EUROPEAN FOOTBALL MARKET

AN ANALYSIS OF MARKET VALUES IN EUROPEAN FOOTBALL LEAGUES

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Highlights

- Gives a clear definition about what a market bubble is and the problems of its detection.
- Exposes the reason of choosing the market value in front of the transfer value for its analysis.
- Examines into depth the evolution of the transfer market values of the team players comprising the Big 5 Leagues during a 10-year season period.
- Searches for graphical similarities with the dot-com and housing bubble.

0. Abstract

During the last years the football industry has experienced a huge unexpected increase in its economic activities involving changes in market prices and transfer fees. While the national economies throughout the world were suffering the ravages that the 2008 financial crisis caused, the football industry seems to not be affected and act in parallel. This tendency has not been left apart by some economists who have warned about the formation of a possible self-perpetuated increase in the value of the clubs and players and therefore an economic bubble in the football industry. Nevertheless, in this paper we want to try to give a firm, but not definite response to this phenomenon and somehow answer to these speculations, as there are no economic studies giving response to this issue. We will make a profound analysis based on the market value record of the football most reliable football industry database, which is Transfermarkt (www.transfermarkt.com).

Keywords

Intrinsic value; Market bubble; Market Value; European football; Big 5 leagues.

1. Introduction

Before getting into depth, a clear definition of an "economic bubble", which sometimes is referred to as a "speculative, market, price or financial bubble", and its characteristics is essential to explain the existence or not of a bubble in the football industry. There are multiple definitions, but the one we will consider and take into account throughout the whole paper is "trade in high volumes at prices that are considerably at variance from intrinsic values" (Garber, 2012; Levine, Zajac 2007). Emphasis wants to be given to the intrinsic value, as it refers to "the perceived or calculated value of an asset, an investment, or a company"[1] and our study is based on this value for the football team players conforming the Big 5 Leagues[2]. The intrinsic value, calculated by Transfermarkt, can be perfectly extrapolated to football teams, which can be seen as companies that have their own assets (mainly players and coaches).

Different economists have proposed diverse approaches in respect to the definition of speculative bubbles. Some argue that they are caused by bounded or limited rationality (Fool's theory) in which a buyer can justify the price of his purchase even if it is way too far exceeding its intrinsic value, as long as other buyer is willing to buy it even at a higher price. Other economists claim that market bubbles are related to inflation and therefore what causes inflation has relation to bubbles, whereas others relate it to a weak financial policy and excessive monetary liquidity in the financial system, making investors lever their capital when interest rates go down by borrowing from banks and investing this capital in financial assets such as equities and real estate (Topol, 2006).

Definitely, we cannot and do not intend to give response of what causes a financial bubble mainly because at this time, there is no firm response to the problematic. What we aim to do is to inform of an unexpected increase in the market values of the football teams of the biggest 5 leagues in Europe and provide awareness of this values which have reached historical peaks. We are analysing the possible existence a short-term bubble, this is, we are taking a ten-year period, comprising all the seasons starting from 2009-10 until 2018-19. Also, we are not taking any clear position neither stance in whereas which is the exact cause of bubbles and therefore we are open to take them all as equally valid.

[1] See intrinsic value definition. Retrieved from: https://www.investopedia.com/terms/i/intrinsicvalue.asp.
[2] So called the football leagues formed by: La Liga, Premier League, Serie A, Bundesliga and Ligue 1.

1.1 Detection of economic bubbles

Throughout the history of humanity, as it is known, there have been different market bubbles. The tulip-mania bubble is a worldwide-recognised bubble, which has been the case of study in the economic ambit during many years and its consequences and causes are still studied nowadays. More recently, the dot-com bubble between 1997-2001 in response to the heyday of new technological firms saturated the stock values of these firms, and finally, the most recent one, the last financial crisis inflicted by the subprime mortgage market in the United States.

There is a lot of literature considering the detection of these bubbles, but little evidence and the lack of firm and solid responses show how difficult it is to detect one. Obviously, if detection was empirical, market bubbles would not burst, but this is not the case nowadays. What is known is that "all these bubbles are interrelated and can migrate from one market to another" (Girdzijauskas *et al.*, 2009).

Although this, we have taken as a starting point the work done by Karl E. Case and Robert J. Shiller (Case and Shiller, 1989). Among many of his work, Robert J. Shiller, economy Nobel Prize winner in 2013, has been recognised throughout his career because he predicted the dot-com bubble and the real estate bubble of 2007. The confection of his worldwide known and prestigious index, the S&P/Case-Shiller home-price index has given us an idea to approach the possible problem occurring in the football market. Although not providing a self-conducted index, we have selected the football market values of the teams (www.transfermarkt.com) and calculated graphically and analytically the differences along the 10-year period comprising season 2009/10 until season 2018/19 with the objective to explain that there exists a market phenomenon that shares similarities with previous bubbles.

1.2 Why market values and not transfer values?

The S&P/Case-Shiller home-price index is a starting point to our analysis as it exposes the fact that it analyses the market value of the housing in the US and therefore its intrinsic value. To do so, it has to elaborate constraints to make the most precise calculations. It takes into consideration all changes in the prices of single-family detached residences (houses) that are embedded in arm-length transactions[3] because they are the ones who

[3] Business deal in which buyers and sellers act independently and do not have any relationship between them. Retrieved from: https://www.investopedia.com/terms/a/armslength.asp.

better reflect the overall housing activity. Foreclosure sales are also included but the index excludes new houses (you cannot see the buying and selling price), condos, co-ops and properties whose designation changes.

Similarly, if you extrapolate this to the football market, getting transfer market values misleads the intrinsic value of the players. In comparison to the previous index, Lionel's Messi transfer value is 0€ as it has never been transferred and also thousands of young players that are still in the same club. We do not have enough analytical tools and knowledge to account for all these amount of players. Plus, there is a risk in avoiding arm-length transactions and therefore arm-in-arm transactions[4] would take place, as in the transfers many third parties are involved, such as agents, sponsors and family members.

Although it has been demonstrated that the community's market-value estimates can predict actual transfer fees (Herm, Callsen-Bracker and Kreis, 2014), we consider that excluding these latter values gives more accuracy to our calculations. Therefore, it is important to give a clear definition of the market value, which is "an estimate of the amount of money a club would be willing to pay in order to make [an] athlete sign a contract, independent of an actual transaction" (Herm, Callsen-Bracker and Kreis, 2014).

Our source of information is the most reputed and more accepted worldwide and therefore, we take the market values for granted. Nevertheless, we have to take into account that both sources of information take different approaches in their calculations. While the S&P/Case-Shiller home-price index is computed by the sales-repeated method[5], the transfer market values of both football teams and players in Transfermarkt are obtained by crowdsourcing.

Transfermarkt's market values are obtained through a style of judgement that (Surowiecki, 2004) coined it as the "wisdom of crowds", as the idea behind this is that users can make a better judgement than just a few experts, or at least, the same valuation. This "judge principle" (Herm, Callsen-Bracker and Kreis, 2014) is an approach to information aggregation. The portal does not estimate these values democratically, that is, not all the estimates that users make have the same value and they are not treated equally individually. Instead, there are "judges" (Herm, Callsen-Bracker and Kreis, 2014) who revise these valuations and weigh them accordingly to their own decisions and consequently value them differently and provoke that the influence of users is not uniform. Briefly, Transfermarkt's

[4] Deal in which prices are based on non-commercial considerations. Retrieved from: http://www.businessdictionary.com/definition/arm-in-arm-transaction.html.
[5] Manner of calculating changes in the sales price of the same piece of real estate over specific period of time. Retrieved from: https://www.investopedia.com/terms/r/repeatsales-method.asp.

values are not calculated as an average or as a median of all the individual estimates, they are computed accordingly to the final say of these empowered community members.

This estimation, which is not very democratic, is quite reliable, because it eludes the typical problems crowdsourcing faces, like manipulation, social pressures, lack of skills and knowledge that can bias market values estimations (Lorenz *et al.*, 2011). Democratisation can include these biases, as for example taking into account the valuations of inexperienced users and fans or manipulations from opportunistic sports agents (Herm, Callsen-Bracker and Kreis, 2014) that could favour the appearance of arm-in-arm transactions. Hierarchisations of decisions exclude such considerations and therefore reduce the risk of bias. In spite of this, some authors (Müller, Simons and Weinmann, 2017) bring awareness of the shortcomings of this process, as it lacks transparency, replicability and also it is not updated frequently as it depends on the massive participation of users and propose data analytics as a more convenient and exact method. Nevertheless, as mentioned, is still one of the most used datasets in the football industry and therefore we rely on its calculations.

2. Data treatment and analysis

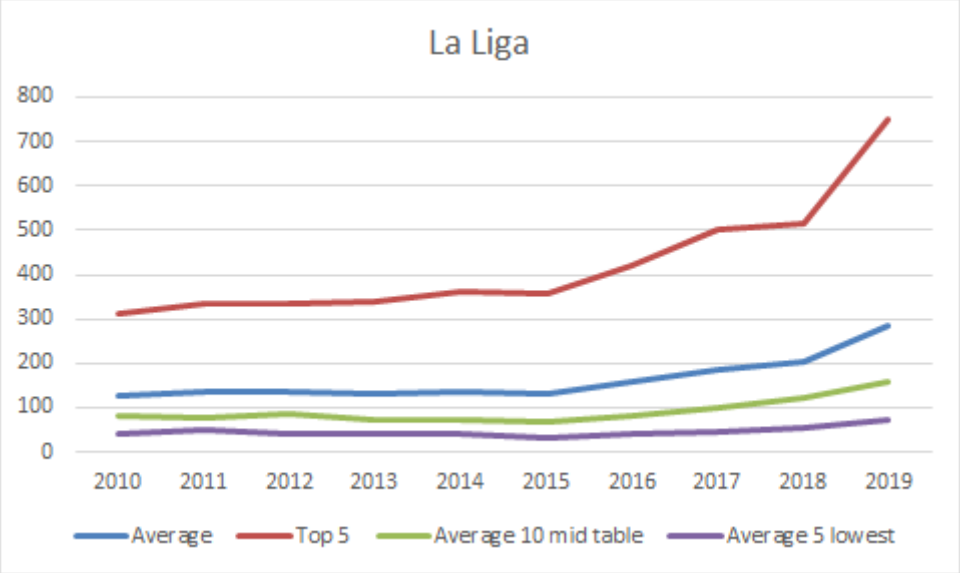
After defining the database, we move forward and start working with it. The first challenge has been to obtain a consistent dataset, because several teams have moved into first division and others have moved into the second one. In order to simplify the study and the obtainment of conclusions, we have ranked each season just taking into account the level of the market values. With this ranking, three categories have been created, depending on the ranking of the market values of each season.

The first category has included the top 5 values of each season. With this, we have gathered the best teams of each league, those who play European competitions every year and therefore their squads are larger, better and, consequently, their market values are much higher. The second category includes the 10 mid table teams[6] of each league. In this category, those teams staying in the first division for most of the seasons have been included. They have been put together due to their sportive and economical similarities. The final category comprises the lowest 5 market values of each season. Gathering this final group has simplified the study and the way data has been treated, because most of the teams in this level are those who do not spend more than one or two seasons in a row in the first division, and therefore, they share similarities in an economic sense.

[6] For the German's case this category is formed by 8 teams.

As it has been stated in the introduction, the approach of the study will be focused on a graphical analysis of the bubble, therefore, data will be analysed through figures. For this, several figures have been created including average values for each year, differentiating between the three categories created and a fourth one including an average of the league.

2.1 La Liga analysis



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 1: La Liga's 10-year market values

Entering into analysis, we start by focusing on La Liga's chart for market values during the last ten years. The figure has been divided between four different categories, one for each group mentioned in the data treatment section and a fourth one for the average of the league.

At first sight, there is an easy observation and it is the huge gap existing between the Top 5 category and the rest of the categories. This only remarks the adequacy of creating different categories for levels of market values. In case this differentiation was not done, our analysis would not be precise and therefore our conclusions would be biased. The main intuition we want to remark is the tendency that we can observe. From 2016 onwards, a positive slope has started to appear, increasing more in the last year. This figure tendency is similar to the one we can observe in Figure 17[7].

[7] See Figure 17 in Conclusions.

After observing it, a deeper analysis on these movements has been conducted. To study it, two more graphs have been created to observe the movements. The first one shows increases from year to year in percentage terms and the second one in absolute terms.

When making a first look to Figure 2[8] is easily observable a common trend in the increments, only disturbed by the appearance of the average 5 lowest market values. This phenomenon is something anecdotal, as a great amount of variables are influencing, but the main one is the fact that this group is formed by teams with huge instability, where one year appear to be in the first division and the following one have been relegated to the second one. Therefore, as new teams appear substituting them, we observe this huge variance.

Another important point of this graph has to do with the shape observed in the growth rate. It is easy to observe and remark that these levels of growth are something to highlight and therefore it reinforces our assumption of the existence of an atypical phenomenon in the market value. It is important to point out that the graph has to do with growth rates, that makes it even more impressive because we are living an expansionary moment in this market with positive growth rates since 2016. The final remarkable thought in figure 2 is the huge increase all the categories have suffered in the final year, going from a 30% increase in the growth rate for the average 10 mid table, those more stable, to a 45% growth rate for the Top 5 teams.

In order to put into context these growth rates, a third Figure[9] has been plotted. The table contains information about absolute terms of these growth rates and here we observe one of the main problems, inequalities. It has to be remarked what we observed in figure 2, that is a huge increase in growth rates in all the categories. This contrasts with what is observed in figure 3, only top 5 have a huge increase in absolute terms, reaching 240 million, meanwhile the rest of categories move from 18 million to 80.

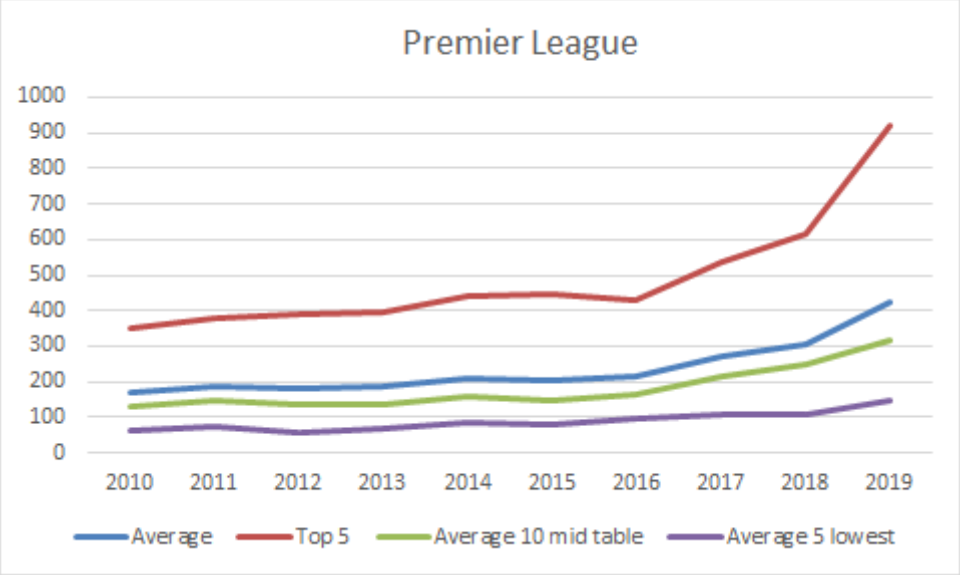
But, how is this possible if we had similar percentage growth rates in all categories? Inequalities concerning the different clubs are very present in this market. This economic behaviour has affected all the teams with same percentage growth rates, but this implies that those with huge previous market value levels have suffered a huge increase with respect to those with lower market value levels.

[8] See Figure 2 in Appendix.
[9] See Figure 3 in Appendix.

Ending up with La Liga's analysis, it is important to remark the nature of this league. We have three huge teams, *FC Barcelona, Real Madrid and Atlético de Madrid* with enormous budgets, while others have less resources and therefore less capacity to invest in their squads, affecting directly in the market value of the teams. That is why it exists huge differences between the Top 5 category and the others.

2.2 Premier League analysis

After analysing La Liga's case we move forward and enter into Premier League. In this case, the structure to follow will be the same as in our previous analysis.



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 4: Premier League's 10-year market values

Starting by Figure 4, it is easy to observe a common trend in the last years, along with the initial hypothesis developed in the introduction and as in La Liga's case. This trend starts to shape a positive slope in 2016, confirming our initial beliefs, which are similar to Figure 17, in which a positive slope is observed when sustained growth starts to appear.

Similarly to La Liga's case, there exists a gap between top 5 values and the rest. In order to study it and see its effects, two new graphs have been created to observe where these differences come from. As in La Liga, a graph regarding increase in %[10] has been plotted. It is clearly observable a common growth trend among all the categories created. What it is interesting here is the observation of a positive tendency since 2016, with positive growth rates in all the categories but in Top 5. From 2016 onwards there is a constant positive

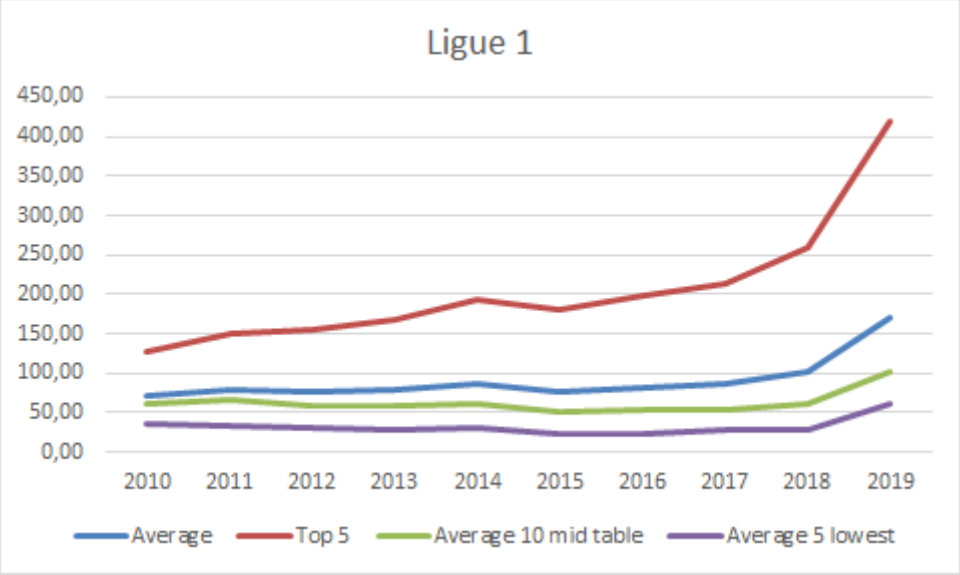
[10] See Figure 5 in Appendix.

growth tendency, which is in line with our beliefs of some strange phenomena that is taking place. In order to contextualize this growth rates, we have conducted Figure 6[11].

We can observe a similar pattern as in our previous analysis; there are similar percentage growth rates in all categories but when translating them into absolute growth rates, differences arise. The different categories had percentage growth rates from 27% to barely 50%, while converting them in absolute growth rates terms has represented increments from 45 million in the lowest category to 300 million in case of the Top 5, similarly to La Liga. Huge increases in growth rates are happening in all categories, but translating them into absolute values, we observe that only those teams with huge previous amounts are winning in this bubble, they are not only those who grow more, but as they come from previous higher levels, they have more resources.

2.3 Ligue 1 analysis

Moving on from league, it is time to conduct the same research in the French case. Before entering into analysis, it is necessary to remark that it is the weakest league in competitive terms of our study. We point it out because as we are dealing with market values, it is directly related with the level of the players in it, so, a low competitive level is translated into lower market values. To study it, a first graph (Figure 7) is plotted with market values for teams playing in Ligue 1.



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 7: Ligue 1 10-year market values

[11] See Figure 6 in Appendix.

It is easy to observe and remark the first thought that comes to mind in each of the leagues studied. As in other leagues, Top 5 category is separated by a gap from the rest of the categories; the main difference here is the interval level. Proportionally it is similar but if we analyse the vertical axis, we observe an initial difference of 50 million, coming from 125 to 75 million, whereas in the previous leagues analysed it was barely 200 million.

The other remark concerning this graph is the tendency observed. Similarly to La Liga and the Premier League cases, from 2016 onwards we observe a positive tendency for all the categories. To analyse this positive tendency and how it has affected the different categories, again a graph regarding the increases in percentages has been created.

We extract two main thoughts from Figure 8[12]. At first we confirm what we remarked in the previous graph, since 2016 positive growth rates have taken place, remarking our hypothesis. The second point is the difference in growth rates. Coming from previous cases where big teams grew more, in Ligue 1 we observe that in the final year those lowest teams are the ones with higher growth rates. But how does these rates translate in absolute terms? To answer this question, Figure 9[13] has been created for Ligue 1.

We observe that despite huge growth rates for low category teams, it has not been translated into more economical power for low teams. Instead, it shows the huge inequalities and differences existing in the same league depending on their category.

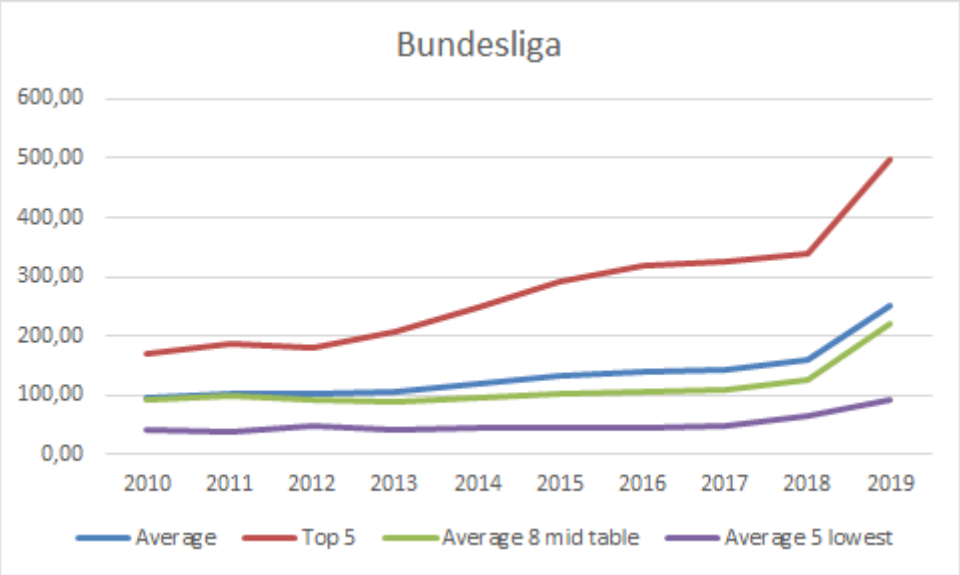
Concluding Ligue 1's study, it is important to remark its composition. Always considered the weakest of the Big 5 leagues, it has suffered the irruption of Qatar's money injection and therefore it has created a great impact and increase in the economic power of just one team, Paris Saint-Germain, pushing up one category, in this case, Top 5; meanwhile other categories have not benefited from this capital increase.

2.4 Bundesliga analysis

The German's case is special and different from the others studied. The German league is formed by just 18 teams and therefore, previous category classification has to be modified. There exists a Top 5 category, including those clubs with the highest values. Then, in the middle level modifications appear, as instead of having 10 market values, now we have just 8. The final category still contains the five worst market values of the league.

[12] See Figure 8 in Appendix.
[13] See Figure 9 in Appendix.

Entering into analysis, we focus on the Bundesliga's graph (Figure 10). It is easy to observe how similar it is to the previous cases, where there exists a common trend but for the top 5, which increase their gap form the other team's starting in 2013. This trend is stable for all categories except for top 5 until year 2018, when they suffer a huge increase. These tendencies differ from the ones obtained in previous leagues, where the increases happened in 2016 and all categories shared a common trend.



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 10: Bundesliga 10-year market values

Two new graphs (Figure 11[14] and 12[15]) have been plotted again to analyse these trends in terms of growth rates, representing them in percentages and in absolute values.

It is important to point out three things in Figure 11. At first glance, the growth rate level in Top 5 category is above the rest except for the final years, where all percentage growth rates increase and its growth level is below the other categories. Secondly, we remark the volatility in the level of growth rate of the lowest 5 category, because the lack of stability of the teams in maintaining themselves in first division, which directly affects their revenues and therefore their capacity to invest in better squads, affecting its market value. Finally, as in the other leagues studied, we have observed a huge increase in growth rates in the final years, supporting our initial hypothesis.

[14] See Figure 11 in Appendix.
[15] See Figure 12 in Appendix.

In Figure 12, it is observed a stable and low increase in the market value for all the categories until 2017 for all the categories, except for Top 5. This goes against what we observe in Figure 11, where a huge instability predominates. This is explained because as we have low absolute market values, therefore huge growth rate increases do not have the same impact as those ones with high market values. It is also important to recall how Top 5 category has evolved. Despite not having high percentage growth rate levels in the final years, it is observed how the absolute level has increased more than in other categories, increasing dispersion across them.

An example on how these two graphs are related to each other is clearly the period comprising the years 2018 and 2019. If we observe growth rates in 2018, we can see huge differences in percentages, going from a 30% in case of the lowest 5 teams to 4% in the case of Top 5 teams. In the following year there is a percentage growth rate of 42% in the case of the lowest teams and of 48% in case of the Top 5. If we translate this data in absolute terms, we have that in 2018, the Top 5 teams just increased 13 million, whereas the lowest 5 just 15 million. If we observe what happened in the following year, we can see an increase of 160 million for Top ones and just 27 million for the 5 lowest. With this we observe the increase of inequalities in these markets, for the same increases in absolute terms we had a huge spread in relative terms, and in the following year, with similar growth rates, the spread in absolute terms has been really big.

Ending up with Bundesliga's analysis, it is important to remark how this league is distributed. Similarly to La Liga's case, we have a few top teams, mainly *Bayern München & Borussia Dortmund,* whose market values and power are much higher than the rest of the league. Consequently, these differences already established are really difficult to reverse. In just 10 years, the difference between the top team and the bottom team has increased from 8,9 times its value to 14,6 times[16].

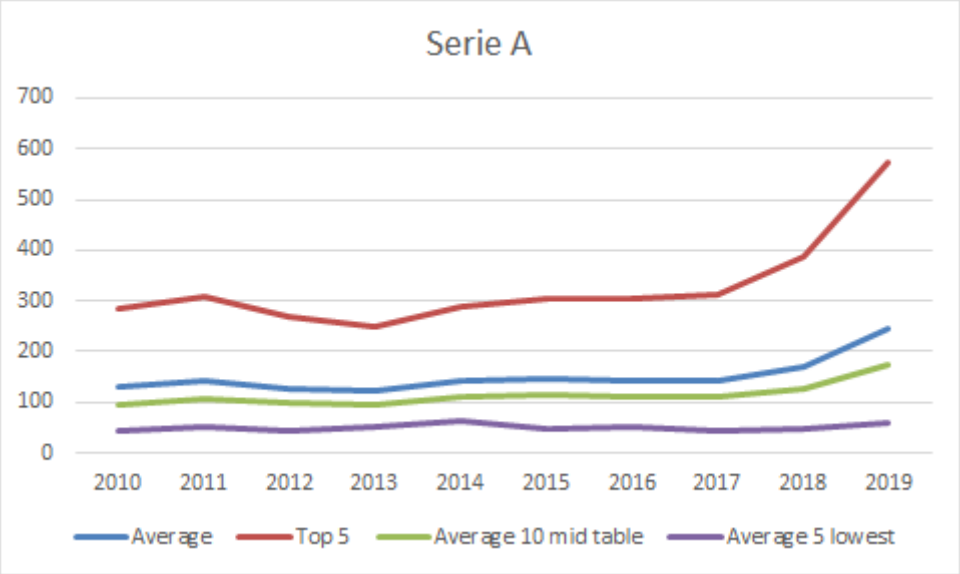
2.5 Serie A analysis

Finally, we will conduct the analysis on Serie A, the Italian case. The structure will be the same as in the other cases.

We observe a common trend (Figure 13) in the last few years because the market values stay more or less constant until the year 2017. An important point to remark is that the Top 5

[16] Calculations done with Transfermarkt's database.

teams have a much higher market value in comparison to the other categories, so again we observe a polarization between the market value of the top teams and the other ones.



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 13: Serie A 10-year market values

In order to study with more detail and see the effects, the same procedure is followed as previously, one graph containing the growth rates in percentage terms and the second one containing the growth rates in absolute terms.

In figure 14[17], we can observe that there is volatility in the league and that it is greater for the category containing the 5 lowest teams. Also, notice that the growth rates follow a common trend in all the categories. Plus, remark that in year 2012 the average growth rate was -10.7% and that in the year 2015 for the five lowest teams was -25.5%. Finally, as in the other cases we observe a huge increase in the growth rates in the last years, but in this case the acceleration started early in 2017.

To conclude the study of this league, in figure 15[18] we have plotted the growth rates in absolute terms. We observe that the high volatility is not reflected when talking in absolute terms except for the Top 5 category. Also, regarding the final years in which the growth rates in percentage terms are similar, we observe that in absolute terms the difference is greater. To illustrate this gap, we will show these differences in numbers: a gap of 5% in growth rate in percentage terms between the average and the top 5 category in 2019 has created a split of 250% when computed in absolute terms.

[17] See Figure 14 in Appendix.
[18] See Figure 15 in Appendix.

3. Conclusions

As it is known, sport teams' main sources of revenue come from sponsorships, TV rights, merchandising and the management of facilities. In the last years, these pillars have gained more protagonism in the club's income and they have increased their financial power, mainly TV rights and sponsorships by signing multi-millionaire deals. Globalisation has boosted this new trend reaching markets worldwide. An example of this phenomenon is the irruption of the Chinese market in the football industry and the implication of foreign capital in European clubs such as Paris Saint-Germain (Qatar), Manchester city (Abu Dhabi), Football Club Internazionale Milano (China) and RCD Espanyol (China).

Nowadays, sponsorship deals have increased in the industry because big firms have been aware that the football market has increased its interest and media coverage worldwide. That is why we find in our sample teams that have adopted brand names, such as Red Bull Leipzig and also competitions as La Liga Santander.

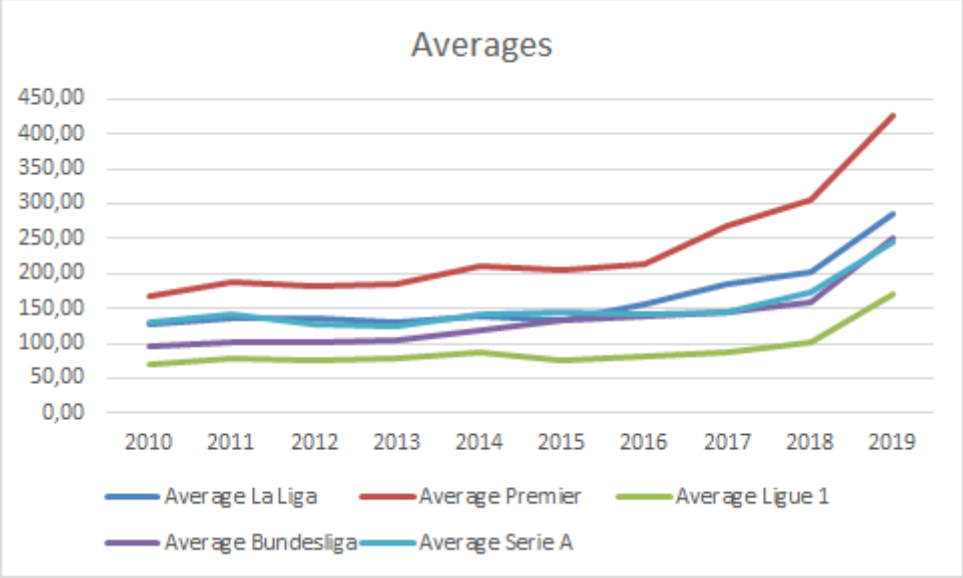
When talking about TV rights it is important to remark the role of new technologies, which allow the emission of football matches around the world in real time. This has caused that the TV industry is willing to pay more for obtaining the exclusive rights of emission because the number of viewers and people willing to pay for watching football matches (pay TV) has increased. In some clubs this has become the main source of income and in most of the teams it represents a big part of it.

Traditionally, merchandising and the management of facilities have been the main inflows of income for clubs. Ticket selling, club memberships and the selling of football kits have also increased because of brand development favoured by globalisation. A clear example of this is that in every corner of the world local people know something about football teams, such as FC Barcelona or Real Madrid CF. Despite of this, nowadays these fields have less impact in club revenues compared to the other two sources.

All of this implies that more income is generated in the industry and therefore clubs have more resources to spend in different activities, such as squad improvements. So if we assume that the supply level is kept constant, that is, the number of players around the world is the same, teams have higher predisposition to pay for them. Consequently, market values of players and teams increase.

When establishing the goal of our research, we stated that we wanted to see if there was an existence of a common pattern between the evolution of the squad market values in the Big 5 European Leagues with accepted worldwide bubbles, in our case, the dot-com bubble in the early 2000's and the housing price burst in 2008.

After making our analysis separately for each league, for our final statements we wanted to capture in a single graph the average trend of the 5 Big Leagues studied (Figure 16). This has been done with the aim of comparing them with two graphs (Figures 17,18), regarding the two economic bubbles previously mentioned, and search for similarities.



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 16: Average market values for all 5 leagues

We can observe the mentioned common increasing trend. This trend starts in 2016 for Premier League and La Liga and only in the final period, 2018, for the rest of leagues. It is important to remark the difference in levels existing for these leagues. At first place we can observe Premier League's top situation, with higher market levels for all periods. This can be explained by the big difference in income levels mainly coming from TV rights and its equal distribution among Premier League teams. In a second stage we have La Liga, Serie A and Bundesliga, with similar market values and evolutions all below the Premier League. Finally, in a third marked level we have Ligue 1, which is necessary to remark it separately due to the big differences with the rest of categories, which were mentioned in the analysis of Ligue 1[19]. This is directly related to the obtention of fewer revenues coming from TV rights and therefore, as it is the main source for lots of clubs, it affects directly to their financial capacity.

[19] See section 2.3.

Source: S&P Down Jones Indices LLC.

Figure 17: Case-Shiller home price index

After our thorough analysis, a common increasing trend between the three Figures is clearly observed, although it is necessary to emphasize the different nature of the markets in which the bubble has taken place. The housing bubble was less explosive than the dot-com one, but the importance here is not the volatility of each case, but instead the growth evolution.

Source: Bloomberg.

Figure 18: 2000's Dot-Com Bubble

This allows us to confirm the existence of a market anomaly that makes us question whether this growth will be sustained across time or if we are experimenting the effects of a self-perpetuated bubble.

As we have been recalling along the project, bubbles are difficult to identify and therefore to predict. What is irrefutable is that just a few people were aware and concerned about the housing and dot-com bubble. Most of the people were submerged in the ideality of the context and therefore entered in a price whirlwind and did not question its constant increase, much far away from its intrinsic value. It has been proven that human beings are the only specie that stumbles twice with the same stone.

Finally, this undeniably makes us think about the following issue: what ensures that the situation in which we encounter ourselves nowadays in the football market is not the same?

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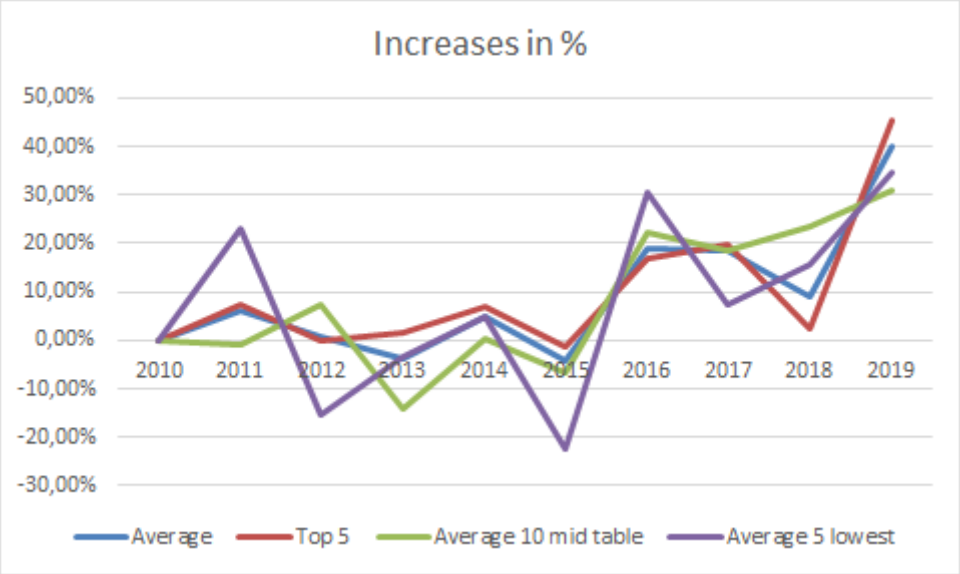
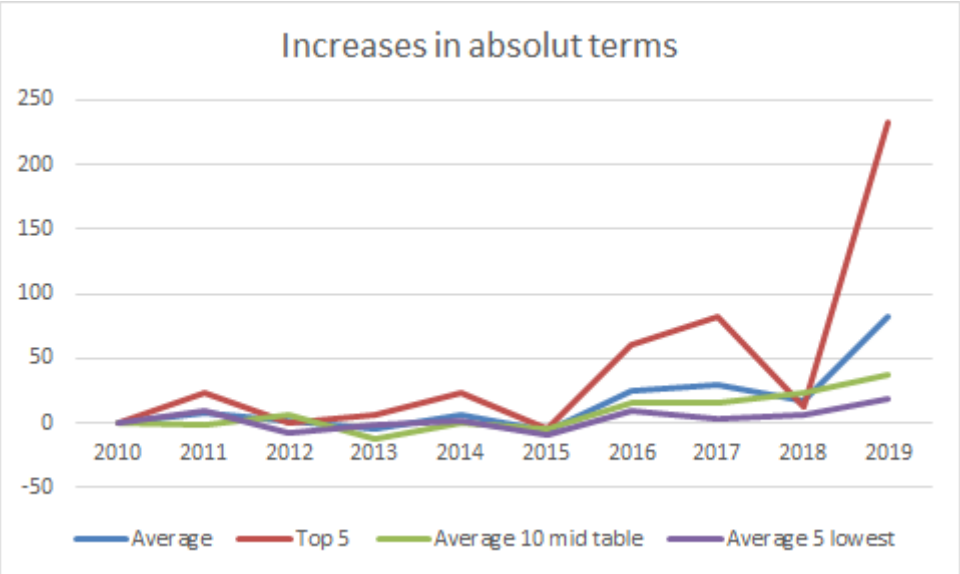
Appendix



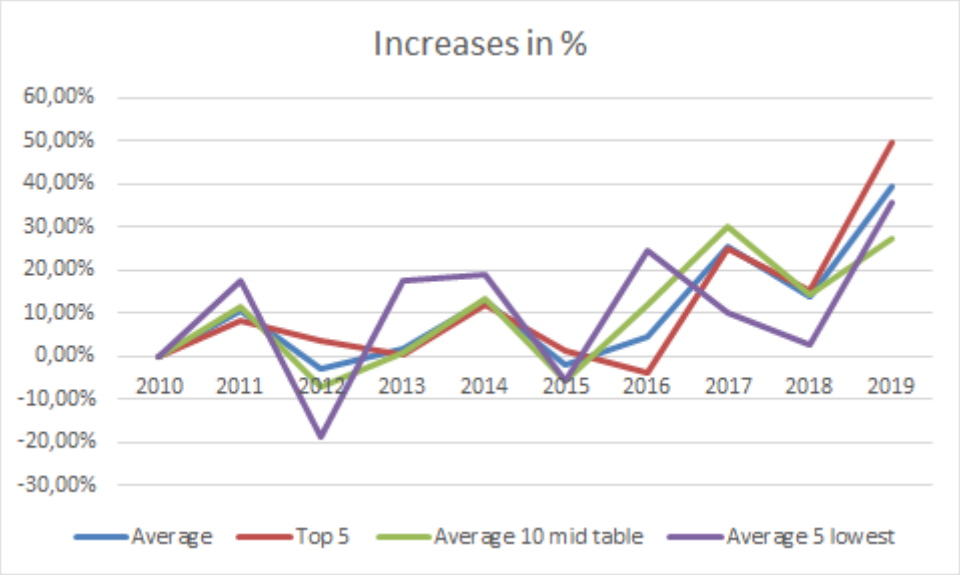
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 2: Annual percentage growth rate for La Liga



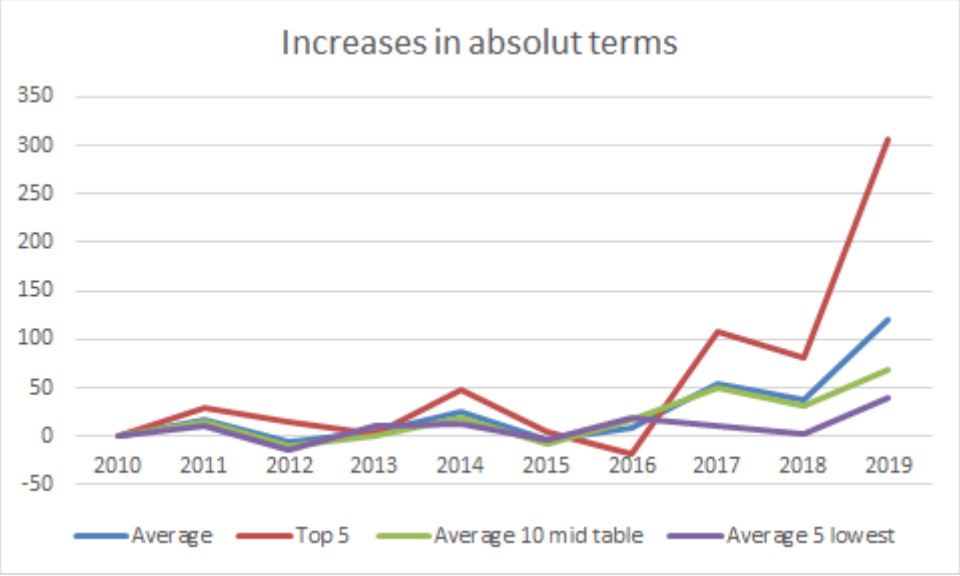
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 3: Annual absolute growth rate for La Liga



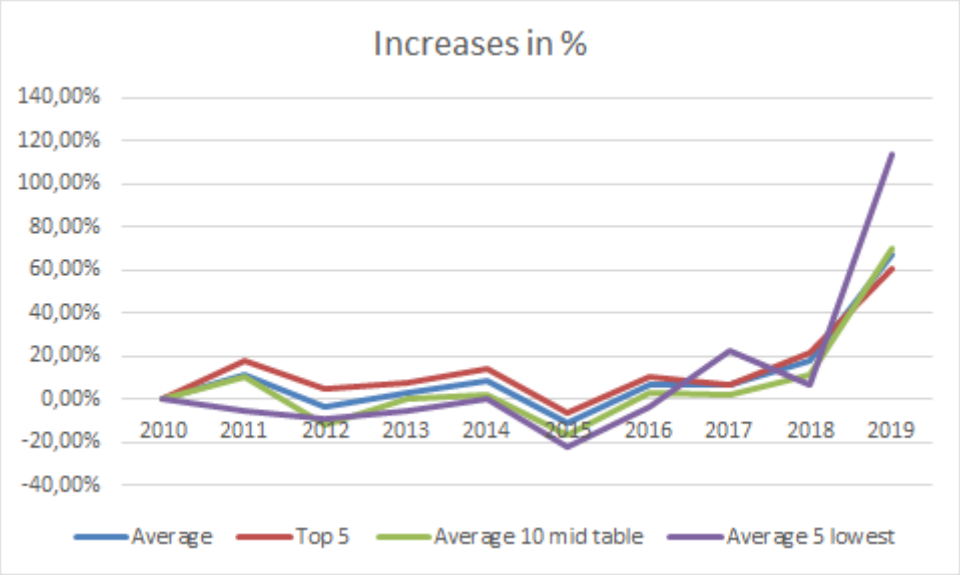
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 5: Annual percentage growth rate for Premier League



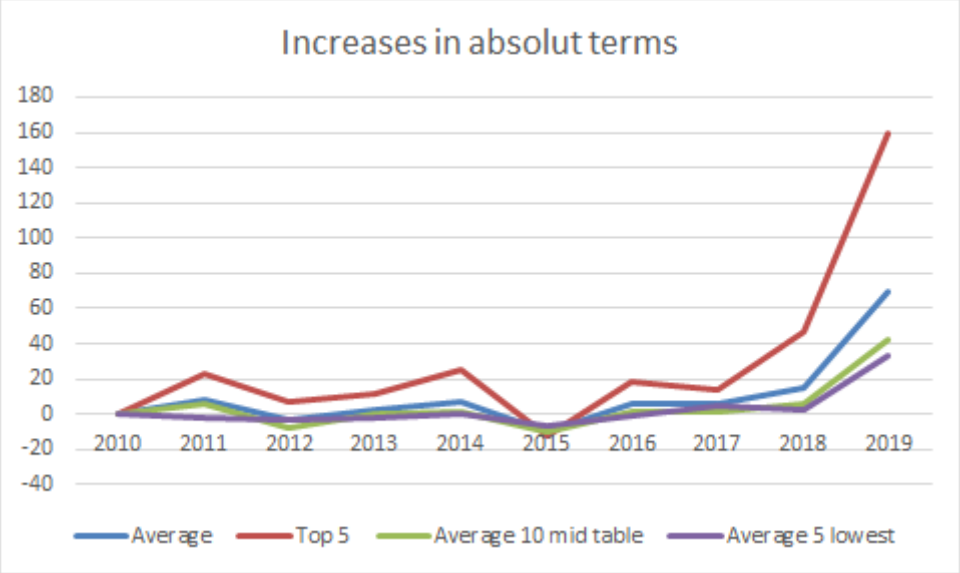
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 6: Annual absolute growth rate for Premier League



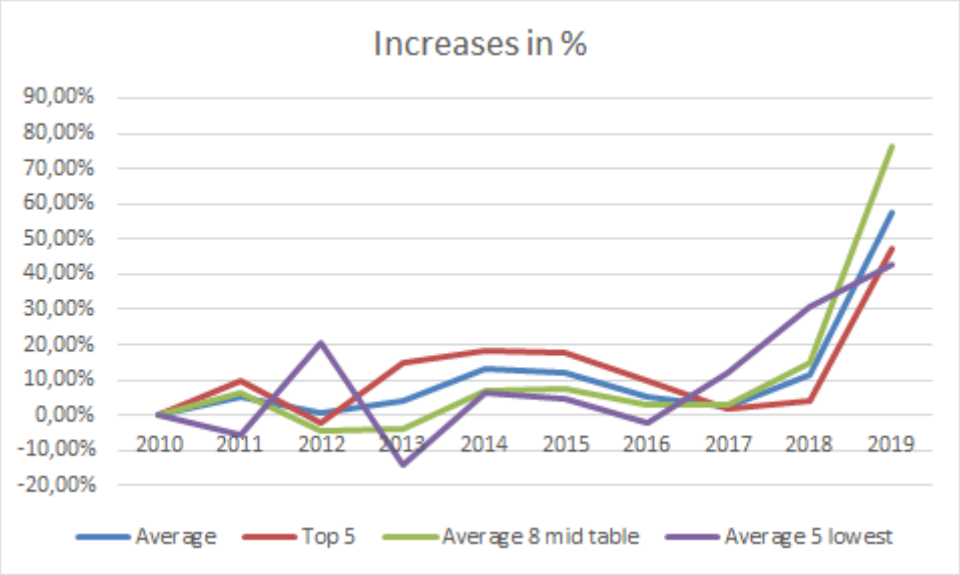
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 8: Annual percentage growth rate for Ligue 1



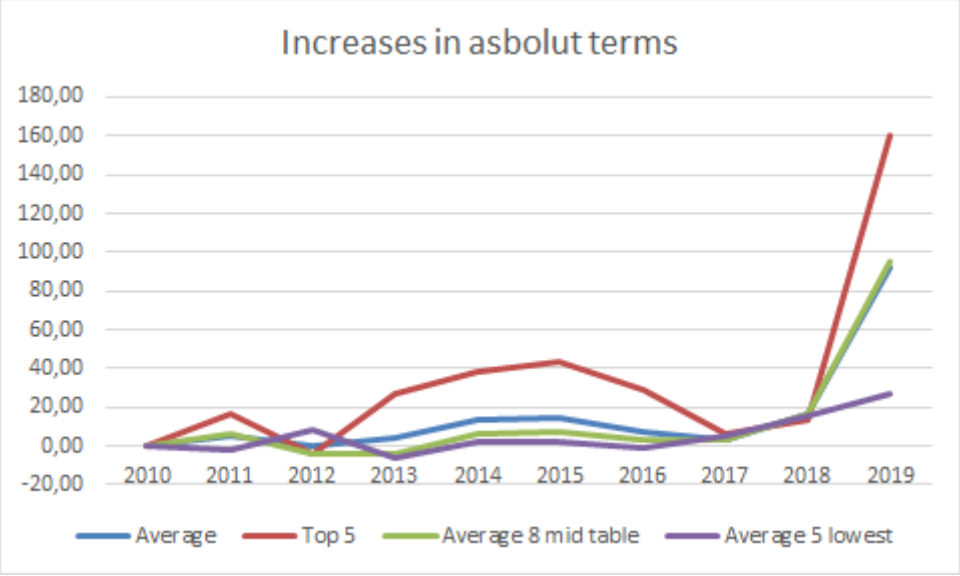
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 9: Annual absolute growth rate for Ligue 1



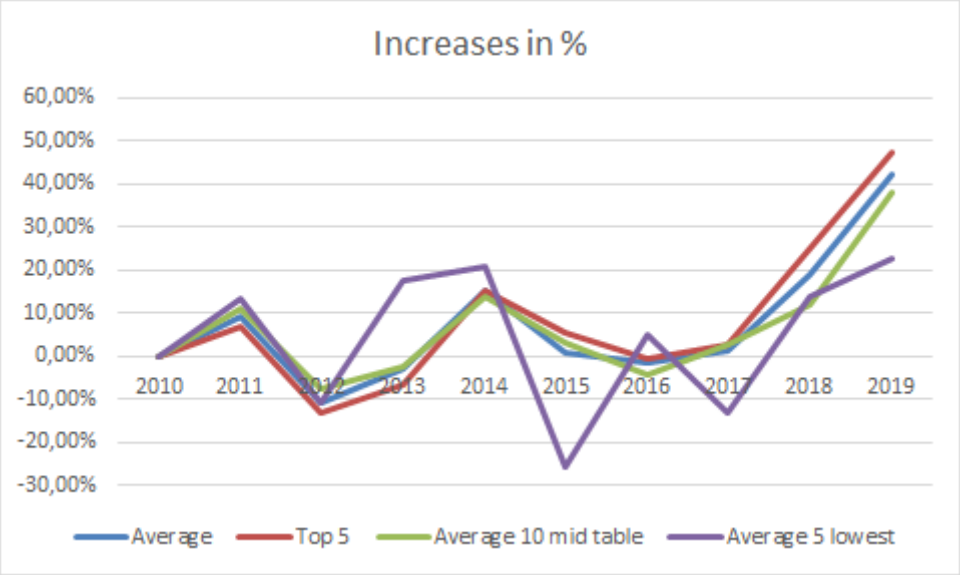
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 11: Annual percentage growth rate for Bundesliga



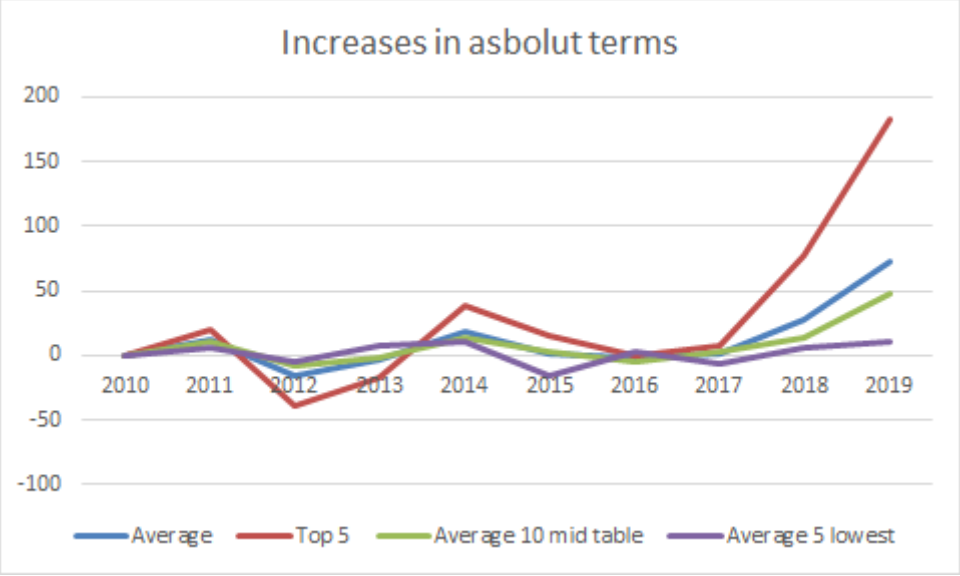
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 12: Annual absolute growth rate for Bundesliga



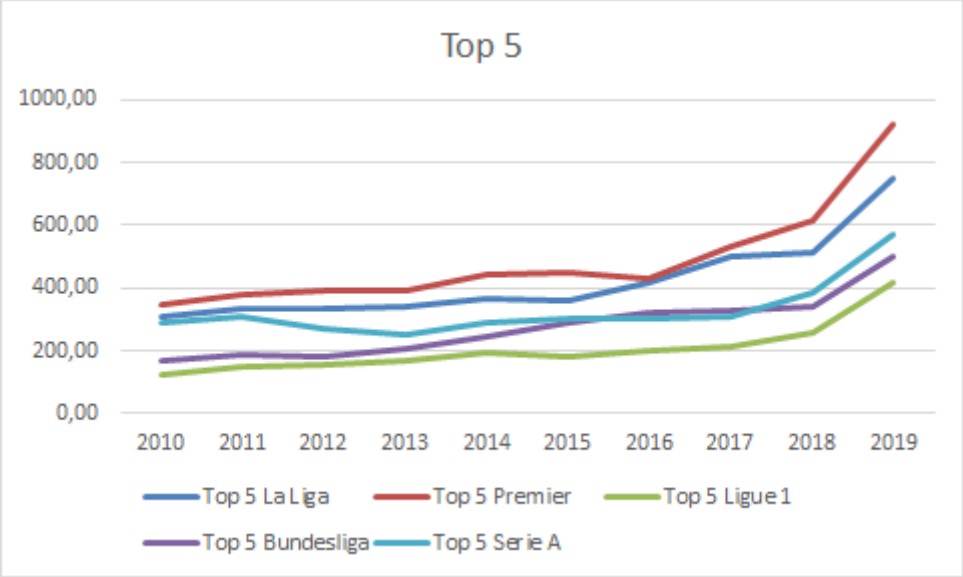
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 14: Annual percentage growth rate for Serie A



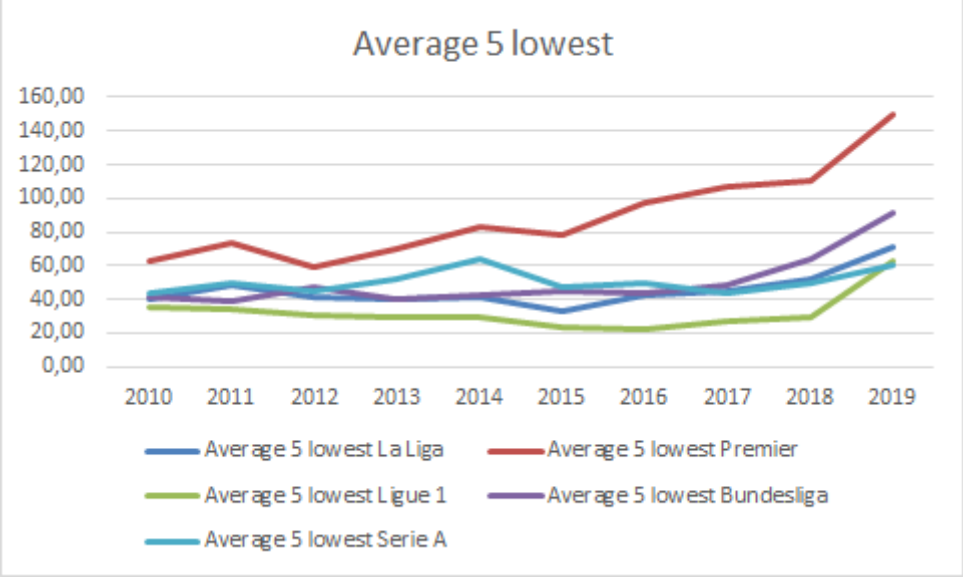
Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 15: Annual absolute growth rate for Serie A



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 19: Top 5 market values category in each league



Source: Compiled by the authors on the basis of Transfermarkt data.

Figure 20: Lowest 5 market values category for each league

Table 1: 10-year market values La Liga

Market Values	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	127,5	135,1	136,1	131,2	137,7	131,9	157,0	186,1	202,8	284,4
Top 5	310,7	333,6	333,8	339,5	363,4	359,1	419,2	502,0	514,8	747,9
Average 10 mid table	79,9	79,1	84,8	72,7	72,9	68,1	83,3	98,6	122,0	159,5
Average 5 lowest	39,6	48,7	41,3	39,8	41,7	32,3	42,2	45,3	52,4	70,7

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 2: 10-year % growth rate market values La Liga

% Growth rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0	6,0%	0,7%	-3,6%	5,0%	-4,2%	19,0%	18,6%	9,0%	40,2%
Top 5	0	7,4%	0,1%	1,7%	7,0%	-1,2%	16,8%	19,8%	2,6%	45,3%
Average 10 mid table	0	-1,0%	7,2%	-14,2%	0,2%	-6,5%	22,3%	18,3%	23,7%	30,8%
Average 5 lowest	0	23,2%	-15,4%	-3,5%	4,9%	-22,5%	30,4%	7,5%	15,7%	34,8%

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 3: 10-year absolute growth rate market values La Liga

Absolute Growth Rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0	7,6	1,0	-5,0	6,5	-5,8	25,1	29,1	16,7	81,6
Top 5	0	22,9	0,2	5,7	23,9	-4,3	60,2	82,8	12,8	233,1
Average 10 mid table	0	-0,8	5,7	-12,0	0,2	-4,7	15,2	15,3	23,4	37,6
Average 5 lowest	0	9,2	-7,5	-1,5	2,0	-9,4	9,8	3,2	7,1	18,2

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 4: 10-year market values Premier League

Market Values	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	168,8	186,4	181,3	185,0	209,3	205,2	214,4	268,9	305,7	425,9
Top 5	347,9	376,5	391,2	393,3	440,5	445,8	428,1	535,0	616,1	921,6
Average 10 mid table	132,6	148,1	137,3	138,5	157,0	148,4	166,3	216,8	248,4	316,5
Average 5 lowest	62,2	73,1	59,3	69,6	82,8	78,0	97,1	106,9	109,9	149,3

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 5: 10-year % growth rate market values Premier League

% Growth rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0,0%	10,4%	-2,8%	2,0%	13,2%	-2,0%	4,5%	25,4%	13,7%	39,3%
Top 5	0,0%	8,2%	3,9%	0,5%	12,0%	1,2%	-4,0%	25,0%	15,2%	49,6%
Average 10 mid table	0,0%	11,6%	-7,2%	0,8%	13,4%	-5,5%	12,0%	30,4%	14,6%	27,4%
Average 5 lowest	0,0%	17,4%	-18,9%	17,4%	19,0%	-5,8%	24,4%	10,1%	2,8%	35,8%

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 6: 10-year absolute growth rate market values Premier League

Absolute Growth Rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0	17,6	-5,2	3,7	24,4	-4,2	9,3	54,5	36,8	120,2
Top 5	0	28,7	14,7	2,1	47,2	5,3	-17,8	106,9	81,1	305,5
Average 10 mid table	0	15,4	-10,7	1,1	18,5	-8,6	17,9	50,5	31,6	68,0
Average 5 lowest	0	10,8	-13,8	10,3	13,2	-4,8	19,1	9,8	3,0	39,4

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 7: 10-year market values Ligue 1

Market Values	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	71,0	79,3	76,3	78,9	85,9	76,4	81,7	87,1	102,5	171,7
Top 5	126,5	148,9	155,9	167,9	192,6	180,6	199,4	213,3	260,4	419,8
Average 10 mid table	61,0	67,2	59,3	59,3	60,8	50,9	52,6	53,9	60,1	102,3
Average 5 lowest	35,7	33,8	30,8	29,3	29,5	22,9	22,1	27,2	29,2	62,3

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 8: 10-year % growth rate market values Ligue 1

% Growth rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0	11,6%	-3,8%	3,4%	8,9%	-11,1%	7,0%	6,6%	17,7%	67,6%
Top 5	0	17,8%	4,7%	7,7%	14,7%	-6,3%	10,4%	7,0%	22,1%	61,2%
Average 10 mid table	0	10,2%	-11,8%	0,0%	2,5%	-16,2%	3,3%	2,5%	11,6%	70,1%
Average 5 lowest	0	-5,2%	-8,9%	-5,0%	0,8%	-22,1%	-3,6%	23,0%	7,2%	113,7%

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 9: 10-year absolute growth rate market values Ligue 1

Absolute Growth Rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0	8,3	-3,0	2,6	7,0	-9,6	5,3	5,4	15,4	69,2
Top 5	0	22,5	6,9	12,0	24,7	-12,1	18,8	13,9	47,1	159,4
Average 10 mid table	0	6,2	-7,9	0,0	1,5	-9,8	1,7	1,3	6,2	42,1
Average 5 lowest	0	-1,9	-3,0	-1,5	0,2	-6,5	-0,8	5,1	2,0	33,2

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 10: 10-year market values Bundesliga

Market Values	2010	2011	2012	2013	2014	2015	2016	2017	2018
Average	95,5	100,4	100,9	105,1	118,9	133,3	140,2	143,4	160,2
Top 5	168,8	185,6	181,4	208,4	246,5	290,0	319,1	325,0	338,2
Average 8 mid table	91,7	97,5	92,9	89,1	95,3	102,3	105,3	108,4	124,6
Average 5 lowest	40,9	38,7	46,7	40,2	42,7	44,7	43,6	49,0	64,0

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 11: 10-year % growth rate market values Bundesliga

% Growth rate	2010	2011	2012	2013	2014	2015	2016	2017	2018
Average	0,0%	5,1%	0,5%	4,1%	13,2%	12,1%	5,2%	2,3%	11,7%
Top 5	0,0%	10,0%	-2,3%	14,9%	18,3%	17,6%	10,0%	1,8%	4,1%
Average 8 mid table	0,0%	6,3%	-4,7%	-4,1%	6,9%	7,3%	3,0%	2,9%	15,0%
Average 5 lowest	0,0%	-5,3%	20,7%	-14,0%	6,2%	4,9%	-2,4%	12,2%	30,6%

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 12: 10-year absolute growth rate market values Bundesliga

Absolute Growth Rate	2010	2011	2012	2013	2014	2015	2016	2017	2018
Average	0,0	4,9	0,5	4,2	13,8	14,4	6,9	3,2	16,8
Top 5	0,0	16,8	-4,2	27,0	38,1	43,5	29,1	5,9	13,2
Average 8 mid table	0,0	5,8	-4,6	-3,8	6,2	7,0	3,0	3,1	16,2
Average 5 lowest	0,0	-2,2	8,0	-6,5	2,5	2,1	-1,1	5,3	15,0

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 13: 10-year market values Serie A

Market Values	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	131,0	142,9	127,6	124,2	143,0	144,6	142,6	144,5	172,1	244,7
Top 5	286,5	306,7	267,1	250,1	288,0	303,6	302,7	310,7	388,3	571,6
Average 10 mid table	96,7	107,3	99,3	97,0	110,3	113,7	109,1	112,1	125,4	173,4
Average 5 lowest	44,1	50,1	44,6	52,5	63,4	47,2	49,7	43,3	49,3	60,5

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 14: 10-year % growth rate market values Serie A

% Growth rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0,0%	9,1%	-10,7%	-2,7%	15,2%	1,1%	-1,4%	1,3%	19,1%	42,2%
Top 5	0,0%	7,1%	-12,9%	-6,4%	15,1%	5,4%	-0,3%	2,7%	25,0%	47,2%
Average 10 mid table	0,0%	11,0%	-7,5%	-2,3%	13,8%	3,1%	-4,1%	2,8%	11,9%	38,3%
Average 5 lowest	0,0%	13,6%	-10,9%	17,7%	20,7%	-25,5%	5,3%	-12,9%	13,8%	22,9%

Source: Compiled by the authors on the basis of Transfermarkt data.

Table 15: 10-year absolute growth rate market values Serie A

Absolute Growth Rate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average	0	11,9	-15,3	-3,4	18,9	1,6	-2,0	1,9	27,6	72,6
Top 5	0	20,3	-39,6	-17,0	37,9	15,6	-1,0	8,1	77,6	183,3
Average 10 mid table	0	10,6	-8,0	-2,3	13,4	3,4	-4,7	3,0	13,3	48,0
Average 5 lowest	0	6,0	-5,5	7,9	10,9	-16,2	2,5	-6,4	6,0	11,3

Source: Compiled by the authors on the basis of Transfermarkt data.