



NOVA

IMS

Information
Management
School

MGI

Mestrado em Gestão de Informação

Master Program in Information Management

**Does performance exclusively determine the value
from shirt sponsorship in football?**

Filipe Maneira Cunha e Silva – M20180538

Dissertation presented as partial requirement for
obtaining the Master's Degree in information
Management

NOVA Information Management School
Instituto Superior de Estatística e Gestão de Informação
Universidade Nova de Lisboa

NOVA Information Management School
Instituto Superior de Estatística e Gestão de Informação
Universidade Nova de Lisboa

**DOES PERFORMANCE EXCLUSIVELY DETERMINE THE VALUE
FROM SHIRT SPONSORSHIP IN FOOTBALL?**

by

Filipe Maneira Cunha e Silva

Dissertation presented as partial requirement for obtaining the Master's degree in Information Management, with a specialization in Business Intelligence and Knowledge Management

Advisor: Bruno Miguel Pinto Damásio, PhD

July 2021

ACKNOWLEDGEMENTS

Without all the direct and indirect support from all the people that surrounded me during this stage of my academic life – both the Master and the dissertation thesis - I am certain that all this path would be much difficult.

I would like to thank you to my dissertation advisor: Bruno Miguel Pinto Damásio for his help, guidance, and ideas.

To my friend Fabio Critikián to be my “fighting companion” throughout the Master, where we spent together a lot of weekends studying and preparing all of our homework.

To my future wife Margarida Vaz for her patience and comprehension, mainly regarding my long hours of absence to study and to complete my Master dissertation thesis.

To my father Luís Silva for his support calls and curiosity on my dissertation thesis topic; all his questions were very important to me on several occasions since it helped me to think more deeply and to keep a clear path throughout this process.

In general, to all my close friends and family for all their encouragement in the toughest moments.

ABSTRACT

Due to its beauty, since the first half of the 19th century that football makes millions of fans follow this show passionately, making it the most popular sport in the world nowadays (Sawe, 2018). After more than a hundred and fifty years, can be said that apart from the 22 players and the ball on the pitch, everything else had changed.

Football nowadays is more than a simple sport, football means politics, social - but mainly - economic interests to society. The influence that this sport can create has made brands and companies from the most different industries and countries paying multimillionaire sponsorship contracts to ensure that these companies have some space for their logos on the football stadium, during the break time, or in some place of the team kit.

The main objective of this dissertation is to (dis)prove that the shirt sponsorships values received by the football teams are only related to their sportive performance; if not, what are the variables that influence the income paid by the sponsors to the clubs.

KEYWORDS

Football; Kit; Media; Shirt; Sponsee; Sponsor; Sponsorship.

INDEX

1. Introduction.....	1
1.1. Background and Problem Identification	3
2. Literature review	6
2.1. Literature selection	6
2.2. Football as a business.....	9
2.3. Influence of sports performance on revenues.....	10
2.4. Measurement of sportive results.....	10
2.5. Football sponsorship	11
2.6. Fly Emirates	12
2.7. Football TV broadcasting.....	14
3. Research Context and Data Methodology	16
3.1. Data Methodology	16
4. Data and Exploratory Analysis	18
4.1. Big Five Final Rankings (2016/17, 2017/18 and 2018/19)	18
4.2. Big Five T-Shirt Sponsorship Values (2017/18, 2018/19 and 2019/20)	19
4.3. UEFA Ranking Coefficient (2016/17, 2017/18 and 2018/19).....	23
4.4. UEFA All-time European Cup Ranking.....	26
5. Modeling, Analysis, and Results.....	28
5.1. General Overview of the Data.....	28
5.2. Variable Shirt Sponsorship Value Season T Euros.....	31
5.3. Linear Regression	34
5.4. Multiple Regression.....	35
5.5. Automatic Linear Modeling.....	40
5.6. Automatic Linear Modeling v2	46
6. Conclusions.....	53
7. Limitations and Future Work	59
8. Bibliography	61

INDEX OF FIGURES

Figure 1 - Premier League Clubs Investors Origin	2
Figure 2 - European Football Market Size – 2016/17 and 2017/18 (€ Billion).....	3
Figure 3 - ‘Big Five’ European League Clubs’ Revenue – 2017/18 (€M).....	3
Figure 4 - Aggregate Player Market Values (€M) as of August 2020	4
Figure 5 - UCL Broadcasting Revenue (€M).....	4
Figure 6 – Main Query Keywords Composition for Sponsorship Information	7
Figure 7 - Secondary Query Keywords Composition for Sponsorship Information	7
Figure 8 - Top-10 Net Sellers Clubs.....	9
Figure 9 - Top 20 Teams by Revenue for Seasons 2018/19 and 2017/18.....	10
Figure 10 - Top-5 Most Marketable Football Player as of 28/09/2020.....	13
Figure 11 - Everton FC Home Shirts 1978-2019	14
Figure 12 - Revenue Growth of Top 20 clubs (2013/14-2018/19 (€m).....	15
Figure 13 - Stadium Attendance for Domestic League Matches 2018/19	15
Figure 14 - UEFA Coefficient Data by Country.....	25
Figure 15 - Variable View in SPSS	28
Figure 16 - Shirt Sponsorship Value T Euros – Histogram	31
Figure 17 - Shirt Sponsorship Value Season T Euros Mean by National League	32
Figure 18 - Shirt Sponsorship Value Season T by UEFA Ranking Average.....	33
Figure 19 - Shirt Sponsorship Value Season T by UEFA All-Time Ranking.....	33
Figure 21 - Multiple Regression Histogram	38
Figure 22 - Normal P-P Plot Multiple Regression	38
Figure 23 - Shirt Sponsorship Value Season T Euros by UATR Goal Difference	39
Figure 24 - Shirt Sponsorship Value Season T Euros by UATR Participations	39
Figure 25 - Shirt Sponsorship Value Season T Euros by UATR Matches Played	39
Figure 26 - Shirt Sponsorship Value Season T Euros by Average League Ranking	40
Figure 27 - Model Summary	41
Figure 28 - Predictors Importance.....	43
Figure 29 - Shirt Sponsorship Value Season T Euros by UATR Goals Against.....	44
Figure 30 - Top-10 UEFA All-Time Ranking Goals Against Teams	44
Figure 31 - Predictors Importance - Automatic Linear Modeling V2	48
Figure 32 - Model Summary V3	52
Figure 33 - Histogram Automatic Linear Modeling V3	52
Figure 34 - Predictors Importance - Automatic Linear Modeling V3	53
Figure 35 - Estimated Means - Important Predictors.....	55

Figure 36 - Shirt Sponsorship Value Season T Euros by UATR Participations	56
Figure 37 - Shirt Sponsorship Values Season T Euros, UATR Participations, UATR Average Goals For per Match and UATR Points Scatterplot Matrix.....	57
Figure 38 - Top-20 Shirt Sponsorship Agreements.....	58
Figure 39 - Impact of Covid-19 on Player Values.....	60
Figure 40 - Shirt Sponsorship and Kit Deals vs Social Media Followers (Time Period from 01/09/2015 to 20/07/2020)	60

INDEX OF TABLES

Table 1 - 2018/19 Top Revenue Teams (€m)	2
Table 2 – Top-30 UEFA All Time Club Ranking.....	11
Table 3 - Top 20-30 Teams by Revenue in 2014.....	16
Table 4 - National Leagues Master Table Variables Definitions.....	18
Table 5 - Top-20 Shirt Sponsorship Deals.....	20
Table 6 - Sponsor Country by League	21
Table 7 - Top 10 Average Shirt Sponsorship Value by Sponsor.....	21
Table 8 - Sponsor Analysis by Sector	22
Table 9 - Atletico's and Sevilla's Sponsorship Deals	24
Table 10 - Top-25 Shirt Sponsorship Agreements.....	24
Table 11 – Top-30 UEFA All Time Club Ranking.....	26
Table 12 - SPSS Input Dataset Variables Definitions	29
Table 13 - Descriptive Statistics.....	30
Table 14 - Shirt Sponsorship Value Season T Euros – Statistics	31
Table 15 - Shirt Sponsorship Value T Euros by the National League.....	32
Table 16 - Model Summary	34
Table 17 - ANOVA	34
Table 18 – Hierarchical Linear Regression Coefficients.....	35
Table 19 - SPSS Input Dataset Variables Definitions	35
Table 20 - Model Summary	37
Table 21 - Outliers	42
Table 22 - Predictors Importance	43
Table 23 - Top-10 UEFA All-Time Ranking Goals Against Teams vs UATR Position and UATR Titles.....	45
Table 24 - SPSS Input Dataset Variable Definitions V2.....	46
Table 25 - V2 Variable Inputs in SPSS	47
Table 26 - Predictors Importance Automatic Linear Modeling V2.....	48
Table 27 - Case Processing Summary V3	49
Table 28 – Automatic Data Preparation V3.....	50
Table 29 - Outliers V3	51
Table 30 Predictors Importance - Automatic Linear Modeling V3.....	53
Table 31 - UATR Participations, UATR Points and UATR Average Goals For per Match Correlations	57

LIST OF ABBREVIATIONS AND ACRONYMS

CONMEBOL	Confederação Sul-Americana de Futebol
DB	Database
EL	Europa League
FC	Football Club
FIFA	Fédération Internationale de Football Association
GM	General Motors
PSG	Paris Saint-Germain
TV	Television
UAE	United Arab Emirates
UCL	UEFA Champions League
UEFA	Union of European Football Associations
UK	United Kingdom

1. INTRODUCTION

This study aims to confirm that sportive results exclusively determines the received income from shirt sponsorship by each professional football team.

The main goal of this study is to answer the question that defines the title of the thesis:

- Does performance exclusively determine the value from shirt sponsorship in football?

Besides the biggest question exposed above, there are a few other goals/questions that should be kept in mind to help to maintain the path during all this process. Some of these questions are:

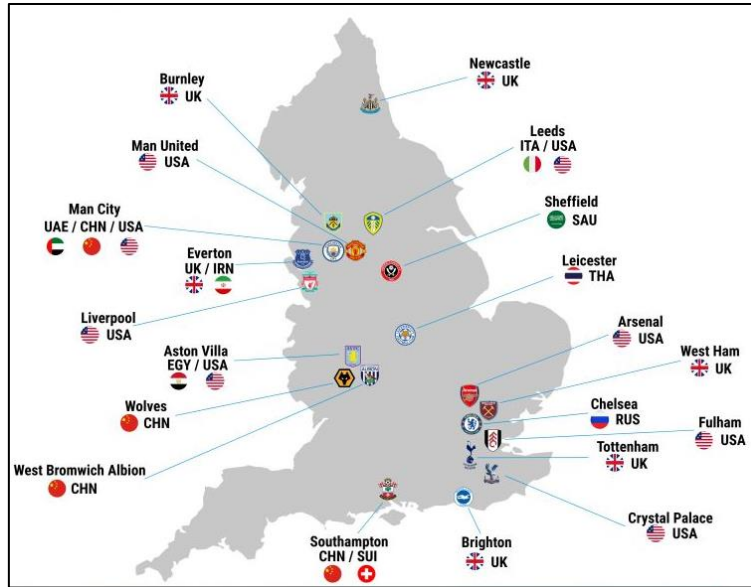
- Apart from the sportive performance, what other variables determine the received value from shirt sponsorship in football?
- What type of companies invests in football shirt sponsorships?

Additionally, it is important to mention that the timeframe took to run this dissertation thesis was three complete football seasons: 2016/17, 2017/18, and 2018/19 – and the shirts sponsorship values for the following season.

The teams that are involved in this study are the ones that compose the 5 main leagues in Europe: La Liga (Spain), Ligue 1 (France), Serie A (Italy), Bundesliga (Germany), and Premier League (England) - commonly known as the “Big Five”. For these clubs, the sportive results achieved in each one of the seasons are introduced into the study, is used the Club Coefficients from the UEFA¹ and, the historical results gathered by the teams in the UEFA Champions League competition (UEFA All-Time Ranking).

This study tries to add value within the football business and management decisions that can be made by the investors in the football world. Today everyone knows that this sport is a millionaire business, but is still pending to understand the received values from the clubs by their sponsors in a general way, and specifically from their shirts. The dissertation tries to answer and explain what is behind these received incomes from each team.

¹ The club coefficients are based on the results of clubs competing in the five previous seasons of the UEFA Champions League and UEFA Europa League. The rankings determine the seeding of each club in relevant UEFA competition draws.



Source: KPMG Football Benchmark and CIES

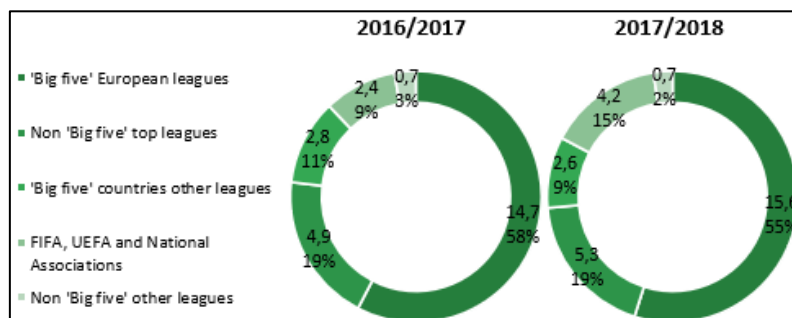
Figure 1 - Premier League Clubs Investors Origin

The best way to demonstrate why this subject matter inhabits in all the financial figures that rotate around football:

Table 1 - 2018/19 Top Revenue Teams (€m)

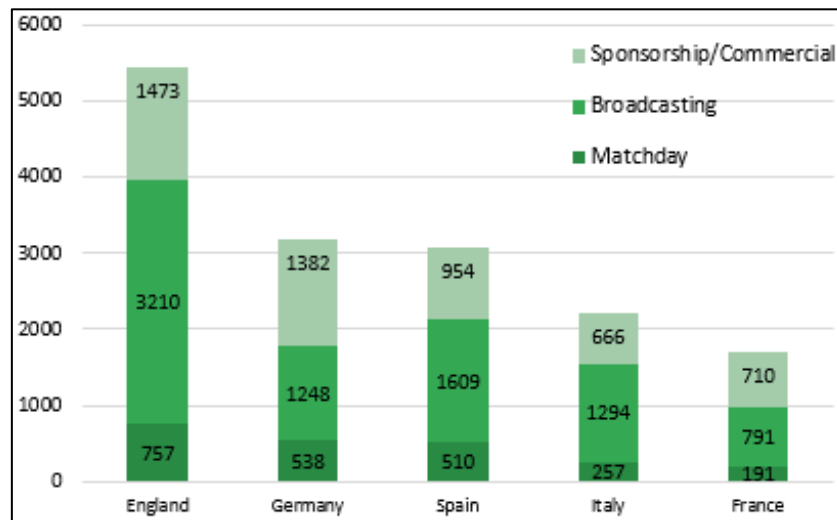
Team	2018/19 revenue (€m)
FC Barcelona	840.8
Real Madrid	757.3
Manchester United	711.5
Bayern Munich	660.1
Paris Saint-Germain	635.9
Manchester City	610.6
Liverpool	604.7
Tottenham Hotspur	521.1
Chelsea	513.1
Juventus	459.7
Arsenal	445.6
Borussia Dortmund	377.1
Atlético de Madrid	367.6
FC Internazionale Milano	364.6
Schalke 04	324.8
AS Roma	231.0
Olympique Lyonnais	220.8
West Ham United	216.4
Everton	213.0
SSC Napoli	207.4

Source: Deloitte Football Money League 2020



Source: Deloitte Football Money League 2019

Figure 2 - European Football Market Size – 2016/17 and 2017/18 (€ Billion)



Source: Deloitte Football Money League 2019

Figure 3 - 'Big Five' European League Clubs' Revenue – 2017/18 (€M)

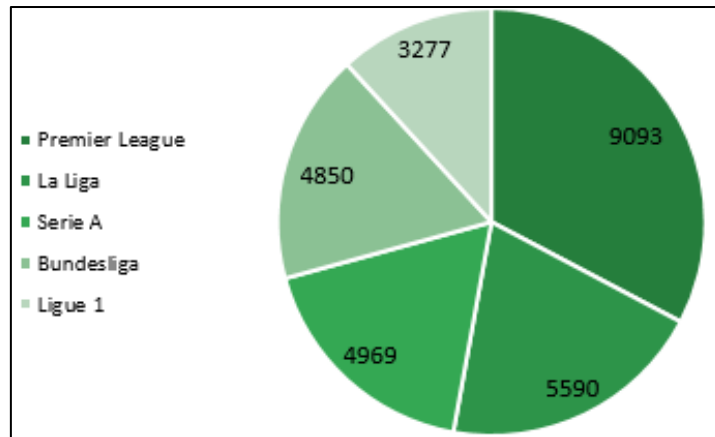
“Sportive and financial performance are difficult to separate. These two different kinds of performance indicators are often correlated. When a club wins more football matches its revenue stream will increase and this could result in growing profits. The other way around, when clubs are bounded by financial regulations from organizing bodies or banks, they can't afford to spend money on new football players. This is likely to decrease the sportive performance of the football club” (Kool, 2012).

1.1. BACKGROUND AND PROBLEM IDENTIFICATION

It is estimated that football counts more than 4 billion followers worldwide ('25 World's Most Popular Sports (Ranked by 13 factors)', 2016) it is for the fans, for the managers, and for the (potential) investors in the football world why this subject matters.

Football has become a great business (more sharply in recent years) to a lot of different market players. “Regarding the evolution of sponsorship revenue between 2012/13 and 2013/14 season, we see that all teams have seen their income increase except for three, Tottenham Hotspur who has suffered a decrease in their sponsorship income at 2.4 million euros, Inter Milan, which has been the team that has lost the most in this regard, about 7.4 million euros and finally the Galatasaray that has seen its sponsorship income decreased by 2.8 million euros” (Robles, 2015).

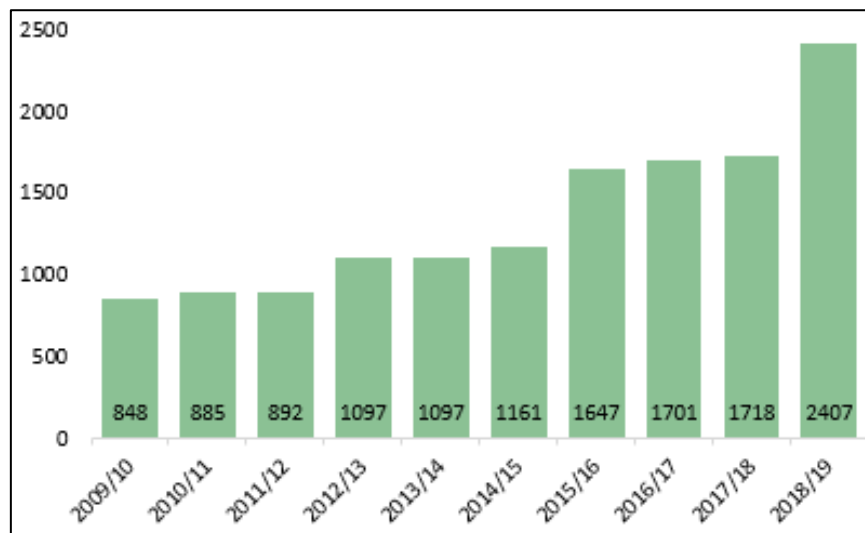
To help understand how much money football generates we just need to think about the constant deals that football teams do signing new players from one club to another, as example, Atletico de Madrid paid for the 19-year-old player João Félix in July of 2019 more than 120 million of euros ('Atletico Madrid sign 19-year-old Joao Felix for 126 million euros', 2019).



Source: KPMG Football Benchmark

Figure 4 - Aggregate Player Market Values (€M) as of August 2020

Nowadays TV audiences reach their records recurrently due to the transmission of football matches, so companies and brands believe that football is one of the most effective tools to promote them. “Companies are going into football sponsorship because football provides wide audiences and different target groups. It, therefore, delivers opportunities to reach the sponsors’ objectives on a national and/or international level. One characteristic of football is that it generates passion and generally has a good image” (Bühler, 2006).



Source: KPMG Football Benchmark

Figure 5 - UCL Broadcasting Revenue (€M)

This whole framework makes football teams receive from their sponsors tens of millions of euros; some examples of this situation are Real Madrid CF/Fly Emirates (70.000.000€/year) (Woodward, 2019), FC Barcelona/Rakuten (55.000.000€/year) (Woodward, 2019) or, FC Bayern Munich/Telekom (35.000.000€/year) (‘Kit sponsorship revenue of German Bundesliga clubs in 2019/20’, 2020); but the trigger to start this study was the partnership deal that took place between Manchester United FC and Chevrolet (74.000.000€/year) (‘Value of jersey kit sponsorships in the Barclays Premier League in 2019/20, by club (in million GBP)’, 2020) - the current record income received by a football team due to its shirt sponsorship. This situation makes think about all the business around this sport, since the historical club from the British industrial city, despite the non-outstanding results from last years, has reached an amazing deal with the American car manufacturer company. The results registered by this club during the last Premier League seasons are the following:

- 2018/19: 6th place
- 2017/18: 2nd place
- 2016/17: 6th place

How transformed it is football? Does the sportive side still matter, or it is just about the business? To help answer these questions, during the dissertation it will be (un)confirmed that the sportive performance of the clubs is what matters while defining the multimillionaire deals that the teams can sign while negotiating sponsorships with the most different companies worldwide.

2. LITERATURE REVIEW

The objective of this chapter is to explain, expose and describe the workflow that was taken to collect, analyze, select, and use information regarding the master thesis topic: *Does performance exclusively determine the value from shirt sponsorship in football?*

Diverse searches were taken: different queries were performed and a big number of keywords were utilized in several sources of information to collect the optimal size of data to be used while writing the dissertation.

Due to the nature of the dissertation most of the data collected are quantitative (e.g. clubs' ranking, the value amount of sponsorship received annually by each team, etc.). Nevertheless, to absorb more knowledge for the specific topic and with related topics, qualitative information was also selected and analyzed thoroughly, since some inputs from other authors were very useful to help giving guidance *through this journey*.

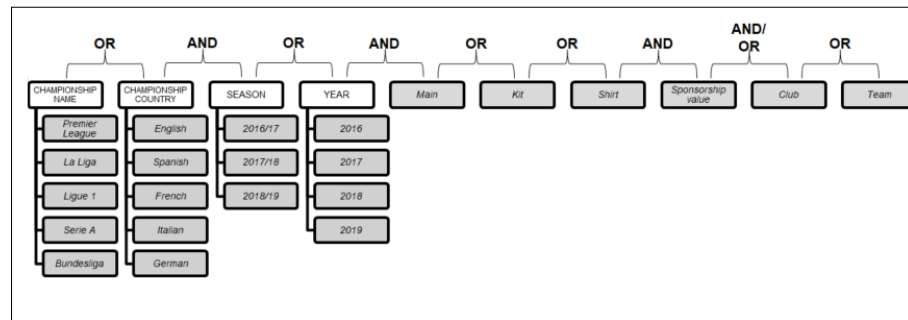
During the literature review, it is possible to quickly understand that different studies, reports, or articles from the most unknown authors to the most famous worldwide organizations were already shared and are continually been released, but what is also easily perceived is that most of these publications seat only on exposing the different financial deals (TV rights, kit sponsorships, secondary sponsors, etc.) signed by the teams, not taking a step forward to understand the "Why?" - Why is the organization "X" paying "Y" amount to the club "Z"? This is the gap that this thesis tries to shorten, using as a starting point the naivest understanding of this sport: "better results mean better sponsorship deals"; converging it on the central question of the dissertation: *Does performance exclusively determine the value from shirt sponsorship in football?*

2.1. LITERATURE SELECTION

To select the most important data related to this thesis, it should be differentiated two big buckets of information relative to the procedure to obtain it and to the type of each one of them:

- A. Quantitative data and core information to study the central question of the theme.
 - Collection and creation of 3 DBs:
 1. **"Big 5" Leagues final ranking for seasons 2016/17, 2017/18 and 2018/19:** The final league rankings were collected from the sports media website: skysports.com.
 2. **UEFA ranking coefficient for seasons 2016/17, 2017/18 and 2018/19:** The UEFA club coefficient rankings for the mentioned seasons were extracted from the UEFA webpage: uefa.com/memberassociations/uefarankings/.
 3. **Sponsorship values perceived by each club from the "Big 5" leagues for seasons 2017/18, 2018/19 and 2019/20:** Achieving the data needed to create this third database was very challenging since it is clear that most of these deals are not shared by the clubs nor by the organizations that pay for it. To reach the deals' values it was needed to consult what is published in the media. Taking this into

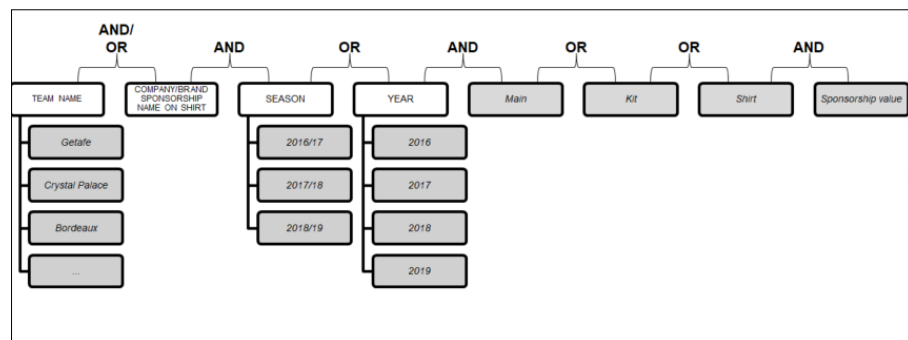
consideration, the shirt sponsorship value received by the teams were achieved after several research queries that were performed on Google search engine, mixing the following keywords, as it is shown below:



Source: Author

Figure 6 – Main Query Keywords Composition for Sponsorship Information

At the starting point, the search was created to collect at once all the main sponsorship values received by each one of the teams that belong to a certain country/championship, that is why the name/country of the championship was included on the search.



Source: Author

Figure 7 - Secondary Query Keywords Composition for Sponsorship Information

After the first step, the applied query funneled, and at this stage what was included was the name of the teams with information missing, together with the name of the brand/company visible on the shirt instead of just the names/countries of each league. This second step was mainly performed to the secondary clubs per country, because, logically, those are the ones with fewer media coverage.

It is also important to highlight that the queries ran on the exposed steps above were performed in different languages, with the purpose to reach publications from all corners of the globe and because football is a universal sport. The idioms applied were 3: English, Spanish, and Portuguese.

The data collected while performing the mentioned queries to create the third database was obtained from very different sources available on the internet. These sources to La Liga were: 90min.com, insideworldfootball.com, lajugadafinanciera.com, marca.com, elpais.com, marketingregistrado.com, elperiodicodearagon.com, espn.com.br, sportsbusinessdaily.com, pamesa.com,

naiz.eus, palco23.com, as.com, ine.es, elmundo.es and ahoragranada.com. For the English Premier League data, the websites visited were: statista.com, 90min.com, goal.com, mirror.co.uk, standard.co.uk, totalsportek.com and sportsbetting777.com. The sources visited to obtain the shirt sponsorship value for the Italian Serie A clubs were: sportspromedia.com, static1.statista.com, sportsbusinessdaily.com, reuters.com, ayo.news, violanation.com, sporteconomy.it, statista.com and calciofinanza.com. The information related to Bundesliga teams was collected from the following sites: statista.com, sportsbusinessdaily.com and ispo.com. Ligue 1 sponsorships values were part of the following publications: 90min.com, sportune.fr, sportcal.com, sportspromedia.com, sponsorship.sportbusiness.com, 90min.in and from ecofoot.fr.

- Apart from the quantitative data collected to create the 3 mentioned DBs, it is important to highlight that an additional report from Deloitte - *Deloitte Football Money League* (released every year) - was also consulted, not to include data into the DBs, but mainly to provide extra insights to the topic, since the aim of this report it is to give an independent analysis of the teams' finances. With the same goal, the KPMG website *footballbenchmark.com* that contains similar information was also explored and some of its data used.

B. Collection of qualitative analysis - secondary inputs from other authors related to the topic. To be part of this data bucket it was considered different types of publications, specifically: academic papers, reports, case studies and articles. These articles were found on different academic DBs by using the search engine: Google Scholar.

The performed queries to retrieve the information needed for this part of data collection followed the next steps:

A more general query, named as the "mother query" was firstly defined and ran. This first query contained the following keywords:

- "sportive" and "performance" and "received" and "value" and "sponsorship" and "football".

From this first query others were generated enclosing the search range:

- "sportive" and "performance" or "received" or "value" and "sponsorship" and "football";
- "football" and "teams" or "clubs" and "sportive" and "performance" and "received" and "value" and "sponsorship";
- "football" and "teams" or "clubs" and "performance" and "received" and "value" and "sponsorship";
- "football" and "teams" or "clubs" and "results" and "received" and "value" and "sponsorship";
- "football" and "teams" or "clubs" and "results" and "value" and "sponsorship";
- "football" and "teams" or "clubs" and "results" and "sponsorship".

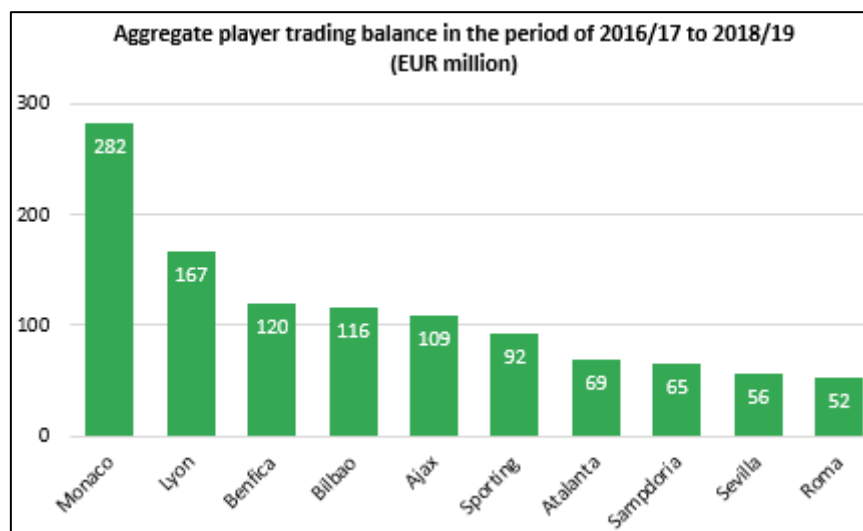
Between each query, the most important publications were selected by doing some exploratory work on them, mainly by understanding the title, the abstract, the introduction and the conclusion. A great help to perform this task was the fact that the retrieved results were sorted by “relevance”.

Another step to reach more accurate and additional related literature to the dissertation topic was the analysis of the bibliography from each of the selected publications. Some of these, after analysis, were also included to help with the work that needs to be done on the dissertation.

To better understand how the sportive performance influences the value received from shirt’s sponsoring in football, first it was needed a literature review. With this goal, studies for some of the most important concepts related to the central topic will be scrutinized, exposed, related, compared, and analyzed. The selected concepts were: 1) Football as a business, 2) Influence of sports performance on revenues, 3) Measurement of sportive results, 4) Football sponsorship, 5) Fly Emirates and 6) Football TV broadcasting.

2.2. FOOTBALL AS A BUSINESS

Revenue in football clubs can become from very different sources, such as “matchday (including ticket and corporate hospitality sales), broadcast rights (including distributions from participation in domestic leagues, cups and UEFA club competitions) and commercial sources (e.g. sponsorship, merchandising, stadium tours and other commercial operations)” (Ajadi, Burton, Dwyer, Hammond, & Calum, 2020). Additionally to the revenue sources already mentioned, it is important to point out that “certain clubs are actively using the transfer of players as part of their overall financial strategy” (Ajadi et al., 2020), which is a relatively common approach from some of the biggest Tier-2 leagues clubs. A great example of this management strategy is SL Benfica, the Portuguese historic team has generated €953M in players transfers from the past decade and leads in this worldwide ranking (‘The 10 clubs to have earned the most in transfer income this decade - Planet Football’, 2019).



Source: KPMG Football Benchmark

Figure 8 - Top-10 Net Sellers Clubs

Team	2018/19 revenue (€m)	Team	2017/18 revenue (€m)
FC Barcelona	840.8	Real Madrid	750.9
Real Madrid	757.3	FC Barcelona	690.4
Manchester United	711.5	Manchester United	665.8
Bayern Munich	660.1	Bayern Munich	629.2
Paris Saint-Germain	635.9	Manchester City	568.4
Manchester City	610.6	Paris Saint-Germain	541.7
Liverpool	604.7	Liverpool	513.7
Tottenham Hotspur	521.1	Chelsea	505.7
Chelsea	513.1	Arsenal	439.2
Juventus	459.7	Tottenham Hotspur	428.3
Arsenal	445.6	Juventus	394.5
Borussia Dortmund	377.1	Borussia Dortmund	317.2
Atlético de Madrid	367.6	Atlético de Madrid	304.4
FC Internazionale Milano	364.6	FC Internazionale Milano	280.8
Schalke 04	324.8	AS Roma	250.0
AS Roma	231.0	Schalke 04	243.8
Olympique Lyonnais	220.8	Everton	212.9
West Ham United	216.4	AC Milan	207.7
Everton	213.0	Newcastle United	201.5
SSC Napoli	207.4	West Ham United	197.9

Source: Deloitte Football Money League 2020

Figure 9 - Top 20 Teams by Revenue for Seasons 2018/19 and 2017/18

Taking a quick look at Figure 9 which exposes the ranking for the last 2 seasons from Deloitte Money League, it helps to justify the selection of leagues in scope for the dissertation, since only teams from the “Big 5” leagues are represented.

2.3. INFLUENCE OF SPORTS PERFORMANCE ON REVENUES

It wasn't shared yet what is the correlation between a better sportive performance and the kit sponsorship values generated by the clubs - the goal from this dissertation - but generally, from other studies, it is clear that the revenues are highly related with the results achieved by the teams, positively or negatively: “When a club wins more football matches its revenue stream will increase and this could result in growing profits. The other way around, when clubs are bounded by financial regulations from organizing bodies or banks, they can't afford to spend money on new football players. This is likely to decrease the sportive performance of the football club.” (Kool, 2012). This stance is supported by (Szymanski, 1998) and by (Szymansky & Kuypers, 1999) which highlights two general principles on the performance in football teams: better league results drive to higher revenues, and increased salaries lead to better domestic league results; this clearly shows how clubs' financial health can mean better or worse performance on the pitch from the sportive organizations. (Szymansky & Kuypers, 1999) performed their analysis for the English Premier League but the conclusions obtained by (Barajas, Fernández-Jardón, & Crolley, 2007) almost a decade after for Spanish football, are aligned with them, who even claim that “sporting revenues’ is the best variable to explain performance on the pitch” (Barajas et al., 2007).

Introducing statistical concepts into the study object, (Szymansky & Kuypers, 1999) stated that the generated revenue by English clubs is 82% ($R^2=0.82$) explained by the league ranking in that season, this finding is higher ($R^2=0.89$) for longer periods (1978-97). Teams with long term positive results are likely to increment their revenues.

2.4. MEASUREMENT OF SPORTIVE RESULTS

Defining how to measure sportive performance can be hard. Should be considered only the final standing on the leagues' rankings? Should be considered the domestic cups performance in each country? How to leverage international competition results in the analysis? All these and many

more questions were already faced by some of the studied authors. Probably there is not a clear conclusion on how to measure sportive results.

The patch to quantify sportive results must vary depending on the focused area of the study. One of the things that need to be kept in mind it is that while driving the study, big efforts were made to keep the cleanest logic behind it. Since the performances from the teams can be appreciated directly from the leagues' final rankings, the approach may be direct, so it was decided to follow Gerrard's approach: 'points obtained in league' (Gerrard, 2001). This will be applied for the rankings analyzed: domestic leagues, UEFA ranking coefficient - for the timeframe considered, the average position of each team were utilized and the All-time European Cup ranking (1955-2019) shared by the UEFA ('Who tops the all-time European Cup rankings? | UEFA Champions League | UEFA.com', 2019).

Table 2 – Top-30 UEFA All Time Club Ranking

Pos	Club	Country	Part	Titles	Pld	W	D	L	F	A	Pts	GD
1	Real Madrid	ESP	50	13	438	262	76	100	972	478	600	494
2	Bayern Munich	GER	36	5	348	202	72	74	708	347	476	361
3	Barcelona	ESP	30	5	317	187	73	57	630	303	447	327
4	Man Utd	ENG	28	3	279	154	66	59	506	264	374	242
5	Juventus	ITA	34	2	278	140	69	69	439	269	349	170
6	AC Milan	ITA	28	7	249	125	64	60	416	231	314	185
7	Liverpool	ENG	24	6	217	121	47	49	408	196	289	212
8	Benfica	POR	39	2	258	114	59	85	416	299	287	117
9	Porto	POR	34	2	245	110	57	78	364	276	277	88
10	Ajax	NED	36	4	227	102	62	63	356	251	266	105
11	Dynamo Kyiv	UKR	36	0	233	97	52	84	333	283	246	50
12	Arsenal	ENG	21	0	201	101	43	57	332	218	245	114
13	Celtic	SCO	34	1	212	100	36	76	324	250	236	74
14	Inter Milan	ITA	21	3	178	86	47	45	255	177	219	78
15	Chelsea	ENG	16	1	167	83	48	36	285	154	214	131
16	Anderlecht	BEL	34	0	200	70	44	86	282	320	184	-38
17	Atletico Madrid	ESP	15	0	135	70	34	31	204	120	174	84
18	PSV	NED	28	1	177	64	41	72	231	224	169	7
19	Borussia Dortmund	GER	18	1	146	70	28	48	247	183	168	65
20	Olympique Lyonnais	FRA	18	0	145	64	37	44	228	172	165	56
21	Rangers	SCO	30	0	161	62	40	59	232	218	164	14
22	FK Crvena zvezda	SRB	25	1	140	65	30	45	253	193	160	60
23	Galatasaray	TUR	26	0	175	57	43	75	213	272	157	-59
24	Olympiacos	GRE	32	0	172	62	32	78	212	265	156	-53
25	Valencia	ESP	13	0	128	57	35	36	191	130	149	61
26	Rosenborg	NOR	25	0	152	58	31	63	224	232	147	-8
27	FCSB	ROU	26	1	145	52	41	52	203	204	145	-1
28	Paris Saint Germain	FRA	13	0	112	61	22	29	225	128	144	97
29	Panathinaikos	GRE	28	0	157	49	45	63	182	214	143	-32
30	Dinamo Zagreb	CRO	21	0	134	55	27	52	200	189	137	11

Source: UEFA

By observing both rankings, the All-time club ranking and the ranking from 2018/19 season Money League, it is possible to see that four of the top-10 clubs in UEFA all-time ranking are not even part of the 20 most revenue generators during 2018/19 or 2017/18. These clubs are AC Milan, SL Benfica, FC Porto, and AFC Ajax; these last 3 are not even part of the "Big 5".

2.5. FOOTBALL SPONSORSHIP

As a concept, sponsorship is commonly seen as a communication method complementary to the company's marketing general strategy, being the sportive sponsorship one of the most applied tools within this concept according to (Wang, Cheng, Purwanto, & Erimurti, 2011). According to (Gwinner & Eaton, 1999), the main reasons for a company to decide to be a sponsor are the desire to increase its Brand Awareness and/or its aim to influence its image. In football, sponsors know that fans' loyalty and passion for their teams can lead to a step forward, apart from the reasons already described, this effervescent passion of the clubs' supporters can be transferred to the club's sponsor (Seydel, 2005) and transform them into their customers (Bühler, 2005).

“The history of sponsorship in English football officially started in 1979, with Liverpool being the first professional football club in England with a sponsor on its shirts (Hitachi). Nowadays professional football clubs in England are backed by a whole pool of sponsors. For example, for the 2005/06 season, Chelsea Football Club has Samsung as the official club sponsor, Umbro as the official sportswear sponsor, Orange as the official mobile network partner, Budweiser as the official beer, Lucozade as the official sports drink, Sky TV as an official partner, and Tourism Malaysia as the official travel destination of Chelsea Football Club (Chelsea FC 2005)” (Bühler, 2006). Aligned with Buhler (2006), (Rosson, 2001) mentions that this two-way dependency between sports and commercial sponsorships, regarding football specifically, started to erupt since the beginning of the 1980s when kit deals brought to football teams important amounts of financial income.

The object of study of the dissertation concretely is the shirt sponsor of each team, due to the main position that occupies in the kit, but also because of its meaning to the club in general, since its presence is very well spotted in almost everything related to the team. Besides appearing on the shirt it is “usually very much in evidence on stadium entrances, grandstands, and perimeter boards, on match programs and tickets, web sites, etc.” (Rosson, 2001). The study does not focus on the kit manufacturer that supplies the team with the sportive equipment but on the company that occupies the central area of the shirt’s kit.

It is very important to mention that while clubs are negotiating with a new partner to be part of its mains sponsors, not only money/duration must be evaluated, since both organizations will be associated to each other during a period, the perception that consumers have from one of the parties will certainly influence the perception of the other and the other way around, to help to support what is referred (Douvis, Sarli, Kriemadis, & Vrontdou, 2015) shared that the criteria to select a possible partnership is based on “revenue opportunities, and possible image enhancement”. According to (Grohs, Wagner, & Vsetecka, 2004) the image transfer to sportive sponsorship can be perceived as a transfer of associations assigned from the sponsored activity to the sponsor, such as health, youth, vitality, justice, freedom and involvement. The objective is to evoke positive feelings and positive attitudes towards the sponsor, linking him to an event or sports brand whose values are high. In conclusion, sponsors should invest in sponsees that represent the desired image to be reached by them.

2.6. FLY EMIRATES

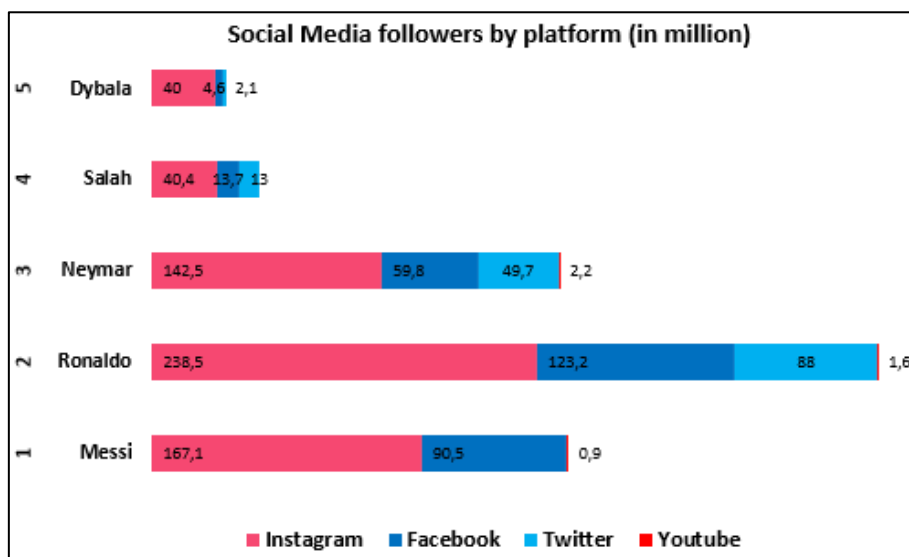
The role that the Emirati flight company plays in sportive sponsoring needs to be called out due to the large investment and scope achieved in its communication/marketing strategy, as it will be shown later in this study. As the main sponsor (presence in the front central part of the shirt) in the studied timeframe and scope, Fly Emirates sponsors/sponsored: Real Madrid (Spain), PSG (France), AC Milan (Italy), Hamburger (Germany) and Arsenal (United Kingdom), but apart from these 5 teams, the firm is also the main sponsor of SL Benfica (Portugal), all of them are top-tier clubs on the domestic leagues were inserted, or/and teams with a large number of supporters with – generally speaking – great local history. Also it is worth mentioning the agreement with Olympiacos FC from Greece, ensuring the presence of the brand in the stadium (Ferreira, 2016).

Despite being notorious the increased presence in occidental top football mainly over the past decade, the relation between Fly Emirates and sport is something that we have seen in the past. “The brand's relationship with sport started in 1996 when became the main sponsor of the largest horse racing event in the world - the Dubai World Cup. Its relationship specifically with football started in 2001 when it signed a contract worth £ 24 million to sponsor Chelsea's English Premier League football team for four years. In addition to sponsorships, in 2006 Emirates also signed a \$

195 million partnership with FIFA and purchased the rights to display each World Cup game in Germany to be broadcast on its flights. At the 2010 World Cup in South Africa, the company was one of the official partners. Besides, in 2014, Pelé and Cristiano Ronaldo were the protagonists of Emirates' global campaign, acting as global ambassadors for the airline, seeking to connect sports fans from all over the world” (Ferreira, 2016).

“It has been observed that Fly Emirates takes advantage of the great sporting events of the teams to publicize their planes, their trips and their promotions. As we all know, the great sports events are a claim for all fans and numerous media around the world to follow every day to these great teams, from their day-to-day training, to the match, going through their travels and following them until the moment they land in the city where they play the game. This means that these images are spread around the world, showing the team's personalized plane, and advertising the brand without having to pay any medium. Another similarity that can be observed is that Fly Emirates has launched different spots with players from these teams, where the objective is none other than to show their services, their planes and show the world that if the great football stars use their planes it is because they are a great airline and that they can trust her to carry out your flights” (Casas Diente, 2019).

“As for the differences that can be observed between the sponsored teams by Fly Emirates, they are only economic. We are talking about economic differences, since, Fly Emirates has carried out the same type of actions, campaigns, and spots with all the teams. But not all teams receive the same financially. This is understandable since the contracts are different and the impact they generate is not the same. We say that the impact is not the same, and it is not the same to have players like Cristiano Ronaldo, Neymar, or Sergio Ramos, known worldwide as football stars than having less well-known players. Besides, the effect and impact generated by winning four Champions League are not the same as the effect and impact of winning the FA Cup or Ligue 1 (Casas Diente, 2019)”. It is very important to highlight this last sentence from the author of the study here transcribed since it is remarked that the company is more willing or not to invest more capital on their sponsees depending on the potential sportive results that the team has. Despite this being a vague consideration, it brings some input for this study, because it is considered the sponsoring strategy followed by the company with more sponsees on the analyzed framework.



Source: SportsPro Media and KPMG Football Benchmark
 Figure 10 - Top-5 Most Marketable Football Player as of 28/09/2020

2.7. FOOTBALL TV BROADCASTING

TV broadcasting is one of the things that most boosted the inversion made by companies in football sponsorship. Of course that this game-changer not only created a positive effect on sponsees, but it can also be possibly said that teams were the most benefited from TV broadcasting, since sponsorship became more expensive as well as television rights. “Sports programming delivered large numbers of viewers to the TV channels, which, in turn, permitted the selling of prime-time advertising slots. But TV companies were not the only winners. Clubs benefited from TV in two ways: first, substantial revenues flowed from new TV contracts; and second, the greater number of games aired at prime time fueled fan interest and participation” (Rosson, 2001).

An important cause-effect of football broadcasting is that brands sponsoring went from “local” (only seen on the pitch by a reduced amount of people) to “global” visibility, this consequence is even more tangible in the European leagues, funneling to the Tier-1 ones: according to (Ridding, 2002) Premier League football matches attracts great audiences in China, a massive market that makes sponsorship looks 'cheap' due to his power on these cases. The impact of the English Premier League in the Asian Market can be perceived by a very good example: for seasons 2002/03 and 2003/04 Everton was sponsored by the Chinese electronic company “Kejian” which didn't even operate outside its domestic market, and after, the Liverpool team moved with a deal for the next seasons with the Thai beer “Chang”, which UK presence was very residual (Bühler, 2006).

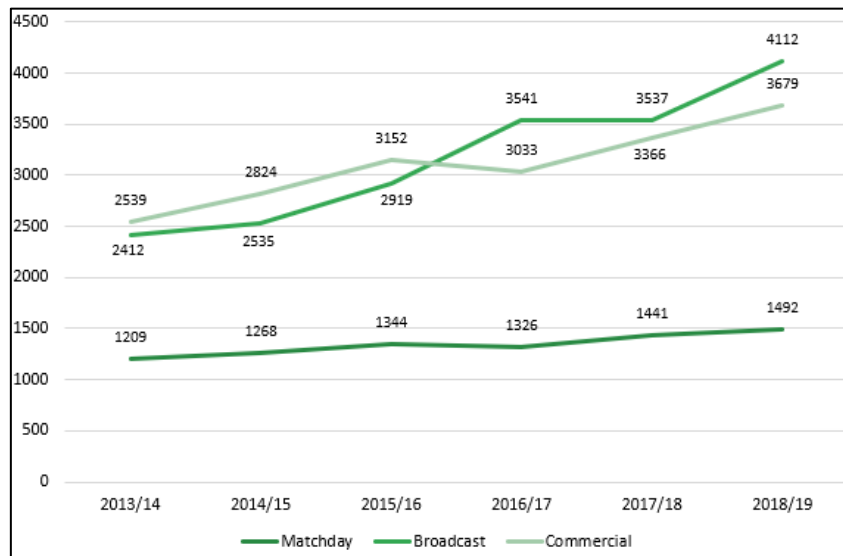


Source: classicfootballshirts.co.uk

Figure 11 - Everton FC Home Shirts 1978-2019

Several authors also show the gap creation (financial and sportive) between the biggest clubs and the humblest ones created by TV rights selling. Partnering with stronger teams looks like the preferable strategy from sponsors (of course also the most expensive), since these are most likely to reach final rounds: these clubs will dispute the biggest number of matches on cup competitions that take place on a knockout basis, which logically means more TV coverage, (Rosson, 2001). Following this reasoning, the author also reveals that teams that qualified for European competitions received extra funds from TV rights. (Bühler, 2006) also corroborates this logic saying that clubs appearing recurring on TV might attract more easily sponsorship partnerships. “The big football brands such as Manchester United, Arsenal or Chelsea in England and Bayern Munich or Borussia Dortmund in Germany attract large companies and consequently generate significantly more income from shirt sponsorship deals than smaller clubs. Another difference in terms of shirt sponsorships becomes evident when it comes to the international appeal of both leagues. The

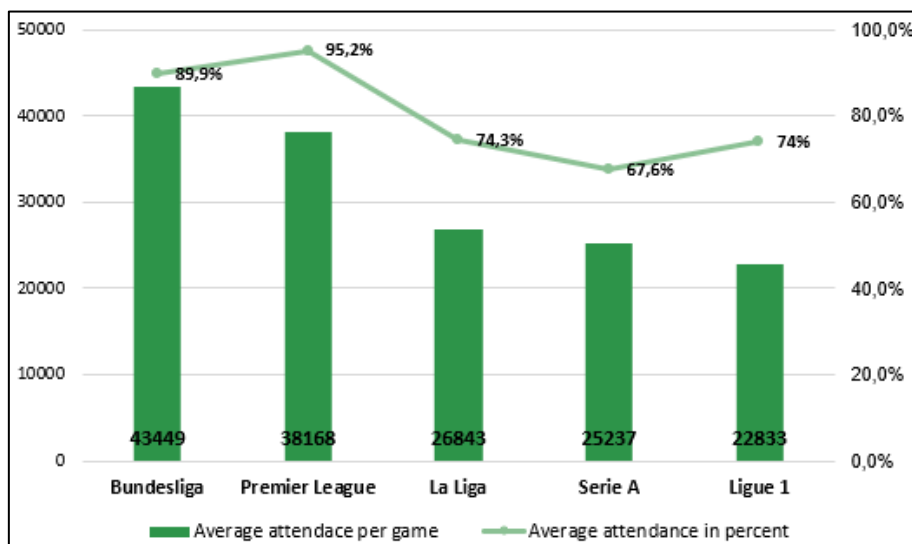
English Premier League attracts far more foreign shirt sponsors than its German counterpart as a consequence of its international orientation” (Bühler, 2006).



Source: Deloitte Football Money League 2020

Figure 12 - Revenue Growth of Top 20 clubs (2013/14-2018/19 (€m))

It is taken for granted, that generally, income generated from football teams has had an increasing trend - this is reflected in Figure 12. From the 3 parts that are defined by Deloitte as revenue generators for football clubs (Matchday, Broadcast, and Commercial), Broadcast leads since overtake the commercial agreements as the main source of income during season 2016/17. It is worth to highlight how far Broadcasting and Commercial Agreements are from Matchdays’ revenues that also grew but from a minor basis, its growth was much less impacting from the last 6 seasons (around 23%) comparing to the other 2 sources: Broadcasting increased around 70% since Commercial agreements raised almost 44%. This analysis shows what is the trend in the football industry and how global this sport is.



Source: KPMG Football Benchmark

Figure 13 - Stadium Attendance for Domestic League Matches 2018/19

3. RESEARCH CONTEXT AND DATA METHODOLOGY

3.1. DATA METHODOLOGY

Due to the large number of professional football teams worldwide, a smaller scope had to be defined, in this case it was followed first a geographic limitation. At this step it was decided to build this study for European football because of two main factors:

1. European football is known as the best football and the most developed in the world, it is no coincidence that the best players in the world at the height of their career lay here. The other confederation that could try to compete with the UEFA clubs is CONMEBOL: The South American football confederation, which still cannot compare to the quality of European football. This logic is easily understood after analyzing the many different rankings that compare leagues and/or teams between different football confederations, for example, the ranking with the best clubs worldwide released in 2020 clearly shows that European clubs lead this sport: for the Top-50 only 7 of the represented teams are from outside Europe: Flamengo, Boca Juniors, Palmeiras, River Plate, Gremio, Santos and Racing Club ('World Football / Soccer Clubs Ranking', 2020), curiously these 7 exceptions are all part of CONMEBOL.
2. Since the main variable under study is the shirt sponsorship value, another criterion related to sponsorship value was used to select the scope of teams in this study. Taking the annual information provided by Deloitte on his report *Deloitte Football Money League* where it is ranked the football clubs by their generated revenue, it is easily perceived why the scope of leagues to be analyzed on the dissertation should be the European ones. A clear sign that European football also commands regarding financial results it is that for all the annual Top-30 rankings created since 2011, only once a team from outside Europe was part of it: Corinthians (Brazil) in 2014 (Deloitte, 2014).

Table 3 - Top 20-30 Teams by Revenue in 2014

Pos	Club	Reported revenue (€m)
21	VfB Stuttgart	116.5
22	Napoli	116.4
23	Valencia	116
24	Corinthians	113.3
25	Newcastle United	111.9
26	Benfica	109.2
27	Ajax	107.6
28	SS Lazio	106.2
29	West Ham United	104.8
30	Olympique de Marseille	104.3

Source: Deloitte Football Money League 2014

Once the scope to be analysed is reduced to Europe, an even smaller number of leagues needed to be defined since the UEFA counts with 55 member associations. With this situation, the logic followed to funnel the number of leagues involved in the study was the UEFA country coefficient where the leagues from the countries' members are annually ranked based on their teams' performance in the five previous UEFA Champions League and UEFA Europa League seasons. The country leagues leading the Top-5 of this coefficient remain the same since season 2016/17: Spain, England, Germany, Italy and France (UEFA, n.d.), commonly known as the "Big Five" Leagues. Getting to this point, the scope defined to perform the analysis of this study was the previously mentioned 5 leagues.

Parallel to the data collected regarding the 5 national leagues, it was also considered the All-time European Cup Ranking (1955-2019) shared by the UEFA ('Who tops the all-time European Cup rankings? | UEFA Champions League | UEFA.com', 2019). It made sense also to include this ranking for several reasons: first, because following this approach, teams from other leagues with good historical international performance could be included in the first general analysis, and because this ranking is based on the results of all the teams that participated at least once on the biggest football competition at teams level: the UEFA Champions League (previously European Cup), and logically, the teams that reach UEFA Champions League level are the ones that first had the best domestic results.

Once defined the scope of clubs/leagues of the study and after exhaustive research and collection work was done, 4 different datasets were created:

1. "Big 5" Leagues final ranking for seasons 2016/17, 2017/18 and 2018/19;
2. UEFA ranking coefficient for seasons 2016/17, 2017/18 and 2018/19;
3. Sponsorship values perceived by each club from the "Big 5" leagues for seasons 2017/18, 2018/19 and 2019/20;
4. UEFA All-time European Cup Ranking (1955-2019).

These four datasets were put together and combined in different ways to be able to perform the desired analysis.

Relatively to the applied methodology on this quantitative research, it was used Linear Regression and a Multilinear Linear Regression models since the study has as an objective to understand how the shirt sponsorship value perceived by each football team (dependent variable), it is explained by other performance and qualitative independent variables. It was also applied this method since there is a linear relationship between the dependent variable and the independent ones.

All the analysis and modeling to run the data and the model was made through SPSS software.

4. DATA AND EXPLORATORY ANALYSIS

In this section it is presented each one of the four datasets mentioned before, sharing their central characteristics and significant specifics that could be found from this first observation.

4.1. BIG FIVE FINAL RANKINGS (2016/17, 2017/18 AND 2018/19)

Regarding this first dataset, the big objective is to put side by side the domestic result and sportive performance for each one of the teams from the “Big 5” that was part of it on the last 3 complete seasons.

The variables that are collected within this “Master Table” for the national leagues’ final rankings are the following ones:

Table 4 - National Leagues Master Table Variables Definitions

Variable	Definition
National League	Identification of the domestic league to which each of the clubs belongs.
Team	Name of the club.
Season	The referenced season to the sportive results of the team.
Ranking	The final standing for the club on its domestic league.
International Classification	Identifies if the club was able to classify to one of the 2 international European competitions: UEFA Champions League (marked as “UCL”), Europe League (“EL”), or “0” in case that the team couldn’t stand in one of the positions that allow its participation on these international tournaments.
Relegation	A binary variable: “0” in the case that the club didn’t follow into relegation zone to the secondary division, otherwise, “1”.
Number of Matches	Count of disputed matches played by the team during the league.
Wins	Number of wins from the total number of matches.
Draws	Number of draws from the total number of matches.
Losses	Number of losses from the total number of matches.
Goals Scored	Count of scored goals during all competition.
Goals Suffered	Count of against goals during all competition.
Goal Difference	Goal difference between the scored and the suffered goals.
Points	Sum of conquered points through the league.
Average Ranking	The average ranking of each team for the analyzed timeframe.

Source: Author

From the first created dataset, there are a few first pieces of information that are worth to be mentioned, such as the teams with the best “Average Ranking” from all the 5 leagues involved in the analysis. For this specific question there are two clubs that call out the attention before all the rest: Bayern Munich and Juventus, since both have an average ranking of “1” which means that for these 3 seasons the two teams finalised always in 1st place on their domestic leagues. Following the two clubs already mentioned, the only squads that achieve an average ranking better than a 2nd place, are: PSG (“1,33”), Barcelona (“1,33”) and Manchester City (“1,67”), curiously the last one is the one that achieves the best position regarding “Wins”, Manchester City during the seasons 2017/18 and 2018/19 was able to finish the league with 32 triumphs.

After this first high-level overview from this dataset it is possible to say that the teams with the best internal results by each one of the 5 national leagues in scope and for the analyzed seasons are: Manchester City (United Kingdom), PSG (France), Barcelona (Spain), Bayern Munich (Germany) and Juventus (Italy).

In the opposite direction we are also able to discover which teams had the less satisfactory results by taking a look at the “Average Ranking” and seeing which of the clubs occupy the worst positions by league: Pescara and Benevento in Serie A, Granada and Rayo Vallecano in La Liga, Sunderland in Premier League, Bastia for Ligue 1, and SV Darmstadt 98 and Nurnberg in the Bundesliga. All these

teams participated only once in the main national division of each country during the 3 analyzed seasons.

4.2. BIG FIVE T-SHIRT SPONSORSHIP VALUES (2017/18, 2018/19 AND 2019/20)

This set of data was the most challenging one to be gathered since most of these deals are not officially revealed by the clubs nor by the sponsor, so a deep search was performed on the media to try to find the most and trustworthy possible data to create this DB. It is also important to mention that since the information was collected from very different sources and from several countries, a currency uniformity was done to Euros to have a similar coin while analysing the values. The applied exchanged rate was the one available in Reuters on the day 6th of May of 2020: 1\$=0,9265€ and 1£=1,1430€.

This table is a clone of the first dataset just adding four more columns: 1) the value perceived by each club in Season T from their shirt sponsorship deal, 2) the sponsor company name, 3) the sector where the sponsor operates, and 4) the origin country of the company that sponsors the team. Since the goal of the study is to understand if the values from the sponsorship deals are only related to the team's performance, this hypothesis can only be evaluated after the domestic leagues end, so it is compared the ranking and all the other performance variables from each team at the end of the season with the value received by their main sponsor in the following one: *Season T*, this variable it is identified as "Sponsorship Value Season T Euros" and apart from the amount of money received by each team in euros, has also two other values: "Missing_Info" for the cases where the data involved on the signed deals wasn't detected, and "No_Sponsorship" for the teams that didn't sign any deal. In the total universe of 295 entries, there are 12 teams without Sponsorship on their shirts and 49 where information was not possible to obtain, in terms of percentage this last number represents 16,6% of the total dataset.

Regarding the data itself, one of the first things that can call the attention is the fact that one team received 0€ to be the sponsee of an organization, this is the only case identified like this and it happens with Fiorentina during season 2018/19 to support the well-known NGO "Save the Children" after being unable to find a sponsor to their shirt ('Fiorentina will rep Save the Children on their jerseys this year', 2018). Apart from this particular case no other strange situation calls out the attention at first sight.

The ranking of the value perceived in shirt sponsorship deals is led by Manchester United, with an amount of almost 85 million of euros deal for the season 2018/19. It deserves to be highlighted that the Top-5 deals were signed by only two teams - since we are scrutiny teams together with seasons- apart from Manchester United the other team it is Real Madrid that appears twice on this Top-5, in 3rd and 4th place. Out of curiosity, none of these multimillionaire contracts were signed after achieved 1st place in their leagues.

Another fact that we faced while observing the data is that the Top-20 deals count with 14 English clubs-seasons, 5 Spanish entries and one clear "intruder" from Ligue 1: PSG, that appears in the 10th place with the sponsorship agreement made for the season 2019/20. In this "competition" it is visible that the Premier League clubs lead, followed by Real Madrid and Barcelona.

Table 5 - Top-20 Shirt Sponsorship Deals

Ranking	National League	Team	Season	National League Position	Shirt Sponsorship Value Season T Euros
1	United Kingdom	Man Utd	2017/18	2	€84,810,600
2	United Kingdom	Man Utd	2018/19	6	€73,152,000
3	Spain	Real Madrid	2018/19	3	€70,000,000
4	Spain	Real Madrid	2017/18	3	€70,000,000
5	United Kingdom	Man Utd	2016/17	6	€60,579,000
6	Spain	Barcelona	2018/19	1	€55,000,000
7	Spain	Barcelona	2017/18	1	€55,000,000
8	Spain	Barcelona	2016/17	2	€55,000,000
9	United Kingdom	Man City	2018/19	1	€51,435,000
10	France	Paris Saint Germain	2018/19	1	€50,000,000
11	United Kingdom	Man City	2017/18	1	€45,720,000
12	United Kingdom	Chelsea	2016/17	1	€45,720,000
13	United Kingdom	Chelsea	2018/19	3	€45,720,000
14	United Kingdom	Chelsea	2017/18	5	€45,720,000
15	United Kingdom	Liverpool	2018/19	2	€45,720,000
16	United Kingdom	Arsenal	2018/19	5	€45,720,000
17	United Kingdom	Arsenal	2017/18	6	€45,720,000
18	United Kingdom	Man City	2016/17	3	€40,005,000
19	United Kingdom	Tottenham	2016/17	2	€40,005,000
20	United Kingdom	Tottenham	2017/18	3	€40,005,000

Source: Author

Few other points need to be raised when observing this table that is somehow linked: it is necessary to go down - till the 69 and 70 places - to find another French team apart from PSG on the top sponsees: Olympique Marseille; regarding Serie A clubs what is visible it is their distance from the struggle of the best sponsorship deals, the best position for the Italian teams it is the 40th place with Juventus, followed by the surprising Sassuolo's sponsorship deal with the Italian company MAPEI rated in 18 million euros per season which is even more surprising if we consider that for the timeframe in scope: Sassuolo's best Serie A ranking was only the 11th position, for the seasons 2017/18 and 2018/19.

From a general perspective, this data allows to affirm that the best deals are generally obtained by Premier League teams with only 3 other teams able to enter this dispute: Real Madrid, Barcelona and PSG. In the opposite direction from the English teams, we identify the clubs from France and Italy.

Table 6 - Sponsor Country by League

League/Sponsor T Country	United Kingdom	Spain	Germany	France	Italy	TOTAL
Germany	0 0,0%	0 0,0%	43 79,6%	0 0,0%	1 1,7%	44 14,77%
France	0 0,0%	0 0,0%	0 0,0%	44 81,3%	0 0,0%	44 14,77%
Italy	0 0,0%	2 3,3%	0 0,0%	0 0,0%	37 61,7%	39 13,09%
Spain	0 0,0%	22 36,7%	0 0,0%	0 0,0%	0 0,0%	22 7,38%
UK	17 28,3%	0 0,0%	0 0,0%	1 1,7%	1 1,7%	19 6,38%
UAE	6 10,0%	3 5,0%	2 3,7%	2 3,3%	3 5,0%	16 5,37%
No_Sponsorship	0 0,0%	5 8,3%	0 0,0%	3 5,0%	5 8,3%	13 4,36%
Malta	6 10,0%	6 10,0%	0 0,0%	0 0,0%	0 0,0%	12 4,03%
USA	5 8,3%	2 3,3%	3 5,6%	1 1,7%	1 1,7%	12 4,03%
China	6 10,0%	2 3,3%	0 0,0%	1 1,7%	0 0,0%	9 3,02%
Japan	3 5,0%	3 5,0%	0 0,0%	0 0,0%	3 5,0%	9 3,02%
Russia	0 0,0%	4 6,7%	3 5,6%	0 0,0%	1 1,7%	8 2,68%
Israel	0 0,0%	5 8,3%	0 0,0%	0 0,0%	0 0,0%	5 1,68%
Philippines	5 8,3%	0 0,0%	0 0,0%	0 0,0%	0 0,0%	5 1,68%
Sweden	0 0,0%	0 0,0%	0 0,0%	4 6,7%	0 0,0%	4 1,34%
Austria	0 0,0%	1 1,7%	3 5,6%	0 0,0%	0 0,0%	4 1,34%
Gibraltar	3 5,0%	0 0,0%	0 0,0%	0 0,0%	0 0,0%	3 1,01%
Hong Kong	3 5,0%	0 0,0%	0 0,0%	0 0,0%	0 0,0%	3 1,01%
Italy/USA	0 0,0%	0 0,0%	0 0,0%	0 0,0%	3 5,0%	3 1,01%
Missing_Info	0 0,0%	0 0,0%	0 0,0%	3 5,0%	0 0,0%	3 1,01%
Romania	0 0,0%	0 0,0%	0 0,0%	0 0,0%	3 5,0%	3 1,01%
South Korea	0 0,0%	0 0,0%	0 0,0%	3 5,0%	0 0,0%	3 1,01%
Thailand	3 5,0%	0 0,0%	0 0,0%	0 0,0%	0 0,0%	3 1,01%
Costa Rica	0 0,0%	2 3,3%	0 0,0%	0 0,0%	0 0,0%	2 0,67%
Isle of Man	2 3,3%	0 0,0%	0 0,0%	0 0,0%	0 0,0%	2 0,67%
Qatar	0 0,0%	0 0,0%	0 0,0%	0 0,0%	2 3,3%	2 0,67%
Switzerland	0 0,0%	0 0,0%	0 0,0%	2 3,3%	0 0,0%	2 0,67%
Cyprus	0 0,0%	1 1,7%	0 0,0%	0 0,0%	0 0,0%	1 0,34%
Malaysia	1 1,7%	0 0,0%	0 0,0%	0 0,0%	0 0,0%	1 0,34%
Mexico	0 0,0%	1 1,7%	0 0,0%	0 0,0%	0 0,0%	1 0,34%
Singapore	0 0,0%	1 1,7%	0 0,0%	0 0,0%	0 0,0%	1 0,34%
TOTAL	60	60	54	64	60	298 100%

Source: Author

Regarding to the analysis of the firms that pay for having their names in the front part of the shirt teams, generally speaking, a few situations call out the attention. Excluding English Premier League and La Liga, it is visible that more than half of the sponsors by league have as origin country the same country as the league where the club competes. One reason for this could be the fact that sponsors see these two championships with a geographic capacity much bigger than the other domestic leagues; this thought can also have a snowball effect increasing the amount perceived by the teams due to their sponsorships – as we have seen in Table 5 - Top-20 Shirt Sponsorship Deals, English teams are the highest-paid.

Another interesting point while analysing these data, is the presence of an interesting number - 5,37% from the total number of entries - of Emirati companies sponsoring teams from the Big Five Leagues, curiously with only two firms: Fly Emirates and Etihad Airways, both part of the air sector. It is important also to refer that these two companies have agreements with only top tier/historical clubs: Real Madrid (Fly Emirates), PSG (Fly Emirates), Manchester City (Etihad Airways), Arsenal (Fly Emirates), AC Milan (Fly Emirates) and Hamburger (Fly Emirates). Isolating Fly Emirates, we see the presence of the company in all the analyzed domestic leagues with one team per country; if the study also included the next big European league – following the UEFA country coefficient – it will take us to analyze the Portuguese Liga NOS and there, Fly Emirates continues the same approach by being the main sponsor of the historical Portuguese team: SL Benfica. It is visible during last years Fly Emirates’ strategy to channel its communication/marketing efforts through football.

Table 7 - Top 10 Average Shirt Sponsorship Value by Sponsor

Ranking	Sponsor	Industry	Country	Number of Entries	Average Shirt Sponsorship Value
1	General Motors	Automotive	USA	3	€72 847 200,00
2	Rakuten	E-Commerce	Japan	3	€55 000 000,00
3	Accor	Hospitality	France	1	€50 000 000,00
4	Etihad Airways	Airline	UAE	3	€45 720 000,00
5	Yokohama	Automotive	Japan	3	€45 720 000,00
6	AIA	Insurance	Hong Kong	3	€40 005 000,00
7	Standard Chartered	Finance	UK	3	€38 100 000,00
8	T-Mobile	Telecommunications	Germany	3	€35 000 000,00
9	Fly Emirates	Airline	UAE	13	€30 628 307,69
10	Gazprom	Energy	Russia	3	€24 000 000,00

Source: Author

While analyzing Table 7 - Top 10 Average Shirt Sponsorship Value by Sponsor above, no pattern trait is possible to observe at first sight due to its broad heterogeneity: large number of sectors and countries represented. There are only two industries that count with more than one entry: the Airline (Etihad Airways and Fly Emirates), and the Automotive sector (GM and Yokohama). Regarding the home countries of these sponsors, the ones with more than one company are UAE (Etihad Airways and Fly Emirates) and Japan (Rakuten and Yokohama).

It is with no big surprise that we see GM leading on the average amount of money spent on its agreements, since the only sponsee that the automotive firm has it is Manchester United with a multimillionaire deal.

Table 8 - Sponsor Analysis by Sector

Industry	Number of Entries	Percentage of Entries	Average Shirt Sponsorship Value
Gambling	41	14,6%	€5 269 665,00
Automotive	30	10,7%	€19 492 128,57
Finance	20	7,1%	€11 212 000,00
Airline	18	6,4%	€31 240 444,44
Insurance	15	5,3%	€14 365 000,00
Chemical Industry	12	4,3%	€12 727 272,73
Energy	11	3,9%	€9 368 750,00
Telecommunications	9	3,2%	€16 056 465,56
Human Resources	9	3,2%	€1 675 000,00
Retailer	8	2,8%	€5 391 666,67
Food	8	2,8%	€4 116 666,67
Construction Materials	8	2,8%	€3 200 000,00
Public Institution	8	2,8%	€2 041 125,00
Beer	6	2,1%	€1 500 000,00
Construction	5	1,8%	€2 944 750,00
Software	4	1,4%	€5 000 000,00
Construction/Energy	3	1,1%	Missing_Info
E-Commerce	3	1,1%	€55 000 000,00
Energy Drink	3	1,1%	€9 000 000,00
Water	3	1,1%	€7 750 000,00
Job Search Engine	3	1,1%	€6 700 000,00
Retail	3	1,1%	€4 572 000,00
Electronic	3	1,1%	€4 000 000,00
Dairy Products	3	1,1%	€2 800 000,00
Facility Services	3	1,1%	€2 700 000,00
Real Estate	3	1,1%	€1 016 666,67
Petrol	3	1,1%	€600 000,00
Wine	2	0,7%	Missing_Info
Automotive/Food	2	0,7%	Missing_Info
Mobile Phones	2	0,7%	€3 850 000,00
Gaming	2	0,7%	€2 600 000,00
Forrest Protection	2	0,7%	€2 300 000,00
Energy/Food	2	0,7%	€2 200 000,00
Clothes	2	0,7%	€2 200 000,00
Retailer/Milk	1	0,4%	Missing_Info
Milk	1	0,4%	Missing_Info
Heating	1	0,4%	Missing_Info
Shoes	1	0,4%	Missing_Info
Waste Disposal	1	0,4%	Missing_Info
Car Rental	1	0,4%	Missing_Info
Coffee/Microbiology	1	0,4%	Missing_Info
Cleaning and Hygiene Products	1	0,4%	Missing_Info
Hospitality	1	0,4%	€50 000 000,00
Television	1	0,4%	€6 500 000,00
Entertainment Platform	1	0,4%	€4 000 000,00
Digital Platform	1	0,4%	€3 000 000,00
Casino	1	0,4%	€3 000 000,00
FMCG	1	0,4%	€3 000 000,00
Household Appliances	1	0,4%	€2 500 000,00
Travel Agency	1	0,4%	€2 000 000,00
Media Platform	1	0,4%	€1 500 000,00
Machinery	1	0,4%	€700 000,00
Energetic Drinks	1	0,4%	€500 000,00
Charity Organization	1	0,4%	€0,00

Source: Author

Taking a closer look at the industries where the sponsors come from, it is at least curious the fact that the sector with more entries by far is the Online Gambling, it is curious but at the same time controversial because of the nature of its business together with the power of football to reach many people of different generations and social strata. If some of the many movements that started a few years ago to ban these companies to sponsor football clubs triumphs, we may live one before

and one after in what regards to football sponsorship. A good notice to the teams that can be affected by this banning is the fact that on average the money spent by the Online Gambling companies on their agreements it is not too high, approximately 5,3M€, this situation can also be easily explained because “gambling operators might believe they have enough global exposure that the league as whole offers, without needing to pay premium sponsorship deals to attach their brand to the most supported and successful teams because all the lower-ranked teams have to play all the upper ranked teams and therefore get equal advertising exposure during televised games” (Lopez-Gonzalez & Griffiths, 2018).

Keeping with the analysis by sectors, it is important to highlight the average values of the deals done with Hospitality (50M€), E-Commerce (55M€) and Air sectors (31,2M€), anyway it is needed to raise the fact that the first-mentioned two sectors have only agreements with one team: Accor/PSG and Rakuten/Barcelona, respectively; being rash trying to find a pattern on the agreements reached by those sectors. Regarding the Airline industry, a pattern can be found due to a large number of entries related: 18, almost all belonging to Fly Emirates.

4.3. UEFA RANKING COEFFICIENT (2016/17, 2017/18 AND 2018/19)

Keeping the coherence on the amount of data used to create and analyze each dataset, to generate this table it was collected the Top-30 teams from the UEFA Club Coefficient that is updated after each round of UEFA club competition by the maximum organism in European football based on the results of clubs competing in the five previous seasons of the UEFA Champions League and UEFA Europa League. The timeframe used includes seasons 2016/17, 2017/18 and 2018/19.

The variables taken for the dataset are the following:

- National League: country to each the club belongs;
- Team: club in each entry and to whom the details are part of;
- Season: Season of the ranking;
- UEFA Ranking: Position of the team at the UEFA Club Coefficient;
- UEFA Ranking Average: The average ranking obtained by the team for the three seasons in scope;
- Shirt Sponsorship Value Season T Euros: Agreed value for the shirt sponsorship on the season after in Euros; and,
- Shirt Sponsorship Ranking: For all the entries collected, in what position the agreed value stays.

This index has 90 entries with teams from 13 different countries. About the data, it can be said that the historical ranking is aligned with the most recent ones in what regards its leader: Real Madrid obtains an average ranking position of a 1st position and the sponsorship value ranking is somehow aligned with merengues results, except for the agreed shirt sponsorship deal for season 2017/18 of approximately 25 million euros that means the 30th position in the total of 90, 70 if excluded the entries to each information it is missing. A similar situation happens to Bayern Munich that reaches the second-best average ranking in the UEFA Coefficient, with a 2.67 place but with a long-term deal that occupies the 25th, 26th and 27th ranking. As expected, the best average rankings are reached by “Big Five” teams, where Spanish teams deserve honorable mention by the outstanding average positions of the already cited Real Madrid but also Barcelona (3rd), Atletico Madrid (3.33rd) and Sevilla (7th). Atletico’s and Sevilla’s shirt sponsorship agreement looks “inadequate” if compared with their performance, their deals occupy between the 42nd and the 65th position out of 70.

Table 9 - Atletico's and Sevilla's Sponsorship Deals

Team	National League	Season	UEFA Ranking	UEFA Ranking Average	Shirt Sponsorship Value Season T Euros	Shirt Sponsorship Ranking
Atletico Madrid	Spain	2017/18	2	3.33	€15,000,000	42
Atletico Madrid	Spain	2018/19	4	3.33	€12,000,000	45
Atletico Madrid	Spain	2016/17	4	3.33	€10,500,000	46
Sevilla	Spain	2017/18	6	7	€2,600,000	64
Sevilla	Spain	2018/19	7	7	€5,000,000	59
Sevilla	Spain	2016/17	8	7	€2,600,000	65

Source: Author

FC Porto's position at this ranking is very interesting for several reasons. The Portuguese team is the best no-Big Five club on both: sportive performance and agreed deals. Regarding sportive performance, the club occupies the average 11.33 position, and its 45.750.000€ sponsorship annual deal elevates them to the 11th, 12th, and 13th position on the ranking of the best agreements. Despite the impressive number of FC Porto it should be mentioned that this sponsorship agreement not only covers shirt sponsor but also TV rights of the home matches of the club for the Portuguese Liga NOS (ZAP / Futebol 365, 2015).

Manchester United which reaches an average 15th position, obtains the 1st and 2nd best deals regarding sponsorship. These agreements are valued at around 85 and 73 million euros, if we were not talking about an English team after the observation that was made, these deals would be surprising. Related to the Manchester United case, Premier League teams are still dealing with the best agreements: in the Top-25 Clubs/Seasons agreements, 15 were signed by UK teams.

Table 10 - Top-25 Shirt Sponsorship Agreements

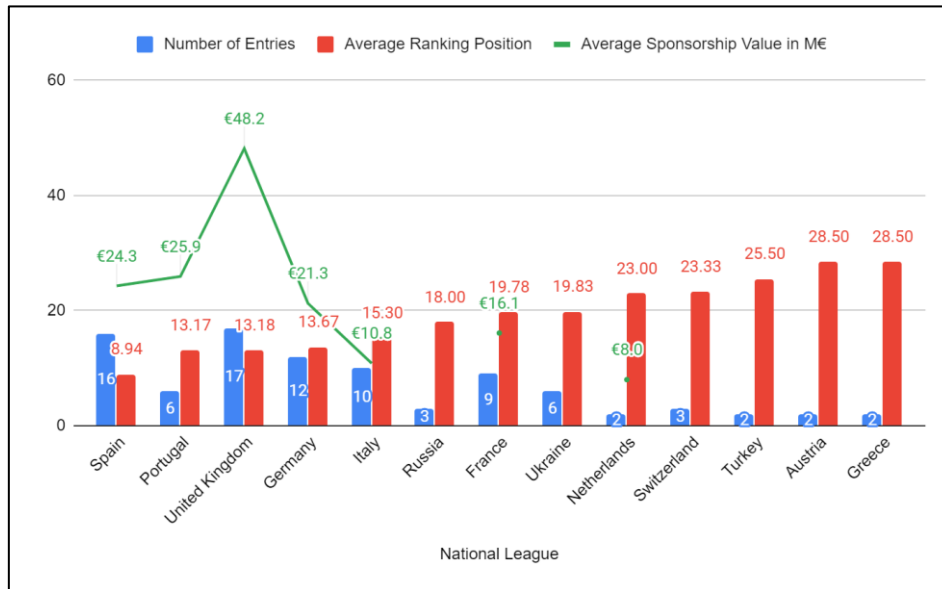
Shirt Sponsorship Ranking	Team	National League	Season	UEFA Ranking	UEFA Ranking Average	Shirt Sponsorship Value Season T Euros
1	Man Utd	United Kingdom	2017/18	12	15.00	€84,810,600
2	Man Utd	United Kingdom	2018/19	18	15.00	€73,152,000
3	Real Madrid	Spain	2018/19	1	1.00	€70,000,000
4	Real Madrid	Spain	2017/18	1	1.00	€70,000,000
5	Man Utd	United Kingdom	2016/17	15	15.00	€60,579,000
6	Barcelona	Spain	2018/19	2	3.00	€55,000,000
7	Barcelona	Spain	2016/17	3	3.00	€55,000,000
8	Barcelona	Spain	2017/18	4	3.00	€55,000,000
9	Man City	United Kingdom	2018/19	6	8.67	€51,435,000
10	Paris Saint Germain	France	2018/19	8	7.00	€50,000,000
11	FC Porto	Portugal	2018/19	10	11.33	€45,750,000
12	FC Porto	Portugal	2017/18	11	11.33	€45,750,000
13	FC Porto	Portugal	2016/17	13	11.33	€45,750,000
14	Man City	United Kingdom	2017/18	8	8.67	€45,720,000
15	Arsenal	United Kingdom	2018/19	9	9.67	€45,720,000
16	Arsenal	United Kingdom	2017/18	9	9.67	€45,720,000
17	Chelsea	United Kingdom	2016/17	10	11.67	€45,720,000
18	Liverpool	United Kingdom	2018/19	11	16.50	€45,720,000
19	Chelsea	United Kingdom	2018/19	12	11.67	€45,720,000
20	Chelsea	United Kingdom	2017/18	13	11.67	€45,720,000
21	Man City	United Kingdom	2016/17	12	8.67	€40,005,000
22	Tottenham	United Kingdom	2018/19	17	18.67	€40,005,000
23	Tottenham	United Kingdom	2017/18	19	18.67	€40,005,000
24	Tottenham	United Kingdom	2016/17	20	18.67	€40,005,000
25	Bayern Munich	Germany	2016/17	2	2.67	€35,000,000

Source: Author

The chart in Figure 14 enables us to look at the data by the national league, and it gives some other important insights. Spanish and English leagues are the ones with the most entries in the table with 16 and 17, having a significant difference to the third league on this top. La Liga still being the best regarding sportive results, having an average ranking by their teams of an almost 9th position, followed surprisingly by the Portuguese national league. Generally, countries with fewer entries on the ranking are also the ones with worse average rankings by its teams, except for the only Russian representative on the three seasons analyzed - FC Zenit - that has an average 18th position, better

than France with 9 entries at this dataset. Apart from the Portuguese and Russian cases, less competitive national leagues could mean less capacity to compete at an international level.

Regarding sponsorship average agreements, Premier League clubs appear once again in 1st place with a very big difference - almost twice the value - for the 2nd place that belongs again to Portugal, even outside the “Big Five” tier, mostly because of FC Porto’s peculiar sponsorship agreement, already explained.



Source: Author

Figure 14 - UEFA Coefficient Data by Country

4.4. UEFA ALL-TIME EUROPEAN CUP RANKING

Table 11 – Top-30 UEFA All Time Club Ranking

Pos	Club	Country	Part	Titles	Pld	W	D	L	F	A	Pts	GD
1	Real Madrid	ESP	50	13	438	262	76	100	972	478	600	494
2	Bayern Munich	GER	36	5	348	202	72	74	708	347	476	361
3	Barcelona	ESP	30	5	317	187	73	57	630	303	447	327
4	Man Utd	ENG	28	3	279	154	66	59	506	264	374	242
5	Juventus	ITA	34	2	278	140	69	69	439	269	349	170
6	AC Milan	ITA	28	7	249	125	64	60	416	231	314	185
7	Liverpool	ENG	24	6	217	121	47	49	408	196	289	212
8	Benfica	POR	39	2	258	114	59	85	416	299	287	117
9	Porto	POR	34	2	245	110	57	78	364	276	277	88
10	Ajax	NED	36	4	227	102	62	63	356	251	266	105
11	Dynamo Kyiv	UKR	36	0	233	97	52	84	333	283	246	50
12	Arsenal	ENG	21	0	201	101	43	57	332	218	245	114
13	Celtic	SCO	34	1	212	100	36	76	324	250	236	74
14	Inter Milan	ITA	21	3	178	86	47	45	255	177	219	78
15	Chelsea	ENG	16	1	167	83	48	36	285	154	214	131
16	Anderlecht	BEL	34	0	200	70	44	86	282	320	184	-38
17	Atletico Madrid	ESP	15	0	135	70	34	31	204	120	174	84
18	PSV	NED	28	1	177	64	41	72	231	224	169	7
19	Borussia Dortmund	GER	18	1	146	70	28	48	247	183	168	65
20	Olympique Lyonnais	FRA	18	0	145	64	37	44	228	172	165	56
21	Rangers	SCO	30	0	161	62	40	59	232	218	164	14
22	FK Crvena zvezda	SRB	25	1	140	65	30	45	253	193	160	60
23	Galatasaray	TUR	26	0	175	57	43	75	213	272	157	-59
24	Olympiacos	GRE	32	0	172	62	32	78	212	265	156	-53
25	Valencia	ESP	13	0	128	57	35	36	191	130	149	61
26	Rosenborg	NOR	25	0	152	58	31	63	224	232	147	-8
27	FCSB	ROU	26	1	145	52	41	52	203	204	145	-1
28	Paris Saint Germain	FRA	13	0	112	61	22	29	225	128	144	97
29	Panathinaikos	GRE	28	0	157	49	45	63	182	214	143	-32
30	Dinamo Zagreb	CRO	21	0	134	55	27	52	200	189	137	11

Source: UEFA

The data exposed in this section refers to the historic performance of all clubs at the most important club's competition: the UEFA Champions League (formerly known as the European Cup). In total this index collects cumulative information of 520 teams for 65 seasons.

Apart from the club's name and its origin country, the sportive variables collected on the table are the following:

Pos - Position

L - Matches lost

Part - Number of participations

F - Goals for

Pld - Matches played

A - Goals against

W - Matches won

Pts - Points. Two points are awarded for a win, one point for a draw

D - Matches drawn

GD - Goal difference

Regarding the numbers that compound this table, as a first observation it is possible to affirm that Real Madrid is the "king" of this competition: the club that won the most trophies, that have played, won, drawn and lost more matches, as well as scoring and conceding more goals. Following the leader of the ranking, it is possible to say that till the 7th position and considering the modern era of football there are not any surprises, since these clubs still have recent high performances in the competition.

Half of the Top-30 clubs it is compound by "Big Five" leagues' teams. On this 30, it is worth to highlight from the 8th to the 11th position since these high-ranking places belong to clubs outside

the “Big Five”: Benfica and FC Porto from Portugal, Ajax (Netherlands) and occupying the 11th place it is possible to see Dynamo Kyiv from Ukraine. It would be expected for these clubs to have also multimillionaire sponsorship agreements if considered their historical results.

Another situation that calls out, is the ranking that Manchester City (43rd) and Tottenham (63rd) occupy on the table, currently two of the teams with best sponsors but which does not reach outstanding positions within this table. Once again, Premier League teams “despite” their performance, are the ones privileged with better agreements.

The “All-Time Club Ranking” gives us two main strong hypothesis/questions:

1. Are the Premier League clubs the ones that can get better value by their shirt sponsorships without giving to it much weight on their performance?
2. Maybe good historical results do not mean directly better sponsorship agreements, as the recent results are the most important regarding the shirt sponsorship values agreed.

5. MODELING, ANALYSIS, AND RESULTS

5.1. GENERAL OVERVIEW OF THE DATA

After the first exploratory analysis to each one of the datasets that fed the models in SPSS IBM software and to drive a much deeper analysis; it was generated a bigger DB by concatenating and selecting from all the variables that compound the different datasets to be inputted in the tool.

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
10	Losses	Numeric	2	0	Losses	None	None	12	Right	Scale	Input
11	GoalsScored	Numeric	3	0	Goals Scored	None	None	12	Right	Scale	Input
12	GoalsSuffered	Numeric	2	0	Goals Suffered	None	None	12	Right	Scale	Input
13	GoalDifference	Numeric	3	0	Goal Difference	None	None	12	Right	Scale	Input
14	Points	Numeric	3	0	Points	None	None	12	Right	Scale	Input
15	AverageLeagueRanking	Numeric	18	2	Average League Ranking	None	None	16	Right	Ordinal	Input
16	UEFARanking	Numeric	3	0	UEFA Ranking	None	None	12	Right	Ordinal	Input
17	UEFARankingAverage	Numeric	18	2	UEFA Ranking Average	None	None	18	Right	Ordinal	Input
18	UATRPosition	Numeric	3	0	UATR Position	None	None	12	Right	Ordinal	Input
19	UATRPoints	Numeric	3	0	UATR Points	None	None	11	Right	Scale	Input
20	UATRParticipations	Numeric	3	0	UATR Participations	None	None	15	Right	Scale	Input
21	UATRMatchesPlayed	Numeric	3	0	UATR Matches Played	None	None	16	Right	Scale	Input
22	UATRMatchesWon	Numeric	3	0	UATR Matches Won	None	None	15	Right	Scale	Input
23	UATRMatchesDrawn	Numeric	2	0	UATR Matches Drawn	None	None	15	Right	Scale	Input
24	UATRMatchesLost	Numeric	3	0	UATR Matches Lost	None	None	15	Right	Scale	Input
25	UATRGoalsFor	Numeric	3	0	UATR Goals For	None	None	15	Right	Scale	Input
26	UATRGoalsAgainst	Numeric	3	0	UATR Goals Against	None	None	15	Right	Scale	Input
27	UATRGoalDifference	Numeric	3	0	UATR Goal Difference	None	None	15	Right	Scale	Input
28	SponsorT	String	35	0	Sponsor T	None	None	35	Left	Nominal	None
29	SponsorTIndustry	String	29	0	Sponsor T Industry	None	None	29	Left	Nominal	None
30	SponsorTCountry	String	18	0	Sponsor T Country	None	None	18	Left	Nominal	None
31	ShirtSponsorshipValueSeasonTEuros	Custom	31	0	Shirt Sponsorship Value Season T Euros	None	None	31	Right	Scale	Target
32	ShirtSponsorshipRanking	Numeric	3	0	Shirt Sponsorship Ranking	None	None	18	Right	Ordinal	None

Source: Author

Figure 15 - Variable View in SPSS

As it is visible, it was injected 32 different variables with information to each of the entries in the dataset. Under type, it can be found categorical and numeric variables, in the tool “String” type it is for categorical ones, while it is possible to identify for the numeric ones two different names: “Numeric” and “Custom Currency”. Regarding the measure to each one of the variables, in this set of variables we have “Nominal”, “Ordinal” and “Scale” variables.

Table 12 - SPSS Input Dataset Variables Definitions

Name	Definition
Team	Name of the club.
NationalLeague	Identification of the domestic league to which club belongs.
Season	The referenced season to the sportive results of the team.
NationalLeagueRanking	The final standing for the club on its domestic league.
InternationalClassification	Identifies if the club was able to classify to one of the 2 international European competitions: UEFA Champions League (marked as "UCL"), Europa League ("EL"), or "0" in case that the team couldn't stand in one of the positions that allows its participation on these international tournaments.
Relegation	A binary variable: "0" in the case that the club didn't follow into relegation zone to the secondary division; otherwise, "1".
NumberOfMatches	Count of disputed matches played by the team during the league.
Wins	Number of wins from the total number of matches.
Draws	Number of draws from the total number of matches.
Losses	Number of losses from the total number of matches.
GoalsScored	Count of scored goals during all competition.
GoalsSuffered	Count of against goals during all competition.
GoalDifference	Goal difference between the scored and the suffered goals.
Points	Sum of conquered points through the league.
AverageLeagueRanking	The average ranking of each team for the analysed timeframe.
UEFARanking	Achieved position on the UEFA Ranking in that season.
UEFARankingAverage	Average achieved position on the UEFA Ranking for the seasons 2016/17, 2017/18 and 2018/19.
UATRPosition	Position in UEFA All-Time Ranking.
UATRPoints	Points obtained in UEFA All-Time Ranking.
UATRParticipations	Number of participations in UEFA All-Time Ranking.
UATRMatchesPlayed	Matches played in UEFA All-Time Ranking.
UATRMatchesWon	Matches won in UEFA All-Time Ranking.
UATRMatchesDrawn	Matches drawn in UEFA All-Time Ranking.
UATRMatchesLost	Matches lost in UEFA All-Time Ranking.
UATRGoalsFor	Goals for in UEFA All-Time Ranking.
UATRGoalsAgainst	Goals against in UEFA All-Time Ranking.
UATRGoalDifference	Goals difference in UEFA All-Time Ranking.
SponsorT	Sponsor company name in season T.
SponsorTIndustry	Sponsor company's industry in season T.
SponsorTCountry	Sponsor company's origin country in season T.
ShirtSponsorshipValueSeasonTEuros	Value perceived in Euros by the club in season T from its shirt sponsorship deal.
ShirtSponsorshipRanking	For all the entries collected, in what position the agreed sponsorship value stays.

Source: Author

Aligned with the main goal of this dissertation, it is possible to observe that the majority of the variables has the same role in the dataset: "Input", except for the variables *SponsorT*, *SponsorTIndustry*, *SponsorTCountry* and *ShirtSponsorshipRanking*, because the first 3 mentioned inputs are related to the sponsor itself, being those external factors relative to the team performance and to the team spectrum of activity. Regarding the *ShirtSponsorshipRanking* variable, it is not logical to include it as an "Input" variable since this value is a consequence of the output: *ShirtSponsorshipValueSeasonTEuros*, which it is marked as "Target", since at the end of the paper the big objective it is to understand it better and if the sportive performance by each football team it is what determines the value received by each one of the clubs for their shirt sponsors.

Table 13 - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
National League Ranking	294	1	20	10,32	5,687
Relegation	294	0	1	,13	,340
Number of Matches	294	34	38	37,27	1,552
Wins	294	2	32	14,07	6,207
Draws	294	2	18	9,12	2,971
Losses	294	1	29	14,07	5,836
Goals Scored	294	22	116	51,49	18,057
Goals Suffered	294	22	94	51,49	13,117
Goal Difference	294	-54	79	,00	27,674
Points	294	16	100	51,33	17,824
Average League Ranking	294	1,00	20,00	10,3163	5,13872
UEFA Ranking	167	1	123	53,80	38,286
UEFA Ranking Average	180	1,00	119,00	56,6946	37,98032
UATR Position	187	1	486	130,84	123,257
UATR Points	187	0	600	95,60	130,835
UATR Participations	186	1	50	9,45	10,351
UATR Matches Played	187	0	439	78,72	97,231
UATR Matches Won	187	0	262	38,70	55,186
UATR Matches Drawn	187	0	76	18,24	21,156
UATR Matches Lost	187	0	101	21,82	22,477
UATR Goals For	187	0	973	134,40	191,244
UATR Goals Against	187	1	480	87,98	98,527
UATR Goal Difference	187	-14	493	46,46	97,675
Shirt Sponsorship Value Season T Euros	233	0	84,810,600	10893379.36	15374725.95
Shirt Sponsorship Ranking	233	1	233	117,00	67,405
Valid N (listwise)	132				

Source: Author

The most basic and important details to each one of the variables can be found in Table 13 - Descriptive Statistics. From the data that compounds the table, there is some information that deserves to be highlighted and explained. As it is visible on the second column “N”, the biggest size of a population that we have from our variables is 294 (in 11 of the 25 variables), the other 14 variables (*UEFA Ranking*, *UEFA Ranking Average*, *UATR Position*, *UATR Points*, *UATR Participations*, *UATR Matches Played*, *UATR Matches Won*, *UATR Matches Drawn*, *UATR Matches Lost*, *UATR Goals For*, *UATR Goals Against*, *UATR Goal Difference*, *Shirt Sponsorship Value Season T Euros* and *Shirt Sponsorship Ranking*) has a population size between 167 and 233. This happens because for some clubs/seasons there is no information available regarding sponsorship agreement – this situation influences directly the variables *Shirt Sponsorship Ranking* and *Shirt Sponsorship Value Season T Euros* – and because, some of the teams involved didn’t participate at all or at least lately (seasons 2016/17, 2017/18 and 2018/19) in some of the UEFA competitions (EL or UCL), so for the teams in this situation there is no data to fill *UEFA Ranking*, *UEFA Ranking Average* and all the input variables related to the UEFA All-Time Ranking, identified by the prefix “UATR”.

5.2. VARIABLE SHIRT SPONSORSHIP VALUE SEASON T EUROS

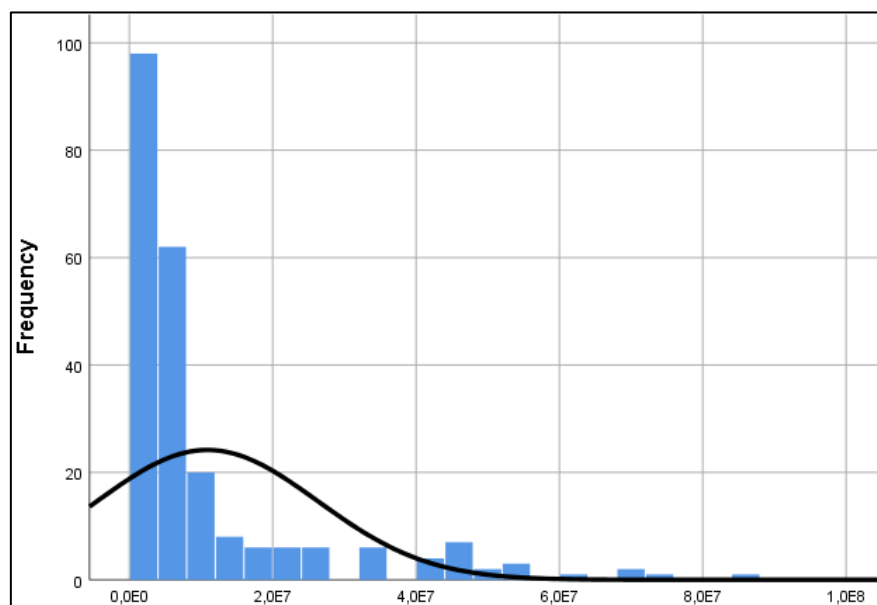
At this stage of the dissertation, it is worth to have a better understanding of the variable *Shirt Sponsorship Value Season T Euros*, analyze its statistics and see what its behavior is when related to other variables of the study.

Table 14 - Shirt Sponsorship Value Season T Euros – Statistics

N	Valid	233
	Missing	61
Mean		10893379.36
Median		5,000,000.00
Mode		2,500,000
Std. Deviation		15374725.95
Variance		2,364E+14
Range		84,810,600
Minimum		0
Maximum		84,810,600
Percentiles	25	2,300,000.00
	50	5,000,000.00
	75	10972800.00

Source: Author

Observing the data behind the variable in Table 14 - Shirt Sponsorship Value Season T Euros – Statistics, for this input, the total size of the population is 233 entries and additionally 61 entries could not be included since the information it is missing. The range of the variable is 84,810,600 which at the same time matches with the agreed value perceived by Manchester United for season 2017/18 for its kit sponsorship. The average sponsorship value is 10,893,379.36€ and the value that is repeated more often on these deals is 2,500,000€.



Source: Author

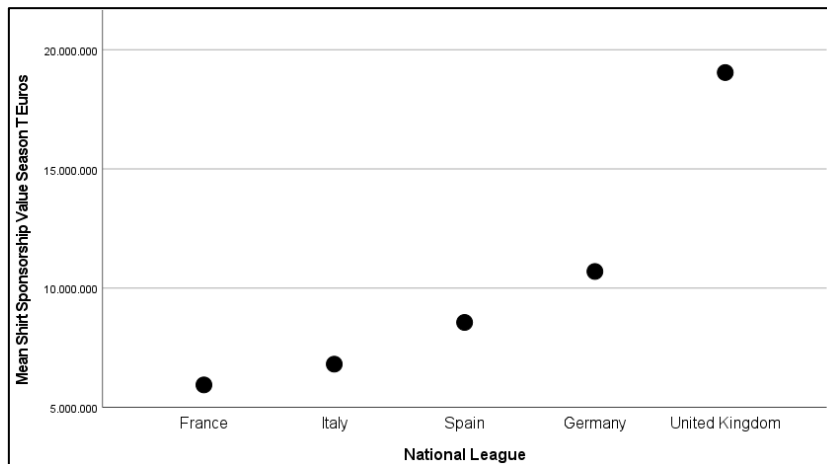
Figure 16 - Shirt Sponsorship Value T Euros – Histogram

Additionally to the statistics of the target variable, it is also possible to perceive from Figure 16 - Shirt Sponsorship Value T Euros – Histogram, where are reflected the values of the sponsorship kits and their frequencies, that the histogram doesn't follow a normal distribution. It is also possible to affirm that this variable does not follow a normal distribution just for looking at the "cuts" of the percentiles: 25% - 2,300,000€, 50% - 5,000,000€ and 75% - 10,972,800€. Meaning this that 75% of the data is concentrated till less than 11M€, for a variable that has a range of almost 85M€. Summarizing, only 25% of the entries are concentrated in the biggest range/percentile.

Table 15 - Shirt Sponsorship Value T Euros by the National League

National League	Mean	N	Std. Deviation
France	5,941,937.50	32	9,949,806.70
Germany	10700000.00	49	8,797,821.70
Italy	6,812,279.07	43	6,199,499.79
Spain	8,562,423.08	52	17914060.47
United Kingdom	19044585.79	57	20917922.90
Total	10893379.36	233	15374725.95

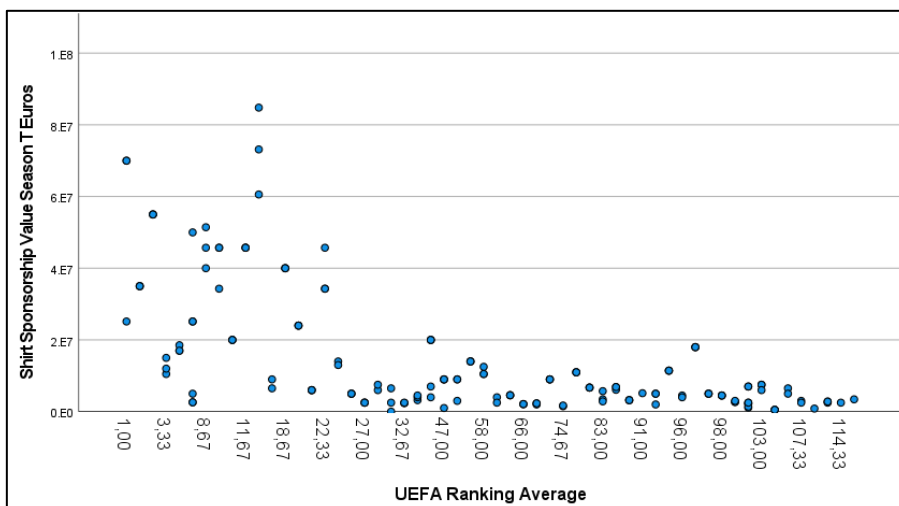
Source: Author



Source: Author

Figure 17 - Shirt Sponsorship Value Season T Euros Mean by National League

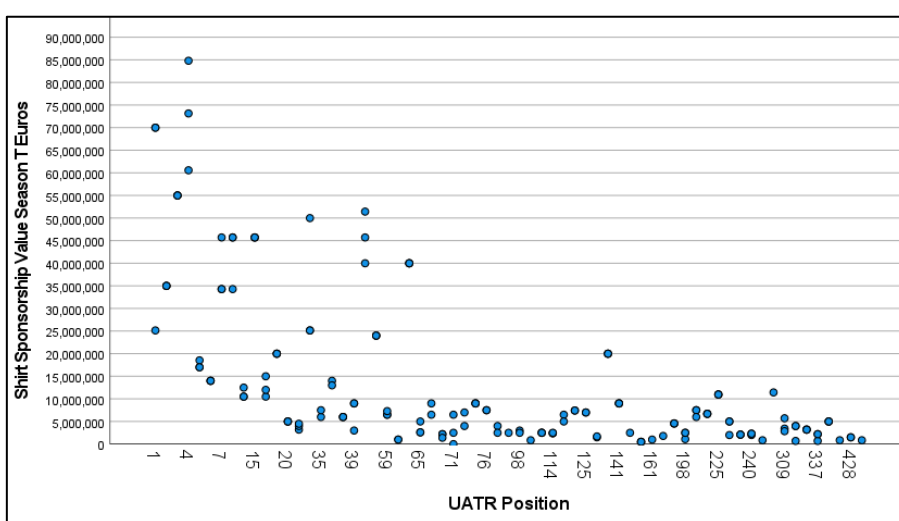
After running the first analysis of the data for this dissertation in the Data and Exploratory Analysis section, one of the biggest points that automatically was raised, was how much influence could the origin domestic league of the teams have in their sponsorship agreements, that it is why it is logical to take a look at the sponsorship value paid by the sponsor companies to the clubs by a national league perspective. As it was already highlighted, the average value per agreement rounds the 11M€. After observing the representation in Figure 17 - Shirt Sponsorship Value Season T Euros Mean by National League, it is easily perceived – matching the first impressions – that the value by the national league is distinguishing between them. Aligned with the overall average, in Table 15 - Shirt Sponsorship Value T Euros by the National League, it is possible to find Bundesliga and, near this average but slightly lower, it is La Liga. Italian and French teams pull the average down, but on the very opposite side it is the mean for Premier League clubs; the average for this national league almost doubles the overall mean: 19,044,585M€, this situates English deals on a level much above all others.



Source: Author

Figure 18 - Shirt Sponsorship Value Season T by UEFA Ranking Average

Apart from the analysis of the target variable by the national league, since the goal of the study is to understand if it is the sportive performance from the clubs that define their sponsorship deals, it is important to have a look at the behavior of the sponsorships considering the influence of the *UEFA Ranking Average*. This variable gives the average ranking of the teams in the UEFA ranking for the seasons 2016/17, 2017/18 and 2018/19. At this stage it was taken this input to be observed, since theoretically, only the best teams by country are represented in this ranking, meaning that teams with the best numbers in this variable are the ones that not only dominate their domestic championship but also the whole European framework from the last seasons. After analyzing Figure 18 - Shirt Sponsorship Value Season T by UEFA Ranking Average, despite being somehow perceptible the influence of the sportive performance in the sponsorship deals, what is visible is the existence of two sections in the graph. On the left side – where the most successful teams in Europe are represented – till around the 25th position it is where the best sponsoring contracts are, but not following a clear tendency; below the mentioned 25th ranking it is where the lowest agreements stay, but again, apart from this there is not any other clear negative tendency when we approach the last positions of the UEFA Ranking.



Source: Author

Figure 19 - Shirt Sponsorship Value Season T by UEFA All-Time Ranking

To compare the impact in the Sponsorship Value of the UEFA historical performance instead of only the UEFA modern results (Figure 18 - Shirt Sponsorship Value Season T by UEFA Ranking Average),

A similar chart can be observed in Figure 19 - Shirt Sponsorship Value Season T by UEFA All-Time Ranking, where the UEFA All-Time Ranking Position it is matched with the sponsoring values agreements, and for this case it is noticeable a similar data reading: on the left side of the cart till around the 65th position of the UEFA Ranking it is where the most valuable sponsors are concentrated – it should also not be skipped the fact that some higher positions on the ranking doesn't mean directly better agreements for the clubs – and, on the lower positions it can be found also the lower agreements, these sponsoring deals are all below 12M€, with the exception of the team that occupies the 141st position: Wolfsburg; it can be said that Wolfsburg's sponsoring contract with Volkswagen of 20M€/season it is not totally aligned with the club's historical results in the UEFA competitions.

5.3. LINEAR REGRESSION

Keeping with the information that the *UEFA Ranking Average* provides to the target variable, a Hierarchical Linear Regression model was created – applying the Enter method. Logically the dependent variable was selected to be *Shirt Sponsorship Value Season T Euros* that would be explained by the *UEFA Ranking Average*. To continue with the rationale from the previous section where it is shown how important *UATR Position* can be to this study, this will be introduced as the control variable into this sequential regression.

Table 16 - Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	,600 ^a	,360	,355	12345080.33	,360	84,760	1	151	<,001	
2	,605 ^b	,365	,357	12328777.22	,006	1,400	1	150	,239	,737

a. Predictors: (Constant), UEFA Ranking Average
b. Predictors: (Constant), UEFA Ranking Average, UATR Position
c. Dependent Variable: Shirt Sponsorship Value Season T Euros

Source: Author

Looking into the outcome from Table 16 - Model Summary and more concretely into the R2 values for both models, there is not a big difference having only *UEFA Ranking Average* or *UEFA Ranking Average* together with *UATR Position*, since for the first model the R2 is 0,36 and for the second one is 0,365. Once again, this can take us to think that recent results are more important than historical performances. The sigma change provided into the table is greater than 0,05 (0,239) which tell us that the inclusion of the extra variable it is not statistically significant.

Table 17 - ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.292E+16	1	1.292E+16	84,760	<,001 ^b
	Residual	2.301E+16	151	1.524E+14		
	Total	3.593E+16	152			
2	Regression	1.313E+16	2	6.565E+15	43,192	<,001 ^c
	Residual	2.280E+16	150	1.520E+14		
	Total	3.593E+16	152			

a. Dependent Variable: Shirt Sponsorship Value Season T Euros
b. Predictors: (Constant), UEFA Ranking Average
c. Predictors: (Constant), UEFA Ranking Average, UATR Position

Source: Author

By analyzing the sigma for both models, it is visible that in both cases the values are lower than 0,05 - in these models concretely are below 0,01 - which means that both linearities are statistically significant predictors of the outcome.

Table 18 – Hierarchical Linear Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	29992158.09	2052875,017		14,610	<,001	25933259.34	34051056.85						
	UEFA Ranking Average	-307271,097	34699,665	-,601	-8,855	<,001	-375878,502	-238663,692	-,601	-,601	-,601	1,000	1,000	
2	(Constant)	30111886.84	2047725,484		14,705	<,001	26062911.99	34160861.69						
	UEFA Ranking Average	-252909,167	52102,376	-,494	-4,854	<,001	-355931,379	-149886,956	-,601	-,382	-,328	,441	2,270	
	UATR Position	-26559,472	19039,900	-,142	-1,395	,165	-64207,134	11088,190	-,512	-,118	-,094	,441	2,270	

a. Dependent Variable: Shirt Sponsorship Value Season T Euros

Source: Author

Once again by looking and aligned of what was already exposed for the created models, from Table 18 – Hierarchical Linear Regression Coefficients, from the outputs of the Sigma indicator to compare the criticality of the independent variables introduced to explain *Shirt Sponsorship Value Season T Euros*, *UEFA Ranking Average* it is seen as the only independent input making a statistical significant contribution, since is below 0,05. This outcome is also endorsed by the values on the Beta Standardized Coefficients exposed above.

5.4. MULTIPLE REGRESSION

At reaching this stage of the dissertation, it is the moment to introduce a higher number of variables to help to predict *Shirt Sponsorship Value Season T Euros* by creating a multiple linear regression model.

Table 19 - SPSS Input Dataset Variables Definitions

Name	Definition
Team	Name of the club.
NationalLeague	Identification of the domestic league to which club belongs.
Season	The referenced season to the sportive results of the team.
NationalLeagueRanking	The final standing for the club on its domestic league.
InternationalClassification	Identifies if the club was able to classify to one of the 2 international European competitions: UEFA Champions League (marked as "UCL"), Europa League ("EL"), or "0" in case that the team couldn't stand in one of the positions that allows its participation on these international tournaments.
Relegation	A binary variable: "0" in the case that the club didn't follow into relegation zone to the secondary division; otherwise, "1".
NumberOfMatches	Count of disputed matches played by the team during the league.
Wins	Number of wins from the total number of matches.
Draws	Number of draws from the total number of matches.
Losses	Number of losses from the total number of matches.
GoalsScored	Count of scored goals during all competition.
GoalsSuffered	Count of against goals during all competition.
GoalDifference	Goal difference between the scored and the suffered goals.
Points	Sum of conquered points through the league.
AverageLeagueRanking	The average ranking of each team for the analysed timeframe.
UEFARanking	Achieved position on the UEFA Ranking in that season.
UEFARankingAverage	Average achieved position on the UEFA Ranking for the seasons 2016/17, 2017/18 and 2018/19.
UATRPosition	Position in UEFA All-Time Ranking.
UATRPoints	Points obtained in UEFA All-Time Ranking.
UATRParticipations	Number of participations in UEFA All-Time Ranking.
UATRMatchesPlayed	Matches played in UEFA All-Time Ranking.
UATRMatchesWon	Matches won in UEFA All-Time Ranking.
UATRMatchesDrawn	Matches drawn in UEFA All-Time Ranking.
UATRMatchesLost	Matches lost in UEFA All-Time Ranking.
UATRGoalsFor	Goals for in UEFA All-Time Ranking.
UATRGoalsAgainst	Goals against in UEFA All-Time Ranking.
UATRGoalDifference	Goals difference in UEFA All-Time Ranking.
SponsorT	Sponsor company name in season T.
SponsorTIndustry	Sponsor company's industry in season T.
SponsorTCountry	Sponsor company's origin country in season T.
ShirtSponsorshipValueSeasonTEuros	Value perceived in Euros by the club in season T from its shirt sponsorship deal.
ShirtSponsorshipRanking	For all the entries collected, in what position the agreed sponsorship value stays.

Source: Author

The selection of these inputs is attached to the fact that this sport is based on the meritocracy of the teams that compete in each one of its national leagues: the club that collects the higher number of points – based on the number of wins, draws and losses – are crowned league champions, in the other hand, clubs that do not gather enough points to run away from the relegation zone (*Relegation*), swap in the following season with the top performers of the secondary division of the country, on the opposite side, to the best teams in the league is granted the opportunity to compete in any of the international competitions (*International Classification*). For this reason, it is so important to have into the model the number of *Wins*, *Draws* and *Losses* that will reflect the quantity of obtained *Points* in the end of the sportive season, another input for the study. One thing that is also important to be called out is how points are measured: in modern football – and this applies to all the “Big Five” leagues, at the end of each disputed match, three points are given to the winner, one for a draw, and the loser gets zero points. Since football is a “democratic” sport when speaking about the national championships, all teams dispute the same number of matches due to the fact that each squad plays against every other team in home and away matches (*Number of Matches*).

One indispensable part of the game and that will determine all the final standing of the leagues, is the moment when the ball crosses the line into the goal – scoring or conceding a goal against. To measure how the teams inserted into the study links with it, three variables were injected: *Goals Scored*, *Goals Suffered* and *Goal Difference*. “Success in football games is usually evaluated based on results (win, draw, and loss) or based on goals (goals scored and conceded” (Lepschy, Woll, & Wäsche, 2021).

To have the possibility to also reflect the international performance of the teams studied, almost half of the independent variables are UEFA related, following a similar approach as the ones mentioned previously and that are in most of the cases reported by the biggest European football organism on its UEFA All-Time Ranking.

It is possible to say that these mentioned indicators are purely performance variables on a national but also on an international scope that also provides to this dissertation somehow historical achievements to each one of the teams, that is why is so important to have them into the dissertation.

The selected inputs are probably valid as many others available to analyze sportive performance. Anyway, these integrated indicators into the model, are usually reported in almost every league standing table, easy to understand and to perceive by all football stakeholders, and are directly related to the performance of the clubs. Additionally to this rationale, some other (possible) performance indicators can be not so acceptable and sometimes “ambiguous”, such as ball possession: “successful and unsuccessful teams kept the ball for longer periods when they were losing compared to winning” (Jones, James, & Mellalieu, 2004), and still regarding to ball possession, “in the Champions League, it had virtually no impact” (Collet, 2013).

Particularly for this model it was included all numeric variables, except *Shirt Sponsorship Ranking* because as was explained previously, this variable it is the order of all sponsorship values agreed, meaning that it relies directly on the dependent variable of the dissertation – for this reason it would not make sense to include it into the model.

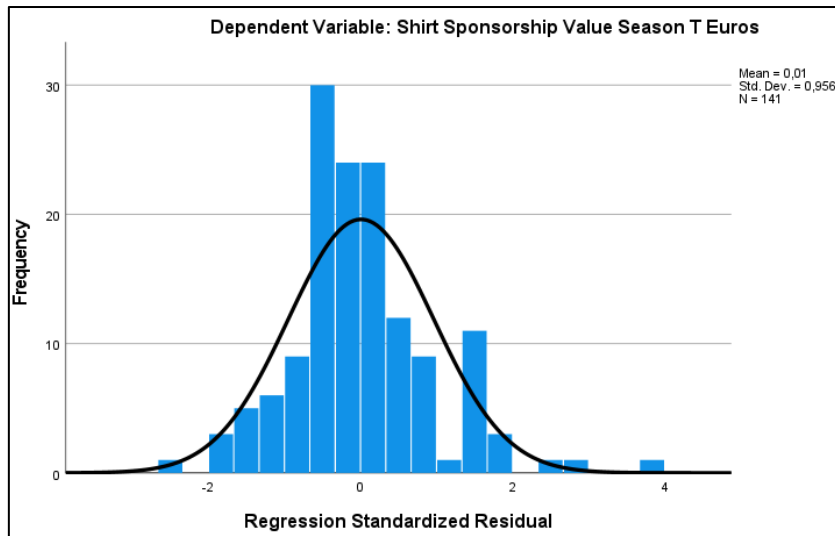
Table 20 - Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,720 ^a	,519	,515	12895229.10
2	,762 ^b	,580	,573	12092334.90
3	,776 ^c	,603	,594	11804260.62
4	,793 ^d	,629	,617	11454889.74
5	,803 ^e	,644	,630	11256636.24

a. Predictors: (Constant), UATR Goal Difference
 b. Predictors: (Constant), UATR Goal Difference, UEFA Ranking Average
 c. Predictors: (Constant), UATR Goal Difference, UEFA Ranking Average, UATR Participations
 d. Predictors: (Constant), UATR Goal Difference, UEFA Ranking Average, UATR Participations, UATR Matches Played
 e. Predictors: (Constant), UATR Goal Difference, UEFA Ranking Average, UATR Participations, UATR Matches Played, Average League Ranking

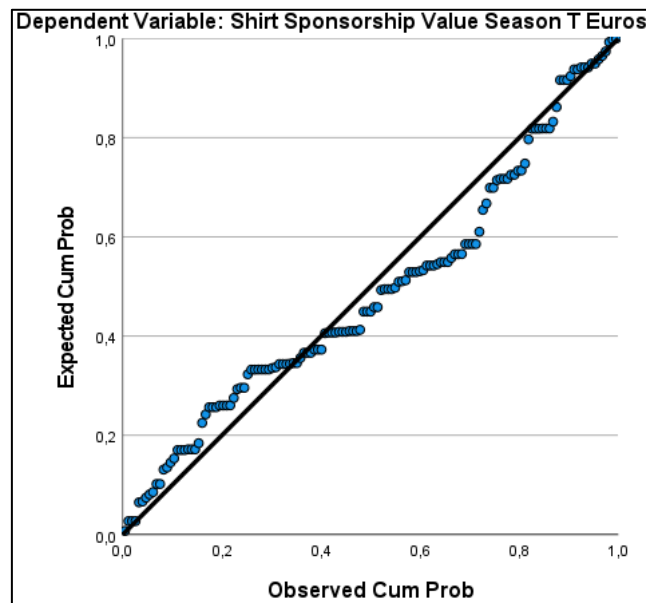
Source: Author

In multiple regression, after including all the desired independent variables, the software creates several models – for this time it was followed the “stepwise” method – that selects and uses the best variables to predict the dependent one. After running this methodology, despite having been introduced a high number of variables, from Table 20 - Model Summary it is possible to say that only 5 outputs were identified as statistically significant for the model. It can be affirmed that *Shirt Sponsorship Value Season T Euros* it is majority predicted by *UATR Goal Difference*, *UEFA Ranking Average*, *UATR Participations*, *UATR Matches Played* and *Average League Ranking*. It deserves to be called-out the appearance of 3 “UEFA All-Time Ranking” variables despite the observations from the previous section - Linear Regression – and, from these 3 predictors, *UATR Goal Difference* must be highlighted as one of the most important inputs to the study, since till this time it was not considered as one of the main variables to predict/understand the target variable of the models. Anyway, this can be easily comprehensible, since teams with higher goal gaps (scored vs conceded) might mean better results – considering a positive goal difference – or, a non-satisfactory performance for the teams with a negative goal difference. Regarding *UATR Participations* variable, it can be somehow easy to understand as one of the best inputs to the study, since this variable gathers the number of participations of the teams in the most important showcase at teams’ level, meaning this most media exposure for the sponsors. The *UATR Position* variable deserves a prominent place by its absence from the generated model, perhaps historical results are not the most important to help to define shirt sponsoring values, but instead media presence.



Source: Author

Figure 20 - Multiple Regression Histogram

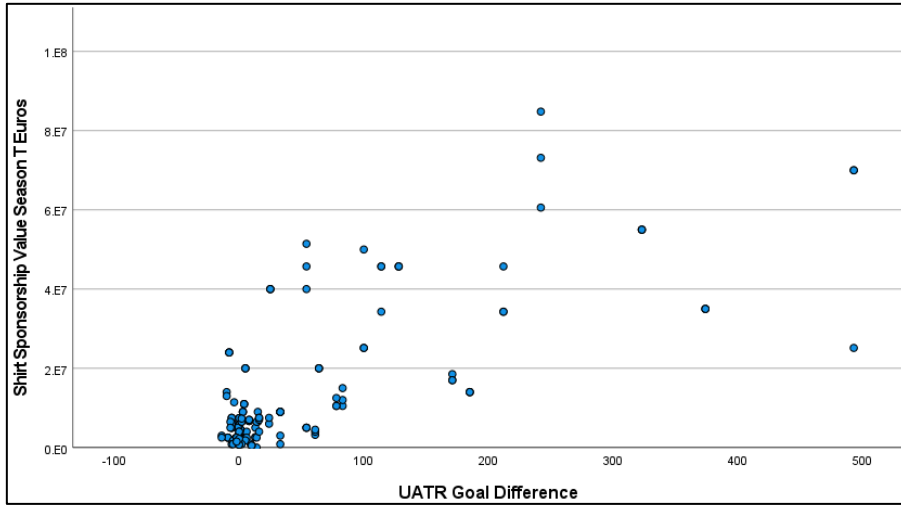


Source: Author

Figure 21 - Normal P-P Plot Multiple Regression

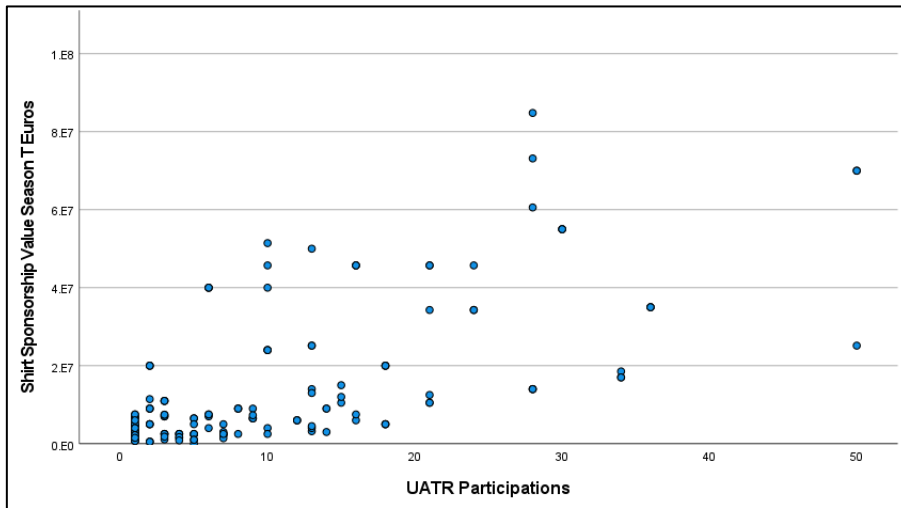
From Figure 20 - Multiple Regression Histogram and Figure 21 - Normal P-P Plot Multiple Regression, it is understandable that the generated model can be a good predictor since on the histogram a distribution close to normal can be seen and regarding the Probability-Probability Plot all the dots are on (or very close) to the line.

Since variables: *UATR Goal Difference*, *UEFA Ranking Average*, *UATR Participations*, *UATR Matches Played* and *Average League Ranking* were shown as the main ones to help to define *Shirt Sponsorship Value Season T Euros*, it is worth “isolate” them vs the dependent variable of the dissertation – This exercise was already done for the *UEFA Ranking Average* variable in the Variable *Shirt Sponsorship Value Season T Euros* section.



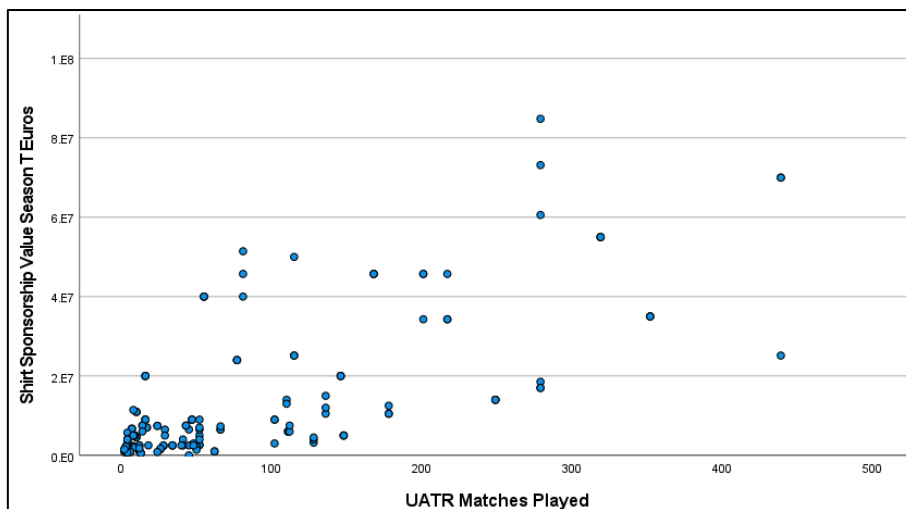
Source: Author

Figure 22 - Shirt Sponsorship Value Season T Euros by UATR Goal Difference



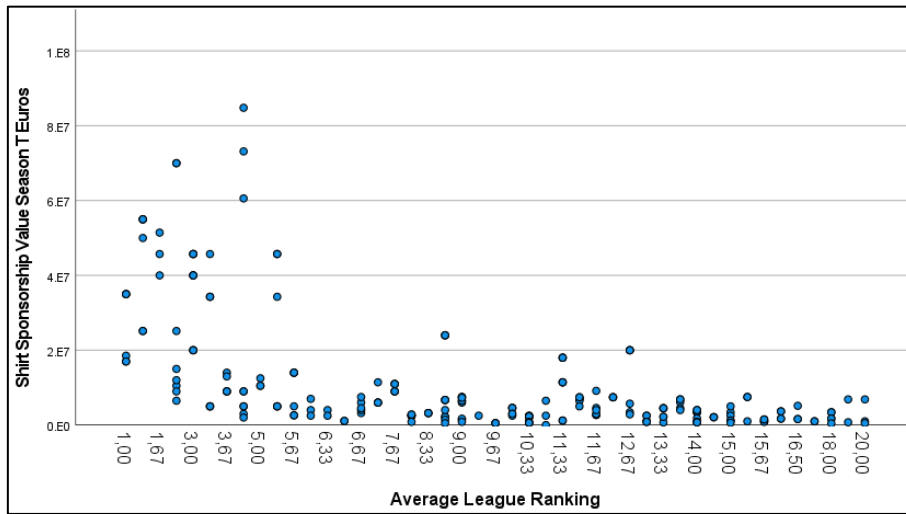
Source: Author

Figure 23 - Shirt Sponsorship Value Season T Euros by UATR Participations



Source: Author

Figure 24 - Shirt Sponsorship Value Season T Euros by UATR Matches Played



Source: Author

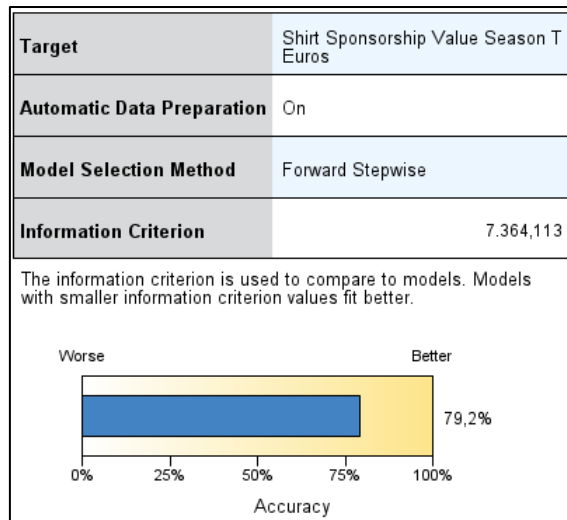
Figure 25 - Shirt Sponsorship Value Season T Euros by Average League Ranking

Visually, by comparing individually the 4 mentioned variables with *Shirt Sponsorship Value Season T Euros*, it can be observed a general trend, which is: the teams with worst ciphers by each one of the inputs are also the ones with the lowest shirts sponsoring agreements, but apart from this, once the “barrier” of the lowest clubs is “broken”, no specific tendency can be detected. These observed “barriers” can be roughly visible at the following numbers on the graphs:

- *UATR Goal Difference*: +40 goals;
- *UATR Participations*: 9 participations;
- *UATR Matches Played*: 70 matches;
- *Average League Ranking*: 6th position.

5.5. AUTOMATIC LINEAR MODELING

One of the possible features that SPSS software offers to the user to apply while modeling, is the Automatic Linear Modeling, and the user only needs to choose what independent variables to use and what would be the predicted one. For this model of the study, once again *Shirt Sponsorship Value Season T Euros* is defined as the target variable, while all other variables are marked as independent variables, apart from *Shirt Sponsorship Ranking*, *Sponsor T*, *Sponsor T Industry* and *Sponsor T Country* which were excluded from the model due to its role been marked as “None”, the remotion of *Shirt Sponsorship Ranking* it is not worth be explained again but, the last 3 mentioned inputs are treated this way since these are not performance related outputs and as was seen in previous sections of the study, the sponsor’s characteristics can have an high impact in sponsorship agreements.



Source: Author

Figure 26 - Model Summary

The created model has a very acceptable accuracy level: 79,2% (R2 value). This means that 79,2% of the dependent variable and the study objective *Shirt Sponsorship Value Season T Euros* it is explained by the model.

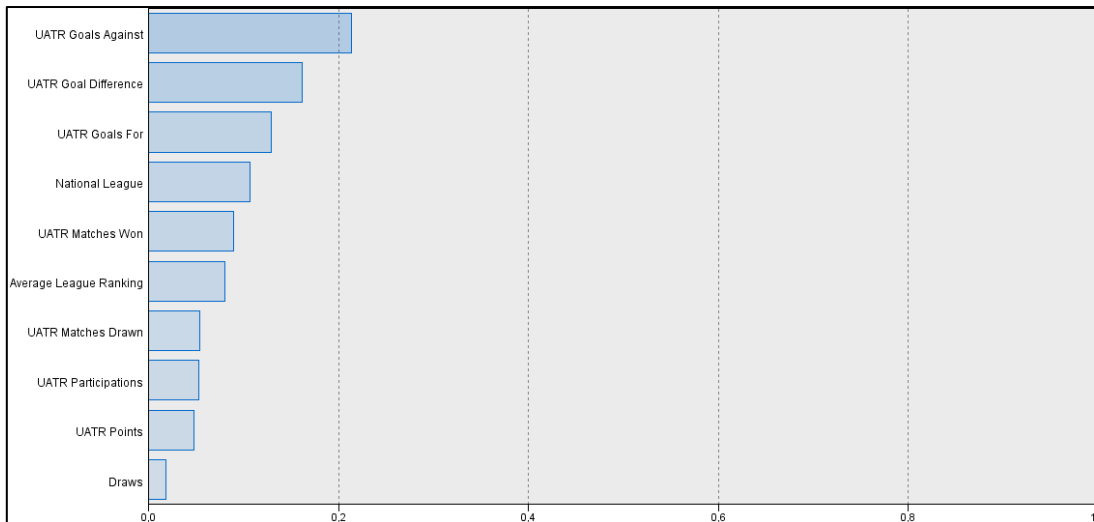
Table 21 - Outliers

Record ID	Shirt Sponsorship Value Season T Euros	Cook's Distance
36	60,579,000	0,144
3	70,000,000	0,143
2	70,000,000	0,121
1	25,146,000	0,099
34	84,810,600	0,078
33	45,720,000	0,041
19	50,000,000	0,040
27	45,720,000	0,036
32	45,720,000	0,035
25	45,720,000	0,034
23	51,435,000	0,034
6	35,000,000	0,030
31	45,720,000	0,028
77	20,000,000	0,027
4	35,000,000	0,024
43	24,000,000	0,022
44	24,000,000	0,021
45	24,000,000	0,021
5	35,000,000	0,020
137	18,000,000	0,019

Records with large Cook's distance values are highly influential in the model computations. Such records may distort the model accuracy.

Source: Author

Data contained in Table 21 - Outliers are all the records that have a large Cook's distance, all these values are highly influential and can distort the model's accuracy.



Source: Author

Figure 27 - Predictors Importance

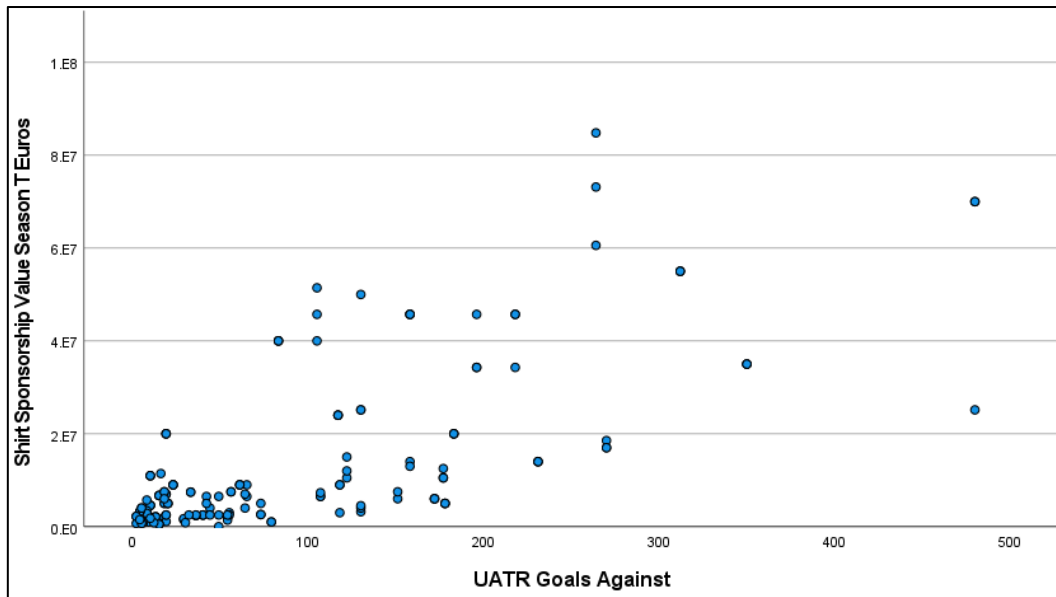
One point that is very interesting to analyze is predictors' importance. This is probably one of the most important sections, since it lets reach some important conclusions from the whole study: it determines based on all inputs from the model how the sponsorship deals are defined - this is the final goal of this study.

Table 22 - Predictors Importance

UATR Goals Against	0,21
UATR Goal Difference	0,16
UATR Goals For	0,13
National League	0,11
UATR Matches Won	0,09
Average League Ranking	0,08
UATR Matches Drawn	0,05
UATR Participations	0,05
UATR Points	0,05
Draws	0,02

Source: Author

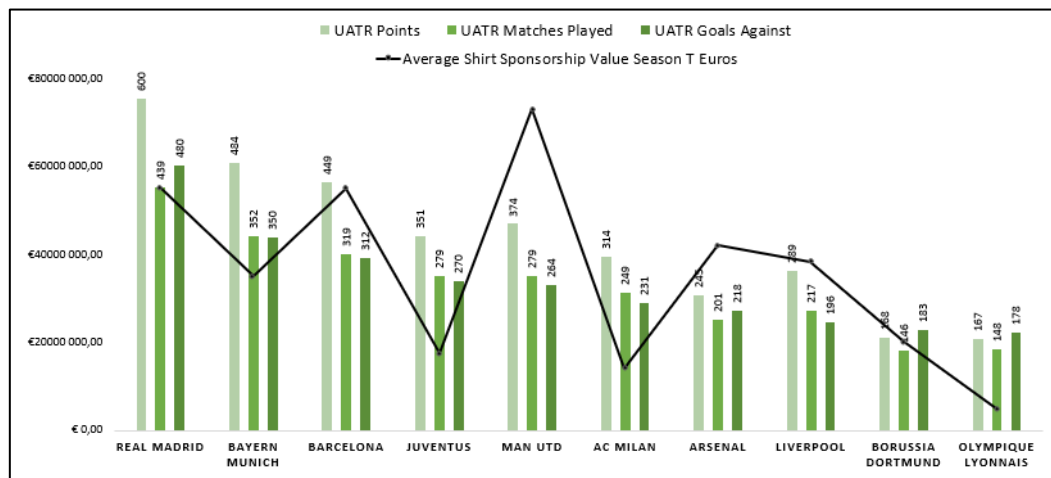
At this stage of the dissertation and coming up with the most influential variables to *Sponsorship Value Season T Euros* a few comments must be called out. In total, it were raised 10 predictors identified in Table 22 - Predictors Importance, for these 10, 3 are highly surprising and unexpected: *UATR Goals Against*, *UATR Matches Drawn* and *Draws*, from these 3, *UATR Goals Against* it is the most interesting one since it came up as the most important predictor (21%).



Source: Author

Figure 28 - Shirt Sponsorship Value Season T Euros by UATR Goals Against

Confirming the output observed from the Automatic Linear Model, when comparing *UATR Goals Against* with *Shirt Sponsorship Value Season T Euros* it can be positively said by the graph visualization that clubs that suffered more goals - around more than 85 goals – in the UEFA Champions League history are simultaneously teams with higher shirt sponsoring agreements. Logically there is no cause-effect on it, but it deserves to take a closer look at why this is happening in the model.



Source: Author

Figure 29 - Top-10 UEFA All-Time Ranking Goals Against Teams

By selecting the Top-10 clubs with most suffered goals in the UCL, it is visible that these are also some of the most historic and emblematic teams in the World: Real Madrid, Bayern Munich, Barcelona, Juventus, Manchester United, AC Milan, Liverpool, Borussia Dortmund, and Olympique Lyonnais.

Table 23 - Top-10 UEFA All-Time Ranking Goals Against Teams vs UATR Position and UATR Titles

Team	UATR Position	UATR Titles	UATR Titles Percentage	UATR Goals Against
Real Madrid	1	13	19,7%	480
Bayern Munich	2	6	9,1%	350
Barcelona	3	5	7,6%	312
Juventus	5	2	3,0%	270
Man Utd	4	3	4,5%	264
AC Milan	6	7	10,6%	231
Arsenal	12	0	0,0%	218
Liverpool	7	6	9,1%	196
Borussia Dortmund	19	1	1,5%	183
Olympique Lyonnais	20	0	0,0%	178
UCL TOTAL	500	66		

Source: Author

It can be said that the accumulate of goals suffered by the team in the UCL cannot be accepted as an accurate predictor to study the *Shirt Sponsorship Value Season T Euros*. What should be extracted from this, is that the most historic and powerful teams in Europe are the ones that played the competition more often, accumulating more matches and inevitably more goals against. This thought can be closed by saying that the increase of the suffered goals is a necessary hurt of clubs that achieves the best results consecutively. Very strong examples of these are: Real Madrid (19,7% of the UCL titles), Bayern Munich (9,1% of the UCL titles), AC Milan (10,6% of the UCL titles) or Liverpool (9,1% of the UCL titles).

Reaching this point, it is imperative to re-run the model rethinking on this specific variable, by excluding it and/or instead of including the summation of the total suffered goals, include the average suffered goals by matches played in the UCL. Leveraging this opportunity, it will be revised all variables that could lead to a similar situation.

5.6. AUTOMATIC LINEAR MODELING V2

Table 24 - SPSS Input Dataset Variable Definitions V2

Name	Definition
Team	Name of the club.
NationalLeague	Identification of the domestic league to which club belongs.
Season	The referenced season to the sportive results of the team.
NationalLeagueRanking	The final standing for the club on its domestic league.
InternationalClassification	Identifies if the club was able to classify to one of the 2 international European competitions: UEFA Champions League (marked as "UCL"), Europa League ("EL"), or "0" in case that the team couldn't stand in one of the positions that allows its participation on these international tournaments.
Relegation	A binary variable: "0" in the case that the club didn't follow into relegation zone to the secondary division; otherwise, "1".
NumberOfMatches	Count of disputed matches played by the team during the league.
Wins	Number of wins from the total number of matches.
Draws	Number of draws from the total number of matches.
Losses	Number of losses from the total number of matches.
GoalsScored	Count of scored goals during all competition.
GoalsSuffered	Count of against goals during all competition.
GoalDifference	Goal difference between the scored and the suffered goals.
Points	Sum of conquered points through the league.
AverageLeagueRanking	The average ranking of each team for the analysed timeframe.
UEFARanking	Achieved position on the UEFA Ranking in that season.
UEFARankingAverage	Average achieved position on the UEFA Ranking for the seasons 2016/17, 2017/18 and 2018/19.
UATRPosition	Position in UEFA All-Time Ranking.
UATRPoints	Points obtained in UEFA All-Time Ranking.
UATRParticipations	Number of participations in UEFA All-Time Ranking.
UATRMatchesPlayed	Matches played in UEFA All-Time Ranking.
UATRMatchesWon	Matches won in UEFA All-Time Ranking.
UATRMatchesDrawn	Matches drawn in UEFA All-Time Ranking.
UATRMatchesLost	Matches lost in UEFA All-Time Ranking.
UATRGoalsFor	Goals for in UEFA All-Time Ranking.
UATRGoalsAgainst	Goals against in UEFA All-Time Ranking.
UATRGoalDifference	Goals difference in UEFA All-Time Ranking.
SponsorT	Sponsor company name in season T.
SponsorTIndustry	Sponsor company's industry in season T.
SponsorTCountry	Sponsor company's origin country in season T.
ShirtSponsorshipValueSeasonTEuros	Value perceived in Euros by the club in season T from its shirt sponsorship deal.
ShirtSponsorshipRanking	For all the entries collected, in what position the agreed sponsorship value stays.
WinsPercentage	From the number of played matches in the national league, the percentage of them that the club won.
DrawsPercentage	From the number of played matches in the national league, the percentage of them that the club drew.
LossesPercentage	From the number of played matches in the national league, the percentage of them that the club lost.
AvgGoalsScoredMatch	The average number of goals scored by match in the national league.
AvgGoalsSufferedMatch	The average number of goals against by match in the national league.
AvgGoalDifferenceMatch	The average goal difference by match in the national league.
AvgPointsMatch	The average number of collected points by the team per each disputed match in the national league.
UATRTitles	Number of titles achieved in the UCL.
UATRPointsMatchPlayedAvg	The average number of collected points by the team per each disputed match in the UCL.
UATRPointsParticipationAvg	The average number of collected points by the team per each participation in the UCL.
UATRMatchesParticipationsAvg	The average number of disputed matches by the team per each participation in the UCL.
UATRMatchesWonPercentage	From the number of played matches in the UCL, the percentage of them that the club won.
UATRMatchesDrawnPercentage	From the number of played matches in the UCL, the percentage of them that the club drew.
UATRMatchesLostPercentage	From the number of played matches in the UCL, the percentage of them that the club lost.
UATRGoalsForAvg	The average number of goals scored by match in the UCL.
UATRGoalsAgainstAvg	The average number of goals against by match in the UCL.
UATRGoalDifferenceAvg	The average goal difference by match in the UCL.

Source: Author

For this upgraded model, apart from the 32 variables that the original one had, it was included additionally 17 inputs; these new variables are highlighted in Table 24 - SPSS Input Dataset Variable Definitions V2. Excluding the input *UATRTitles*, all the other 16 were injected this time trying to avoid possible wrong conclusions, like the one reached relatively to the *UATRGoalsAgainst*: more goals against in the UCL history it is a synonym of a better shirt sponsorship agreement.

This time, apart from having almost only cumulative variables, the model will run having also relative inputs. This extra approach will probably have more impact on the UEFA All-Time Ranking variables than in the National League ones since it is visible a much bigger discrepancy regarding the ciphers related to the UEFA tournament; this happens due to two main factors: 1) the fact that the teams to dispute has to qualify for it and, 2) there are a restrict number of teams - around 18 clubs - with outstanding results in the tournament, that constantly participates on it and

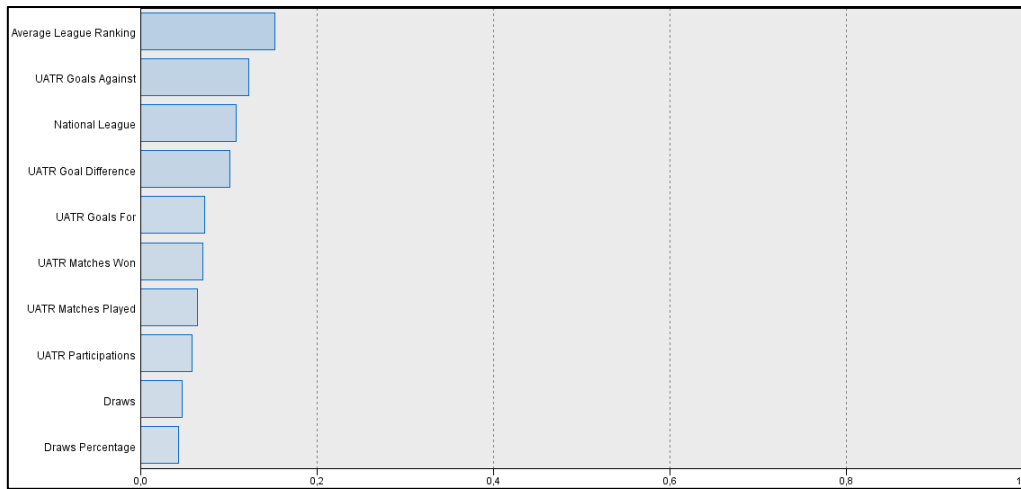
consequently are far away from all others, having greatest numbers on participations, number of matches, number of wins, number of draws, number of losses, goals for, goals against, etc. This impact is not expected related to the National League variables because, despite being cumulative variables, these sums of goals for, goals against, etc. are relative to only one football season, where all the teams contained in each league/season had the same number of played matches. One situation that could be thought as possibly problematic and potentially adulterate the analysis, is the fact that the number of clubs inserted in each league varies from country to country, and consequently the number of disputed matches differs as well. But for the studied scope, only the Bundesliga has a different number of teams: 18, while the other 4 leagues count with 20 clubs, so it would not be expected to see a negative impact in the German championship due to its size, since it is not a significant difference, anyway, it was also injected variables to relativize the numbers achieved by the teams in each season/league.

Table 25 - V2 Variable Inputs in SPSS

Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
Team	String	24	0	Team	None	None	24	Left	Nominal	Input
NationalLeague	String	14	0	National League	None	None	14	Left	Nominal	Input
Season	String	7	0	Season	None	None	7	Left	Nominal	Input
NationalLeagueRanking	Numeric	2	0	National League Ranking	None	None	12	Right	Ordinal	Input
InternationalClassification	String	3	0	International Classification	None	None	19	Left	Nominal	Input
Relegation	Numeric	1	0	Relegation	None	None	12	Right	Nominal	Input
NumberOfMatches	Numeric	2	0	Number of Matches	None	None	12	Right	Scale	Input
WinsPercentage	Percent	6	2	Wins Percentage	None	None	11	Right	Scale	Input
Wins	Numeric	2	0	Wins	None	None	12	Right	Scale	Input
DrawsPercentage	Percent	6	2	Draws Percentage	None	None	11	Right	Scale	Input
Draws	Numeric	2	0	Draws	None	None	12	Right	Scale	Input
LossesPercentage	Percent	6	2	Losses Percentage	None	None	11	Right	Scale	Input
Losses	Numeric	2	0	Losses	None	None	12	Right	Scale	Input
AvgGoalsScoredMatch	Numeric	19	2	Average Goals Scored per Match	None	None	16	Right	Scale	Input
GoalsScored	Numeric	3	0	Goals Scored	None	None	12	Right	Scale	Input
AvgGoalsSufferedMatch	Numeric	19	2	Average Goals Suffered per Match	None	None	16	Right	Scale	Input
GoalsSuffered	Numeric	2	0	Goals Suffered	None	None	12	Right	Scale	Input
AvgGoalDifferenceMatch	Numeric	22	2	Average Goal Difference per Match	None	None	16	Right	Scale	Input
GoalDifference	Numeric	3	0	Goal Difference	None	None	12	Right	Scale	Input
AvgPointsMatch	Numeric	19	2	Average Points Obtained per Match	None	None	16	Right	Scale	Input
Points	Numeric	3	0	Points	None	None	12	Right	Scale	Input
AverageLeagueRanking	Numeric	18	2	Average League Ranking	None	None	16	Right	Ordinal	Input
UEFARanking	Numeric	3	0	UEFA Ranking	None	None	12	Right	Ordinal	Input
UEFARankingAverage	Numeric	31	2	UEFA Ranking Average	None	None	12	Right	Ordinal	Input
UATRPosition	Numeric	3	0	UATR Position	None	None	12	Right	Ordinal	Input
UATRTitles	Numeric	2	0	UATR Titles	None	None	12	Right	Scale	Input
UATRPointsMatchPlayedAvg	Numeric	19	2	UATR Average Points Obtained per Match	None	None	16	Right	Scale	Input
UATRPointsParticipationAvg	Numeric	18	2	UATR Average Points Obtained per Participation	None	None	16	Right	Scale	Input
UATRPoints	Numeric	3	0	UATR Points	None	None	12	Right	Scale	Input
UATRMatchesParticipationsAvg	Numeric	18	2	UATR Average Matches Played per Participation	None	None	16	Right	Scale	Input
UATRParticipations	Numeric	2	0	UATR Participations	None	None	12	Right	Scale	Input
UATRMatchesPlayed	Numeric	3	0	UATR Matches Played	None	None	12	Right	Scale	Input
UATRMatchesWonPercentage	Percent	6	2	UATR Matches Won Percentage	None	None	11	Right	Scale	Input
UATRMatchesWon	Numeric	3	0	UATR Matches Won	None	None	12	Right	Scale	Input
UATRMatchesDrawnPercentage	Percent	7	2	UATR Matches Drawn Percentage	None	None	11	Right	Scale	Input
UATRMatchesDrawn	Numeric	2	0	UATR Matches Drawn	None	None	12	Right	Scale	Input
UATRMatchesLostPercentage	Percent	7	2	UATR Matches Lost Percentage	None	None	11	Right	Scale	Input
UATRMatchesLost	Numeric	3	0	UATR Matches Lost	None	None	12	Right	Scale	Input
UATRGoalsForAvg	Numeric	19	2	UATR Average Goals For per Match	None	None	16	Right	Scale	Input
UATRGoalsFor	Numeric	3	0	UATR Goals For	None	None	12	Right	Scale	Input
UATRGoalsAgainstAvg	Numeric	19	2	UATR Average Goals Against per Match	None	None	16	Right	Scale	Input
UATRGoalsAgainst	Numeric	3	0	UATR Goals Against	None	None	12	Right	Scale	Input
UATRGoalDifferenceAvg	Numeric	22	2	UATR Average Goal Difference per Match	None	None	16	Right	Scale	Input
UATRGoalDifference	Numeric	3	0	UATR Goal Difference	None	None	12	Right	Scale	Input
SponsorT	String	35	0	Sponsor T	None	None	35	Left	Nominal	None
SponsorTIndustry	String	29	0	Sponsor T Industry	None	None	29	Left	Nominal	None
SponsorTCountry	String	18	0	Sponsor T Country	None	None	18	Left	Nominal	None
ShirtSponsorshipValueSeasonTEuros	Custom	8	2	Shirt Sponsorship Value Season T Euros	None	None	11	Right	Scale	Target
ShirtSponsorshipRanking	Numeric	3	0	Shirt Sponsorship Ranking	None	None	12	Right	Ordinal	None

Source: Author

Following the same approach as the first modeling, almost all variables were marked as input, apart from the target variable: *ShirtSponsorshipValueSeasonTEuros*, and the variables *SponsorT*, *SponsorTIndustry*, *SponsorTCountry* and *ShirtSponsorshipRanking*, all of them defined as "None" in the software.



Source: Author

Figure 30 - Predictors Importance - Automatic Linear Modeling V2

Table 26 - Predictors Importance Automatic Linear Modeling V2

Average League Ranking	0,15
UATR Goals Against	0,12
National League	0,11
UATR Goal Difference	0,1
UATR Goals For	0,07
UATR Matches Won	0,07
UATR Matches Played	0,06
UATR Participations	0,06
Draws	0,05
Draws Percentage	0,04

Source: Author

As it is visible above, if the model is run including both relative and cumulative inputs, the last ones continue to have a prominent place between the predictors of the *Shirt Sponsorship Value Season T Euros* output. Concretely, these variables are *UATR Goals Against*, *UATR Goal Difference*, *UATR Goals For* and *UATR Matches Won*. Having this situation, the solution to not bias the study is to reduce the number of cumulative inputs when it makes sense and when a relative input linked to these ones can be used instead, since it would transmit identical information; meaning this that apart from the variables *SponsorT*, *SponsorTIndustry*, *SponsorTCountry* and *ShirtSponsorshipRanking*, the following inputs will also be marked as “None” in the software:

1. *NumberofMatches*
2. *Wins*
3. *Draws*
4. *Losses*
5. *GoalsScored*
6. *GoalsSuffered*
7. *GoalDifference*
8. *UATRMatchesWon*
9. *UATRMatchesDrawn*
10. *UATRMachesLost*
11. *UATRGoalsFor*
12. *UATRGoalsAgainst*
13. *UATRGoalDifference*

After being applied the changes on the input roles of the mentioned variables above, it is the moment to run the model for the third time and to reach the final conclusions of the dissertation.

Table 27 - Case Processing Summary V3

	N	Percent
Included	230	78,2%
Excluded	64	21,8%
Total	294	100,0%

Source: Author

Once again, the Model Selection Method applied was the *Forward Stepwise*. From the total universe of data utilized for the study – 294 entries, almost 22% of them were excluded from the model, which translates in the inclusion of 230 inputs.

Table 28 – Automatic Data Preparation V3

Field	Role	Actions Taken
(AverageLeagueRanking_transformed)	Predictor	Change measurement level from ordinal to continuous Trim outliers
(AvgGoalDifferenceMatch_transformed)	Predictor	Trim outliers
(AvgGoalsScoredMatch_transformed)	Predictor	Trim outliers
(AvgGoalsSufferedMatch_transformed)	Predictor	Trim outliers
(AvgPointsMatch_transformed)	Predictor	Trim outliers
(DrawsPercentage_transformed)	Predictor	Trim outliers
(LossesPercentage_transformed)	Predictor	Trim outliers
(NationalLeague_transformed)	Predictor	Merge categories to maximize association with target
(NationalLeagueRanking_transformed)	Predictor	Change measurement level from ordinal to continuous Trim outliers
(Points_transformed)	Predictor	Trim outliers
(UATRGoalDifferenceAvg_transformed)	Predictor	Trim outliers Replace missing values
(UATRGoalsAgainstAvg_transformed)	Predictor	Trim outliers Replace missing values
(UATRGoalsForAvg_transformed)	Predictor	Trim outliers Replace missing values
(UATRMatchesDrawnPercentage_transformed)	Predictor	Trim outliers Replace missing values
(UATRMatchesLostPercentage_transformed)	Predictor	Trim outliers Replace missing values
(UATRMatchesParticipationsAvg_transformed)	Predictor	Trim outliers Replace missing values
(UATRMatchesPlayed_transformed)	Predictor	Trim outliers Replace missing values
(UATRMatchesWonPercentage_transformed)	Predictor	Trim outliers Replace missing values
(UATRParticipations_transformed)	Predictor	Trim outliers Replace missing values
(UATRPoints_transformed)	Predictor	Trim outliers Replace missing values
(UATRPointsMatchPlayedAvg_transformed)	Predictor	Trim outliers Replace missing values
(UATRPointsParticipationAvg_transformed)	Predictor	Trim outliers Replace missing values
(UATRPosition_transformed)	Predictor	Change measurement level from ordinal to continuous Trim outliers Replace missing values
(UATRTitles_transformed)	Predictor	Trim outliers Replace missing values
(UEFARanking_transformed)	Predictor	Change measurement level from ordinal to continuous Trim outliers Replace missing values
(UEFARankingAverage_transformed)	Predictor	Change measurement level from ordinal to continuous Trim outliers Replace missing values
(WinsPercentage_transformed)	Predictor	Trim outliers

If the original field name is X, then the transformed field is displayed as (X_transformed). The original field is excluded from the analysis and the transformed field is included instead.
One or more records were excluded because of a predictor or target that is missing, a frequency weight that is missing or less than one after rounding, or a regression weight that is missing, negative, or zero.

Source: Author

The information contained into Table 28 – Automatic Data Preparation V3, aims to expose to the readers of the dissertation all the transformations made by the model in order to make it more accurate. As it is visible, and since all the variables introduced were somehow updated by the tool,

all of them counts with the addition in its name of the word “transformed”. On the changes applied, it can be seen that all of the inputs counted with the adjustment of the outliers, the entries identified in this situation are exposed under the Table 29 - Outliers V3. At this time, it was identified and removed from the calculations 14 entries from the model, since these 14 rows of data were defined as Outliers. Apart from the outliers’ adjustment, all the other updates made on this “new” model were: 1) the change of measurement level from ordinal to continuous, 2) the merge of categories - applied only for the National League and, 3) the replacement of missing values in 16/27 of all the utilized variables.

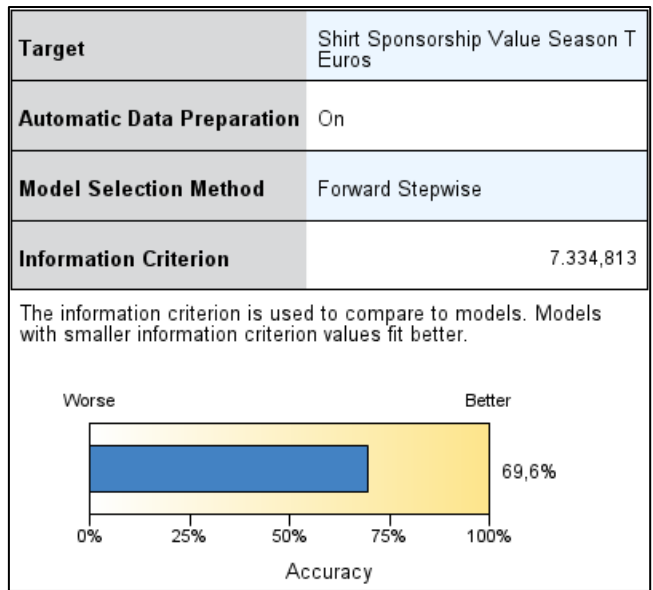
Table 29 - Outliers V3

Record ID	Shirt Sponsorship Value Season T Euros	Cook's Distance
34	84,810,600.00	0,157
1	25,146,000.00	0,090
2	70,000,000.00	0,077
3	70,000,000.00	0,077
35	73,152,000.00	0,076
19	50,000,000.00	0,055
23	51,435,000.00	0,053
4	35,000,000.00	0,032
5	35,000,000.00	0,032
6	35,000,000.00	0,032
36	60,579,000.00	0,021
13	17,000,000.00	0,018
15	17,000,000.00	0,018
277	850,000.00	0,018

Records with large Cook's distance values are highly influential in the model computations. Such records may distort the model accuracy.

Source: Author

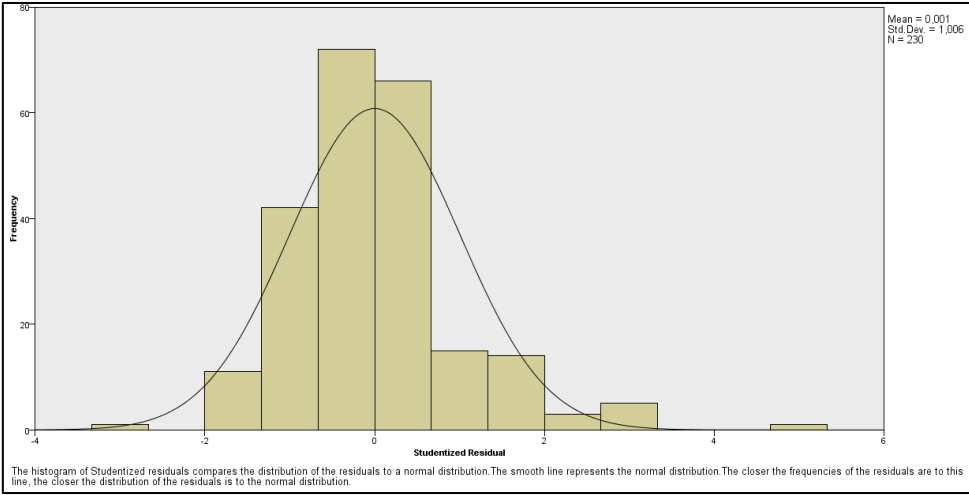
Regarding this third and last model automatically generated by the software, the first thing that calls out the attention it is the accuracy level. Despite the model having a very acceptable accuracy level to explain the dependent variable of the dissertation: 69,6%, this measure has been reduced if compared with the first model: 79,2% - almost 10% decreasing. Regarding to this cypher, it can be said that the output explained throughout the dissertation are not totally defined by the included variables, despite the big number of inputs injected and been almost all of them related with the sportive performance of the studied clubs.



Source: Author

Figure 31 - Model Summary V3

By visually observing the representative Histogram of the model, it can be affirmed that the model has roughly a normalized shape, since although it does not fit perfectly within the designed curve, the bars that compounds the information for the generated model follow its trend.



Source: Author

Figure 32 - Histogram Automatic Linear Modeling V3

6. CONCLUSIONS

As it became very evident in the previous steps of the analysis, one of the most critical sections of the study it is the Predictors Importance output generated from the last model, because this is the very last aim of the dissertation: what are the inputs that defines the shirt sponsorship value agreed by the teams with their sponsors, to finally understand if these inputs are 100% correlated with the sportive performance.

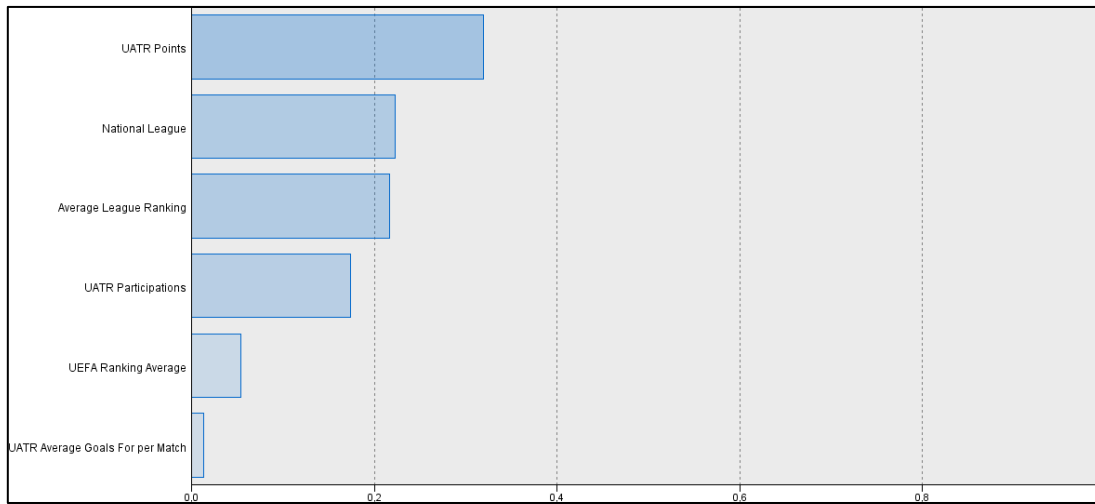


Figure 33 - Predictors Importance - Automatic Linear Modeling V3

Highlighted by the generated model as the inputs that helps defining the *Shirt Sponsorship Value T Euros*, it is possible to find 6 predictors, with different influence between them. These details are shown below in Table 30 Predictors Importance - Automatic Linear Modeling V3.

Table 30 Predictors Importance - Automatic Linear Modeling V3

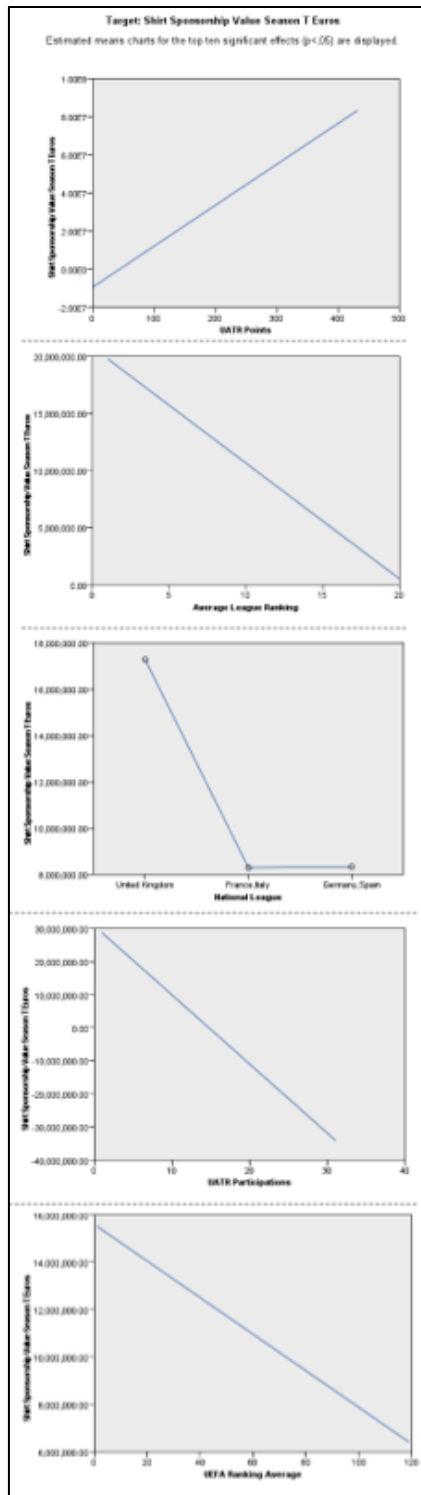
UATR Points	0,32
National League	0,22
Average League Ranking	0,22
UATR Participations	0,17
UEFA Ranking Average	0,05
UATR Average Goals For per Match	0,01

Source: Author

A few important insights can be extracted from the information exposed above and that are part from the conclusions of the study. It is clearly visible that not just variables from just one source defines the value of shirts' sponsoring, because 3/6 of the most important predictors are coming from the UEFA All-Time Ranking – it is possible to say upfront the big importance of the historic background of the clubs in the maximum UEFA competition. Also, still related with the UCL, it is verified the presence of the *UEFA Ranking Average* input, which contrasting with the analysis exposed just before, it is understandable that apart from the historic performance from the clubs in the UCL it is also very important the past recent history of the teams in the competition – although its weight is minor when compared with the UATR inputs: 0,05. To close this rationale, the last type of input it is the one that defines the competitive framework of the teams: the National League, which presence occupies a very high spot, since it is the second most important predictor: 0,22.

Despite not been surprise see here the National League as the second most important predictor of the *Shirt Sponsorship Value Season T Euros*, due to all the analysis that was collected related to this

output throughout the study, it has to be forcibly detached, because, from the 31 included variables within the model where only 3 of them are not related with the sportive performance – Team, National League and Season – one of these 3 comes in a highlighted position within the model. What can be extracted from this is: **the sportive performance does not exclusively determine the received value from shirt sponsorship in football.** Reinforcing this last strong sentence, as it was exposed in the previous section of the dissertation, the model counts with a R2 of 69,6%, despite the good level it is missing extra inputs to approximate the model of the 100%; meaning this that **the sportive variables are not enough to explain the shirt sponsorship level.**



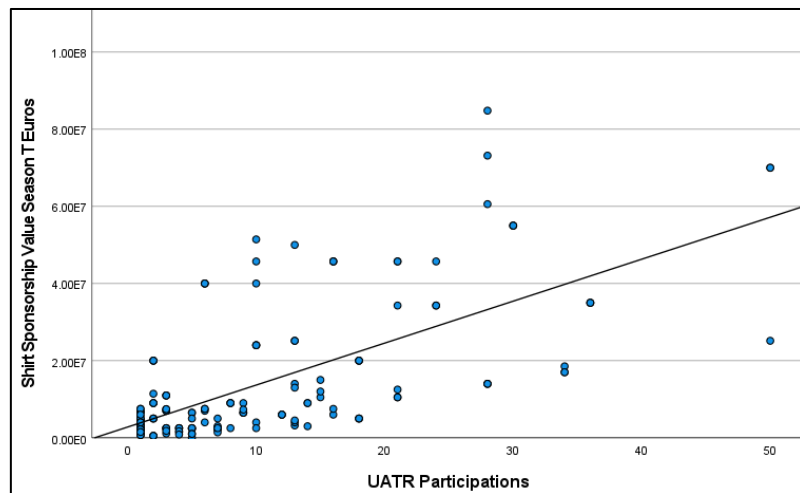
Source: Author

Figure 34 - Estimated Means - Important Predictors

Taking a closer look to the estimated means of the important predictors into Figure 34 - Estimated Means - Important Predictors, generally speaking, apart from one particular situation, no major circumstances can be highlighted, since the relation between them and the output from the model it is quite clear: once the *UATR Points* raises it is also expected the *Shirt Sponsorship Value Season T Euros* to evolve in the same way; for *Average League Ranking* and *UEFA Ranking Average*: the better the team's ranking, the higher it is expected the value received by the shirt's sponsee; regarding to the predicted mean for the *Shirt Sponsorship Value Season T Euros* by each one of the analyzed domestic leagues, not very different insights can be extracted at this stage from all the

others exposed during this dissertation: the expected shirt sponsorship agreement it is much higher in the Premier League clubs than in the other championships, the mean value it is cyphered around the 17,7M€ - more than twice than the expected value for the other countries. Despite been identified two different levels for the other 4 leagues the discrepancy it is residual between all of them: for the Bundesliga/La Liga level the expected received value by the teams it is 8,326M€, while for Serie A and Ligue 1 the value affixed near the 8,279M€. So the big surprise here it is not the high value perceived from the English teams but the great similarity of the values agreed on the other 4 leagues, this makes wonder if the Premier League entries were excluded from the study if the national league would continue to be a very important factor to the *Shirt Sponsorship Value Season T Euros* or, if it would reduce the predictors only to the sportive performance ones.

The last estimated mean to be analyzed from this output it is the one related to the *UATR Participations* which is transmitting at first sight a very peculiar information: teams with a smaller number of participations in the UCL are willing to sign better shirt sponsorship agreements. Definitely, this statement needs to be desiccated, by comparing the behavior of both variables when exposed to each other.

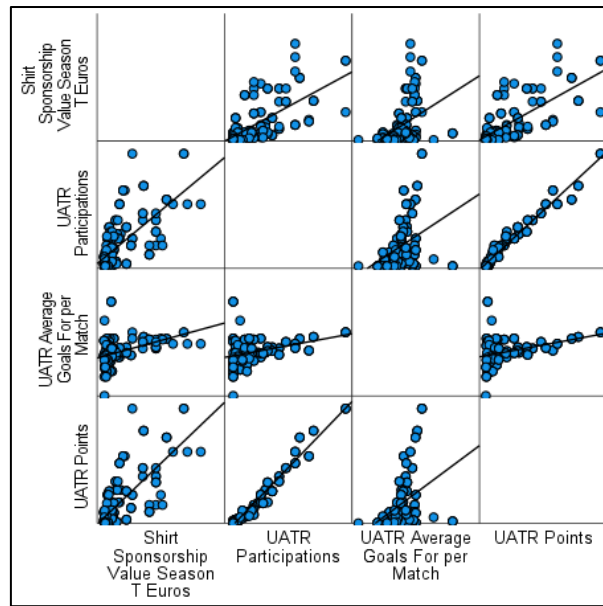


Source: Author

Figure 35 - *Shirt Sponsorship Value Season T Euros by UATR Participations*

By analyzing the scatter plot with the fit line inserted on it, it is still difficult to understand the relation obtained by the software between the two exposed variables, because, even though most of the values are concentrated in the first quadrant of the representation – less participations in the UCL and smaller agreements – may seem clear the increasing tendency of the fit line in the graphic.

As an additional step to verify the information provided by the estimated means regarding the *UATR Participations* and the output from this study, can be done by comparing the correlation between the UATR inputs that were identified by this final model as important predictors.



Source: Author

Figure 36 - Shirt Sponsorship Values Season T Euros, UATR Participations, UATR Average Goals For per Match and UATR Points Scatterplot Matrix

Table 31 - UATR Participations, UATR Points and UATR Average Goals For per Match Correlations

		UATR Participations	UATR Points	UATR Average Goals For per Match
UATR Participations	Pearson Correlation	1	,979**	,373**
	Sig. (2-tailed)		,000	,000
	N	187	187	187
UATR Points	Pearson Correlation	,979**	1	,390**
	Sig. (2-tailed)	,000		,000
	N	187	187	187
UATR Average Goals For per Match	Pearson Correlation	,373**	,390**	1
	Sig. (2-tailed)	,000	,000	
	N	187	187	187

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Author

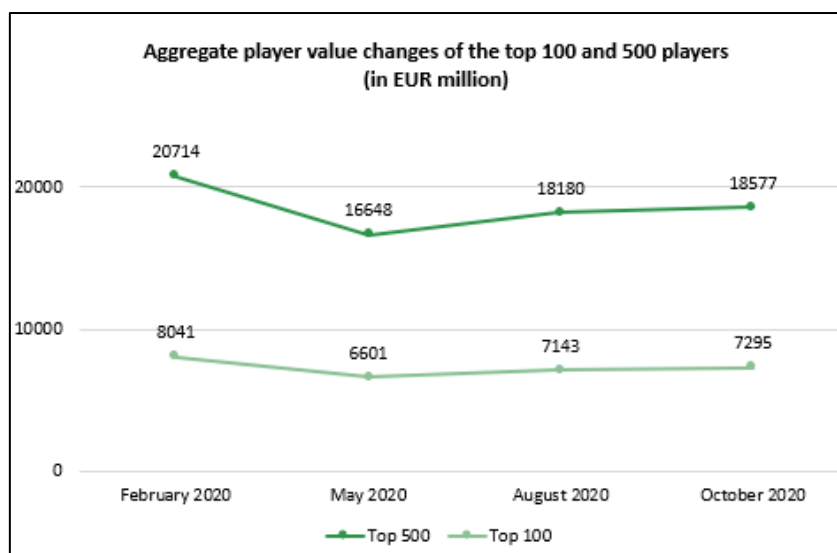
From the table exposed, the relation between *UATR Participations* and *UATR Points* must be remarked, because it can be seen almost a perfect positive correlation: 0,979; which might mean that if somehow there was some interests by simplifying the study and the number of inputs injected, one of these two variables could be skipped since “one explains the other”. This situation can take the reader to one thought: if the variable *UATR Participations* which is the most important predictor for the shirt sponsoring value - with a positive effect - has almost a perfect correlation with the variable *UATR Points*, another of the most important inputs – with an opposite effect from the first input – why and how to keep both variables in the study.

7. LIMITATIONS AND FUTURE WORK

Some of the biggest barriers regarding to the performed study of shirt sponsoring in football are the ones related with data veracity and obtention: veracity, since as exposed at the beginning of the dissertation most of the commercial deals in football are not officially posted by the sponsors or sponsees in what regards to the cyphers around them – which made necessary to navigate in the media searching for the values of the agreements, being conscious that even for the most famous contracts and from the most reputable media sources these reported values may not be 100% accurate. Regarding the obtaining process, as it was mentioned at the very beginning of the dissertation, it can be affirmed that generally speaking, the ease and speed to extract the information by each one of the shirts sponsoring contracts it is correlated with the reputation of the national league/team and/or the sponsor; exemplifying, this situation made it more possible to more often contrast data related to Premier League clubs than from Ligue 1.

Also, related to the points previously called out, it can be probably said that to obtain even more robust conclusions, the information included could be more heterogeneous from very different aspects – being aware of the time needed to do it. For the run study it was included data for three complete recent seasons (2016/17, 2017/18 and 2018/19), historical results in the UCL by each one of the teams, and clubs from 5 European national championships. It was included the 5 most important leagues in the world, the ones with more powerful clubs, important players or where this sport can be taken almost as a religion; saying this, it can be a very specific “ecosystem”. Ideally, as a next step for the dissertation, it can be evaluated to insert data from Tier-2 European national leagues (e.g., Portugal, Russia, Netherlands, etc.), apart from the first division clubs, include second division teams as well and inject similar information as well from clubs/leagues whose origin inhabits on other continents, anticipating a great challenge to reach this type of heterogeneous data universe.

Regarding the timeframe included it can be considered to include a bigger number of seasons, for example a full decade - considering containing a timeframe where football (knowing how much it is been changing lately) was already modern how it is today. Following this rationale, it could be considered 10 seasons starting in 2010. Still regarding the time dimension, while this report was written the world met one of the biggest economic recessions of the history due to the Covid-19 pandemic. The pandemic had implications while season 2019/2020 was running: some football leagues (partially) stopped, matches were delayed or canceled, fans were unable to support their teams on the pitch, etc. Logically, everything indicates that this whole situation may have had negative impact in the world of football and consequently in jersey sponsorship agreements. Due to time concerns and to the lack of data since this pandemic still alive, this impact could not be analysed now, but in the future, it would be great to see how the deals were affected during and after Coronavirus in the world.



Source: KPMG Football Benchmark

Figure 38 - Impact of Covid-19 on Player Values

In the Automatic Linear Modeling v2 section of the report, it was possible to conclude that despite the big number of sportive inputs injected into the model, those were not enough, since the reached R2 was 69,6%. This conclusion, together with the “parasitic” strategy followed by some of the sponsors of minor Premier League clubs exposed by the authors Lopez-Gonzalez and Griffiths, brings out a very strong hypothesis: one of the inputs that can most influence shirt sponsorship agreements in football, might be the number of “followers” of each one of the teams and of the players that belongs to them - it may be remembered Fly Emirates *modus operandi*, where the airline company applies very similar communication/marketing strategies on their sponsored teams and what really influences the paid value is how famous are the teams and/or their players. What can be said regarding to this statement it is that for future studies related with football sponsorship influences, should also be injected variables regarding the number of followers by each one of the clubs. In nowadays it can be very complicated to accurately define what a follower of a team is, because from one hand it can be identified as the “true” fans of the team – the ones that “suffers” unconditionally for the club and for its results, that probably has some geographic and/or family connexions with the team, constantly goes to the stadium, follows closely all the news and watches all the matches of the squad no matter of the opponent; and, the rest of people that turned into a team follower due to the globalized and connected world that we live in; this second group of people, probably follows the official and/or the non-official club pages in some of the Social Media platforms (Facebook, Instagram, Tik Tok, YouTube, Weibo, etc.), watches some of the matches of the club – probably the most mediatic ones, and most important: this kind of support is not exclusive for one team, while the first mentioned type of fan could probably be, and also includes the kind of behaviour explained in second place.

Club	Annual value of shirt sponsorship and kit deal (in EUR M)	Social Media *	
		Total followers (in M)	Avg. Engagement
Real Madrid	190	241	0.41%
FC Barcelona	160	234	0.41%
Manchester United	157	135	1.44%
Manchester City	125	70	0.73%
Arsenal	114	73	1.46%
Chelsea	114	87	1.63%
Liverpool	97	83	1.76%
Bayern Munchen	95	78	0.69%
Juventus	93	94	0.62%
Tottenham Hotspur	80	31	0.41%

*Accumulated followers on Facebook, Instagram, Twitter and YouTube

Source: KPMG Football Benchmark

Figure 39 - Shirt Sponsorship and Kit Deals vs Social Media Followers (Time Period from 01/09/2015 to 20/07/2020)

8. BIBLIOGRAPHY

- 25 World's Most Popular Sports (Ranked by 13 factors). (2016). Retrieved from <https://www.totalsportek.com/most-popular-sports/>
- Ajadi, T., Burton, Z., Dwyer, M., Hammond, R., & Calum, T. (2020). *Eye on the prize Football Money League. Deloitte Football Money League 2020.*
- Atletico Madrid sign 19-year-old Joao Felix for 126 million euros. (2019). Retrieved from https://finance.yahoo.com/news/atletico-madrid-sign-19-old-joao-felix-126-203359772--sow.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlMmNvbS8&guce_referrer_sig=AQAAANlwNDAHMolufdZG_vxcaVuYdwhWHnbC6H7NR6GiHUaCvjvq0u_de9dNPAh7p6_W4MrOPStVP0joG-2v
- Barajas, Á., Fernández-Jardón, C. M., & Crolley, L. (2007). Does Sports Performance Influence Revenues and Economic Results in Spanish Football? *SSRN Electronic Journal*, 1–19. Retrieved from <https://doi.org/10.2139/ssrn.986365>
- Bühler, A. W. (2005). Fans und Fanverhalten im Profifußball: Ein Vergleich zwischen England und Deutschland. *Sportmarketing, Schomdorf, Verlag Hofman*, 221–236.
- Bühler, A. W. (2006). *Professional football sponsorship in the English Premier League and the German Bundesliga. Plymouth Business School.*
- Casas Diente, J. (2019). *EL PATROCINIO DEPORTIVO COMO HERRAMIENTA DE ENLACE ENTRE ENTIDADES DEPORTIVAS Y MARCAS COMERCIALES. ANÁLISIS DE CASO: PATROCINIO DEPORTIVO DE FLY EMIRATES EN LOS PRINCIPALES EQUIPOS DEL FÚTBOL EUROPEO.* Retrieved from Segovia: 10.5354/anuc.v0i18.22603
- Collet, C. (2013). The possession game? A comparative analysis of ball retention and team success in European and international football, 2007-2010. *Journal of Sports Sciences*, 31(2), 123–136. Retrieved from <https://doi.org/10.1080/02640414.2012.727455>
- Deloitte. (2014). Football Money League - All To Play For. *Deloitte*, (January), 1–36.
- Douvis, J., Sarli, E., Kriemadis, A., & Vrondou, O. (2015). An Analysis of Sponsorship Deals in Sport. *International Journal of Sport Management, Recreation & Tourism*, 17, 14–36. Retrieved from <https://doi.org/10.5199/ijsmart-1791-874x-17b>
- Ferreira, C. L. R. (2016). O Patrocínio Como Uma Eficaz Estratégia De Comunicação : a Relação Entre a Marca Emirates E a Marca Benfica .
- Fiorentina will rep Save the Children on their jerseys this year. (2018). Retrieved from <https://www.violanation.com/fiorentina-latest-news-updates/2018/8/21/17765404/fiorentina-save-the-children-jersey-shirt-sponsor-corporate-2018-2019>
- Gerrard, B. (2001). A New Approach to Measuring Player and Team Quality in Professional Team Sports. *European Sport Management*, 1, 219–234.
- Grohs, R., Wagner, U., & Vsetecka, S. (2004). Assessing the Effectiveness of Sport Sponsorships — An Empirical Examination. *Schmalenbach Business Review*, 56(2), 119–138. Retrieved from <https://doi.org/10.1007/bf03396689>
- Gwinner, K. P., & Eaton, J. (1999). Building Brand Image Through Event Sponsorship: The Role of Image Transfer. *Journal of Advertising*, 28(4), 45–57.

- Jones, P. D., James, N., & Mellalieu, S. D. (2004). Possession as a performance indicator in soccer. *International Journal of Performance Analysis in Sport*, 4(1), 98–102. Retrieved from <https://doi.org/10.1080/24748668.2004.11868295>
- Kit sponsorship revenue of German Bundesliga clubs in 2019/20. (2020). Retrieved from <https://www.statista.com/statistics/254503/kit-sponsorship-revenue-of-german-bundesliga-clubs-2012-13/>
- Kool, S. (2012). Football's financial fair play in a win maximizing environment.
- Lepschy, H., Woll, A., & Wäsche, H. (2021). Success Factors in the FIFA 2018 World Cup in Russia and FIFA 2014 World Cup in Brazil. *Frontiers in Psychology*, 12(March), 1–9. Retrieved from <https://doi.org/10.3389/fpsyg.2021.638690>
- Lopez-Gonzalez, H., & Griffiths, M. D. (2018). Betting, Forex Trading, and Fantasy Gaming Sponsorships—a Responsible Marketing Inquiry into the ‘Gamblification’ of English Football. *International Journal of Mental Health and Addiction*, 16(2), 404–419. Retrieved from <https://doi.org/10.1007/s11469-017-9788-1>
- Ridding, J. (2002). Mobile company engages in sport. *Financial Times*.
- Robles, F. L.-C. (2015). *COMO AFECTA EL PATROCINIO DEPORTIVO EN LOS INGRESOS Y EN LOS RESULTADOS DE LOS CLUBES DE FUTBOL EUROPEOS*. Universidad Politécnica de Cartagena. Retrieved from <https://doi.org/10.1017/CBO9781107415324.004>
- Rosson, P. (2001). Football Shirt Sponsorships: SEGA Europe and Arsenal FC. *International Journal of Sports Marketing and Sponsorship*, 3(2). Retrieved from <https://doi.org/10.1108/ijms-03-02-2001-b005>
- Sawe, B. E. (2018). The Most Popular Sports In The World. Retrieved from <https://www.worldatlas.com/articles/what-are-the-most-popular-sports-in-the-world.html>
- Seydel, M. (2005). Sportsponsoring in der Praxis: Am Beispiel T-Com und FC Bayern München. *Sportmarketing, Schomdorf, Verlag Hofmann*, 53–66.
- Szymanski, S. (1998). Why is Manchester United So Successful? *Strategy*, 9(4), 47–54.
- Szymansky, S., & Kuypers, T. (1999). *Winners and Losers: the Business Strategy of Football*.
- The 10 clubs to have earned the most in transfer income this decade - Planet Football. (2019). Retrieved 12 April 2020, from <https://www.planetfootball.com/quick-reads/the-10-clubs-that-have-earned-the-most-in-transfer-income-this-decade/>
- UEFA. (n.d.). Association Club Coefficient. Retrieved from <https://www.uefa.com/memberassociations/uefarankings/country/#/yr/2020>
- Value of jersey kit sponsorships in the Barclays Premier League in 2019/20, by club (in million GBP). (2020). Retrieved from <https://www.statista.com/statistics/254513/value-of-jersey-kit-sponsorships-in-the-barclays-premier-league-by-club/>
- Wang, M. C. H., Cheng, J. M. S., Purwanto, B. M., & Erimurti, K. (2011). The determinants of the sports team sponsor's brand equity: A cross-country comparison in Asia. *International Journal of Market Research*, 53(6), 811–829. Retrieved from <https://doi.org/10.2501/IJMR-53-6-811-829>
- Who tops the all-time European Cup rankings? | UEFA Champions League | UEFA.com. (2019). Retrieved 12 April 2020, from <https://www.uefa.com/uefachampionsleague/news/0253-0d822547c1d9-f5b77ad0a2e8-1000--who-tops-the-all-time-european-cup-rankings/>

Woodward, J. (2019). Ranking the Top 20 Most Lucrative Shirt Sponsorship Deals in European Football. Retrieved from <https://www.90min.com/posts/6332533-ranking-the-top-20-most-lucrative-shirt-sponsorship-deals-in-european-football>

World Football / Soccer Clubs Ranking. (2020). Retrieved from <https://footballdatabase.com/ranking/world/1>

ZAP / Futebol 365. (2015). FC Porto assina com a PT o maior contrato da história do desporto português: 457,5 milhões. Retrieved from <https://zap.aeiou.pt/fc-porto-assina-com-a-pt-o-maior-contrato-da-historia-do-desporto-portugues-4575-milhoes-95124>

