Financial Fair Play and its Intended Impact

An Investigation of the European Football Environment

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Abstract

This study examines what effect the implementation of UEFAs Financial Fair Play regulations have had on football clubs' financial performance and if the top leagues competitiveness in Europe has changed for the better. The two main standpoints for this paper are both in question by the general public. This study seeks to help get somewhere along the way with answering some questions regarding the FFP. The study has been conducted with four GLS regressions to observe the chosen variables before and after FFP was implemented, for both of the two dependent variables, net income and concentration ratio. The data has given somewhat contradictory results, but despite this, conclusions about the research questions can still be drawn. Although there are factors that speak for better finances, the regression analysis regarding the clubs net income can not confirm that the financial health has improved in the footballing world. Regarding the fairness aspect, the results have marginally improved and are positive about how the top leagues are developing. Some signs say the opposite, but the overall results suggest that the leagues have become more competitive than before the implementation of FFP.

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1. Introduction

In the first section, the topic of the paper is presented and is followed by an introduction of general background information. Secondly, a problem is defined and the research questions are stated as well. Furthermore, the purpose of the text is established and lastly the papers' limitations as well as a general review of this works' structure is presented.

1.1. Background

The focus of this paper is to see what impact the implementation of Financial Fair Play has had on football clubs financial performance in the top leagues in Europe (England, Italy, Spain and France), as well as if its intentions to make these leagues more fair has been a success. These features are significant since sustainability is very important nowadays, and especially for corporations as football teams at these levels are. Also, if FFP is a set of regulations which are supposed to help all teams affected by it, the fairness part needs to be fulfilled.

The UEFA club licensing and Financial Fair Play (FFP) Regulations were approved by UEFA's executive committee in May 2010. The implementation of the regulations were brought to effect during the 2011/2012 season, with the first verdicts proclaimed in 2014, due to the fact that the system is based on a three-year review. The reason for the regulations was because of the signs of a worsening financial health for football clubs all over europe. Teams like Chelsea FC, Leeds United and Deportiva La Coruna were noticed by UEFA, due to their poor financial status during the early 2000s. UEFA felt the need to do something to help out and stop the downward trend of worsening finances in football. (Alabi, R Bell & Urquhart 2021)

The overall and simplified objectives of FFP are to encourage professional football clubs not to spend more than they make in income, to stimulate long-term investment, for example in youth development and infrastructure and to limit the possibilities of external funding from investors, lenders, or benefactors. The most known and important regulation is the "break-even rule", which specifies that over a period of three years the "relevant" income and "relevant" expenses must be balanced with a specific tolerance for deficit. (In 2015, a change was made in the break-even rule, which allows "related parties" to cover a deviation up to

€30 million.) Therefore a rich investor can no longer put their money in a club and start buying whichever players they want, without the transfer sums somehow equaling the income from the daily activities of the club. This has prevented an upset in the balance among the top clubs in Europe, like Real Madrid, Manchester United and Bayern München, who have been rooted at the top for a while now, which could easily be challenged if external funding were to have an easy way in and an easy way to build competitive teams. There are different disciplinary measures to be taken, if a club were to fail to follow the FFP regulations and a few examples are warnings, reprimand, deduction of points and withholding of revenues from a UEFA competition. (Colasan, 2018)

Even though the rules for FFP only concern those teams who are playing in UEFA competitions, a lot of the UEFA countries have implemented their own national rules which are in line with the FFP. This leads to all clubs that compete in the top leagues of Europe are working under almost the same regulations. The definition of the Financial Fair Play as "fair" is a bit indistinct explanation for these regulations. It can be discussed if FFP is a concept of fairness at all or if it is just a concept of effectiveness. Regardless, UEFA has said that they want to make the financial game fairer all around, which would have made the football conditions more fair as well. (Colasan 2018)

1.2. Problem Definition and Problem Analysis

Financial Fair Play (FFP) was introduced to the world of football by Uefa in 2011. It was implemented to keep teams away from stacking up debts and losses year after year, to make sure teams do not spend more than they earn and to level out the playing field in football. If it actually has leveled out the playing field for everyone is the problematic question. Because a lot of people argue that it has maybe done the exact opposite, the rich have gotten richer and the gap between the big clubs and the rest has grown larger. FFP was implemented to keep the income and expense deficit at a minimum and to not let owners pump in funds when needed, but then they implement a new rule which allows 'related parties' to cover a deviation up to €30 million. Now you can, again count on a loss, up to €30 million and still manage FFPs requirements. This can really make you question the intention of implementing the regulations in the first place.

What actually happens with teams that do not follow the rules? Teams like PSG and Manchester City have been under investigation from UEFA but both cases were put down in the end, but no one knows why. In the Manchester City case, they were initially stripped from their Champions League spot due to their violation of the regulations. This spot was instead given to Everton, until the case was overturned and Man City recaptured the spot again. The problem with it was that the case was confidential and therefore Everton did not know what they were to appeal against, if they wanted to.

The fairness perspective in FFP can be widely questioned and criticized, and the cases regarding PSG and Manchester City have not helped UEFA's cause. Fairness is a difficult variable to study, but an important one in this context. FFPs mission to make the game fairer for all clubs should still be examined, regardless of its complexity. To really take into account the fairness in the different competitions, these extreme cases as of PSG and Manchester City, should be penalized with harsher consequences from a corporate finance law perspective and not only from a FFP point of view. (Colasan 2018)

1.3. Aim of the Study

The purpose of the paper is to empirically examine if the implementation of Financial Fair Play has had the intended impact on football clubs' profitability and if it successfully has promoted sustainable finance in football. Besides this, this paper also seeks to find out if the top tiers of football are fairer now than before and if the regulations might have had a systematic positive influence on sport achievements. A worldwide attention of the football industry motivates this paper as well as the fact that financial performances of clubs often are discussed in terms of their sporting accomplishments. The purpose will be fulfilled by examining the financial performances of teams from four major domestic leagues in Europe and also teams that have qualified for UEFA competitions during the years that FFP has operated. Based on information and results from previous studies, this paper intends to further deepen the knowledge within this topic and to complement existing research foremost with our contribution to competition fairness.

This study therefore aims to answer the following research questions:

- *What effect has FFP had on clubs' financial performance?*

- *Has FFP made the game more competitive and thereby the financial game fairer between clubs?*

1.4. Limitations

This study is limited to first and foremost the data available in the databases used. Not only because of some lack of availability within the databases, but also due to the lack of general public availability of financial reports within the footballing sector. The data generating process has been challenging as many of the main sources targeted from the beginning, have been found to be behind paywalls. Due to this, a solution has been to, in some cases, turn to the clubs' own financial reports where, however, we also encountered limitations when searching for certain values. Those limitations have been in the form of language barriers as well as missing reports for some years. Because of all this, the paper is limited to data from four top leagues in Europe and is also bound to several years between 2008-2019. The lack of data availability has in turn limited our main data retrieval to the databases S&P Capital IQ and Deloitte.

1.5. Thesis Structure

The study will henceforth be organized as follows. In the second section, the theoretical frameworks and implications that have laid foundation for the study are described, as well as previous research within the subject. Several literature studies are analyzed and previous results regarding our purpose are addressed. In the third section, the data generation process is described and the descriptive statistics of the relevant variables can be found. In the fourth section, our method and the actual conduct of the study is addressed, and this section is also where our equations, variables and regression models are presented. The fifth section states the empirical results of the study, as the results are based on previous sections. Section five presents a discussion of the empirical results as well, while the sixth and last section concludes and summarizes the research performed within this paper.

2. Theoretical Framework and Result of Literature Studies

The second section discusses the theories that this research paper and approach are built upon. Results of previously conducted studies closely related to the research topic are also brought up within this chapter. Lastly, the section ends with a description of what this paper seeks to contribute with, related to previous studies.

2.1. Theoretical Framework

Information Asymmetry

Information asymmetry is when one party in some kind of negotiation or transaction possesses a greater knowledge of the opposing party. Thus causing an imbalance between the parties and giving a competitive edge to one of the parties. Information asymmetry is relevant to most types of negotiations and is significant to something called “game theory”, and the related “contact theory”, which is the study of how two parties come to terms of agreement although unknown factors and unequal knowledge. Most commonly, a seller has more knowledge of a good or service that he offers than the potential buyer. In the world of football there are a lot of cases where information asymmetry has a role to play. For example when players are being sold, the team who buys the player may not know if he or she has any underlying injuries which may cause concern. To reduce this risk, all teams at the higher levels conduct medical tests for players before they sign them, to see if everything is in order. This does not balance out the information asymmetry between the clubs, but it helps to protect the buying club more. (Hayes 2022)

Adverse Selection

The previous discussion of how information asymmetry is related to the football world, takes us into our next theory, adverse selection. Adverse selection is when information asymmetry can be exploited and thereby be used to maximize outcome. For example when sellers have information that the buyer does not have, or vice versa, and can therefore charge a higher price than if the information were to be symmetric. Linking back to the previous arguments about players underlying injuries and how these might affect a club. By exploiting the

information asymmetry one club might have about a player, the transfer sum will be a lot higher than it should be. (Wigamore 2022)

Moral Hazard

Moral hazard in this case should be perceived as the incentive to take unusual risks as a party, when desperately attempting to earn a profit outside of a contract. This could be due to providing misleading information or when a party has not entered into a contract in good faith. A moral hazard occurs when one party in a contract transaction has the opportunity to assume risks that negatively would affect the other party (Corporate Finance, 2017).
This could be considered relevant in the world of football and within the FFP framework as the presence of rich owners can lead boards and managers to demonstrate a certain negligence and lack of consideration for how serious some economic situations really are. Some clubs are owned by people that are not interested in the footballing performance and this often leads to clubs losing touch with reality and over-investments in players' talent may become very common.

2.2. Related literature studies

Within this topic, several authors have studied the relationship between some sort of financial performance and sports performance. Unlike what most of these papers have contributed with, our focus is to investigate the competitive fairness throughout European football leagues, as well as the more general research department: financial performance (profitability). Our related literature is nowhere near exhaustive, but they still differ a bit from each other regarding if there is a positive or negative relationship between the two performances.

P. Garcia-del-Barrio & P. Agnese (2021) has examined the behavior of four major domestic football leagues through the lens of some OLS productivity equations. It measures the top European football clubs' compliance with FFP and the effect of financial stability on sports achievements. The compliance with FFP is recognized as the financial responsibility of the football clubs and analyzes if it has a systematic positive influence on sports performance. It also examines if financial responsibility affects clubs chances to qualify for UEFA competitions. The reporting data in this paper has been collected through the seasons of

2009/2010-2015/2016 which is very relevant as the FFP was introduced in the 2011/2012 season. The article focuses on a wage-to-revenue ratio (WRR) and concludes that a smaller WRR contributes to better sporting achievements. In general, this paper finds that the introduction of the break-even requirements foster greater financial responsibility, lower risk of financial failure and in turn also better sporting performance.

L. Di Simone & D. Zanardi (2020) questions whether financial performances affect sport performances or not. The paper performs an empirical analysis of the association between sport and financial performances at the corporate level. The study was initially for a panel of 59 European football companies, listed or not, but the number decreased because of low availability of these clubs' accounting data, which is recognizable in our case as well. The data in this paper was collected between the years 2013-2018 which once again indicates that it is relevant data. The analysis is great as they use Random Effects GLS (RE) and Fixed Effects OLS (FE) estimations. The main finding concerns an empirical evidence for the association between the sport and financial performance for the European football companies. More precisely, they show that there is a stable and significant relationship between the two types of performances and that when this is detected, it is linked in a positive way to the profit maximization business model, suggesting that the latter are more useful for investor remuneration and to increase technical and tactical resources, and therefore sports results.

Garcia-del-Barrio and Rossi (2020) examines if the FFP regulations have had any impact on the football clubs' priorities concerning their sport and financial outcomes. They investigate if sporting achievements depend on investment in players' talent, the club's wage bill, the club's revenues and also some other variables. The analysis is conducted over four major European leagues and seven seasons (2009/2010 to 2015/2016), thereby a data set of 560 observations as it is 20 teams per league and season. The study estimates "Revenue equations" and "Productivity equations" and the analysis is made for the pooled OLS model as well as OLS FE and GLS RE models. As Garcia del Barrio & Agnese (2021) found, this paper also corroborates a strong positive relationship between spending on players' talent and sport performance as well as between sporting success and annual revenues. It also wants to conclude that the FFP rules have declined the level of competitive balance across the European football leagues which is worrying.

S. Colosan (2018) and his study is based on relevant academic resources, books, newspaper articles, UEFA documents, media reports and mainly three interviews. The study gives us an overview of the background of how the world of football looked like before FFP were introduced to the game, how clubs were financed and how their financial status were etc. Then he gives us a brief explanation of the FFP regulation, its overall objectives and the most important break-even rule. The study later goes on to provide an analysis of the positive effects of the FFP regulations and how it prevents new injections from wealthy investors to intervene with the top elite clubs, and also how FFP has helped to decrease debt and percentage of revenues spent on wages. The study also confirms that club revenue has tripled since FFP was introduced. He emphasizes that although the positive effects of FFP on club finances is evident, focusing too much on these impacts may distract from other matters such as the general lack of transparency during the implementation of rules, like the case involving Manchester City. Another UEFA policy which he mentions, that could be adopted to FFP's objectives, is the "financial fairness" objective, which is said to be widely ignored by UEFA.

V. Milliens (2013) study deals with the matter of competitive balance in the European football leagues. The analysis is to study whether or not the FFP regulations will have a real impact on the competitive balance within and between leagues, in terms of fairness of the competition means. It considers both the consequences in the short-term and in the medium-term. This paper shows that FFP has had an impact and that clubs that implement FFP will compete with similar and fairer means. This finding is somewhat contradictory to what was found in the study of Garcia del Barrio & Agnese (2021) which is an interesting aspect to look at.

Results from Previous Studies

Di Simone and Zanardi (2020) studies the relationship between sport- and financial performances and suggests that greater financial performance influences the sports results. This relationship will in turn encourage football companies to follow the profit maximization model to improve the sport performance. They want to conclude that well-constructed priorities of sustainability pillars is one of the most important steps in building an effective policy for clubs, both regarding sport- and financial performance. However, in the future, they point out that UEFA should in some way reconstruct the FFP regulation and take concrete actions to reward behaviour. These rewardings should especially be constructed for

smaller clubs in individual national competitions to really have an impact on sport and financial results in a fair way.

Garcia del Barrio and Rossi (2020) find that the FFP rules enacted by UEFA have had a significant impact on the wage-to-revenue ratio, as it has dropped in percentage due to the framework. This is something that our study also concludes and it tells that clubs' wage bills have been lowered due to new limitations relative to their total revenues. The paper also corroborates that there is a positive relationship between teams' sporting performance and their proxy of financial performance, annual revenues. The same author (Del Barrio) has together with P. Agnese analyzed the competitive balance across leagues as well as investigated the relationship between a wage-to-revenue ratio and sporting performance. (Del Barrio and Agnese, 2021). Summing up their findings, one can conclude that they find that greater financial responsibility (complying with FFP regulations) leads to better sports performance.

Previous Results Regarding Competition Fairness

Del Barrio and Rossi's (2020) research also focuses on some sort of fairness as it, through a simple theoretical framework, investigates if the FFP rules have had a negative or positive impact on the competitive balance (competitiveness) across clubs. Their final remark on this is that the competitive balance instead has declined, rather than increased, which is in line with our hypothesis. Millien (2013) shows that the FFP implementation has had an impact on the clubs, and leagues competitiveness as it suggests that the competitions now will take place with more similar and fairer means. This opposes the thoughts of Del Barrio and Rossi which is interesting and opens a discussion. However, this study is from 2013 and only takes into account the first "test-version" of FFP rather than over our much longer time-span, which with most certainty may have affected the outcome of the study.
Del Barrio and Agnese (2021) also finds consistent results that says that financial stability and managing the break-even requirements helps the teams to perform on the playing field as well as it contributes to an increasing competitive balance.

Our Contribution to Theory and Previous Studies

Related to theories and previous studies, this paper will investigate the relationship between WRR, total annual wages, together with controls, and profitability, as well as competition fairness respectively. Previous studies have found somewhat different, as well as vague results regarding the competition fairness and they have used proxies that we have chosen to differentiate from a bit. With that in mind, it is interesting to investigate this relationship, as it roughly has been explored in a concrete way. Our contribution will be in the form of a concentration ratio which is conducted to measure how much the top spots in national football leagues shift between years, as a measurement of the leagues competitive fairness. Our paper also seeks to investigate the effect on financial performance, measured by the profitability proxy net income, instead of a pure revenue proxy that has been used frequently in previous studies. These differentials would contribute to the analysis of what impact the FFP regulation really have had on football finances, as well as on the competitive fairness which is quite hard to determine within this topic.

2.3. Hypotheses/Expected Results of the Study

We argue that the FFP framework has had a positive impact on the major clubs financial performances as FFP is intended to do, we also suggest that FFP has not made the domestic leagues or UEFA competitions more competitive. The smaller teams have more likely grown further away from the best teams when it comes to sporting performances. This brings us to our second hypothesis which implements that the FFP has not made the financial game fairer either. We argue that this has to do with the growing gap in sporting results, as the already established teams still will make and spend more money due to different reasons, e.g. income from competitions, sales, transfers but maybe even by going around the rules (FFP). Our hypotheses are the following:

H1: *Generally speaking, for the clubs who have been following FFP, the framework has had a positive impact on the clubs financial performance compared to before the implementation of the legislation.*

H2: *The implementation of Financial Fair Play has not had the intended impact on the competitiveness in the top leagues.*

3. Data

This section contains an explanation of how the data used in this study was collected and processed, and in addition, a review of the sources where the data mainly were gathered from. A description of the sample as well as the reasons for removing, or not removing, particular observations is presented as well. Finally, descriptive statistics of the main variables are introduced to get an overview of certain values.

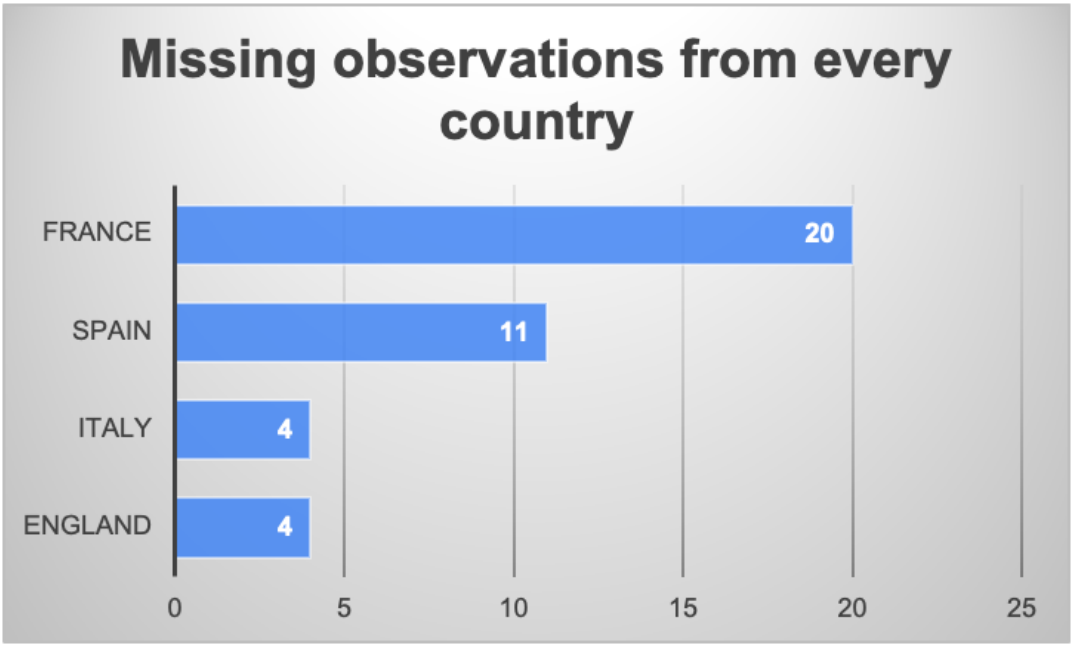
3.1. Data Collection

For the majority of the clubs, data on the financial variables, e.g. net income (Inc) and annual wages (W), were obtained from S&P Capital IQ or from other databases or annual reports such as: Deloitte (Football Money League, FML; and Annual Report of Football Finance, ARFF), UEFAs benchmarking reports and Capology. In some necessary cases, searching for certain missing values, we collected the information directly from the clubs' official financial statements. In our initial research, 48 European football companies have been investigated over our time span that's been set between 2008-2019. Because of certain circumstances, the number of observations in our regressions have been lowered because of the low availability of accounting data for some clubs. Thus, in some years, some of our collected clubs have not published part- or all of public accounting information and the consequence is that in the estimation process such observations (or clubs) are excluded. However, all our tables will show that the results of our analysis report the number of companies/observations involved in the estimate, which ranges from a minimum of 87 to a maximum of 180.

As mentioned, certain data observations have been excluded due to unavailability or lack of relevance for our project. Down below, in figure 1, one can find a bar chart that clarifies how many and from which countries several observations have been found missing. In figure 1 the charts are divided into the four different leagues. This does not have an effect on our regression due to the fact that the regressions are made on a sum of all teams in our data set, and not divided into the different leagues. The chart's appearance is only to get an understanding of where and how many the missing values are. Talking about relevant clubs, some clubs have been relegated to second tier leagues with too high frequency to be exposed against the FFP like regulations within their respective national leagues. This makes outliers

in our data set more than relevant, as every single team chosen has values that help the study and its outcome. The outliers are values represented by the largest and richest clubs on one end, and smaller, less experienced clubs on the other end. These large differences are those which FFP is intended to reduce between clubs, with a target to make the football game more fair. Therefore non-winsorized variables are used rather than winsorized, because of that the outliers bring so much to the case of measuring league fairness.

Figure 1. Distribution of Missing Observations Based on Country



3.2. S&P Capital IQ

The collected data which laid the foundation for our sample was mainly picked from S&P Capital IQ and their database for research. The sample was collected for several years during 2008-2019 and is limited to relevant and available numbers for teams in four of the top leagues within European football. Capital IQ is a fundamental research database which investigates company performance data, financial news and other sector-specific data and can be used for both quantitative and qualitative data-collecting. The database delivers unrivaled insights and is a leading data provider when searching for market data (S&P Capital IQ, 2022).

3.3. Deloitte

Data for some clubs have been found non-approachable leading us to other sources and among them, Deloitte have been used frequently. For every football season, Deloitte conducts and profiles the financial performances of the best and highest revenue generating clubs in world football in two large publications: Football Money League and Annual Report of Football Finance. The reports present the most comprehensive reviews of the business and finances of English professional football relative to the regulatory environment and European football in general (Deloitte, 2022).

3.4. Descriptive Statistics

Table 1-3 that is presented below, displays summarizing statistics of the gathered data. Table 1 presents statistics of all variables used in the chosen modeling. Thereafter, Table 2 and Table 3 follows with descriptive statistics for the chosen dependent variables presented over all seasons investigated. The relevant variables will be compared to previous literature to see the differences and similarities between the data sets. When comparing the WRR, revenue and wages to the data used in the research by Garcia del Barrio and Agnese (2021) and Garcia del Barrio and Rossi (2020), it is apparent that the data are quite similar. The noteworthy differences is mainly due to the case of time periods as our period extends all the way to season 2018/2019, but Garcia del Barrio and Agnese (2021), and Garcia del Barrio and Rossi (2020) numbers are gathered over season 2015/2016. The means for revenue and wages for our sample are 95,80206522 € million and 61,34713565 € million respectively, and when comparing our sample to their mean, we find that their means (108,5088 and 108,50, and 67,4891 and 67,48 respectively) are somewhat above ours. The difference could be a result of the non-matching time periods, as you can imagine that the clubs have generated higher revenues, as well as have paid higher wages as the seasons have developed and proceeded. When looking at the WRR, similar values are obviously found as well. Comparing this data sets' mean, standard deviation and maximum value to Garcia del Barrio and Agnese (2021), and Garcia del Barrio and Rossi (2020) values, one finds the following values: 66,2422 %, 17,8667% and 223,4163%, and 66,24%, 17,86% and 223,41%, respectively. An exception of "matching" values is the minimum value which is 32,76% compared to our 9,362279512 %. That difference may as well be due to the different time-periods, but may also be due to different teams investigated.

Table 1. Descriptive Statistics of the Main Variables.

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min.*	*Max*
Revenue	282	170.4056	173.6377	4.9	899.9
Wages	276	95.8021	96.5266	3.4	541.92
Wages/ Total Revenue (%)	276	61.3471	22.8249	9.3623	218.3573
Net Income	282	-4.2748	36.4559	-155.9	127.7
Concentration ratio	60	28.03	0.1322	0.0000	50
Size (Log)	277	2.1873	0.5490	0.2304	3.2770

Sources: S&P Capital IQ, Deloitte ARFF, Deloitte DFML and authors' own collection from clubs' reports.

Data of the dependent variable net income has been retrieved and the summarizing statistics could be found in Table 2 below. A noticeable thing from the collected data was the recurring negative values which can be depicted in the mean column, as there are 4/7 seasons that present negative values. The minimum values are not only negative, but also quite large which is bothersome. This is somewhat suitable for this study as it investigates certain variables and their effect on net income, at the same time as Hypothesis 1 supposes that FFP has had a positive impact on net income.

Table 2. Descriptive Statistics of Net income (Inc) by season

Season	*Obs*	*Mean*	*Std. Dev.*	*Min.*	*Max*
08/09	47	-8.8574	31.5851	-154.4	41.6
09/10	48	-14.3292	34.9216	-144.4	109.2
13/14	48	2.15	28.4413	-99.1	81.5
14/15	48	-0.7479	31.6641	-93.5	82.8
17/18	45	6.0667	42.5322	-135.6	127.7
18/19	46	-9.6022	44.9641	-155.9	76.6

Sources: S&P Capital IQ and authors' own collection from clubs' reports.

The table below presents summarizing statistics of the dependent variable concentration ratio that should proxy league competitiveness. As already concluded, a league is considered fair when at least 30% (2/6) of the top six teams in a European football league change between seasons. To picture this in regard to our second hypothesis, one can see that the top leagues in Europe are on average only considered fair between two seasons, and that's between 2008/09–2009/10. More interesting to look at could be the mode, which tells the value that is occurring the most within the data set. As presented below, it is mostly just a 16,66% change between seasons in the top six rankings in the European leagues during the investigated years. Within the mode column, one also can find a "non-value" which is due to the fact that between the 2017/18- and the 2018/19 season, the shift in the top six positions were different for every single investigated league, resulting in no mode value presented.

Table 3. Descriptive Statistics of Concentration ratio (CR) by season

Season	***Obs***	***Mean***	***Std. Dev.***	***Mode***	***Min.***	***Max***
07/08-08/09	4	21%	0.2907	16.66%	0%	50%
08/09-09/10	4	37.5%	0.0834	33.33%	33.33%	50%
12/13-13/14	4	29.16%	0.1596	16.66%	16.66%	50%
13/14-14/15	4	20.83%	0.0834	16.66%	16.66%	33.33%
16/17-17/18	4	17%	0.1360	16.66%	0%	33.33%
17/18-18/19	4	25%	0.2152	-*	0%	50%

* All values are different in the observed season.

Sources: Flashscore

3.5. Correlation Analysis

A correlation analysis is made to investigate and maybe reveal meaningful relationships between certain variables. The tables 4 and 5 below illustrate correlation matrices that have been made both before, and after the implementation of Financial Fair Play to further contribute to our research. A dummy is constructed to entail the different clubs' compliances with FFP, and to refer to this studies' hypotheses, compliance with FFP (dummy=1) should have a positive correlation with net income, but a negative relationship with the concentration ratio (CR). Looking at the correlation output for both before and after, this seems to be true regarding net income, but the other way around regarding the concentration ratio, as it concludes a positive correlation between the dummy and the concentration ratio as well. This is interesting and something this study would like to examine to some extent. The wage-to-revenue ratio correlates negatively with both of the responsive variables before the implementation, though only the correlation with net income is statistically significant. After the implementation, Table 5 shows a weak positive correlation between the WRR and the CR instead. A negative correlation between the WRR and net income is self-explanatory in the short run as this concludes more expenses for a club relative to their revenue. Though, in the long run this should be seen the other way around, as more wages corresponds to more investment in football talent, which in the long term should generate better sporting and financial achievements (net income). The weak correlation that is shown in Table 5 between WRR and CR should be seen as relevant, as it is significant at a 10% significance level. This is explainable as higher wages relative to total revenue in general, implies greater investments in talent within the European football environment. Concluding this relationship, you could say that generally over the European leagues, more wages on footballing talent for every club, should increase the competitiveness and make the leagues more fair. The relationship between net income and CR has gone from a positive- to a negative relationship which can be seen as more appropriate, but the relationship is not statistically significant.

Table 4. Correlation Matrix Before the Implementation of FFP

	Inc	*Wages*	*WRR*	*CR*	*Dummy*	*Size*
Inc	1.000					
Wages	-0.4644***	1.000				
WRR	-0.2911***	0.0072	1.000			
CR	0.0269	-0.1022	-0.1722	1.000		
Dummy	0.4268***	-0.0731	-0.5241***	0.2245**	1.000	
Size	-0.2792***	0.7127***	-0.0823	-0.1899*	-0.0254	1.000

Statistical significance: * p < 0.1; ** p < 0.05; *** p < 0.01

Table 5. Correlation Matrix After the Implementation of FFP

	Inc	*Wages*	*WRR*	*CR*	*Dummy*	*Size*
Inc	1.000					
Wages	0.1616**	1.000				
WRR	-0.2417***	-0.0327	1.000			
CR	-0.0168	-0.2137***	0.1401*	1.000		
Dummy	0.3562***	0.1832**	-0.4211***	0.1419*	1.000	
Size	0.0945	0.7964***	-0.1994***	-0.2336***	0.2457***	1.000

Statistical significance: * p < 0.1; ** p < 0.05; *** p < 0.01

4. Method and Method Selection

The methodology section states a further description of the data set together with a review of the relevance of our chosen variables. The models used in the regressions are presented as well as an explanation on why this certain method fits our purpose.

4.1. Ordinary Least Squares (OLS)

Ordinary least squares regression is a statistical method that estimates the relationship between one or more independent quantitative variables and a dependent variable. The estimation of the relationship is found by minimizing the sum of the squares in the difference between the observed and predicted values of the dependent variable configured as a straight line. The goal is to lower the error of the regression model as that improves its explanatory power and OLS determines the one with the smallest error (Corporate Finance, 2017). Our data set will be uploaded and then the regression analysis will be run through the statistical software Stata. The regressions will be run through a Generalized Least Square (GLS) estimator and run with random effects as well.

The generalized least squares (GLS) regression estimator of the coefficients of a linear regression, is a generalization of the OLS estimator. It is utilized to deal with circumstances in which the OLS estimator is not BLUE (best linear unbiased estimator) since one of the assumptions of the Gauss-Markov theorem, in particular that of homoscedasticity and absence of serial correlation is violated. In that case, given that the other assumptions of the Gauss-Markov theorem are fulfilled, the GLS assessor is BLUE (Taboga 2021).

4.2. Methodology & Approach

The empirical analysis we want to develop is based on data of teams playing in the first division of the four main European football leagues which will eventuate our dataset. The relevant information and data for this paper has been collected from the time period 2007/08 till 2018/19. The reasoning behind this is because the implementation of Financial Fair Play was in 2011/12. To be able to see the true effect of the execution of FFP, there needs to be thorough analysis of the financial health in football, both before and after this period. To be

able to investigate the impact of FFP on the clubs profitability and sporting performance, this work will use observation data. Because of that we will focus on data for different variables over a time span that corresponds to before, during, and after the implementation of the framework, our observations will be in the form of panel data. The main advantage of using panel data is the correction for heterogeneity, as well as the exploitation of information, which gives a better and more efficient analysis (Kennedy, 2009).

To add explanatory power to the model, a few remarks on the estimation methodology need to be made. In a panel data analysis as ours, heterogeneity bias usually implies the inclusion of random effects (RE). To account for this potential influence of heterogeneity, and as a robustness check, we estimate a random effects (RE) model (Kennedy, 2009).

The choice of variables and proxies will be of the utmost importance in order to obtain the most interesting and relevant conclusions from the problems that are being investigated. To capture the financial stability and responsibility throughout the European clubs operations, we examine this with a number of OLS regressions that will be simulated with the productivity equations:

$$Inc_t = f(W_t, WRR_t, CR_t, Z) \qquad (1)$$

and

$$CR_t = f(W_t, WRR_t, Inc_t, Z) \qquad (2)$$

where: Inc_t = net income (financial performance) - period t (millions of €)
W_t = total annual wages - period t (millions of €)
WRR_t = wage-to-revenue ratio - period t
CR_t = concentration ratio - period t
Z = a variable of other controls

These equations describe how the clubs' annual wage bill, WRR, concentration ratio (net income), and other control variables, affects the football clubs' profitability (financial fairness).

To answer the first research question we will consider financial performance (profitability) as the dependent variable proxied with net income (Inc). The second research question might be hard to answer but we have tried to define "fairness" as great as we can. We have come forward with a proxy called concentration ratio that in our context, in some way measures how competitive the championships has become with FFP in mind. The dependent variable will measure the degree of competitiveness in a championship, and we think it can work well and indeed contribute to existing literature. We have chosen relevant seasons between 07/08 and 18/19 to get a broader picture of the fairness in the top leagues. Because between just two seasons there can be a coincidentally large change in a given top six, but when we look over a longer period we will hopefully find patterns in the top of the leagues.

4.3. Variables

The main variables that we want to include in our regressions are net income (Inc), total annual wages (W), a concentration ratio (CR) and in turn a wage-to-revenue-ratio (WRR). These will conclude and measure how well the fulfillment of the clubs' financial health will indicate financial and sporting performance. We will also need control variables (Z) to reach a fair result. Our control variables would be a size proxy to claim how large the clubs are relative to each other, proxied by the logarithm of the clubs' assets value, and then a dummy variable which will control for how well or how poor the clubs' relation is to the FFP framework. For our purpose, we will run a number of OLS regressions in line with our productivity equations (1) and (2).

Variables of Interest and the Dependent Variables

This paper will investigate the effects on net income, which is used as a proxy for profitability, as well as on our concentration ratio, which is measured as a proxy for competitive fairness. The investigation will look at the relationship between those dependent variables and our chosen explanatory variables. Throughout previous studies conducted, there is mainly focus on the effects on total annual revenues, as a measurement of financial

performance, or points scored in the respective league, as a measurement of sporting performance. As this paper focuses on profitability, net income is used since it is a better measure of the clubs' profitability compared with total revenue. To measure the competitive fairness in the European football leagues we have constructed a concentration ratio as a proxy. To investigate the fairness of the European leagues, the ratio will indicate how well the UEFA spots are concentrated, or how often the positions in the top of the leagues shift. To measure this as fair, we will think of a limit of 30%, which will tell us that if at least 2 out of the top-6 (33.3%) teams are replaced, the league is considered fair in this context. This variable is what our paper foremost seeks to contribute with to existing research, as it never has been implemented in this way. Its function is to really determine how well the FFP regulations have fulfilled its fundamental intentions.

Other Explanatory Variables

The explanatory variables that are considered relevant for this paper are first and foremost the total annual wages (W) and also the wage-to-revenue ratio (WRR). The total annual wages will explore the relationship between spending on football players' talent (the clubs' wages), and financial fairness and clubs' profitability, respectively. In this case, we interpret higher wages as larger investments in sport talent, as the wage bill will capture the amount of talent in each club. This is then supposed to translate into better sporting achievements and, eventually, result in a positive impact on the teams' economic performances. In turn the WRR variable will describe the clubs' behavior concerning their expenses, which will capture the cost structure within the clubs. When looking at the WRR, the teams' financial responsibilities will be assessed, as higher WRRs arguably would make the financial situations of football clubs more unmanageable, and vice versa.

Control Variables and an Industry Specific Variable

Our control variables will be a size proxy capturing how large the clubs are relative to each other and then finally we employ a dummy variable to take into account the effect of the FFP regulation. The size proxy will be defined as the natural logarithm of the clubs' total assets and will control for club size. The dummy will tell how well the clubs are doing financially relative to the framework. This dummy (which we will name FFP) will take the value 1 if these three conditions are met, and 0 otherwise: 1) financial leverage (debt against assets) less

than 0,7; 2) ratio between wages and revenue less than 0,7; 3) equity value greater than 0. If the FFP dummy takes the value 1, we define the club compliant to FFP regulation with a somewhat healthy financial structure, and vice versa if the dummy takes the value 0. The financial leverage constraint will capture the clubs' respective relationship to financial distress, and the ratio between wages and revenue will investigate the respective clubs' commitments to fulfilling the break-even requirements of the FFP. The financial leverage may also suggest how much debt that could be counterproductive for sport- and financial performances, or in other words how the risk of bankruptcy is non-negligible and a frequent threat in the football industry. To have an equity value greater than zero will in this case also conclude that a club's financial situation is somewhat healthy, and that the club is not facing any incurring losses from previous periods. This type of dummy variable may help us reach relevant and interesting results and may contribute to our work.

4.4. The Regression Models

We evaluate the relationship between the profitability of European football clubs and the clubs' respective wage, cost structure, league competitiveness and other controls. Then we will also assess the relationship between the league competitiveness and the clubs' respective wage, cost structure, profit and other controls. The following two equations, equations (3) and (4), below are the ones run through an OLS-estimator, but to account for the phenomena of heteroscedasticity, we will use robust standard errors. This is because heteroscedasticity may cause an increase in the variance of the regression coefficient estimates, and using a simple regression model may not pick up on this. Not using robust standard errors may also make it more likely for a regression model to declare that a coefficient in the model is statistically significant, when in fact it is not. One way to account for those problems is to use robust standard errors. Therefore, both regressions are being run as Random Effects GLS (RE-GLS) estimations, and both with robust standard errors to provide more accurate measures of the true standard errors of the regression coefficients. The notation ε corresponds to the error term.

$$Inc_t = \beta_0 + \beta_1 Wages_t + \beta_2 WRR_t + \beta_3 CR_t + \beta_4 Dummy_t + \beta_5 Size_t + \varepsilon \qquad (3)$$

$$CR_t = \beta_0 + \beta_1 Inc_t + \beta_2 Wages_t + \beta_3 WRR_t + \beta_4 Dummy_t + \beta_5 Size_t + \varepsilon \qquad (4)$$

5. Empirical Results

This section describes the empirical results from the regressions presented above and with this, the significance of the tests is featured as well. The explanatory variables are presented in relation to their respective p-values as well as their impact on the dependent variables. For every regression output there are comments and discussion about the output and lastly, a general discussion of the empirical results is provided as well.

5.1 Results from the Regressions

In this section there will be a review of the four different panel regressions for the different time periods, before and after the FFP regulation was implemented in 2010. There will be two regressions with data from the 08/09- and 09/10 season, and two regressions with data from the 13/14, 14/15, 17/18 and 18/19 season. The first pair of regressions will be with net income (Inc) as the dependent variable. The main focus when looking at net income as the dependent variable is how the daily activities affect football clubs income statements. The other two regressions will be with the concentration ratio as the dependent variable. This is the variable that will distinguish this study the most from the others made around this subject. As other authors have not taken the fairness aspect into account, when conducting their studies on UEFAs financial fair play.

Table 6: Regression one and two, Before and After the Implementation of FFP

Dependent variable: Inc

Before			**After**	
Variable	***Coefficient***	***S.E***	***Coefficient***	***S.E***
Wages	-0.258853***	0.0848663	0.0705411	0.0485258
WRR	-0.2029744*	0.1166077	-0.4971524**	0.2194271
CR	0.8074117	11.56986	14.40204	14.94329
Dummy	17.07189***	5.872507	11.81682*	6.865137
Size	-2.001088	5.991842	-11.23043	12.17744
Constant	8.756257	15.78122	35.84203	28.82188

Statistical significance: * p < 0.1; ** p < 0.05; *** p < 0.01

Before: Number of obs: 87, Number of groups: 45, Wald χ^2: 44.85, P-value: 0.000, R-squared: Within: 0.1485, Between: 0.4582, Overall: 0.4096

After: Number of obs: 180, Number of groups: 47, Wald χ^2: 25.43, P-value: 0.0001, R-squared: Within: 0.0659, Between: 0.1885, Overall: 0.1403

Our results suggest that before the implementation of the FFP regulations wages and wage-to-revenue ratio (WRR) is significant at a 1% and a 10 % significance level, respectively. Wages negative impact (-0.258853) implies that if clubs invested their money on talent, it would not generate the club an income in the long run, it would instead be a cost for the club, beyond the wage bill. The wage to revenue ratio (WRR) is negative (-0.2029744) indicates that the more a club would spend on wages compared to its revenue, the worse would the net income get. Our dummy variable, which indicates if you follow the FFP regulations, has a big positive impact (17.07189) on the net income and it is significant at a 1 % significance level. While the regulations were not in effect during this regression, this would mean that those clubs that met these requirements anyway would benefit from it. The variable size and concentration ratio (CR) are both insignificant.

The result for Inc as the dependent variable after the regulations were implemented, tells us that the variables size and concentration ratio (CR) are still insignificant. WRR is still significant, but now at a 5% significance level, and it has more than doubled its negative effect from -0.2029744 to -0.4971996. Which implies that the more a club will spend on wages compared to its revenue, it will have double the negative effect on the net income than before the regulations were implemented. The dummy variable is still significant but now only at a 1% significance level, and it has lowered in size resulting in less positive impact on income (11.81682). It's still, after the implementation, beneficial for the clubs to follow the FFP regulations and yet have a positive effect on net income. The wages variable has gone from a negative impact to a positive one, and from a significance at a 1% significance level to being insignificant.

When looking at the most important regulation in FFP, the break-even rule, the variable for the wage-to-revenue ratio (WRR) is the variable that is used to see if a club can fulfill these requirements. Looking at the two different time periods, there is a drop in the overall mean in the wage-to-revenue ratio between the two periods, from 65,1% before, to 59,7% after the implementation of the regulations. The mean of the net income has also changed for the better, going from €-11.62 million to €-0.62 million.

The second part of the result is also conducted by a pair of regressions, with one before and one after the implementation, but this time with the concentration ratio as the dependent variable. The concentration ratio is, as mentioned, our contribution to this field of studies, and has what we can see, never been investigated in any form close to ours. These results will give a picture of how the different variables affect the competitiveness in the four leagues, and thereby how the financial fairness is affected.

Table 7: Regression three and four, Before and After the Implementation of FFP

Dependent variable: CR

Before			**After**	
Variable	***Coefficient***	***S.E***	***Coefficient***	***S.E***
Inc	-0.0004704	0.0004254	-0.0000251	0.0002801
Wages	0.0000987	0.0003955	0.00021	0.0002555
WRR	-0.0005	0.0005506	-0.0014015**	0.0006025
Dummy	0.080925**	0.0383981	0.0800281***	0.0250665
Size	-0.0585618**	0.0283781	-0.041667	0.0456456
Constant	0.3850782***	0.0708124	0.2129339**	0.0983251

Statistical significance: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Before: Number of obs: 87, Number of groups: 45, Wald χ^2: 25.23, P-value: 0.0001, R-squared: Within: 0.0379, Between: 0.4340, Overall: 0.0940

After: Number of obs: 180, Number of groups: 47, Wald χ^2: 22.44, P-value: 0.0004, R-squared: Within: 0.0257, Between: 0.2720, Overall: 0.1299

The results from the regression, before the implementation, suggests that the dummy variable is significant at a 5% significance level. Its positive impact (0.080925) means that even though there were no FFP requirements to achieve before the regulations were put into system, and if those numbers still were met by clubs, the league were to be more competitive and more fair for all clubs participating in it. While the other variables Inc, Wages and WRR are not affecting the fairness at a great scale, nor are they significant at any level. The size variable has a small negative effect (-0.0585618) on the ratio, and is also significant at a 5% level, which states that the greater a club's size, the bigger the difference in the league grows.

The result for CR as the dependent variable after the FFP regulations were implemented into the world of football, shows that the dummy variable is still significant, but now at a 1% level

(before 5%). It has almost exactly the same impact on the leagues fairness as before the implementation of the regulations. The wage to revenue ratio (WRR) has now grown bigger (0.0014015) than before (-0.0005) and it has also gone from being insignificant to being significant at a 5% significance level. The negative impact of WRR in this context indicates that the more clubs spend on wages compared to their revenue, the more unfair the leagues become. The size variable has gone from being significant to insignificant, between the two regressions.

Figure 2: The Concentration Ratio distributed over four different leagues between six season changes.

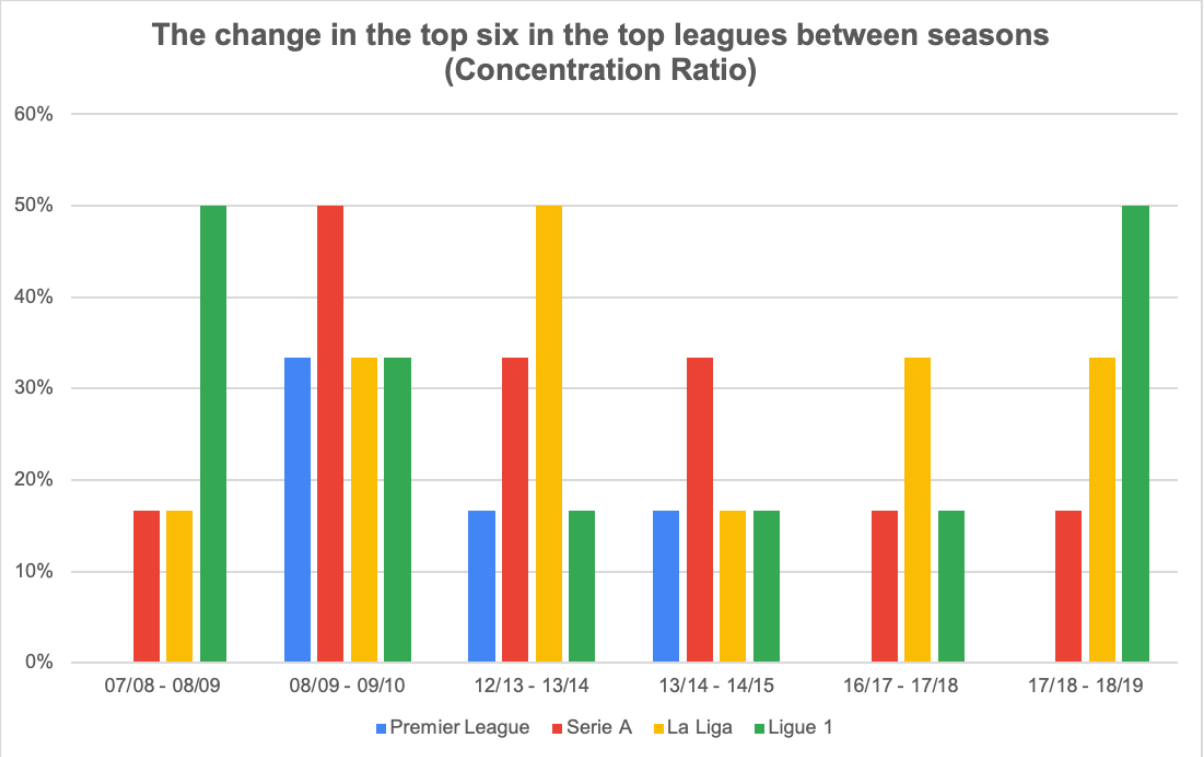


Figure 2 describes how the teams top six in the top leagues have come to change from one season to the next, during those seasons we have examined. The highest change from one season to another has been three teams (50%), and the lowest being zero teams (0%). This table is interesting because it gives another view of our way of seeing how fair a league is, instead of just using the outputs from the different regressions.

5.2. Discussion

The results regarding clubs financial development throughout the years before and after FFP was introduced to the world of football, are quite interesting. Before FFP, three of our chosen variables had a significant impact on clubs net income, wages, WRR and our dummy variable for the FFP requirements. After the implementation the wages variable was no longer significant, the wage to revenue ratio had more than doubled its negative impact and the dummy variable had gone down a few marks on its positive impact. The fact that wages no longer is significant for clubs net income is surprising due to the fact that wages is an expense put on talent that is supposed to be the main source of generating income from sporting results but also from sales of shirts, tickets etc. What you can see is that it has gone from having a negative impact on net income to having a positive impact, even though it's statistically insignificant. The wage-to-revenue ratio having a greater negative impact on net income can be connected with the break-even rule being implemented. Because UEFA and FFP want the clubs to break even and therefore have as low a wage to revenue ratio as possible. Therefore clubs get punished more severely for not reaching the requirements for the break-even rule. The ratio has also grown stronger purely statistically, which only strengthens the previous argument. Our dummy variable for the FFP requirements does not really match up with what you expect from the change in the variable. The impact went from 17.07 to 11.8 and the significance went from 1% significance level to a 10% one. This is strange because those requirements were not implemented when the first regression was made and they were still more significant than after. Those requirements, if they were to have their intended impact, should have grown larger in the impact and stayed the same in significance level. Because UEFAs intentions with these requirements are that if you were to follow them you will be rewarded with a better financial performance.

For our concentration ratio as the dependent variable, the regressions give us quite interesting results. Before FFP the dummy and the size variables were those who were significant against fairness (CR). Afterwards the size of the club did not matter any more but the FFP requirements were now significant at a 1% significance level (5% before), and adding to the significant variable we now also have the wage-to-revenue ratio. The fact that the actual size of teams competing in a league does not significantly affect the fairness, is a bit surprising. Because a big team with a lot of assets have an advantage over smaller teams when it comes to acquiring good players, building training facilities etc. That the dummy is significant at a

1% level after the implementation strengthens UEFAs goal of contributing to more fair leagues, as well as a more fair financial climate. The wage-to-revenue ratio has gone from being insignificant to being significant, which also supports FFP:s intentions. This is because the variable has a positive impact on a championships' fairness, if the team really has sufficiently low WRR and therefore meets the break-even rule. The fact that the wage-to-revenue ratio now is significant may be connected to the drop in the mean of the WRR from 65.1% before to 59.7% after FFP. More teams now fulfill the break-even requirement and therefore this is now a more relevant variable for our concentration ratio. Not only has the WRR mean changed for the better, the mean for the net income has increased with €11 million. Both of these were some of the goals to be achieved by implementing the FFP regulations.

An interesting finding from both of the regressions that was made after the implementation of FFP is that the dummy variable both has a positive impact and is significant for both of the dependent variables. Connect that with what was touched upon in the beginning, regarding corporate finance and how clubs like PSG and Manchester City never got punished for not following the regulations. If teams follow these regulations the finances will be better and the leagues will compete on fairer means, so why not punish those who do not follow the rules harder, and therefore push more teams to the right side of these requirements?

In the Manchester City and Everton case, there is a strong moral hazard problem where FFP make all their cases confidential, where Everton needs to know something about the case to not have to appeal "in the dark". Because a Champions league spot for a team like Everton is worth a lot, both sportingly and financially. In this case, UEFA favors the biggest team, which is the exact opposite to making the game of football fairer for everyone.

The analysis around whether FFP have had a positive effect on football clubs financial performances, have not given a crystal clear result. Before the implementation there were three significant variables where the dummy variable had a greater, positive impact on clubs net income than after and the wages variable had lost its significance. This contradicts our hypothesis about FFP having a positive impact on the financial performance. While the wage-to-revenue ratio, which states how good clubs are at following the break-even rule, has grown more significant and has now a larger negative impact, which implies that teams that cannot fulfill the break-even rule are financially punished harder than before. Then we have

the non-regression results where the decrease in mean value for the WRR and the increase in mean value for the net income after the implementation of FFP, instead strengthens our hypothesis.

Regarding the second hypothesis and our contribution to this field of study, the concentration ratio, where we want to examine if the FFP regulation has made the top leagues more fair. The results are a bit more straightforward but not as clear cut as you could have wished for. The dummy variable has the same impact on fairness as before but it has grown more significant, while at the same time, the WRR has gone from being insignificant to being significant at a 5% level. Both these statements strengthen our hypothesis. The fact that the size of a club has lost its significance contradicts our hypothesis in a way, because there are a lot of different sized clubs which should have an effect on the fairness of the top leagues. You could argue that FFPs goal is that the size of the club should not matter when it comes to how well it can perform, and if that is the case, this is a positive result. Looking at the table for our concentration ratio, there is quite a big turnover in teams in the different top sixes, between the earlier seasons, e.g. between 08/09-09/10 and 13/14-14/15. So, the longer FFP has been in effect the less changes of teams are made in the top of the leagues.

6. Conclusion

The purpose of this paper has been to examine if UEFAs implementation of FFP and the domestic leagues' similar regulations, has helped the clubs concerned to better finances and the overall game to become more competitive and fair. The results show that you can draw a connection between the implementation of FFP and better finances overall, in the top leagues of Europe. Like how the wage-to-revenue ratio is more significant now than before, and also how the ratio has gone down in its mean and how the mean for the net income has gone up. At the same time we have the dummy variable for the FFP regulations which is not as strong as it was before FFP.

The “fairness regressions” shows values that are a bit easier to draw a conclusion from, where both the dummy and the wage-to-revenue ratio has become more significant. Even though the size proxy has become insignificant after FFP, we do not see it as important as the other variables in this context. Then when we look at the table for our concentration ratio we see what our hypothesis says, that the top six of the leagues does not change as much as they did before FFP, which again makes it hard to draw a conclusion.

To summarize, our findings suggest that regarding the financial stage of football, we can not confirm that the FFP has helped the clubs in the top leagues to a better financial position, than they would have had without the regulations. Even though net income has improved in general, we cannot overlook this as a result of the overall financial world improving. While we cannot confirm the financial benefits from FFP, we can confirm that the regulation has had the intended impact on the sporting fairness in the top leagues. The signs that say the opposite are too vague to outperform the other results.

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