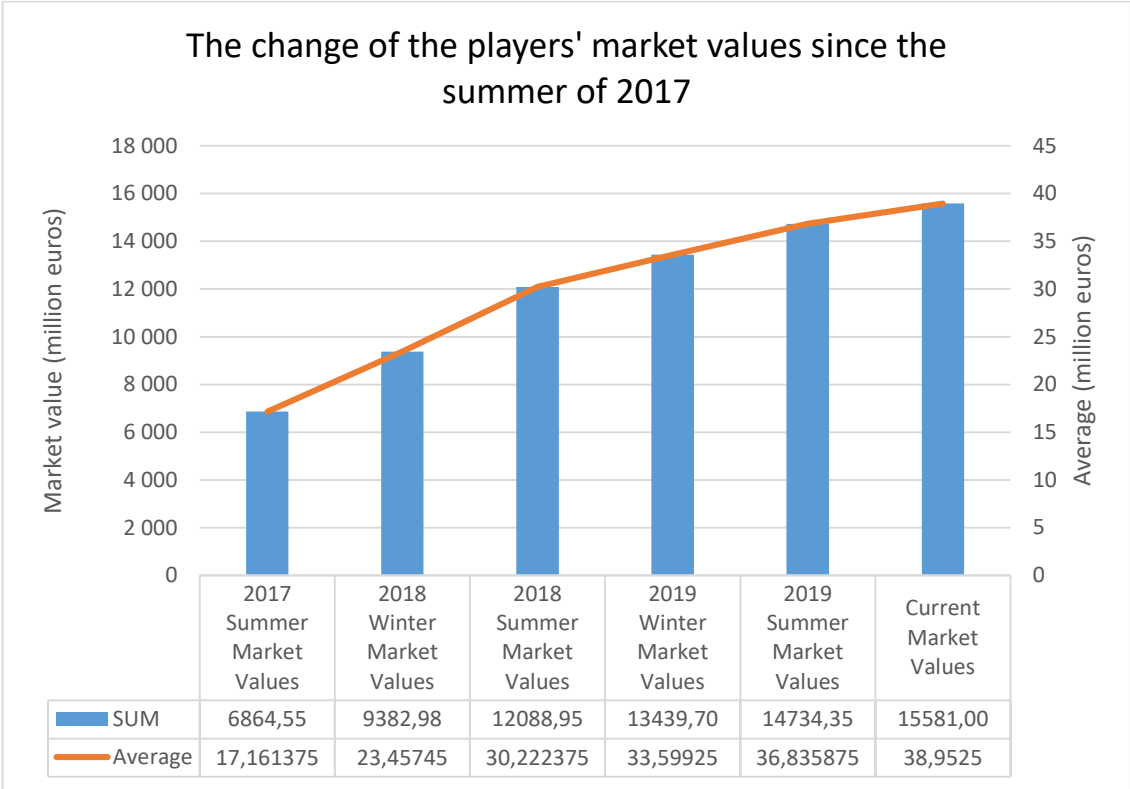
In the winter transfer market of 2019, the lowest market value grew to 500 thousand euros, which belonged to Marco Silvestri (Italy, Hellas Verona). The highest market value remained at 180 million euros again, but it only belonged to one player: Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest market values decreased to 179.5 million euros. The sum of the 400 players' market value grew to 13439.7 million euros, while the players' market value increased to 33.6 million euros on average. The standard deviation of the data was 28.58, which means that the market value of the players differed from the sample mean by 28.58 million euros on average. Based on the descriptive statistics, it can be concluded that the minimum, the average, the sum and the standard deviation of the market value of the players kept on increasing.

In the summer transfer market of 2019, the lowest market value grew to 800 thousand euros, which belonged to Marco Silvestri (Italy, Hellas Verona). The highest market value remained at 180 million euros, as Neymar (Brazil, Paris Saint-Germain) stayed on the top of the list. The range between the highest and lowest market values decreased slightly to 179.2 million euros. The sum of the 400 players' market value increased to 14734.35 million euros, while the players' market value also grew to 36.84 million euros on average. The standard deviation of the data was 27.8, which means that the market value of the players differed from the sample mean by 27.8 million euros on average. Based on the descriptive statistics, it can be concluded that two years after the Neymar transfer, the sum of the players' market value increased by 7869.8 million euros, the maximum market value increased by 60 million euros, while the average market value of the players increased by 19.68 million euros.

Based on the data extracted from Transfermarkt on the 18th of March, 2020, currently, the lowest market value of all the 400 players is 5 million euros, which is a significant, 4.2 million euros increase from the minimum market value measured in the summer of 2019. Nine players reached this value in the top 100, all of them are goalkeepers: David Raya (Spain, Brentford),

Gregor Kobel (Switzerland, Stuttgart), Rui Silva (Portugal, Granada CF), Bono (Morocco, Sevilla FC), Jesse Joronen (Finland, Brescia Calcio), Luigi Sepe (Italy, Parma Calcio 1913), Alex McCarthy (England, Southampton FC), Loris Karius (Germany, Besiktas JK), Timo Horn (Germany, 1. FC Köln). The highest market value decreased to 160 million euros, and it currently belongs to two players: Raheem Sterling (England, Manchester City), Neymar (Brazil, Paris Saint-Germain). The range between the highest and lowest market values is 155.00 million euros. The sum of the 400 players' market value increased to 15581 million euros, while the players' market value is 38.95 million euros on average. The standard deviation of the data decreased to 26.74, which means that the market value of the players differed from the sample mean by 26.74 million euros on average. The average age of the players based on the current data is 26.13 years, with a minimum of 22 and a maximum of 35.

Figure 7. The change of the players' market values since the summer of 2017



Based on data from transfermarkt.com, created by myself

Based on the averages, in my opinion it could be concluded that the 400 players' average market value has grown by at least 15 million euros. To conclude it, I made a hypothesis analysis, where μ_1 is the average market value of players in the summer transfer market of 2019, while μ_0 is the average market value of players in the summer transfer market of 2017.

$$H_0 : \mu_1 - \mu_0 \geq 15$$

$$H_1 : \mu_1 - \mu_0 < 15$$

Based on the sample, I used the Z hypothesis analysis, where the d value is the difference between the average market value of players in the summer transfer market of 2019 and the average market value of players in the summer transfer market of 2017; the σ value is 15; the sd value is equal to $\sqrt{\frac{s_1}{n_1} + \frac{s_0}{n_0}} = 3.3498$. Please find the result below:

$$Z = \frac{d - \sigma}{sd} = \frac{19.67 - 15}{3.3498} = 1.3955$$

After taking a look at the Z table, we can conclude with at most 91.82 percent significance level, that from the summer transfer market of 2017 to the summer transfer market of 2019, the average market value of the players increased by at least 15 million euros in two years.

3. CONCLUSION

Although my second hypothesis, that the market value of the highest rated 400 players grew by 15 million euros on average was proved to be true with a statistical analysis, it is harder to categorically state that the main reason for the increase of values was the Neymar transfer.

As I have mentioned before on page 9, inflation has always been a factor, but it plays a bit part role, as the average inflation for dollar from 1999 till 2020 was 2.07%. It does not have a serious effect on the market values. As the main reason of the increase of values, I would point out two decisive factors: the growing buying power of the football clubs and the Neymar transfer. But those two walked hand in hand as the new era of transfers began after the world record signing of Neymar.

It is hard to overlook the fact that from 2015 to 2019 the highest revenue of football operations per year increased by 263 million euros, but that number was constantly increasing before the Neymar transfer as well, and it did not significantly affect transfer prices or transfer fees. Or at least by not the extent it affected the values after 2017.

What I believe happened is what remains to be one of the biggest problems in the world of football. The power has shifted from the buyer with an impressive financial power to the seller with the desired asset. The increased buying power of clubs somewhat went under the radar until Paris Saint-Germain broke the bank for Neymar. At that point the clubs and analysts

realised it and from then on, when a buyer came knocking on the door, they could say “if the world record is 222 million euros, my best player is surely worth well over the amount you are offering”.

As the clubs started paying more and more for the players, the other players’ market value began to rise as well, because the financial power of the market plays a huge role in the values as we could see how Transfermarkt reacted to the pandemic and its economic effects, reducing the market value of players by 10–15 percent.

To answer my first hypothesis, the Neymar transfer was not the only reason for the increase in the market value of the football players, but it was the point at which the process started. It shed light on the growing financial power of the football clubs and showed that 100 million euros is by far not the highest amount, which a club can spend on a world class player, leading to the increase in the market values.

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