Aalto University
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Top 5 European football leagues – The association between financial performance and sporting success

Master's Thesis
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Abstract of master's thesis

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Objectives of the study

The research consists of two primary objectives. First one is to provide an extensive theory basis of European club football in the field of sports economics. The second objective is to further study the connection between financial performance and sporting success in European club football. The study especially seeks answers if financially successful clubs do well also in the field and vice versa. Motivational factor behind the study is UEFA's Financial Fair Play Regulations, and the study aims to reveal their impact on the connection between clubs' financial and sporting performance.

Data and methodology

The sample consists of 690 observations of 139 different clubs that have played in top-five leagues (English Premier League, German Bundesliga, French Ligue 1, Italian Serie A and Spanish La Liga) between years 2008 and 2016. Financial data consists of revenues and operating profit, and it's restricted through public availability. Sporting success is measured by domestic league positions. Various multivariate linear regression models are built to study the correlation between financial and sporting performance. In addition, correlation results are analysed through various sensitivity tests, such as comparisons pre- and post- UEFA Financial Fair Play Regulations.

Results

The study offers lots of significant results of which one of the most important is that domestic league winners generate on average $59.2 million greater revenues and $13.5 million greater operating profit than other clubs. In addition, reaching one position higher on the league table rewards the club with $1.3 million greater revenues on average. Positive correlation between league position and operating profit is found only in German Bundesliga, where reaching one position higher on the league table rewards club on average with $1.2 million greater operating profit. Interestingly negative correlation is found in Italian Serie A, where cost of reaching higher on the table is on average $0.6 million reduction in operating profit. Almost same negative connection ($0.5 million) is found for whole data set before UEFA Financial Fair Play Regulations were introduced, but after the introduction no statistically significant connection can be found. Hence, it could be argued that UEFA's regulations have already had a positive impact on operational profit of the most sportingly successful clubs in Europe.

Keywords sports economics, financial performance, sporting success, football, UEFA Financial Fair Play

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Tutkimuksen tavoite

Tutkimus koostuu kahdesta päätavoitteesta, joista ensimmäinen on tarjota kattava teoriapohja eurooppalaiseen seurajalkapalloon urheilutaloustieteen kentällä. Toinen tavoite on tutkia taloudellisen ja urheilullisen menestyksen yhteyttä eurooppalaisessa seurajalkapallossa. Tutkimus etsii erityisesti vastausta kysymykseen, mikäli taloudellisesti menestyneet seurat pärjäävät myös kentällä ja päinvastoin. Motivoivana tekijänä tutkimuksen taustalla toimii UEFA:n Financial Fair Play -säännöstö, ja tutkimus tähtää paljastamaan kuinka säännöstö on vaikuttanut yhteyteen seurojen taloudellisen ja urheilullisen menestyksen välillä.

Lähdeaineisto ja tutkimusmenetelmät

Aineisto koostuu 690 havainnosta, jotka on kerätty 139 eri seuralta, jotka ovat pelanneet top 5 sarjoissa (Englannin Valioliiga, Saksan Bundesliga, Ranskan Ligue 1, Italian Serie A ja Espanjan La Liga) vuosina 2008-2016. Taloudellinen aineisto koostuu myynnistä ja liiketuloksesta, ja sitä rajaa julkinen saatavuus. Urheilullista menestystä mitataan kotimaisilla sarjasijoituksilla. Yhteyttä taloudellisen ja urheilullisen menestyksen välillä tutkitaan erilaisilla monen muuttujan lineaarisilla regressiomalleilla. Lisäksi korrelaatiotuloksia analysoidaan erilaisin herkkyystestein, kuten vertaamalla tuloksia ennen ja jälkeen UEFA:n Financial Fair Play -säännöstön.

Tulokset

Yksi tärkeimmistä tutkimuksen tuloksista osoittaa, että kotimaisen sarjan voittajat raportoivat keskimäärin $59.2 miljoonaa suuremman liikevaihdon ja $13.5 miljoonaa paremman liiketuloksen kuin muut seurat. Lisäksi yltäminen yhtä sijaa korkeammalle sarjatauloukossa palkitsee seuran keskimäärin $1.3 miljoonan lisäyksellä liikevaihtoon. Positiivinen korrelaatio sarjasijoituksen ja liiketuloksen välillä löytyy vain Saksan Bundesligasta, missä yltäminen yhtä sijaa korkeammalle palkitsee seuran keskimäärin $1.2 miljoonaa paremmalla liiketuloksella. Negatiivinen korrelaatio löytyy Italian Serie A:sta, missä yltäminen yhden sijan korkeammalle maksaa seuralle keskimäärin $0.6 miljoonaa liiketuloksessa. Lähes sama negatiivinen yhteys ($0.5 miljoonaa) löytyi koko lähdeaineistolla ajanjaksolla ennen UEFA:n säännöstön esittelyä, mutta esittelyn jälkeen tilastollisesti merkittävää yhteyttä ei löytynyt. Täten voitaisiin väittää, että UEFA:n säännöstö on jo nyt vaikuttanut positiivisesti Euroopan urheilullisesti menestyneimpien seurojen liiketulokseen.

Avainsanat urheilutaloustiede, taloudellinen menestys, urheilullinen menestys, jalkapallo, UEFA Financial Fair Play

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1 Introduction

1.1 Background and motivation

Sports economics is a fascinating field of study that combines people's love for the sports with financial rationalizing. Too often these things are kept separately, and one can only hope that the future will be brighter for sports economics. Don't get me wrong. We've been able to enjoy reading numerous spectacular works in the field, such as Rottenberg (1956), Lewis (2003) or various studies conducted by Stefan Szymanski. Still the overall amount of research is quite low and in many fields the research is only taking its first steps. There are numerous different and financially important fields of study under sports economics that should be studied and updated frequently. Lately, financial importance of professional sports has grown enormously, which has even emphasized the importance of sports economics. Right now, it seems that it is the European club football that's leading the financial growth to new heights every single year.

Football is one of the most fascinating sports that people have invented. It touches people all over the world and it brings joy for people's lives, no matter what the living conditions or wellbeing might be. Football has grown to be part of people's daily lives. It has its place in the culture, religion and politics, but even more importantly it's the dream of young boys and girls who want to follow the same steps as Pelé or Maradona. They want to pursue their dreams and perhaps even make a living as a professional footballer someday. Hence, it's awfully sad to notice that a sport that has such a huge place in many people's heart, is suffering from financial difficulties, and that actions have had to be taken to restore the financial health of football. At the same time football is a) growing its financial importance by impressive revenue growth and b) worrying people by continuous losses that clubs keep on reporting. This development has even increased the importance that sports economics have over football, and recently football has been one of the most studied sports in the academic research of sports economics. One factor behind this development is greatly expressed in the report by Deloitte (2017b): "The ever-changing financial landscape of football over the past 20 years has been both extraordinary and fascinating in equal measure."

By only reading the news about transfer fees or players' wages, it shouldn't surprise that many European football clubs have struggled to make profit. Impressive revenue growth doesn't seem to affect the profitability of the clubs, as extra income is often used to hire better players. Associations and league organisations have had to react on this development to protect football's long-term financial viability. Union of European Football Associations (UEFA) introduced Financial Fair Play Regulations, which clubs have to follow if they want to avoid specific sanctions. Domestic league organisations have also started to regulate clubs' financials, at least to some extent. Main objective in most of the regulations is to make clubs operate on the basis of their own generated revenues and to prevent clubs from making continuous losses and covering them by their owner's money.

There are lots of interesting aspects to study football under the field of sports economics. In this study, I'll aim to provide a good theory basis on numerous interesting subjects of research that shape the financial framework of European club football. In empirical part of the study, I will especially concentrate on the fascinating connection between clubs' financial performance and sporting success. In my opinion, this is a field of study that has been too overlooked by the academic research of sports economics. Recent development of financial regulating has even increased the importance of this aspect, and now I'll use my own effort trying to add knowledge on this particular field of study.

The connection between clubs' financial performance and sporting success will be studied by building different multivariate linear regression models. Financial performance of the clubs will be measured by revenues and operating profit, whereas domestic league positions will be used to measure sporting success. The results obtained will be comprehensively analysed with the help of various sensitivity tests. Hopefully the study will add knowledge of the connection to prior research, and perhaps even reveal new results that could be further studied.

1.2 Objectives and research questions

The primary objectives of this study are to a) provide a comprehensive theory basis of European club football in the field of sports economics and b) find out if European football clubs' league positions are correlating with their revenues or operating profit. The study will also seek for differences in correlation results through set of sensitivity tests. Hence, the correlation results will be for instance compared between leagues and time periods. The most significant studies and their results will be discussed in theory part of the study. I'll try to give a good overall picture of the field, where professional football clubs are operating and the numerous fascinating factors that are affecting the everyday operations of the clubs.

The research type is quantitative, and financial data used in the study is gathered from Orbis –database, which is produced and held by Bureau van Dijk. The sporting data is obtained from the web archives of each league, and the data will be analysed using multivariate linear regression models. Hypotheses will be presented later in the study, but they are all based on theories and results from previous studies, which will be discussed in the theory part of this study. In addition, my own analytical thinking has been exploited in forming of the hypotheses.

The data of the empirical study will be limited to five largest leagues in European club football. These leagues are English Premier League, German Bundesliga, French Ligue 1, Italian Serie A and Spanish La Liga. These, so called "top-five" leagues, are dominating European football, and in most recent listing by Deloitte (2018), there are only two clubs outside of top-five leagues, that reach top-30 position when measuring club's size by revenue in season 2016/2017 (23rd FC Zenit Saint Petersburg and 30th Benfica). The data will be gathered from 10 consecutive years and seasons, from 2007 to 2016. The first year of the data will be used in formation of the models, but the core analysis is done for time period 2008-2016.

1.3 Research structure

The second chapter will provide a comprehensive theory basis for the study. I will focus on forming a good financial framework of football clubs' operations. The most significant studies and their results of the subject will be discussed. The chapter is divided to five main factors that are all shaping the everyday business of European football clubs. Each of the factor will be discussed especially reflecting their impact on the connection between clubs' financial performance and sporting success.

The empirical part of the study will begin on third chapter, where the hypotheses are presented. It will be followed by the presentation of the data and methodology in chapter four. The fifth chapter will present the empirical results that are received from the multivariate linear regression models and sensitivity tests. The results will be also discussed and compared in light of previous literature. Finally, the sixth chapter will conclude the research by presenting most significant conclusions and limitations of the study. New potential subjects of study will also be proposed.

2 Theoretical background

In this section, previous literature and studies of sports economics, especially ones about European club football, will be discussed. The theoretical framework is built around five main pillars that are characteristic for European club football. These pillars are 1) most common revenue sources, 2) most important expenditures, 3) transfer markets, 4) clubs' ownership and objectives, and finally 5) operational environment. Basics of the topics will be covered comprehensively, but even more importantly I'll try to emphasize the meaning and impact that each pillar might have to the empirical part of the study, which especially studies the association between financial performance and sporting success of European football clubs.

2.1 Three sources of revenue

In the season 2015/2016 European football markets generated impressive revenues of €24.6 billion. Top-five leagues accounted for 54% the market, thus €13.4 billion. Largest portion of the sales is generated in England, as English Premier League alone accounted for 20% of the markets in terms of revenues. German Bundesliga reaches the second position with 11% of the markets, and it's followed by Spanish La Liga with 10%, Italian Serie A with 8% and French Ligue 1 with 6%. (Deloitte, 2017a)

Professional football took its first steps in England during the industrial revolution, when people started to have enough money and leisure time to watch games at the stadiums (Gerrard, 1999). Money and time are still the limiting factors in terms of people watching football, but nowadays thanks to the liberalization of broadcasting market and technological development (Gerrard, 2000), people don't have to find their ways to the stadiums if they want to enjoy watching football. This development has raised concerns whether European football clubs can maintain their stadium attendance levels as number of live broadcasted matches is growing substantially (Kringstad, *et al*., 2018), and it has been suggested that in the future increased broadcast revenues could dominate decreased revenues from matchdays (Buraimo & Simmons, 2009). As number of broadcasted matches is growing, so is the revenue distributed to clubs from broadcast rights. In season

2015/2016 revenue from broadcast rights accounted for 49% of the revenues in top-five leagues. At the same time matchday sales accounted for 17%. (Deloitte, 2017a) Although importance of matchday sales is getting smaller especially for biggest leagues, stadium attendance is still of importance for the clubs, as it indicates also other things, such as interest that people have towards the club, which is actually often seen as a main revenue driver for any professional sport club (Neale, 1964). Stadium attendance is also found to be positively correlated with other revenue sources (Késenne, 2014). Third commonly classified revenue source besides matchday and broadcast right sales, is commercial revenue, which includes sponsorship deals and merchandise sales. In season 2015/2016, commercial revenue was the second largest income source for clubs in top-five leagues, as it accounted for 34% of the revenues (Deloitte, 2017a). Clubs' ability to generate revenues from the three sources is affected by few key factors, e.g. stadium ownership, qualifying for UEFA competitions and connecting with fan base.

There exist some differences between the top-five leagues in terms of grouping different revenue sources and what income is counted as revenue in the first place. Probably most used classification, which is for example used in popular Football Money League reports provided by Deloitte, includes all the revenue for previous mentioned three sources. There might be differences in the revenue classifications even inside the league, but the greatest differences between the leagues are either related with classifying of commercial revenue or treatment of player transfers. Classifying of commercial revenue isn't really that remarkable issue, as leagues only differ in terms of whether particular revenues, e.g. advertising, is grouped to commercial revenue or treated as an own revenue source. On the other hand, treatment of transfer fees is of importance for this study, as it might affect the comparability of the clubs in terms of revenue. Hence, player transfers as a whole will be discussed later in this study, and the issue will be brought up then. Let's now go through the three most commonly classified income sources in more detail, as they are in important position constituting the level of clubs' consumption.

2.1.1 Matchday revenue

Historically most important revenue source has been matchday sales, and it is still main income source for clubs participating in smaller leagues. Matchday sales consist of tickets and hospitality sales when the team is playing at their own stadium. In Europe's top-five leagues, German Bundesliga is only one with 18 teams, as all other leagues have 20 teams. In each of the top-five leagues, every team faces each other two times, once at home and once away. Hence, Bundesliga teams have 17 home games in domestic league compared to 19 home games for clubs in other leagues. Domestic league games are usually most important ones for generating matchday revenues, as these games are mostly played on weekends and stadiums are full of crowd. Several studies have found significant correlation between midweek games and lower number of spectators (e.g. Baimbridge, *et al*., 1996; García & Rodríguez, 2002; Forrest, *et al*., 2004; Buraimo & Simmons, 2009; Kringstad, *et al*., 2018). Still, there is only limited amount of home games that can be played on weekends in one season. Thus, midweek games are also in important role generating matchday income although attendance might be slightly lower.

Domestic cup games as well as European cup games are mostly played on midweek, but these games might be of importance for particular fans and attendance could be rather high. Local fans might for instance have a special connection or emotion towards traditional domestic cups through historic achievements of the club. At the same time European cup games are enjoying high interest from football fans all over the world. Qualifying for European competition's group stage means three more home games in the season, and if the team goes through from the group, every knockout stage means one more home game and important increase in matchday sales. In addition to domestic league games and cup games, teams often fill their calendars with friendlies and different testimonial matches, especially for the summer, when teams are preparing for next season. Often attendance in these games doesn't reach as high as it is in competitive matches, but still some extra revenue could be gathered trough ticket sales and hospitality offered at the stadium. Hence, one key factor in acquiring matchday revenue is simply number of home games played each season.

Other key factors, besides number of home games, are naturally ticket prices and attendance, which are highly dependent on each other. Lower ticket prices lead to greater attendance and higher prices result in playing in front of empty stadiums. Attendance can be further divided to stadium capacity and utilization rate. Usually clubs are aiming to set prices on the level, where stadium capacity would be maximised with utilization rate near to 100 percent. Previous literature has found several factors that are positively correlating with attendance, and few of the most important are games played on weekend, derby matches and home games against greatest and most popular clubs in the league (e.g. Baimbridge, *et al*., 1996; Buraimo & Simmons, 2009; Pawlowski & Anders, 2012; Kringstad, *et al*., 2018). For example, in English Premier League season 2016/2017 there were eight teams that reached their highest attendance of the season, when historically the most successful club of the league, Manchester United, was visiting them (Premier League, 2017a).

Spectators are direct source for matchday revenue through ticket sales (Andreff & Staudohar, 2002), but matchday revenues are also generated from hospitality services at the stadiums, so it's important to gather as much spectators as possible. Attendance is also an indirect driver for other revenue as well (Borland & Macdonald, 2003). Fans at the stands can be seen as part of a product that football clubs offer to their sponsors and media companies (Kringstad, *et al*., 2018), and that product suffers if the game is played in front of empty seats.

Largest stadiums in Europe have a capacity of more than 75.000 and as these clubs are the most popular ones, the utilization rates are usually also high. Still not all of the popular teams have such big stands, as stadium enlargement requires remarkable capital investments and its benefits are gathered slowly in the long period of time. For example, Chelsea's home avenue Stamford Bridge has capacity of around 42.000 and Paris Saint German's stadium Parc des Princes' capacity is around 41.000. These clubs are ranked very high on the list of Europe's most popular clubs, but stadium capacities are far from the top. In the season 2016/2017 in English Premier League, the average attendance was nearly 36.000, but even more importantly average utilisation rate was impressive 96.5 percent for the whole league, which could be seen as an indication of two important things. Firstly, interest towards attending Premier League matches is enormous, as there were only

three clubs (83.1% Hull City, 84.5% Sunderland and 88.9% West Bromwich Albion), which had utilisation rate under 90 percent (Premier League, 2017a). Secondly, clubs could have potential for extra matchday revenue through stadium enlargements, but those are still quite rarely implemented because of their high implementing costs and clubs' risk of relegation from the league.

One of the most important stakeholder for football club is their fans. Their importance is even emphasized when acquiring matchday revenue. This leads to situation where fans might use their power to influence the pricing of tickets. This is the case especially if fans can work or protest together against high pricing of tickets. At times, one can read from the media about fans protesting against high ticket prices, but the influence that these protests have or not have on ticket pricing isn't really studied yet.

Publics' interest for attending games can be measured by few different indicators, such as tickets sold or number of audience in each game. Clubs often also measure the number of sold season tickets, as it especially indicates the interest amongst locals, who someone could describe as hard-core fans. Nowadays season ticket holders are also quite often selling their seats online for single games with profit, and some people might even build a small profitable business around it. This again indicates the high interest that people have towards the game, as they are willing to pay even more than the original price.

Thus, when acquiring matchday revenue, clubs' objectives should be:

1. maximizing the number of home games,
2. building public's interest for the games and
3. providing a good scale of hospitality services.

The first two are highly dependent on club's performance on the field, so one can actually already see how sporting success is connected with matchday revenues, although for instance, branding and great social media coverage could in addition have a positive impact on public's interest. The third objective could be achieved without investments on the team and players itself, so it could be a cheap way for the clubs to promote their revenues if they haven't already covered it.

2.1.2 Broadcast revenue

Revenue from broadcast rights has grown to be the main income source for clubs participating in Europe's largest leagues. Thanks to the liberalization of broadcasting market and technological development (Gerrard, 2000), people can nowadays watch football games from their living rooms and they're not required to travel all the way to the stadium. This development has led to several studies of how broadcasting affects stadium attendance and matchday revenue. It's easy to see the threatening substitution effect that broadcasts have over attendance, but the previous literature has also found complementary effects between the two. Interestingly increase in number of broadcasted matches seems to be problematic only for smaller leagues, where substitution effect works against them as people tend to watch broadcasted games from bigger leagues rather than attending on the game of local club. (Kringstad, *et al*., 2018) For instance, Forrest & Simmons (2006) found out that broadcasted UEFA Champions League matches affected negatively on the attendance in concurrent matches of League One and League Two in English football. Kringstad, *et al*. (2018) found the similar negative connection between broadcasted games in top-five leagues and Norwegian top division football. Interestingly for largest leagues, increase in the number of broadcasted games seems rather to be significant additional revenue driver (Solberg & Turner, 2010).

Importance of broadcast rights has raised enormously in European club football, as deregulation in broadcasting markets led to increased competition and rise of broadcast right values (Solberg & Turner, 2010). Especially clubs in top-five leagues have benefitted greatly from the continuous growth in broadcast right values. During the last years, revenue gathered from selling the broadcast rights has grown substantially, and it already accounts approximately half of the total revenues generated in top-five leagues (Deloitte, 2017a).

Let's go briefly through how clubs actually gain their income from broadcasting markets. So, each league organisation or competition holder owns the broadcasting rights for their own competition, and usually auction is held to sell those rights for highest bidder/bidders. In top-five leagues, Spanish La Liga was a long time an exception, as there each club negotiated their individual broadcasting contracts, but in 2016/17 they fully adopted quite

similar collective rights selling mechanism that's also in use in other top-five leagues (Deloitte, 2017a). Normally rights are sold for a fixed period of time and separately for different geographic areas. Time periods are often quite short, as the competition holders want to benefit from the rising interest of public, which leads to higher bids and greater income. For example, in English Premier League, the time period is three seasons, and broadcast rights are sold all over the world separately for different locations. On the other hand, broadcast rights for smaller leagues are hard to sell abroad because the interest towards the league mostly exists in that particular country. Companies, who buy the broadcast rights, are aiming to make profitable business by selling a) broadcasts to the public and b) advertising space for other businesses. Thus, value of broadcast rights reflects the interest that public have towards the particular league, and to this point the process has been very much driven by market forces.

When broadcast rights are sold, a competition holder has to decide how much and how to distribute the revenue fairly for the competing clubs. Thus, now market forces step aside, as league organisations or competition holders are deciding the distribution of the revenue. The most equal distribution in top-five leagues is currently in English Premier League, where at the moment the ratio between highest and lowest earning clubs is 1.61:1 (Premier League, 2017b). Traditionally Spanish La Liga has had most uneven distribution through individual broadcasting contracts. Lately there have been new broadcast arrangements especially in Germany, Italy and Spain (Deloitte, 2017a), and the movement has been towards more equal distribution. Hence, the ratios aren't fixed and it's up to league organisations to decide when it's time for change.

Normally most of the income is distributed to clubs, but part of it might be also used to cover some running costs or for the benefit of other important stakeholders. For example, in season 2015/2016 UEFA generated total revenues of €2.4 billion from its tournaments: Champions League, Europa League and Super Cup, although the latest only consists of one game between the winners of previous mentioned competitions. More than 80% of the revenues were generated by selling broadcasting rights and the rest were gained through commercial rights and matchday revenue. Of the total revenues, 73% was distributed to participating clubs, 10% was used to cover competition costs and slightly more than 8% was used for both, solidarity payments for non-qualified or non-participating clubs under

UEFA's influence and general contribution to European football. (UEFA, 2017) Also domestic leagues often use part of the revenues for other stakeholders than participating clubs. For instance, in English Premier League so called "parachute" payments are made for clubs that were relegated from the league to soften the financial blow of relegation (Barajas, *et al*., 2005).

For the largest competitions, distribution mechanism often consists of three different factors:

1. equal share,
2. facility fees and
3. merit payments.

Thus firstly, part of the revenue is shared equally for every competing club, which actually is highly important factor to retain some level of competitive balance in the competition, which gives chance also for smaller clubs to achieve sporting success. Secondly, facility fees are paid each time that club's games are broadcasted. This element often rewards clubs basing on their popularity. People want to watch the games of their favourite clubs, and match schedules are even planned the way that most popular clubs are rarely playing concurrent matches. Some arguments could be made against this distributing element, because it might greaten the gap between largest and smallest clubs, and thus lead to competitive imbalance. Still this element is often seen as a fair one, since the total revenue gathered from distribution rights benefits greatly from the public's interest towards most popular teams. Thirdly, merit payments are based on how well club performed on the competition, which is measured from the league table. Thus, this element directly connects sporting success with revenue. Hence, especially merit payments are of importance for the empirical part of this study, and even contributing factor behind some of the hypotheses.

For instance, in English Premier League revenues from selling broadcast rights are distributed as follows. All of the international broadcast revenues are split equally among 20 participating clubs. Also 50% of UK broadcast revenue is split equally. Then 25% of the UK broadcast revenue are paid in facility fees, and last 25% in merit payments. In season 2014/2015 equal share payments amounted to £54.1 million per club. Facility fees varied from £8.8 million to £21.5 million per club, and merit payments from £1.2 million to £24.9 million. In the end Chelsea gathered highest broadcast revenues of £99.0 million

and Queens Park Rangers lowest, £64.9 million. (Premier League, 2015) In comparison, French Ligue 1 has very similar mechanism to distribute broadcast revenues, but facility fees are replaced by payments that are based on club's reputation and portion of equal share payments is much lower than what it is in English Premier League. In Season 2015/2016 Paris Saint German received 10% of the total broadcast right revenue pot and at the same time GFC Ajaccio received only 2.1%. (LFP, 2017) On the basis of previous figures, it could be argued that distribution mechanism in English Premier League leads to more equal split between participating clubs in order to maintain more competitively balanced league. In comparison, mechanism in French Ligue 1 respects more market forces by rewarding most popular clubs, which leads to decreased competitive balance and wider financial gap between the best and the worst team.

Besides previous stated factors that link sporting success and revenues together, also succeeding in UEFA's club competitions leads to greater revenues through UEFA's distributions. The base of the distribution mechanism is fixed amounts for each stage of the tournaments. In Champions League season 2015/2016 qualifying for group stage was worth of €12 million for every 32 competing clubs. Going through from the group meant additional €5.5 million. Then €6 million was paid for reaching quarter-finals, €7 million for semi-finals, €10.5 million for runner-up and €15 million for the winner. Thus, Champions League winner (Real Madrid CF in 2015/2016) received €45.5 million solely from fixed amounts paid for the winner. In addition to fixed amounts, clubs get bonus payments from their performance in the group stage. In season 2015/2016 clubs received €1.6 million for each win and €0.5 million for each draw in Champions League group stage. Third and last part of the distribution mechanism in UEFA's club competitions is market pool payments, which amounted to 43% of the total distributions in Champions League season 2015/2016. Market pool shares in Champions League are in proportion to the value of broadcasting rights revenue within territory of their respective national associations. (UEFA, 2017) This element isn't as straightforward as previous ones, and concrete calculations are missing in UEFA's (2017) financial report, but final payments based on market pool are visible for each club, and they ranged from €2.5 million for Maccabi Tel-Aviv to €52.9 million for Juventus.

Latest rise of European club football has mostly come from continuous growth of broadcast right values, which also indicates the growth in public's interest towards European football. Differences in public's interest towards particular leagues are now shaping the financial power hierarchy between European football leagues. Especially English Premier League is leaving other leagues behind through impressive growth of broadcast right revenues. However, latest news are signalling inevitable end of growth becoming reality in the coming years, as domestic broadcast right deal for three successive seasons of English Premier League seems to come down from $7.14 billion (seasons 2016/17 – 2018/19) to near of $6.33 billion (seasons 2019/20 – 2021/22) with still two minor game packages to be sold, and possible offers are expected from Facebook, Netflix and Amazon (Price; Forbes, 2018). Although domestic broadcasting markets might have reached its maximum in UK, there are still plenty of room for growth abroad, which could still lead to the superior dominance of English Premier League. In comparison of UK broadcast right deals, latest broadcast rights for UEFA's club competitions were sold for €5.9 billion (seasons 2015/16 – 2017/18) (UEFA, 2017).

In short period of time the financial dominance of one league might increase only financial gap between the leagues, but in longer period of time the financial superiority probably leads to sporting superiority of one league, which is actually very common in other sports (e.g. NBA in basketball, NFL in American football or NHL in ice hockey). This development would then of course threaten the competitive balance of UEFA's club competitions, if one league becomes too dominant. At the moment we are still far from this to be realized, but competition holders and league organisations play a key role in maximizing their respective broadcast right revenues and distributing it for the sake of developing their own competitions.

2.1.3 Commercial revenue

Third and possibly most significant revenue source for the clubs in the future, is usually referred as a commercial source. Most important commercial sources are sponsorship and merchandising. These two are highly dependent on club's popularity. Mostly followed clubs get greatest sponsorship deals as the coverage is highest. At the same time, the most

popular teams have also largest numbers of fans that will spend their money on club merchandise. This study already found links between revenues, popularity and sporting success of the club with previous two revenue sources. Commercial revenue even further emphasizes the association by especially connecting revenues with club's popularity. Manchester United is a good example of a club that is highly benefitting from their popularity in terms of commercial revenue. On pitch, the performance in the last years hasn't been as good as before, but their position as a leading global sports brand has still protected club's ability to generate greater commercial revenues as their domestic rivals (Deloitte, 2017b). Thus, it could be argued that increasing club's popularity is the best way to increase revenue from commercial sources.

Although commercial revenue is connected with club's popularity, it is also the one source of revenue that has most in common with other businesses than sport clubs, and many clubs actually have potential for growth when it comes to commercialising their businesses. Higher revenue from sponsorship and merchandising could be reached e.g. by developing club's brand or expanding into new markets by increasing interest towards the club through summer tours to different continents etc. Hence, there are also plenty of other ways to increase club's commercial revenue in addition to achieving sporting success. Thus, it would be beneficial to concentrate also on commercial side of the club, and major benefits could be received through innovative commercial solutions.

Sponsorship deals have traditionally been shown to public through logos on the jerseys or advertisements at the stadium. This is still the case, but nowadays also clubs' popularity in social media is more and more used in sponsorship collaborations and also club's premises are often named through major partners. Slightly different sponsorship contracts have also been done for a long time, where clubs commit to use equipment from solely one particular company. Often that company will benefit from the deal in addition to increased visibility by operating as a supplier for club's merchandise. Kit deals are most valuable example of previous described cooperation, and brands like Adidas and Nike are competing to make deals with most popular football clubs. For example, a 10-year-long kit deal between Manchester United and Adidas has been effective since the beginning of season 2015/16, and it sees Adidas paying £750 million to Manchester United. At the same time Adidas expects to generate £1.5 billion through kit sales of Manchester United. The example well

describes the market size of merchandising, especially for most popular clubs (Sale & Lawton; Daily Mail, 2014), but it also presents the growing potential that exists for smaller clubs as well. In comparison to equipment deal, Manchester United also made seven-year long kit deal with Chevrolet at the beginning of season 2014/15. In that deal Chevrolet pays $80 million per year for Manchester United to keep logo of Chevrolet on the chest of their shirt (Smith; Forbes, 2016).

The product mix that largest clubs have on merchandising is extensive, and their online stores provide wide range of products where to choose. Largest clubs benefit from their popularity also in merchandise sales, and they are able to promote the products with help of highly admired superstar players. Products are sold all over the world to the places where fans are willing to show their support for the club. Hence, clubs who have strong international fan base are mostly benefitting in terms of higher merchandise revenues.

2.2 Expenditures dominated by wages

Although European football clubs have continuously managed to grow their revenues for a number of years, at the same time their costs have increased, and financial performance declined (e.g. Storm & Nielsen, 2012; Morrow, 2014). Clubs tend to compete with each other by hiring new players at rising prices (Solberg & Haugen, 2010). In this chapter, I will go through the most important costs of football clubs, why clubs tend to overspend, and what it means that wages are strongly correlating with sporting success.

The basic cost structure of a sport club is quite similar in all sports. The most important item of expenditure is players' and managers' wages. Other costs are usually related to operating or financing, but their impacts on clubs' profitability are often quite limited in comparison to wages. Operating costs often include items such as matchday expenses, cost of materials, sales and marketing, depreciation and rent of facilities, write-down of goodwill, administration etc. Financial costs are dependent on club's ownership and how they decide to finance club's operations. In addition to personnel, operating and finance costs, clubs also might make remarkable capital investments for example to increase stadium capacity or to improve training facilities. Finally, tax gains and losses are also influencing the profitability of the clubs.

Importance of personnel expenses differs between sports and leagues, but in every sport, wages are at the centre of club's operations. In professional sports, players' and managers' wages should be seen as a production cost instead of personnel expense. Sport clubs are producing match events, and people are spending their money to participate in the event either at the stadium or through broadcasts. Thus, players at the field and managers just outside the field could be seen as production elements, and without them the end product of sports game couldn't be played.

The importance of wages is even emphasized in European football, where salary caps don't exist, and it's easy to argue that wages have grown far beyond what would be for the good of the clubs. In season 2015/16, clubs in top-five European leagues used on average 61% of their revenues to cover personnel expenses (Deloitte, 2017a). The emphasized importance of wages in European football actually leads to increased risks of running the profitable football club, as clubs' spending levels are very much primarily determined already at the beginning of the season (Terrien, *et al*., 2017). Income level is dependent on the sporting success, but large investments on the playing talent don't guarantee wins on the field, but ties club's money to personnel expenses. Huge investment on one player contains lots of risks and the investment can fail if the player gets injured or underperforms (Kedar-Levy & Bar-Eli, 2008). Thus, if the team as whole doesn't perform as well as expected, the budgeted revenues might not be generated to cover already set spending level. Hence, the growth of wages has often been found to be the reason behind clubs' insolvency problems (e.g. Buraimo, *et al*., 2006).

When clubs are maximizing their on-pitch performance and revenues, they are at the same time maximizing their players' wages. These three things are tied to each other. The positive correlation between wages and sporting success has been acknowledged since the beginning of research in sports economics (e.g. Rottenberg, 1956; Scully, 1974). Higher wages lead to more talented players, which in turn increases clubs' popularity and on-pitch performance. These things again lead to greater sponsorship deals, merchandise sales and higher stadium utilization rates. One could picture European football clubs' business as a kind of vicious circle. You have to spend money to get money, but the problem is that

getting money isn't as simple as spending it. Highly paid players don't guarantee greater on-pitch performances and revenues, but they increase club's chances to achieve those.
Kuper & Szymanski (2014) have studied the correlation between wages and league positions couple of times for English football clubs. First study included data from 1978 to 1997 and second study was conducted for time period 2003-2012. In both studies they found clear correlation between wages and league positions, with wages explaining more than 90 percent of clubs' positioning in the league table. Thus, in long term, clubs who are able to attract talented players by offering higher wages, seem to achieve greater success on the field. It should be noticed that these studies used both logarithmic and average values over the years for both league position and wages. Hence, it was possible to compare the leagues and to get such strong results.

The strong connection between wages and sporting success is of importance for this research for couple of reasons. Firstly, wages are fixed for short-term, but sporting success varies and is partly dependent on pure luck. Thus, in short-term the connection might alter a lot. Secondly, it has been found that European football clubs' revenues and expenses are positively correlated, and as wages are clearly the most significant cost item, the correlation exists also between revenues and wages (e.g. Barajas, *et al*., 2005). Thus, actually all of the three; revenues, wages and sporting success are positively correlating with each other especially in the long-term. Thirdly, the strong connection between the three in the long-term leads to question the connection between sporting success and operating profit. Higher revenues could lead to greater operating profit, but higher wages on the other hand decrease the operating profit. As these both are correlating with each other and also with the sporting success, it's highly interesting to investigate further the connection between operating profit and sporting success.

2.3 Transfer markets

In addition to emphasized importance of wages, transfer markets also play important role in clubs' expenditures, but they also provide possibility for clubs to generate extra income. One of the most famous sport publications of all, Moneyball: The Art of Winning an Unfair Game by Lewis (2003) tells the story how innovative ways to understand sports, in

this case baseball, can be exploited through transfer markets. Importance of well-functioning transfer markets is emphasized especially for smaller teams with strict budgets, since it offers them an excellent way to generate extra income.

Transfer markets in European club football are substantially different than respective markets in many other sports, especially in major American leagues, where players can be traded for drafting rights and their old contracts are valid also in the acquiring club. In European football, the acquiring club pays agreed transfer fee for the selling club, after which player's old contract is terminated, and new contract negotiated with the acquiring club (Kuper & Szymanski, 2014). Fédération Internationale de Football Association (FIFA) regulates transfer markets, which are open twice a year for limited time in top-five European leagues. Main transfer window opens at the end of the season and closes couple weeks after the season has started. Second window opens at the beginning of the year and closes at the end of January. Even between top-five leagues, there exist slight differences in opening and closing dates and timings, but their importance is relatively low. Transfer markets in European club football experienced a tremendous change in 1995 through Bosman ruling. It gave players a freedom of movement and as a consequence, players have enjoyed of remarkably stronger bargaining position since that (A.T. Kearney, 2010).

In accounting point of view, players are clubs' assets, which are traded between clubs in the liquid markets. Hence, the comparisons between transfer markets and stock markets could be purposeful, at least to some extent. Under UK GAAP and IFRS, clubs are required to capitalize transfer fees on the balance sheet as intangible fixed assets. The capitalized amount will then be amortised over the player's contract period. Thus, this actually leads to situation where only values of acquired players are visible in the club's balance sheet for the period of their initial contract. Market values of "home-grown" players are excluded from intangible assets, as there isn't any acquisition cost that could be capitalized. (Deloitte, 2017a)

Transfer fees are the costs that media and public are probably most interested in for two reasons. Firstly, the money spent on transfers have grown substantially, and remarkable amounts are paid for single players. Secondly, transfers are in the key role determining club's sporting performance and possibilities to success. As the club acquires new players,

the end product of football game changes, and public is highly interested in these changes. In the media, there exists lots of speculation about possible transfers and how they could affect clubs' possibilities to success. Especially most of the fans want to see their favourite club acquiring new superstar players and achieving sporting success with help of their actions on the field. On the other hand, for some fans it might be even more satisfying to see local lads rising from youth academies to the first team. Although transfer fees are linked with club's sporting performance, it seems that there's no empirical evidence that higher transfer fees would necessarily lead to greater sporting success. Kuper & Szymanski (2014) studied the correlation between net transfer spending and league position for 40 English football clubs during years 1978-1997 and found that net transfer spending explained only 16 percent of variations in league positions. Hence, they argue that on the long-term clubs who act as net buyers on the transfer market, won't succeed remarkably better than net seller clubs. However, it could be argued that 16 percent is still somewhat significant factor, and that the study should be repeated, since it's questionable if 20 to 40-year-old data still represents the truth. Actually, in the study of A.T. Kearney (2010), it's argued that strong correlation exists between net transfer spending and sporting success during 2008-2010 in top-five leagues. However, the sporting success is quite questionably measured by UEFA's yearly country scores instead of actual positions, points or other direct sporting success measure. However, it seems that the explaining power of transfer costs to sporting success is less significant as what was the case with wages in previous chapter.

In sports economics, there exists various studies of transfer markets. Especially players' market values and transfer fees paid in actual trades have been of interest for numerous researchers. Traditionally the focus has been on player performance and characteristics, and how they influence paid transfer fees. Frick (2007) for instance, finds that transfer fees are positively influenced by higher number of goals scored and games played by the player. It was also found that at least in English Premier League and German Bundesliga, also experience, number of international caps and position in the field determine player's value. Gulbrandsen & Gulbrandsen (2011) use slightly different approach and state that club owners are looking to acquire players, who can by their own effort enhance the sporting performance of the club enough to reach position that ensures the qualification for UEFA's club competitions. They introduce complete pricing framework, where player's

value is influenced by the added value that player brings to the club. Hence, also other things than player's performance, for example ability to increase attendance, have influence on player's value. Investments on players are also evaluated in numerous different ways. If the club is more interested in maximizing wins instead of profits, they should use sporting success indicators to evaluate their investment.

Transfer markets are of importance for the study between financial performance and sporting success. They are in special role for football clubs working as a balancing factor between financial and sporting performance, but also between income and expenditures. Although, the direct correlation between higher transfer fees and greater sporting success is found to be weak, it still exists. For largest clubs, net impact of player transfers is usually negative, as they tend to overinvest on players in hopes of achieving greater sporting success. These clubs aren't investing in players to get financially positive return on the invest, but instead they are often more interested to achieve positive return in terms of sporting success. One reason for overinvesting in players is the short-term nature of club's objectives. In European club football there seems to be in overall too much player trades in comparison to what would be optimum for many clubs. Pressure that comes from fans, owners and managers have led to situation where transfers are made too often without paying enough attention to trading costs. Purposeful comparison could be made with stock exchange, where too high emphasis on short-term returns lead to unnecessary high trading costs. Financially the situation is very similar in football transfer markets, where players are traded too often in hopes of getting short-term returns in terms of sporting success. In addition to situation in stock exchange, football clubs also often underestimate the indirect trading costs that arise when objectives are dependent on sporting success. Players are living assets of the club, and only by working well together they can achieve sporting success. Clubs should pay attention to these aspects if they want to minimize the effect of indirect trading costs.

In comparison to largest clubs, for bit smaller clubs, player transfers act as an excellent way to generate extra income by selling players, when they are overvalued by the markets, and to seek for players that are undervalued. Players' short time form is sometimes found to affect the market valuation too much, so it might be financially beneficial to sell players right after they have had an exceptional season at the club. Numerous other inefficiencies

have also been found in transfer markets. Kuper & Szymanski (2014) for example mention the influence of good performance in World Cup, player's nationality and external irrelevant features as factors that are influencing the transfer fees, although they don't affect sporting performances. These inefficiencies are often argued to be the consequence of holding on to traditional scouting instead of putting more emphasis on data-analysis.

There are lots of great examples of the clubs that have used transfer markets as their main tool to raise the status of the club. Olympique Lyon from years 2002 to 2008 is one of the best examples where the club used its extraordinary skills on the transfer markets and achieved great success on the field. Previously unknown small club won French Ligue 1 remarkably seven times in a row and became the greatest club in France at the time (e.g. Kuper & Szymanski, 2014). One of the newest example on the other hand, is the club owner Matthew Benham and his innovative way to model football and exploit transfer markets in his clubs, Brenftord FC and FC Midtjylland. (e.g. Tippett, 2017). Common factor in the numerous examples of clubs exploiting transfer markets seems to be that these clubs are often quite small, and they are able to achieve competitive advantage over competitors at the time they are growing. When the club has risen to the highest stage and is competing to sign the top players in the world of football, the advantage disappears or at least decreases significantly. Main cause seems to be the extra high valuation of top players, which is natural result of top clubs overinvesting in players, as they are chasing sporting success in most valued competitions.

In respect to this study, probably most important issue about player transfers is their treatment in accounting and more specially differences in the treatment between countries. As already clarified, under UK GAAP and IFRS, clubs are required to capitalize transfer fees on the balance sheet as intangible assets. Each year similar amount of the capitalized transfer fee will be amortised. Hence, at the end of the contract the total value of transfer fee is amortised from the balance sheet. If the player is further sold during his contract, the capitalized amount will be written-down. At this point the process is clear and quite similar in all of the top-five leagues, but questions arise by looking at each leagues' financial reports, which are built by combining reports of each participating club. Unfortunately, I don't have direct access to clubs' financials, as in empirical part of this study I'm leaning on financial information gathered from Orbis –database. In each league's combined

financial reports, there seems to be differences on how clubs record transfer income in each league. In respect to this study, it's highly important that in income statements of all clubs both transfer income and amortisations are included in operating profit, which seems to be the case. Unfortunately, the case might not be as simple with revenue. On the basis of combined financial reports, there could be two different ways of recording transfer income. Either transfer income is reported as revenue or just before operating profit as profits/losses on disposal of players' registration. Latter seems to be more in line with UK GAAP and IFRS, and it could be the case that only league organisations have purposefully reported clubs' transfer income as revenue to promote the financial position of their own league. Still through restricted access to financial data, I can't be completely sure whether this effect the comparability of clubs' revenues, so this should be kept in mind especially in comparisons between the leagues.

2.4 Objectives of the European football clubs

This part of theoretical framework contains the most important theory content that is highly relevant to acknowledge when analysing the empirical results of this study. The chapter starts by discussion about two of the most important objectives of football clubs, how these objectives are affecting clubs' operations, and what impact the ownership structure of the club has on its objectives. Afterwards the discussion moves on to previous studies and their findings on association between clubs' financial performance and sporting success.

2.4.1 Maximizing sporting success or profits?

Sport clubs are very different from "ordinary companies" in many other industries. Rottenberg (1956) was the first one to model production function of a sport team, as he assumed that clubs participating in Major League Baseball were more oriented towards profit maximization instead of solely maximizing sporting success. Since that, the topic whether sport clubs are maximizing sporting success or profits have been probably the most studied one in sports economics, and previous literature is mainly assuming that club owners are either more oriented towards maximizing profits or sporting success (Sloane,

2015). Probably most important factor behind clubs' objectives is its owners' utility function, which is personal for each individual (see e.g. von Neumann & Morgenstern, 1944). The function is usually combination of various objectives, and people tend to have different approaches when the consequences of their decisions are dependent on different risks to materialize, which is especially the case for sport clubs. In other lines of business, and in personal life mostly common approach towards risk is risk aversion, where risks are mostly avoided already in decision making. As already seen from previously discussed finances of football clubs, club owners rarely tend to avoid risks, and instead many of them could have neutral approach to the risk or they could even be categorised as risk lovers, who are willing to take additional risks with low or even negative expected return (see e.g. Pratt, 1964). Thus, football club owners' utility function might include both financial and sporting objectives and any other objectives as well. Each owner of football club has personal utility function with various objectives, and in addition club owners also have their personal approach towards risks. Unfortunately, in previous literature sporting success seems to be sometimes referred as utility, which might be quite misleading, but in this study the term utility is used only to indicate club owners' utility function.

Demsetz & Lehn (1985) stated that professional sport clubs and mass media firms are quite similar in terms of profit maximization. Owners of companies in both industries might achieve higher utility by winning e.g. the World Series or influencing public opinion instead of solely maximizing profits. Since owners of professional sport clubs and mass media firms have often quite different utility functions than owners of firms in other industries, it's only natural that companies in these two industries have also higher ownership concentration, which makes it easier for the owners to maximize their personal utility functions by managing their firms more closely.

Sloane (1971) argued that European football club owners are mostly maximizing utility instead of sole profit maximization. At the time, English football clubs were repeatedly reporting deficits, which also led to other popular topic of research that studies the reasoning behind persistent losses and association between ownership structure and clubs' performance (e.g. Leach & Szymanski, 2015; Wilson *et al*., 2013). Szymanski (2012) suggests that it might be club owners' irrational exuberance, which encourages them to overinvest in playing talent in hopes of achieving sporting success. Vrooman (2007) on the

other hand argues that in the upper extreme it is the hope of reaching Champions League revenue and in lower extreme to avoid relegation that causes European football clubs to maximize wins instead of profits. Moral hazard of football club's owners should also be considered, as clubs are often highly important for local community (Storm, 2012). The city, local companies, fans, creditors or other beneficing parties could step up and save the club from bankrupt. For example, Lago, *et al*. (2006) argue that local government in Spain would bail out certain clubs before they would end up in bankruptcy.

However, too high expectations for the club to achieve sporting success are often followed by underperformance of the team on the field, which could lead to negative productivity and demand shocks, and actually Szymanski (2012) suggests that this is even more important factor behind persistent losses than owners' behaviour. Still owners' importance shouldn't be underestimated because they might have numerous different objectives also in their other businesses that might not be related anyways to running a football club, but the coverage or the popularity of their club might contribute to achieving these other objectives and thus increase owner's utility. Club owners could also allow unprofitability for short time if there's a chance that it leads to higher revenues, for example from achieving a spot from Champions League. Thus, even intentional financial losses are not always irrational (Terrien, *et al*., 2017).

Estimating the potential trade-off between maximizing sporting success or profit is highly important topic for sports economics (Fort, 2015), as it could lead to improved league systems and more efficient regulatory tools (Szymanski & Késenne, 2004). Still the operations of sport clubs aren't so simple that they could be divided to only these two objectives, and although some studies have tried to find combinations of the two objectives by studying behaviours of sport clubs, only few attempts have been made to deeply understand professional sport clubs' organizational objectives (Leach & Szymanski, 2015). Other important objectives are for instance related to corporate social responsibilities, attendance of the public, financial health of the league and market share/coverage of the club. Especially the latter could be highly beneficial for the club owners to promote their other businesses. Thus, although trade-off between sporting success and profit is in the core of the football clubs' operations, other objectives should be considered as well, and their impacts shouldn't be underestimated. In this study, the focus will be on the relation of

financial and sporting success, which goes hand in hand with the club owners' objectives to maximize profits or sporting success. Hence, I will strive into that topic, but the big picture of numerous different objectives should be kept in mind as well.

Trade-offs between profit and sporting success are usually divided to three different objective combinations that have been found to be used by professional sport clubs:

1. profit maximization under sporting constraint,
2. sporting success maximization under hard budget constraint and
3. sporting success maximization under soft budget constraint.

Club owner's main decision is whether to maximize profits or sporting success, whereas constraints may be dependent also on environmental conditions. (Terrien, *et al*., 2017) There are only limited possibilities for football clubs to participate in different competitions, which limits the revenues that could be generated from playing more games and in different competitions. Also, budget constraints can be set by external actor, for instance UEFA demands that their Financial Fair Play Regulations are followed (Franck, 2015).

Differences between continents are commonly roughly divided the way that sport clubs in American leagues are more oriented towards profit maximization, as European clubs are more aggressively maximizing sporting success under either hard or soft budget (e.g. Fort, 2000; Garcia-del-Barro & Szymanski, 2006; Dejonghe & Van Opstal, 2010; Terrien, *et al*., 2017). Szymanski & Zimbalist (2005) state that the commonly known difference has mainly be born because the degree of the competitive balance differs between continents. Competitive balance will be discussed further in the next chapter, but it has been stated that American leagues are more competitively balanced than European leagues, and that the difference is coming from dissimilar league systems in terms of openness of the league, salary caps, draft systems etc. Szymanski & Késenne (2004) go even further by suggesting that open league system in Europe leads to a non-cooperative Nash equilibrium, where risk of relegation encourages clubs to overinvest in playing talent (to read more about game theory and Nash equilibrium, see e.g. von Neumann & Morgenstern, 1944; Nash, 1951). Storm (2012) even argues that there's no appropriate theoretical approach or in-depth analysis that could be used to study the European football clubs' tendency to maximize sporting success instead of maximizing profits. On the other hand, Wilson, *et al*. (2013)

suggest that European club football is more interesting field for the potential investors to enter because clubs' operations aren't as restricted as it is the case in American leagues.

Although debate between profit and sporting success maximization has numerous empirical and theoretical studies, it seems that there isn't unanimity or clear conclusions that supports one hypothesis over the other (Leach & Szymanski, 2015). Terrien, *et al*. (2017) figured that this might be because of both objectives are coexisting within a league, so they studied the objectives of French Ligue 1 clubs over the period of 2005/2006 – 2014/2015. Their findings and detailed analysis show that it's quite common for clubs to alter their objectives from year to year, and that there isn't a single weighting between profit and sporting success objectives in professional football league. Some part of the alterations between objectives is explained by changes in the club. For example, new owner might totally change the emphasis between these two objectives, but still changes from one objective to another are found even without that clear reasons. Although the results of the study by Terrien *et al*. (2017) are highly interesting and analysis is convincing, it could be questioned whether realized operating profit percentages can truly tell whether the clubs are maximizing profits or sporting success under hard or soft budget constraints. Hamil and Walters (2010) argue that the whole industry of English football is a not-for-profit industry for club owners and that only other stakeholders, such as players, partners, media companies, etc. can make profit in the industry. On the other hand, Wilson, *et al*. (2013) argue that UEFA's Financial Fair Play Regulations might change clubs' objectives towards profit maximization in the future.

2.4.2 The influence of ownership model

While discussing about clubs' objectives, it should be recognised and even emphasized by whom these objectives are stated. The ownership of the club has great impact on the objectives, which managers, players and all the other employees of the club are trying to reach. Hamil & Chadwick (2010) classifies three types of ownership models that are present in English Premier League: stock market model, supporter trust model of ownership and foreign ownership. Stock market model was popular in 1980s and 1990s, when most of the teams listed on stock markets and they received lots of interest from the

public. Just few years later it was found that stock market might not be the best fit for football clubs, as their financial returns for investments were quite poor and investors could easily find better value for their money. The problem that investors faced was that very rarely football clubs' first objective was to generate income for their owners. The share trading of football clubs was almost non-existent since they received only low demand from institutional investors and at the same time supporters of the club were reluctant to sell their shares as there were often emotional reasons attached to owning shares. This led to illiquid secondary markets (Morrow, 1999), and numerous de-listings were conducted. Currently, only Arsenal and Manchester United could be classified under stock market model in English Premier League. As number of European football clubs listed on stock markets is relatively low, many studies have replaced stock market model with public ownership, which in addition to stock market model includes also public limited companies.

Supporter trust model is characterized by independent, not-for-profit and cooperatively owned organisation. It aims to improve supporters' influence on governance of the club and the model is common for smaller clubs, but its applicability for larger clubs have been questioned. Wilson, *et al*. (2013) argue that entities in largest football leagues of Europe should be instead using corporate finance. Hence, in their research the supporter trust model is replaced with domestic ownership. This is especially the case in English Premier League, where very rarely clubs could be classified under supporter trust model of ownership. Instead domestic ownership is still somewhat common, and these owners tend to have similar emotional attachment to the club as supporters have (Marmo, 2014). Domestic ownership has traditionally been very common for clubs participating in Italian Serie A, and although some movement towards foreign ownership has been seen (e.g. AS Roma & FC Internazionale), most of the domestic owners might not be willing to sacrifice the brand benefits that they or their companies achieve from owning a football club.

Recent trend in club ownership models in top-five leagues has been towards foreign ownership, as wealthy investors are willing to buy clubs without paying too much attention to the price. It's interesting that foreign investors very rarely come from other European countries. Instead it's the US –businessmen, that have seen the real business potential especially in Premier League clubs. Recently the trend also seems to be increasingly

towards Asian owners, and investors in the rich Gulf states (Dubai, Abu Dhabi, Qatar and Bahrain) are showing their interest towards European club football through both ownership and sponsorship to expand their brands and increase their visibility around the world. Financial Fair Play Regulations introduced by UEFA might also increase the interest that investors have towards European club football, as regulations limit the risks that a club owner is facing. As already discussed, foreign owners often have additional objectives of their own that might not have nothing to do with football itself, but they want to benefit from the global coverage of the club and the league. The beneficial body might be the investor itself through his/her personal brand or investor's company or even a whole country. Wilson, *et al*. (2013) argue that foreign owners more often than not swift club's emphasis towards sporting success maximization. Clubs are seeking for foreign investors to help with their financing needs, which are often fulfilled in the short-term when foreign owners take over. In the long-term it should be questioned whether foreign owners' tendency to maximize wins at the cost of profit is for the good of the club.

From the top-five leagues, German Bundesliga seems to be most suspicious about external investors taking over the charge of clubs. The acquisition of the controlling stake in a club is limited to the registered membership association. Bundesliga clubs have to follow so called "50+1" rule, which states that majority of club's shares have to be owned by its members. Hence, foreign investors can't acquire controlling stakes in Bundesliga clubs, which reduces their attractiveness as an investment. Couple of exceptions to this rule however exist. First of all, an alleviation to the rule states that a person or company, which has supported the club financially over 20 years, can acquire the major ownership. (Kindler, 2014) Thus, Dietmar Hopp was allowed to acquire majority of Hoffenheim's shares. Secondly, Bayer 04 Leverkusen and Vfl Wolfsburg were originally set up by private companies Bayer and Volkswagen, respectively, and they were allowed to keep the majority ownership in their clubs.

There is also other evidence that giant international companies are interested in owning a Bundesliga club, which could signal that running a German football club is actually seen as a profitable business itself. These companies have to justify their investments in football clubs, and it's hard to see that investments would be approved with negative expected returns. One example is Red Bull, which founded RB Leipzig in 2009 and they've run the

club without breaking the 50+1 rule. The rule has also received some critique about companies bending it in practice and that the Bundesliga gives advantage to other football leagues in Europe by not accepting the external equity from investors.

Until 1998, clubs participating in Spanish La Liga, were strictly bound by the rule that only Spanish nationalities can own shares in Spanish football clubs. These restrictions were removed in 1998, and since that the foreign investors have invested also in Spanish football (Llopis-Goig, 2014). Foreign investors have also found French football and especially Paris Saint German and AS Monaco have risen to dominate Ligue 1 with the help of their wealthy investors.

Marmo (2014) argue in her study of English Premier League during seasons 2009/10 – 2012/13 that the ownership structure of the club influences the transfer fees that are paid to acquire players and also financial ratios of the club. For instance, billionaire ownership was found to increase clubs' revenues by 48% on average. At the same time these clubs are paying 16% premium in their transfers and their profitability decreases by 48%. Respective figures were parallel, but slightly lower with foreign ownership, whereas opposite results were obtained with public ownership. In their study, Wilson, *et al*. (2013) discover that domestic ownership is better for the clubs' financial performance, but on the other hand foreign ownership has led to greater sporting success. Still, the stock ownership model seems to be the most efficient one, as these clubs are achieving both financial and sporting success in the long-term.

2.4.3 The association between financial performance and sporting success

There exists unfortunately quite little previous research and empirical results on the correlation between clubs' financial performance and sporting success. Especially the connection between clubs' profitability and sporting success hasn't received enough attention in academic research. Recently this topic should've grown to be one of the most important ones in European club football, as more and more emphasis has been given to clubs' profitability. In this chapter, I will go through the most important discussion and the results about the connections, as these form the basis for the empirical part of this study.

The research methods in previous studies vary, but what is common for most of them is that relationship between revenue and sporting success seems to be positive, but the cause and effect relations between the two stays unclear. Arnold (1991) conducted one of the first empirical studies of the subject and found clear connection between the sporting success and revenues in English football clubs from 1905 to 1985. Szymanski & Kuypers (1999) found that more than 80% of the change in club's income is explained by its league position, when they studied English football in 1978-1997. They also concluded that winning teams are attracting higher incomes. Some evidence has been also provided that the connection between revenues and sporting success isn't that clear. For instance, Haas, *et al*. (2004) studied German football clubs and found that clubs' efficiency isn't correlating with sporting success. Still, it has been quite generally accepted in academic research that sporting success and revenues are positively correlating with each other.

Barajas, *et al*. (2005) found clear connection between expected income and sporting success for Spanish football clubs in 1998-2002, but at the same time they found strong correlation between clubs' revenues and expenses. Hence, the clear relation between sporting success and profitability of the clubs couldn't be found. The strong correlation between revenues and expenses is easy to understand, since clubs spend lots of money to buy players in the hope of achieving sporting success, which in turn is a prerequisite for increasing income (Szymanski & Kuypers, 2000).

In overall, the causality between revenues and sporting success has been difficult topic to study. At this point, it should be quite clear that the relation is two-sided. Higher revenues lead to greater sporting success and greater sporting success leads to higher revenues. The difficulty comes when trying to conduct exact estimations of the influence that the two have over each other. One of the main issues is the significant impact that luck has for short-term sporting success. Football is a game, where just couple of random events and their outcomes can separate winner from runner-up or whether the club is relegated or not. In comparison to other sports, such as basketball or ice-hockey, football games consist of very few scoring opportunities and games are often decided by only one goal. This emphasizes the impact of luck, and also tides the luck with club's revenues. Hence, it could be argued that the field where football clubs are operating is quite harsh, as the luck

has so huge impact on club's operations and performance. Barajas, *et al*. (2005) argue that the found relationship between sporting success and revenues might constitute a virtuous circle, where sporting success increases revenues, which could again be used to improve sporting performances. The problem is that the virtuous circle doesn't include clubs' profitability. Clubs tend to use even more money than what is generated to improve their sporting performances.

Most of the previous research has measured sporting success by the results achieved in domestic league (e.g. Dobson & Goddard, 1998; Gerrard, 2005; Barros & Leach, 2006). Haas (2003), Haas, *et al*. (2004) and Zuber, *et al*. (2005) in addition consider also participation in European competitions through dummy variable in their models. Barajas, *et al*. (2005) on the other hand created their own index to measure the sporting success in various competitions at the same time. Samagaio, *et al*. (2009) used quite similar approach, and they had to build their own point rewarding system, since also cup-style competitions were included to index. Their indexes undoubtedly include all relevant sporting success for each club, but it's questionable of what value should be given for each competition. In empirical part of this study I will simply measure sporting success of each domestic league and accept the fact that not all sporting success of each club is included in the model. Most of the clubs' primary objective is to succeed in domestic league and only few of the largest clubs might value UEFA's competitions as high or even higher than domestic league, but for smaller clubs the most important objective usually is to avoid relegation. Thus, it's more common than not, that clubs do their most important sporting and business decisions considering their primary objectives in domestic league.

There have been few proposals in previous literature that there shouldn't be relationship between clubs' profitability and sporting success. It has been suggested that clubs have particular level of profit or loss, and when it's achieved clubs seek to maximize sporting success (e.g. Morrow, 1999; Gerrard & Dobson, 2000). Samagaio, *et al*. (2009) studied the relation between sporting, financial and stock market performance in English football clubs over the period 1995-2007. Their findings support previous literature that most of the clubs seek to achieve a minimum level of profit and after that their effort goes to maximizing sporting success.

Barajas, *et al*. (2005) found that their sports performance index explained only 14 percent of the net profit of Spanish football clubs, but at the same time the index explained 55 percent of the expected income. Kuper & Szymanski (2014) studied the relationship between P/L before tax and league positions in English Premier League from 1993 to 2013, but they couldn't find clear connection between the two. They found that when club's league position changed from previous season, in only 55 percent of the cases the club's profit changed for same direction. If there would be no correlation at all, the figure would of course be exactly 50 percent. Hence, the correlation seems to be quite low. In the study of A.T. Kearney (2010) the correlation couldn't be found between clubs' sporting and economic performance in European top-five leagues. In the study the sporting performance was measured by UEFA's yearly country scores and combination of different financial ratios were used to measure the economic performance. Interestingly, Gerrard (2005) estimated that in English football when clubs improve their total points by 1 percent, it has negative effect of 0.25 percent in operating profit. Hence, also negative connections have been found between sporting success and profitability.

To conclude this chapter, it seems that previous literature has quite generally accepted the positive correlation between sporting success and revenues. Still, there's not much evidence of how this relation differs between leagues. Slightly contradictory results have been reported about the correlation between sporting success and profitability, although none of the studies have yet found strong positive or negative link between the two. There's also numerous different ways to measure sporting and financial performance in previous literature.

2.5 Operational environment

European football clubs operate in somewhat different environment than ordinary companies. It could be argued that the difference is borne mostly because of various wishes of football clubs' stakeholders. As already pointed out the club owners might have highly different objectives that owners of companies in other industries have. Players and managers of football clubs aren't either normal employees, and they also have various wishes and even some power to influence the actions of club. Then fans are a stakeholder

group that many other industries don't have, at least to the length that it exists for sport clubs, and their wishes should also be taken into account.

The importance of previous mentioned stakeholders has already been partly discussed, so in this chapter the focus will be on league organisations and competition holders. Their status as a regulative operator, plays a key role by setting limits for football clubs' operations. In this context the most important operators are each league organisation of the top-five leagues and UEFA. Their importance and affect for clubs' operations will be discussed mainly from three different aspects. First, I will go through the concept of competitive balance and why it is or isn't important for all of the leagues and clubs. After that the importance of UEFA's Financial Fair Play Regulations will be discussed, and finally few of the most important league specific regulations will be brought up.

2.5.1 Competitive balance

One major difference between sports markets and "ordinary" markets is the relationship between competitors. In ordinary markets, companies are aggressively fighting to become market leaders and they don't have to worry what happens to their competitors. In sports markets the situation is quite different. At the same time competition is very rough on the field between players and managers, but in the end, each club is also dependent on its competitors. Two teams together constitute the product of sports game. Thus, none single club can run the business without its competitors.

Competitive balance measures the degree of outcome's uncertainty in sports. It's important topic for league organisations and competition holders because it influences spectators and popularity of the competition. Hence, it's significant topic also for clubs itself. Competitive balance is at its maximum when two teams facing each other are equally good and both teams have same probability of winning the game with slight advantage for the team that's playing on their own stadium. On the contrary, maximum competitive imbalance is reached, when the exact outcome of the game can be predicted by probability of one (Szymanski, 2001).

Actually, competitive balance could be even easier to understand in the time frame of one season. Competitive balance reaches its maximum when before the season starts, all teams that are playing in the competition have same probability of lifting the trophy at the end of the season. In most of European football leagues, where 20 teams are playing, this would mean that every team has 5% chance of winning the championship. When going through the archives of results from which ever sport or league, it's quite easy to figure out that the maximum competitive balance, as well as maximum imbalance, is possible only in theory. This leads to question: what degree of competitive balance would be optimum?

Unfortunately, it seems that although competitive balance has been a subject of numerous studies, in academic research there's no consensus of the optimum degree for competitive balance. Numerous comparisons have been made between the sports and leagues, and American major leagues have been found more competitively balanced in comparison to European football leagues thanks to their different balancing mechanisms, e.g. player drafts, revenue sharing, salary caps etc. (e.g. Szymanski & Smith, 2002). It has been also proposed that these mechanisms would be taken into consideration in European football as well. The problem seems to be that these mechanisms only work well on closed leagues, and European club football isn't willing to sacrifice the openness of leagues, as they want to guarantee the possibility to success for all of the clubs. Hence, American way leads to more competitively balanced league by sacrificing the opportunity for smaller teams to succeed and get promoted to the league.

Competitive balance has been measured by numerous indicators, but one of the most used is the dispersion of winning percentage (Humphreys, 2002). Just to mention few other measures, also relative entropy (e.g. Horowitz, 1997), Gini coefficient (e.g. Schmidt & Berri, 2001) and Herfindahl-Hirschman Index (e.g. Owen, *et al*., 2007) are used to measure competitive balance. Openness of the league complicates the measuring of competitive balance, and especially comparisons between open and closed leagues should be carefully conducted. Even further, if different sports are compared with each other, one should also take into account the different characters of the sports. The time frame chosen for calculations also greatly affects the results. Hence, the measuring should be done for different time periods, and actually Cairns, *et al*., (1986) separated long-term, medium-term and short-term competitive balances. In the long-term, league tables are used to seek

for dominating clubs over the years. In medium-term, the measuring is done by number of games with prevailing uncertainty of the outcome in one season, and in short-term the focus is on outcome of individual game. In addition to choosing the length of the time frame, it should also be kept in mind that European football leagues aren't static, and actually in the latest years quite many changes have taken place in European football. Hence, the exact timing of measuring the competitive balance should be taken into account as well. For example, just few years ago Bloching & Pawlowksi (2013) found that from the top-five European football leagues, French Ligue 1 and German Bundesliga are most competitively balanced, and English Premier League most imbalanced. If the study would be conducted again and data would be used from the last five seasons, it would be very surprising if the results would still be the same, as competitive balance of English Premier League has benefitted greatly from quite equal sharing of remarkably grown broadcast right revenues.

Traditionally it has been thought that the higher level of uncertainty for match outcome would be positively correlated with greater attendance, but latest studies haven't actually found significant connection between the two (eg. Buraimo & Simmons, 2008; Kringstad, *et al*., 2018). Szymanski & Smith (2002) considered 22 articles about competitive balance, of which only 10 provided evidence that higher level of uncertainty for match outcome increases attendance. For example, Buraimo & Simmons (2008 & 2009) found that relationship between gate attendance and probability of home win is U-shaped in both English Premier League and Spanish La Liga. Pawlowski & Anders (2012) got very similar results in their study of short-term competitive balance in German Bundesliga. Hence, their findings show that fans of European football prefer attending games with good probability of home team scoring many goals or going to the game as a clear underdog. Instead tight games with high level of uncertainty for match outcome doesn't seem to have increasing influence on attendance. In football, high level of uncertainty for match outcome is quite often associated with low expectations for goals scored in a match, and fans attending the game would prefer watching games that are less likely to finish with close score (Buraimo & Simmons, 2008), as they tend to enjoy seeing goals. The situation is of course very different in other sports, such as basketball or ice-hockey. Hence, this character of football even further questions the importance of competitive balance in European football.

Although, the higher degree of short-term competitive balance in European football might not have the same direct positive effect on attendance, as it has in other sports, competitive balance as a whole shouldn't be forgotten even in European football. Most important is to understand the both sides of competitive balance, and league organisations have to think it thoroughly what level of competitive balance would be for the best of the league at each time, and what they can do to increase or decrease competitive balance. Smaller leagues in European field of football are often characterized by one dominating club (e.g. HJK in Finnish Veikkausliiga, Rosenborg BK in Norwegian Eliteserien, FC Copenhagen in Danish Superliga, FC Basel in Swiss Super League, Celtic FC in Scottish Premiership, etc.). The competitive balance of these leagues is weak, and the dominating club lifts trophies way too often. The good part for the whole league in this situation comes from the UEFA's club competitions. If the club, which dominates domestic league year after year, qualifies for UEFA's competition and even succeeds in the tournament, the whole domestic league benefits from the rising interest of the public. The situation is very similar with top-five leagues, and each league organisation should almost continuously make decisions whether to increase or decrease the competitive balance of the league. For example, Spanish La Liga has benefitted greatly from the popularity of two dominating clubs, FC Barcelona and Real Madrid CF. Hence, they have purposefully kept quite low level of competitive balance by letting clubs individually negotiate their own broadcast right contracts, which increases the competitive imbalance. On the other hand, competitive balance of English Premier League has increased in last years, thanks to remarkable growth of broadcast right revenues and more equal sharing mechanism.

To conclude the importance of competitive balance for European club football, it should be understood that the concept isn't as simple as it is in many other sports, especially in major American leagues. In Europe, especially UEFA's competitions and openness of the leagues complicate the approach to the concept. There's no optimum amount of competitive balance, and especially in the field of European football it's important that each league organisation actively monitors and manages the competitive balance of their own league. Competitive balance is also important concept for the association between clubs' financial performance and sporting success. Decisions made by league organisations to increase or decrease competitive balance have direct impact to the relation between financial

performance and sporting success. For example, more equal sharing of broadcast right revenue leads directly to lower connection between revenues and sporting success because badly performed teams get greater share of the broadcast right deals at the expense of well performed teams. Thus, the concept of competitive balance is highly important for each league organisation, and through their actions the competitive balance also influences leagues' and clubs' connections between financial performance and sporting success.

2.5.2 UEFA Financial Fair Play Regulations

Union of European Football Associations, or shortly UEFA, operates in the field of European football. UEFA is most well-known from organizing European cup tournaments, Champions League and Europa League. Alongside domestic leagues, these tournaments are often the most important ones for European football clubs, although only few of the best teams from domestic leagues qualify each year for these tournaments. Playing in either Champions League or Europa League guarantees a great increase for club's revenues, so qualifying is highly desired for any club. These tournaments give UEFA a power over European football clubs and recently they have started to use this power more for the benefit of European football.

UEFA requires that every team qualified for their tournaments has to provide audited financial statements and show that the club meets UEFA's criteria. If the criteria are met, UEFA rewards the club with a license that allows them to play in the tournament. Financial Fair Play concept was approved in 2010 and its first requirements were added to criteria set in 2011. The main idea of the regulations is to protect viability and sustainability of European club football. Amongst other things regulations aim to protect clubs' creditors and employees. Financial Fair Play concept also aims to encourage clubs to operate on the basis of their own generated revenues and to spend responsibly. (UEFA, 2015)

As of today, Financial Fair Play has two major requirements that were added to already existing criteria set for clubs, which have qualified for UEFA competitions. First requirement is that clubs can't have overdue payables towards other clubs, their employees

or social/tax authorities. Thus, clubs have to give appropriate proof for UEFA that they don't have any overdue payables. This requirement was first time active in 2011. The second requirement has been active since 2013, and it requires clubs to break even on the basis of their relevant income and expenses. Assessment period is three years and in that time frame clubs can report maximum losses of 5 million euros, which is defined as an "acceptable deviation" (Franck, 2015). However, clubs are still allowed to report higher losses up to certain limit if it's directly covered by club's owner or other related party. For first two assessment periods the limit was 45 million euros and after that it has been 30 million euros. Regulations have detailed information which revenues and expenses are seen as relevant, but the main idea is that everything related to football is relevant and included to calculations, although investments in stadiums, training facilities, youth development and women's football are excluded from the calculations. (UEFA, 2015)

The UEFA's Club Financial Control Body monitors that the regulations are met, and their prior goal is to secure objectives of the regulations. They're working to identify and defeat possible attempts to bend the rules and their objectives. Still, clubs aren't automatically excluded from the tournament, if it's found that they aren't following the regulations. UEFA has bunch of other disciplinary actions as of warning, reprimand, fine, deduction of points, withholding of revenues from UEFA competition, etc., that are considered first. The heaviest action would be withdrawal of a title or award. Although the list of sanctions is long, UEFA sometimes might choose more rehabilitative approach instead of punishing clubs, which has led to conclusion of settlement agreements between a club and UEFA's Club Financial Control Body. This actually is in line with the objective to protect European club football instead of making punishing itself an objective. (UEFA, 2015)

Financial Fair Play Regulations and especially the break-even requirement has been subject of different studies since announcing and it has already received quite much critique. D'Andrea & Masciandro (2016) have greatly summed up few of the most important critiques that have been presented towards these regulations. To be fair, most of the critique has been written before or just after the break-even requirement went active. Now that the regulations have been active for few years, we can start to see the effects that they are having in European club football.

Madden (2014) argues that the regulations limit the amounts of external capital that could be used for football and this way regulations lead to Pareto inefficiencies. In this context the Pareto inefficiency implicates that without these restrictions and by giving all the power back to the markets, it would lead to higher amounts of money moving around in European club football (to see more about Pareto efficiency, see e.g. Censor, 1977). Undoubtedly break-even requirement limits the money that are poured to football from rich owners, as it is its purpose. However, there are still ways that owners can fund their clubs by investing on stadiums, youth development etc. However, whether regulations lead to Pareto inefficiencies, it depends on what is the indicator that one is trying to maximize. If the indicator is money moving around in European football, regulations probably lead to Pareto inefficiencies. But more importantly one could easily argue that this isn't the case when the indicator is clubs' revenue or profit. Actually, regulations seem to work quite well for these indicators as clubs are required to work on their own generated revenues and losses are limited.

Madden (2014) also argues that regulations shift money from players to owners and that this decrease in players wages would reduce the overall quality of the European leagues. As of today, one could argue that there's no evidence of players' wages to be reduced because of the regulations. Results are actually quite opposite as clubs' revenues and also players' wages are continuously growing. Even though wages would be slightly reduced, it's hard to see that it would directly reduce the quality of European leagues. Talented youngsters would probably still try to reach the top level, even though wages of top players would be cut by half. Hence, it seems that only real threat for quality of European football is other leagues in different continents as they can continue to pay high wages for talented players. UEFA must have thought that European football is far above of other continents in terms of popularity, so they don't see it as a threat that talented players would all leave to other continents to get higher wages. Some movement have been seen, especially towards China and United States, but the greatest talents are at the moment still playing in Europe.

Peeters and Szymanski (2014) on the other hand argue that Financial Fair Play Regulations are similar to US salary caps, but worse articulated. Regulations limit competition in transfer markets and players' wages are pushed downwards without achieving benefits from increased competitiveness. Their conclusion is that break-even requirement can't

increase competitiveness and that it becomes harder for small teams to challenge top clubs, which actually decreases competitive balance. They would prefer US style salary caps also in European football. Now that regulations have been active for few years, one could make opposing argument that actually in the last few transfer windows there haven't been sign of limited competition in the player markets. Power that players have over clubs are greater than ever and many of them are demanding that their clubs are playing and even succeeding in the Champions League. As already pointed out there aren't yet any evidence of reduced wages, although it can be expected that wage to revenue –ratio won't keep growing as a consequence of break-even requirement.

Franck (2014) argues greatly that if regulations work well, they would restore incentives for good management and increase pressure to produce higher revenues, which could even lead to higher wages. This actually seems to be happening right now. Hamil, *et al*. (2004) have argued that there indeed exists lot of possibilities to improve clubs' practices in corporate governance, such as financial planning or risk assessment. Regulations are also creating pressure for the clubs to seek for competitive advance in these areas as well.

Franck (2014) claims that Financial Fair Play Regulations shouldn't even be compared to US style salary caps. Salary caps are not suitable for European football because of open league systems and qualifications for UEFA tournaments don't allow such inflexible rules. He also argues that European club football is characterized with "multi-level filtering" between different countries and that it needs certain level of competitive imbalance to work well. Another important factor to be considered is that salary caps don't put same kind of pressure on clubs to generate greater revenues as break-even requirement does. Thus, salary caps could actually lead to Pareto inefficiencies in revenues. Limiting salaries of course could work as an incentive for club owners to strive for higher revenues, as they could directly benefit from it in terms of higher profits and possibly dividends, but as seen before, owners of football clubs act usually very differently than owners of companies in other industries. Also, salary caps seem to be often quite high and clubs could still report losses although salaries are limited. Usually club owners have also other interests than only maximizing their profits from the operations of football club, which is easy to understand, because world is full of more profitable industries. Club owners' first objective seems often to be sporting success, which leads to greater market share and coverage, which in

turn could be used for instance for the benefit of club owners' other businesses. But if we still expect that salary caps would lead to shift money from players to owners, this would also lead to situation, where European club football would be even more vulnerable as talented footballers could be persuaded to other continents. To conclude comparison between US salary caps and break-even requirement, the latter gives more power to the markets while the first one leads to more equal competition by sacrificing possibly greater revenues.

Sass (2012) and Vöpel (2013) are both worried that Financial Fair Play Regulations would freeze existing hierarchy between teams in European football. This is probably the most feared consequence that the regulations could result and naturally regulations are mostly criticized about it. Model build by Sass (2012) predicts that big clubs will continue growing and small clubs will become smaller and smaller over time. In the long-run this would lead to maximally uneven competitive balance and complete dominance of big clubs. Vöpel (2013) makes similar conclusions that regulations are intrinsically anti-competitive, and that second instrument would be necessary in order to restore previous competitive balance. That instrument could be some kind of revenue sharing between clubs. Franck (2014) makes opposing argument that before regulations went active, it was actually more usual that biggest clubs benefitted from rich benefactors, not vice versa. There were much less that kind of cases where rich benefactors started to fund small clubs, which eventually grew to one of the big ones and this way increased competitive balance.

As stated earlier, competitive balance is a controversial topic and there's no right amount of competitiveness that every league should have. Results from various studies don't even agree that more competitively balanced leagues would lead to higher public interest and revenues. Hence, this probably isn't the best indicator to be used when reviewing Financial Fair Play Regulations. It seems that there still isn't strong evidence that regulations will lead to decreased competitive balance. Few opposing arguments could be presented. Firstly, it shouldn't be stated as a fact that biggest teams today will continue to generate greatest revenues in the future and this way dominate the leagues. Revenues from broadcast rights are already distributed more evenly in top-five leagues. Regulations just demand clubs to pay more attention and to develop their businesses. As of today, there are so great amounts of money floating around in football activities that this request is indeed

necessary. Secondly and even more importantly, people often tend to forget that UEFA isn't the only operator that's acting on the field of European football and that their sphere of influence is actually quite limited. Financial Fair Play Regulations don't affect teams that aren't qualified for Champions League or Europa League. Thus, rich benefactors can still start to fund small clubs with big money and even make huge losses on the way to the top. They just need to concentrate also on building the business around the team so that revenues will go up and at someday revenues will cover the costs and the team is allowed to play in UEFA's tournaments.

A great example provided by Terrien, *et al*. (2017) is AS Monaco's journey from French Ligue 2 to Champions League in just couple of seasons. On season 2012/2013 they managed to win Ligue 2 and were promoted to Ligue 1. During the next season, AS Monaco was quite clearly maximizing sporting success under quite soft budget constraint. Thus, they were willing to risk a lot of money to achieve sporting success already in the first season after their promotion to the highest league in France. High risks paid off as they reached the second place with nine points behind the league winners Paris Saint German. During the three-year assessment period, they also managed to follow Financial Fair Play Regulations, and the club was rewarded with entry to the Champions League. Since that, the degree of competitive balance in French Ligue 1 has increased as there's now one more team fighting for places in UEFA's tournaments. In the season 2016/2017 AS Monaco even ended the winning streak of PSG in Ligue 1 by lifting the trophy after four consequent wins of PSG.

There's also some other interesting empirical evidence that the fears of freezing existing hierarchy or creating less competition (e.g. Sass, 2012), doesn't seem that immediate or even threatening. Since the regulations have been introduced, world of European football has actually already seen new club coming into the fight of top positions like it has been the case with Manchester City, Paris Saint German or Chelsea, with billionaire owners putting in their money. RB Leipzig was founded in 2009, when they started from the fifth highest league stage in German football. The club is owned by wealthy owner Red Bull, and the company has heavily sponsored the operations of the club. Just seven seasons after founding, the club was promoted to the highest level of German football, Bundesliga. On the first season in the highest level, the club already reached second place, which meant

qualifying for the Champions League next season, as they also had managed to follow the Financial Fair Play Regulations. Undoubtedly Bundesliga benefits now from higher competitive balance thanks to RB Leipzig and their wealthy owners Red Bull.

Even more importantly, just couple of seasons ago the footballing world saw the Cinderella story of Leicester City, as they were promoted to English Premier League for season 2014/2015 and on the next season they went on to lift the trophy before the likes of Manchester United, Arsenal or Liverpool. Leicester also did it by following the Financial Fair Play Regulations, and on the next season they even won their group in Champions League and proceeded all the way to the quarter finals. In the same season 2015/2016 the club benefitted so well from winning the league that their revenues increased by 23% and the club debuted in Money League top-20 listing, which ranks European clubs in terms of revenue (Deloitte, 2017b). Now it seems that they have cemented their place in the English Premier League and are fighting for the places in top-10. Undoubtedly English Premier League is now more competitively balanced, as Leicester has come into the league to reduce the gap between big-six clubs (Arsenal, Chelsea, Liverpool, Manchester City, Manchester United and Tottenham) and the rest.

One could argue that these examples are just random individual events that just have occurred in the short period of time. Also, the rises of AS Monaco and RB Leipzig happened at the verge of Financial Fair Play Regulations, so it could be argued that they have benefitted from slightly eased restrictions. Still it doesn't lessen the fact that these three European top leagues seem to have enjoyed of higher competitive balance since the introduction of Financial Fair Play Regulations. Only future will tell if the regulations really have negative effect on competitive balance or not.

2.5.3 League specific regulations

In addition to UEFA Financial Fair Play Regulations, each league organisation in the field of European football can of course define their own rules and regulations, which clubs need to follow if they wish to participate in the competition. Regulations have existed already before UEFA's regulations, but even more importantly league organisations seem

to react on UEFA's concerns and they are starting to introduce their own regulations as well. As already discussed, Financial Fair Play Regulations only affect clubs that achieve a place in UEFA's tournaments. Hence, each league organisation can individually evaluate if they want to introduce similar regulations to other clubs as well. In this subchapter I will go through few of the most important regulations that top-five European football leagues have and how they differ, especially in regard to clubs' financials.

Traditionally, French Ligue 1 and German Bundesliga have had most strict financial rules of the top-five leagues. The French Football Federation introduced the first financial regulation system in European club football in 1990 to prevent French clubs from making persistent losses (Dermit-Richard, *et al*., 2017). In France, the financial governing body DNCG (Direction National du Contrôle de Gestion) actively monitors that the clubs follow the rules that they are bounded to follow. Clubs are required to publish their audited financial accounts, and DNCG can place sanctions if specific financial standards aren't met (Jardin, 2009). The focus of the DNCG's financial regulations is to ensure clubs' solvency. In comparison to UEFA's Financial Fair Play Regulations, DNCG actually allows clubs to make remarkable losses as long as they're covered by club owners' money, whereas UEFA requires clubs to operate in terms of their own generated revenues (Dermit-Richard, *et al*., 2017).

Clubs participating in German Bundesliga are required to provide audited financial statements and to prove their economic capacities in every six months; 1) before the season and 2) during the season. In addition, clubs need to submit detailed information of their transfer activities and prove that they don't have overdue payables towards other clubs, their own employees or social/tax authorities. If these requirements aren't met before the season starts, DFL (Deutsche Fußball Liga) doesn't grant the club with the license that entitles the club to participate in UEFA's club competitions. If violations of the obligations occur during the season, DFL uses contractual penalties to punish the club. (DFL, 2017) Hence, it could be argued that the financial regulations of DFL also focus on ensuring clubs' solvency without paying too much attention on clubs' profitability, although Bundesliga clubs have traditionally reported quite good profits, and they're also bound by previously discussed 50+1 rule, which at least partly limits the possibilities of billionaire owners to cover persistent losses.

Recently English Premier League has also started to increasingly regulate financials of participating clubs. Clubs are required to provide their audited financial statements each year by 1 March. If the board of the Premier League or any person appointed by the board has reasonable suspects of a club breaching the rules, it is allowed to inspect financial records of any club. Clubs participating in English Premier League are required to prove yearly that they don't have any overdue payables towards other clubs, their employees or social/tax authorities. Club are also required to provide future financial information each year by 31 March in forms of projected profit and loss accounts, cash flow, balance sheet and relevant explanatory notes at maximum of quarterly intervals. Corresponding submission dates each year for three promoted clubs are 30 June for audited financial statements and 1 July for future financial information. If it's found from the last two financial statements that the aggregation of club's earnings before tax results in a loss, the board will require certain calculations to prove club's solvency. If the loss further exceeds certain limits, the board can also initiate punitive actions. (Premier League, 2017a)

In addition to requiring the financial reports and observing clubs' solvency, English Premier League has also started to control clubs' constantly growing wages. They've introduced Short Term Cost Control Rules, which are limiting the yearly growth of personnel expenses to maximum of £7 million. Clubs' first reports regarding Short Term Cost Control were only due March 2018. (Premier League, 2017a) Hence, there's no empirical evidence of the rule in action, and some relief to the rule is provided at the beginning. In the long-term it's interesting to see how this rule effects the operations of English clubs, and if their profitability will get better.

Clubs participating in Spanish La Liga are affected by the Sports Law 10/1990, which states that professional football clubs have to become Public Limited Sport Companies (Sociedad Anónima Deportiva or shortly SAD), although four clubs (Athletic Bilbao, FC Barcelona, CA Osasuna and Real Madrid CF) could continue their operations as clubs, since they could show positive balances on the audit period (Llopis-Goig, 2014). Still both, the legal entities and four exception clubs are all bound to follow specific regulations (Ascari & Gagnepain, 2006). Until the year 2013, clubs participating in Spanish La Liga were actually very slightly regulated. However, there existed already some regulations

about shareholders, accounting procedures and dividend payments (Ascari & Gagnepain, 2006). In 2013, LFP (Liga de Futbol Profesional) reacted to UEFA's Financial Fair Play Regulations and introduced quite similar rules for Spanish football, which have been active since the start of the season 2013/14. Clubs participating in Spanish La Liga are now also required to yearly submit their accounts to LFP for approval. Aim of the regulations is to ensure that Spanish clubs live within their means. Thus, budgets and clubs' spending are capped specifically for each club in accordance with their income levels. This way the league doesn't permit a club to sign new players, if they think that the club can't afford it. (Corrigan; ESPN, 2013)

Italian Serie A has traditionally had quite loose financial rules, and as a result many of the Italian clubs have experienced financial difficulties. However, national licensing system has been effective in Italy since 2009 requiring clubs to follow particular rules in accordance to legal, economic, infrastructural, sporting and organizational requirements. Lately also FIGC (Federazione Italiana Giuco Calcio) has started to monitor Italian clubs' financials more closely. Implementation of new rules started in season 2015/16 and the rules will be in full power at the beginning of season 2018/19. The requirements are quite similar as UEFA's regulations and Italian clubs are already required to prove that they don't have any overdue payables. The break-even rule will be implemented for season 2018/19. In addition, FIGC has introduced three financial indicators and strict limits that clubs need to follow if they want to avoid sanctions. The indicators are: 1) current assets / current liabilities, 2) debts / revenues and 3) (wages + amortization of players registration) / turnover. The limits will tighten from season 2015/16 to 2018/19, and at the end of the implementation period corresponding limits are 0.6, 1.5 and 0.8, respectively. (Uva, 2016) Hence, it seems that Italian Serie A is the latest of the top-five leagues to react on the financial difficulties of football clubs, but at the same time they are introducing very extensive set of financial regulations in comparison to other leagues.

3 Hypotheses

3.1 Forming the hypotheses

Following hypotheses are based on previously presented literature, theories and findings of various studies. On top of that I used my own analytical thinking and reasoning. The model will be made to explain clubs' revenues and operating profits, which in my opinion are two of the most important financial metrics of football clubs, and especially operating profits have been too overlooked in previous literature. Model is based on few variables, which are expected to have or not to have an effect on either revenues or operating profit. Small variations to model will be made to seek for differences and to study the impacts of various variables.

The sporting success could be measured by numerous different metrics, such as points obtained, winning percentage or average goal difference. The success could be also measured for various competitions, such as domestic league, domestic cups and UEFA's club competitions (e.g. Barajas, *et al*., 2005). Measuring sporting success in various competitions at the same time would lead to difficult decision on how to value success in each competition. Hence, in this study the measurement will be kept simple and straightforward, as there aren't too many studies on this topic anyway. I will use simply domestic league positions of each season to measure sporting success and accept the fact that not all sporting success of each club is included in the model. Most of the clubs' primary objective is to succeed in domestic league and only few of the largest clubs might value UEFA's competitions as high or even higher than domestic league, but for smaller clubs the most important objective usually is to avoid relegation. Thus, it's more common than not, that clubs do their most important sporting and business decisions considering their primary objectives in domestic league.

Hypotheses are built around league position's effect on revenues and operating profit. In addition, few sensitivity tests are conducted to see outcomes of different variations to the model. First variation is whether league position in previous season has different effect than positioning in current season. Then model is driven separately for each of the top-five leagues to seek for differences. Finally, the model is divided to time before UEFA

Financial Fair Play Regulations and time after the regulations were introduced to catch the possible effects that the regulations have had.

3.2 Influence of league position on revenues and operating P/L

The first hypothesis is mainly built to test the data and to see whether it is consistent with previous studies. The connection between higher league position and greater revenues have been found before (e.g. Szymanski & Kuypers, 1999; Barajas, *et al*., 2005), and in academic research it has been quite generally accepted that sporting success and revenues are positively correlating with each other. Although some opposite empirical evidence has also been found (e.g. Haas, *et al*., 2004), but I would still assume that the positive connection between league positions and revenues can be found also from this data set. Hence, I test the following hypothesis:

H1a: *Ceteris paribus, winning the league is associated with higher revenues*
H1b: *Ceteris paribus, league position is positively associated with revenues*

The previous literature has mostly failed to find the clear connection between clubs' sporting success and profitability (e.g. Barajas, *et al*., 2005; A.T. Kearney, 2010; Kuper & Szymanski, 2014). However, there's only limited empirical evidence from latest years, when for instance, UEFA's Financial Fair Play Regulations have been active. Hence, it's difficult to make precise predictions of the connection, and that's why the second hypothesis is stated in null form:

H2a: *Ceteris paribus, winning the league is not associated with operating profit*
H2b: *Ceteris paribus, league position is not associated with operating profit*

3.2.1 Current season versus previous season

In previous hypotheses, league positions are used from the same year as clubs' financial statements. For majority of the clubs, the fiscal year ends in May, June or July, and for all of the five big leagues, the football season ends in May. Thus, clubs' fiscal year ends

approximately at the same time as their season. Still there exist few clubs, whose fiscal year ends in December, but it's assumed that these exceptions don't have notable effect on the empirical results of this study.

In this section, I want to study whether the influencing effect differs when using league positions from the same season as fiscal year compared to using league positions from the previous season. There are few factors for which it could be assumed that the connection between league position and revenues would be slightly stronger when using league positions from the previous season. The most important factor behind this assumption is the revenues obtained from UEFA's club competitions. Clubs are allowed to participate in the competitions if they rank high enough in the previous season in their domestic league. As qualifying for these competitions directly increases clubs' income in terms of broadcasting and matchday revenues, it also indirectly rewards clubs with numerous possibilities through greater coverage and popularity. Hence, the increases in income will actually be realized only next season when the club achieved sporting success in domestic league. This should be visible in the empirical results of this study as the economic importance of UEFA's competitions is so huge for the clubs.

Although it could be assumed that the connection would get stronger with revenue when using league positions from previous season, it's hard to make same assumption on operating profit. European football clubs often tend to maximize sporting success instead of profits (e.g. Fort, 2000; Garcia-del-Barro & Szymanski, 2006; Dejonghe & Van Opstal, 2010; Terrien, *et al*., 2017). Hence, if the club succeeds so well in their domestic league that they qualify for either of UEFA's competitions, it's likely that they already include this extra income to their budgets and start to make big investments on the team during summer in hopes of achieving sporting success also in the European fields. Thus, qualifying for UEFA's competitions leads to remarkable increase for revenues next season, but it's unclear and team-specific whether this increase is used to improve the sporting abilities of the team already in the same season. Hence, no assumptions can be made how this alteration to the model affects the connection between sporting success and operating profit.

3.2.2 Differences between leagues

This part of the study is highly interesting, since it's hard to make assumptions of how the connections differ between countries. There really aren't many previous studies of this topic, where I could rely with my hypotheses. That's the reason why this part will be studied without making any specific hypotheses and hopefully models can generate interesting results, that could be further analysed. Of course, league systems are somewhat different, and some assumptions could be made of how these differences in leagues would impact the results. For instance, the previously discussed differences between leagues in terms of broadcast right revenue distributing suggest that the link between sporting success and revenues could be strongest in Spanish La Liga and weakest in English Premier League. On the other hand, French Ligue 1 and German Bundesliga have traditionally been mostly financially regulated of the top-five leagues, which could signal that the connection between sporting success and operating profit would be highest for clubs participating in these two leagues.

Still in reality, league systems have actually experienced many changes also in the timeline of the data, between years 2008 and 2016. Especially distributions of the broadcast right revenues have changed in many leagues (e.g. Deloitte, 2017a). As discussed earlier, many leagues have also started to pay more attention on regulation of the clubs' financials, which makes it even harder to make even educated guesses of the differences between leagues in this manner. Thus, this part of the study will focus on identifying the differences between leagues, but further investigation would be required to deeply understand the reasons behind the found differences.

3.2.3 Pre- and post-UEFA Financial Fair Play

UEFA Financial Fair Play Regulations were created to encourage clubs to practice business in terms of their own generated revenues. Hence, clubs are required to break even in the time frame of three consecutive seasons. (UEFA, 2015) Regulations were introduced 2011 at the beginning of seasons. Hence, I will study whether connection between clubs'

financial performance and sporting success differs between time periods 2008-2011 and 2012-2016 by running the models separately for both time periods.

Although regulations weren't solely done to increase the connection between sporting success and financial performance, some elements from the regulations could mean that the connection would get higher. Especially the break-even requirement should mean that clubs' operating profits will get higher in the long run. Hence, it's highly interesting to see whether the regulations have led to greater connection between clubs' sporting success and profitability. This part of the study will also be studied without making any specific hypotheses of the possible differences and emphasis will be on identifying the differences, although some further analysis will also be conducted.

4 Data and methodology

4.1 Data

The data used in this study consist of clubs from Europe's top-five football leagues; English Premier League, French Ligue 1, German Bundesliga, Italian Serie A and Spanish La Liga. Data is gathered from the years 2008-2016. There are 98 teams playing each year in Europe's top-five leagues, and when the time period is nine years, this would mean 882 data points in total. Unfortunately, financial data wasn't available for all of the teams and years, but I still managed to gather 690 data points, which should be enough to represent the group.

The financial data of this study is gathered from the Orbis –database, which is produced and held by Bureau van Dijk. There are many different accounting indicators that could be used to measure the financial performance of professional football clubs (Plumley, *et al*., 2014), but the most important indicators are probably revenue and operating profit, which will be used in this study. All the financials are in US dollars and they are primarily obtained from the club level to exclude irrelevant revenues and expenses that have nothing to do with football club's operations. However, financial data of some clubs are gathered from the holding company level as there were important revenues or expenses missing from the club level. This is particularly the case with few biggest clubs, where club level financials didn't include revenues and expenses from stadium or something as important as that. Domestic league positions have been gathered from archives of each league's website. In German Bundesliga, the league positions vary between 1 and 18, and for other leagues the scale is from 1 to 20.

4.2 Descriptive statistics

As stated earlier the whole data used in this study consist of 690 data points, although different models are built the way that not all of them uses the whole data set. Different variables that are used and the basic statistics for the whole 690 data points are presented in Table 1.

Table 1. Descriptive statistics

Variable	Definition	Obs.	Min.	Max.	Mean	Std. dev.
REVENUE	Revenue ($'000)	690	8972	749804	136631	136611
EBIT	Operating P/L ($'000)	690	-321695	116857	-8723	35173
LEAGUE POSITION	Club's position in domestic league	690	1	20	10,37	5,66
WINNER	1 = if club won the league, otherwise 0	690	0	1	0,05	0,21
SPA	1 = if club plays in La Liga, otherwise 0	690	0	1	0,20	0,40
GER	1 = if club plays in Bundesliga, otherwise 0	690	0	1	0,09	0,29
ITA	1 = if club plays in Serie A, otherwise 0	690	0	1	0,22	0,42
FRA	1 = if club plays in Ligue 1, otherwise 0	690	0	1	0,22	0,42

In addition to variables presented in the table, in different models I will also use previous year's REVENUE, EBIT, LEAGUE POSITION and WINNER variables. These variables are used especially when comparing effects of sporting success in current and previous season. One can also see from the table that there's no dummy variable for English Premier League. One of the top-five leagues had to be left out from the variables to avoid dummy variable trap situation. As a result, English Premier League is now actually used as a benchmark league in the models.

The data consist of 139 different football clubs, so on average this means five fiscal years per club. For many of the club's maximum of nine fiscal years were gathered, but for some club's data could be gathered for only one year. It could be the case that club had played only one year on the highest level, but also unavailability of the data is part of the reason. There are also quite many clubs for which financial data wasn't available at all. Average league position of the data set is 10,37. If all the data points of 882 could've been gathered the average league position would've been 10,32. Thus, the data is quite evenly distributed between different league positions. The data set includes 33 winner clubs out of 45. Hence, in this study "winner clubs" represent 4,8% of the data, whereas this figure would've been 5,1% if all the data would've been available.

Largest revenue of nearly $750 million was produced by Manchester United in 2014. In the same fiscal year, Manchester United also generated operating profit of $117 million, which is more than any other club generated in the data set. On the other hand, smallest

revenue of $9 million was produced by AS Livorno Calcio in 2010. Manchester City is the club responsible for highest operating losses of $322 million in 2011. From 2008 to 2014 Manchester City actually reported the total amount of $994 million in operating losses. Since that, the club has reported operating profits of $3 million in 2015 and $4 million in 2016.

Basic statistics of revenue and operating P/L are presented separately for each league in the Table 2. Other leagues are represented very well in the data set, but one should notice that German Bundesliga is represented by only 11 clubs and 63 observations because of unavailability of the data. The data set includes couple of largest Bundesliga teams (FC Bayern München and Borussia Dortmund), so mean statistics could be slightly upward biased. Let's now see what can be read from the table without paying too much attention on German figures.

In terms of revenue, English clubs have generated on average almost three times more than French clubs and two-times more than Spanish clubs. Surprisingly, Italian clubs have generated greater revenues than Spanish clubs, although this could be the case because of Spanish La Liga is financially dominated by only two clubs, FC Barcelona and Real Madrid CF, and the data set includes only four and five observations, respectively, out of maximum nine observations for both. Although English clubs have generated highest revenues, they have at the same time reported operating losses of $19 million on average. Also, Italian and French clubs have reported operating losses of more than $10 million on average. Positively, Spanish and German clubs have on average reported operating profits of $3 million and $7 million, respectively.

The quite high standard deviation of revenues and operating P/L in each of the five leagues should also be emphasized, as it signals the financial imbalance, which often exists in European football leagues. For instance, in Spanish La Liga the standard deviation of revenues is approximately 1.4 times the average revenues reported by the clubs. As revenues can't be negative, this is a clear signal of the fact that few clubs have substantially higher revenues than others.

Table 2. Descriptive statistics by league

League	Indicator ($'000)	Obs.	Clubs	Min.	Max.	Mean	Std. dev.
ENG	Revenue	178	35	63541	749804	210562	151518
SPA	Revenue	139	30	21100	707983	103053	148608
GER	Revenue	63	11	42133	722038	188477	169420
ITA	Revenue	155	30	8972	442459	121674	88117
FRA	Revenue	155	33	9563	629386	75724	74879
ENG	Operating P/L	178	35	-321695	116857	-19453	53535
SPA	Operating P/L	139	30	-104916	79212	3357	26949
GER	Operating P/L	63	11	-56140	85156	7239	24220
ITA	Operating P/L	155	30	-122547	46260	-10408	27366
FRA	Operating P/L	155	33	-61614	19648	-12036	14904

4.3 Model

Four multivariate linear regression models are built to study previously stated hypotheses. As a result, we will see how chosen explanatory variables will affect dependent variable, or if any influence can be proven through statistically significant connections. In *Model 1* the whole data set of 690 data points is used to study how club's revenues are affected by its league position and whether the club won the league or not. The model will also study how persistent club's revenue is through explanatory power of previous year's revenue. Differences between leagues are studied through dummy variables for four leagues while English Premier League is used as a benchmark league. *Model 2* is very similar with the first one, but instead of revenue, now I'll study the effects that sporting success has on operating P/L or EBIT as it is typed in the model. All 690 data points are used also in this model. The first two models will especially seek answers for hypotheses **H1** and **H2**.

Few data points are dropped when moving to *Models 3 & 4*. There were 11 teams that didn't play on highest domestic level in previous year when the financial data is gathered, so now 679 data points are used. Models are otherwise similar as previous ones, but now league positions and winner dummy variables are gathered from previous year (t-1). These models are especially used to see if club's sporting success on previous season has different influence on clubs' revenues or operating P/L as current season.

Differences between leagues are studied by running all the four models separately for each of the top-five leagues. This way connections can be clearly compared between countries and differences can be further analysed. There is a different amount of data points when running models for each league, and this is because of the fact that financial data were more available for some leagues than others. Still there are enough data points for each league so that models can be run and further analysed. Models for German Bundesliga have lowest data points of only 63. All other countries have more than 130 data points, English Premier League having the highest number of 178 data points out of maximum 180. Thus, although data unavailability is somewhat restraining the study, it was nice to notice that only two data points were missing from theoretical maximum for English clubs.

Influences of UEFA Financial Fair Play Regulations are also studied with the four models. Data is divided for two different time periods: time before and time after regulations. Regulations were introduced in the beginning of season 2011/12. Hence, time before will cover years 2008-2011 and time after 2012-2016. The influence is studied by running the models separately for these time periods. Models for year 2008-2011 have at least 291 data points and models after regulations were introduced have at least 388 data points.

The four models are presented below:

1. $Revenue = \beta_0 + \beta_1\, revenue\ previous\ year + \beta_2\, league\ position + \beta_3\, winner + \beta_4\, SPA + \beta_5\, GER + \beta_6\, ITA + \beta_7\, FRA$

2. $EBIT = \beta_0 + \beta_1\, EBIT\ previous\ year + \beta_2\, league\ position + \beta_3\, winner + \beta_4\, SPA + \beta_5\, GER + \beta_6\, ITA + \beta_7\, FRA$

3. $Revenue = \beta_0 + \beta_1\, revenue\ previous\ year + \beta_2\, league\ position\ previous\ year + \beta_3\, winner\ previous\ year + \beta_4\, SPA + \beta_5\, GER + \beta_6\, ITA + \beta_7\, FRA$

4. $EBIT = \beta_0 + \beta_1\, EBIT\ previous\ year + \beta_2\, league\ position\ previous\ year + \beta_3\, winner\ previous\ year + \beta_4\, SPA + \beta_5\, GER + \beta_6\, ITA + \beta_7\, FRA$

5 Results

5.1 General results

Results for each of the previously presented four models can be found below from the Table 3. When viewing results in general, one can first see that explanatory power of the models is quite high. Especially for the revenue *Models 1 & 3*, which have r-square of 0.932 and 0.933, respectively. On the other hand, EBIT *models 2 & 4* have r-square of 0.486 and 0.517, respectively. In general, it seems that the models are successfully built, and they provide quite accurate picture of the relations.

Second important thing to notice is that football clubs' revenue seems to be very persistent. In *Model 1*, 89% and in *Model 3*, 94% of previous year's revenue will be generated in current year without influence of other variables. Operational P/L seems also to be highly persistent as 67% in *Model 2* and 70% in *Model 4* of previous year's figure will be gathered in current season without the influence of other variables. These all results are statistically significant as P-values are under the 0.01.

With first quick look on the league dummies, one can already notice some important results. From *Model 1*, one can see that English Premier League clubs are generating remarkably higher revenues than other clubs in four other leagues. For instance, clubs participating in French Ligue 1 generate approximately $28.6 million smaller revenues than English Premier League clubs after controlling for other factors. From four dummy leagues, German Bundesliga clubs are generating highest revenues, but they still generate on average $13.1 million smaller revenues than clubs in English Premier League. Thus, on average English Premier League clubs are generating significantly greater revenues than clubs in any other of the top-five leagues. On the other hand, it's very interesting to look on the league dummies in *Model 4*. Now one can see that although English clubs are generating highest revenues, at the same time they are reporting smallest operational profits or highest operational losses, as all four dummy leagues have remarkable positive impact on EBIT. Even French clubs report on average $5.8 million higher operational results than English clubs after controlling for other factors. Now stated differences between countries are all statistically significant with P-values less than 0.05.

Table 3. Main results

	(1) Revenue	(2) EBIT	(3) Revenue	(4) EBIT
REVENUE PREV YEAR	0.890*** (0.000)		0.939*** (0.000)	
EBIT PREV YEAR		0.666*** (0.000)		0.703*** (0.000)
LEAGUE POSITION	-1263*** (0.000)	208 (0.259)		
LEAGUE POSITION PREV YEAR			-2415*** (0.000)	-205 (0.266)
WINNER	59183*** (0.000)	13499*** (0.006)		
WINNER PREV YEAR			17849** (0.019)	6621 (0.177)
SPA	-22099*** (0.000)	8390*** (0.004)	-8701* (0.050)	11710*** (0.000)
GER	-13093** (0.014)	7076* (0.064)	3038 (0.575)	12372*** (0.001)
ITA	-21954*** (0.000)	53 (0.985)	-9686** (0.021)	6855** (0.015)
FRA	-28612*** (0.000)	201 (0.943)	-10673** (0.018)	5815** (0.038)
Constant	52481*** (0.000)	-7137** (0.013)	40218*** (0.000)	-8785*** (0.002)
R^2	0.932	0.486	0.933	0.517
# of obs.	690	690	679	679

Table 3 reports results of each of the four multivariate linear regression models presented in the previous chapter. In *Models 1 & 3* the dependent variable is revenue and in *Models 2 & 4* dependent variable is EBIT. *Models 1 & 2* use league position and winner variable from current season and *Models 3 & 4* use league position and winner variable from previous season (t-1). P-values are presented in parenthesis to evaluate significance of the results, $p<0.01$ ***, $p<0.05$ **, $p<0.1$ *.

5.2 Influence of league position on revenue and operating P/L

Let's now study the first hypothesis **H1**, which states that winning the league and higher league position are both in connection with higher revenues. By looking at the results of the *Model 1,* hypothesis seems to be correct with statistically significant results ($p<0.01$). League winners generate on average $59.2 million higher revenues than other clubs, which is substantial amount in comparison to data set's average revenue of $136.6 million. Climbing league positions is also profitable, as reaching just one position higher rewards a club with $1.3 million higher revenues on average. Although the results are clear, and they offer precise picture of the relation, they don't tell us about the cause and effect relationship. Thus, by reading results of the models, it still can't be told whether clubs get rewarded by winning the league or reaching higher position or whether just bigger clubs in terms of revenue are more often winning the league and reaching higher positions. As

already stated in the theory part of the study, the connection is likely to be two-sided. Higher revenues lead to greater sporting success and greater sporting success leads to higher revenues, but the study doesn't reveal exact cause and effect relations between the two.

Second hypothesis **H2** states that winning the league or reaching higher league position aren't connected with substantially higher operating profit. *Model 2* was mainly built to provide answer for this question and to give us first results of the relation. As expected, no significant relation between league position and operating profit was found. However, model surprisingly states with statistically significant results ($p<0.01$) that winning the league is associated with $13.5 million higher operational result on average. This seems to be something that no previous studies have found out before and $13.5 million is highly remarkable amount as the average operational loss of a club is $8.7 million in the data set. Hence, the first two models clearly state that winning the league is associated with higher revenues, and on average 22.8% of the extra revenues will be also left to increase club's operational profit.

5.3 Current season versus previous season

Models 3 & 4 were built to study how relations change when league positions are used from previous season and compared to financials from current season. It was assumed that sporting success in previous season has even greater connection with revenues mostly because of revenue increases from qualifying for UEFA's club competitions were realized only on the next season. *Model 3* was built to especially seek answer for this question, and precise conclusions can be made when comparing obtained results with the results from *Model 1*. Previous season's league position is almost two times as important for revenue increases than league position in current season. On average, reaching one position higher on current season leads to $2.4 million greater revenue on the next season, as the same figure for current season was $1.3 million. One surprising result also rose from the *Model 3*, which is that increased revenues from winning the league are mostly recognised already on the current season. League winners get on average $59.2 million increase on revenues

in the winning year but winning the league results only to $17.8 million increase on next year's revenues.

It was also assumed that no significant connection would be found between greater sporting success on previous season and operating profit in current season. *Model 4* gives us answer for this question and one can see that the model doesn't provide statistically significant results. Thus, results are actually very much in line with expectations. To conclude how operational profit is affected by clubs' performance on the field, it can be said that no significant connection could be found from the data set. Still one remarkable exception was found, which was that winning league leads to $13.5 million higher operational profit on the same season.

5.4 Differences between leagues

Table 4 compares top-five leagues in regard of how winning the league or reaching higher league positions are related to generating revenue. Let's first make few notices of the results in general and then move to deeper analysis. First of all, explanatory power of the model is again very high as r-square for each league is between 0.866 and 0.974. Secondly, revenue seems to be again very persistent as already stated when analysing the results provided in Table 3. However, now one can also see differences in the persistency between leagues. Spanish and French clubs have most persistent revenues with more than 96.1% of the revenues generated previous year are also generated in current year without the effects of other variables. English and German clubs are not far behind with persistency figures of 87.4% and 84.8%, respectively. It could be interesting to compare these results with competitive balances of each league on the same time period. I would expect that lower persistency of revenues in English Premier League and German Bundesliga signals that their competitive balance is slightly higher than it is in Spanish La Liga and French Ligue 1. However, clubs participating in Italian Serie A are generating only 67.8% of previous year's revenues and it's hard to say whether this is related to significantly higher competitive balance or perhaps lower importance of matchday revenue (e.g. Nicoliello & Zampatti, 2016), which could result in greater alterations on revenues.

Results of how winning the league effects on revenues are on line with previous findings. There is clear evidence that winning the league is related with substantially higher revenues and now one can also compare this relation between top-five European football leagues. Surprisingly in German, Italian and French leagues results are very close to each other, as league winners in these leagues generate $75-78 million higher revenues than other clubs. In Spain and England, league winners generate $43 million and $36 million higher revenues than other clubs, respectively. Again, by these models it can't be concluded that English clubs get least rewarded by winning the league. It could just be the case that English Premier League is financially more competitively balanced than other leagues in terms of revenue.

Relation between league position and higher revenues seems to be strongest in Germany and Italy, where reaching one position higher means nearly $3 million increase in revenues. Statistically significant relation can also be found for English clubs, which get almost $2 million higher revenue by reaching one higher position on average. For Spain and France, the model can't find any statistically significant relation between league position and revenue.

Table 4. Revenue models by league

	ENG	**SPA**	**GER**	**ITA**	**FRA**
REVENUE PREV YEAR	0.874*** (0.000)	0.971*** (0.000)	0.848*** (0.000)	0.678*** (0.000)	0.961*** (0.000)
LEAGUE POSITION	-1861** (0.030)	-273 (0.538)	-2961** (0.042)	-2832*** (0.000)	-566 (0.241)
WINNER	36200** (0.035)	42949*** (0.002)	75616*** (0.001)	74876*** (0.000)	78233*** (0.000)
Constant	62956*** (0.000)	12816** (0.035)	59456*** (0.004)	71337*** (0.000)	10875 (0.141)
R^2	0.909	0.974	0.939	0.876	0.866
# of obs.	178	139	63	155	155

Table 4 reports results for revenue model, which is separately run for each of the five leagues. Multivariate linear regression model is same as previously presented *Model 1* without dummy variables for leagues. Dependent variable is revenue. League position and winner variable are from current season. P-values are presented in parenthesis to evaluate significance of the results, p<0.01 ***, p<0.05 **, p<0.1 *.

Relation between reaching higher league position and operational profit is even more interesting. Table 5 is otherwise similar as Table 4, but now dependent variable is EBIT and the model used is previously presented *Model 2* without dummy variables for different

leagues. From the Table 5, one can see that explanatory power of the EBIT model doesn't get as high as in the revenue model. There are also some differences in r-square between leagues, as it varies from 0.239 in Italy to 0.658 in Germany.

Persistency of operational P/L was discussed earlier in the analysis of *Model 2* and for the whole data set it was around 67%. Now it's noteworthy to realise that only English clubs' operational result is more persistent than the average, with quite high value of 78%. Spanish, German and French clubs are relatively close to each other with persistency of the operational result between 54-59%, but Italian clubs are far behind with the value of 42%. Interestingly Italian clubs were also far behind with the persistency of revenue. It could be the case that Italian clubs are more managed as football teams than healthy businesses, which would result this sort lack of persistency.

As one can see from the Table 5, there unfortunately aren't many statistically significant results, which actually was quite expected. Highly fascinating is to find out that winning the league is in relation with operational result only in English Premier League and actually that relation is very strong, as league winners are reporting on average $33.3 million higher operational result than other English Premier League clubs. Clubs in German Bundesliga are only ones that benefit in terms of operational result from reaching one position higher on the league table. Statistically significant results state that on average reaching one position higher is in relation to $1.2 million greater operational result. Again, this is something that should be thought from both sides of the relation. It could be that financially successful clubs are just reaching higher positions. Or that clubs get rewarded so well from placing higher on the table that they're not using all of the money to buy new players, or increase players wages, at least on the same year.

Probably the most surprising result from the relation between league position and EBIT is that Italian clubs are actually reporting $0.6 million lower operational results when placing higher on the table. It could be the case that clubs have to increase their costs on the same year to get better results on the field, and that rewarding elements are only received next year. For Spanish and French clubs this EBIT model doesn't provide any significant results on this time period.

Table 5. EBIT models by league

	ENG	SPA	GER	ITA	FRA
EBIT PREV YEAR	0.776*** (0.000)	0.541*** (0.000)	0.588*** (0.000)	0.419*** (0.000)	0.544*** (0.000)
LEAGUE POSITION	743 (0.144)	-446 (0.208)	-1192** (0.011)	637* (0.081)	230 (0.263)
WINNER	33349** (0.014)	-692 (0.954)	7235 (0.285)	13451 (0.218)	-1397 (0.802)
Constant	-11201* (0.078)	8422** (0.047)	13521*** (0.009)	-13989*** (0.003)	-8012*** (0.005)
R^2	0.557	0.360	0.658	0.239	0.325
# of obs.	178	139	63	155	155

Table 5 reports results for EBIT model, which is also separately run for each of the five leagues. Multivariate linear regression model is same as previously presented *Model 2* without dummy variables for leagues. Dependent variable is EBIT/operational profit or loss. League position and winner variable are from current season. P-values are presented in parenthesis to evaluate significance of the results, p<0.01 ***, p<0.05 **, p<0.1 *.

5.5 Pre- and post-UEFA Financial Fair Play

Table 6 presents revenue models that are divided for time before UEFA Financial Fair Play Regulations and for time after regulations. Same revenue models are used as before, so explanatory powers are again high and varying from 0.914 to 0.940. Also, high persistency of revenue is again visible, but more interestingly it seems that already high persistency has even increased after the introduction of Financial Fair Play Regulations, from 81% to 91% when using league positions from current year and from 89% to 95% when using league positions from previous year. This could actually signal that the regulations have increased club owner's emphasis on running the clubs more like healthy businesses instead of solely focusing on sporting success.

Previously it was stated that English Premier League clubs are generating clearly higher revenues than clubs from other top-five leagues and when looking at league dummies in Table 6, one can see that other clubs really can't keep up with English club's increasing revenues. Especially Italian clubs were already $15.2 million behind from English clubs in time period 2008-2011, but in 2012-2016 Italian clubs generated on average $28.7 million smaller revenues than English clubs after controlling for other factors. Spanish clubs have overtaken Italian clubs with approximately $2.5 million greater revenues in 2012-2016 on average. German clubs are closest to English clubs with still $15.3 million behind in terms

of revenue, but the gap has also increased $3.2 million from years 2008-2011 to 2012-2016.

Interestingly, when looking at the models with league position and winner dummy variable from current season, it seems that after the introduction of UEFA Financial Fair Play Regulations, winning the league and reaching higher position are still clearly connected with higher revenue, but not that much as before. Connection between league position has decreased from $1.6 million to $1.3 million. Also meaning of winning the league is now $3.8 million lesser than it was before the regulations. When moving to models with league position and winner dummy variable from previous season, results are actually entirely vice versa. At the time before regulations, connection couldn't be found between winning the league on previous season and current year's revenues. On time when regulations have been active the same connection has been statistically significant with the value of $22.8 million higher revenues on the year after winning the league.

It seems that the introduction of UEFA Financial Fair Play Regulations has resulted at least couple of things in terms of connection between sporting success and revenue. It can't be precisely proven that these changes are coming directly from the regulations, but it's very likely that at least some part of the results are directly or indirectly coming from the introduction of these new regulations. It seems that rewarding of reaching higher position on current season is delayed and increases in revenue are gathered more on the next season. Also rewarding element of winning the league has at least partly been delayed and its rewards are gathered on the next season in terms of higher revenues.

Table 6. Revenue models by time period

	(1) Revenue 08-11	(2) Revenue 12-16	(3) Revenue 08-11	(4) Revenue 12-16
REVENUE PREV YEAR	0.814*** (0.000)	0.905*** (0.000)	0.886*** (0.000)	0.947*** (0.000)
LEAGUE POSITION	-1655*** (0.000)	-1303*** (0.004)		
LEAGUE POSITION PREV YEAR			-2365*** (0.000)	-2691*** (0.000)
WINNER	63092*** (0.000)	59324*** (0.000)		
WINNER PREV YEAR			11456 (0.319)	22771** (0.025)
SPA	-22204*** (0.000)	-26210*** (0.000)	-11175* (0.076)	-10281* (0.098)
GER	-12025* (0.071)	-15256* (0.055)	657 (0.926)	3252 (0.682)
ITA	-15173*** (0.003)	-28696*** (0.000)	-9004 (0.110)	-12167** (0.045)
FRA	-28158*** (0.000)	-32349*** (0.000)	-13992** (0.022)	-10778* (0.097)
Constant	60614*** (0.000)	55898*** (0.000)	46308*** (0.000)	43097*** (0.000)
R^2	0.920	0.937	0.914	0.940
# of obs.	297	393	291	388

Table 6 reports results for revenue models, which are separately run for time before UEFA FFP regulations and time after regulations. Multivariate linear regression models are same as previously presented *Models 1&3* in chapter 4. Dependent variable for all the models is revenue. League position and winner variable are from current season for models (1) & (2) and from previous season for models (3) and (4). P-values are presented in parenthesis to evaluate significance of the results, p<0.01 ***, p<0.05 **, p<0.1 *.

Table 7 is quite similar as Table 6, but now dependent variable is EBIT for all of the models, which are compared in terms of time before Financial Fair Play Regulations and time after the regulations. Again, as it has been seen before on the study, EBIT models have smaller explanatory power than revenue models and there are not so many statistically significant results in comparison to revenue models. Still one of the most important findings of the study can be made from the table below. With statistically significant results, it can be said that persistency of operational result has decreased enormously, from 90% to 55% with current year's league positions and winner variable, and from 90% to 60% with previous season's league positions and winner variable. It's difficult to make assumptions what has led to this great change in the figures, and further study would be required to completely understand the change. Still, as operational results of football clubs in this data set are clearly negative (on average $8.7 million), this sort of development towards non-persistent operational losses actually could signal the positive impact that Financial Fair Play Regulations have had towards clubs' profitability.

The main idea of the Table 7 is to seek differences in relation between sporting success and greater operational result before and after the introduction of Financial Fair Play Regulations. On time before regulations, league position was interestingly negatively associated with operational result on the same year ($0.5 million for each position) with some statistical significance ($p<0.1$). This actually was the case for Italian clubs in the whole timeline from 2008 to 2016. However, after the regulations went active there couldn't be found any statistically important relation between league position and EBIT. This could be reasoned the way that on time before regulations, clubs had to use more money and make bigger financial losses to reach higher positions on the league table. However, now on the few years that regulations have been active, this same connection doesn't exist anymore. Thus, clubs can strive to sporting success also without making that big operational losses. This result doesn't quite match the expectations because positive connection couldn't be found. Though, one should notice that regulations have been active only for few years and connection has already changed from negative to non-existing.

Highly important finding from the table is also that on the time before regulations, there couldn't be found statistically significant connection between winning the league and operational result. Since regulations were introduced, league winners are reporting on average $11.1 million greater operational results on the same year and $11.6 million higher result on the year after. These findings are also somewhat statistically significant, and it would be very interesting to study deeper and figure out what has led to this change. I am pretty confident that this result is somewhat proving that Financial Fair Play Regulations have had positive effect at least on the top clubs' profitability. Opposing arguments could be also made that clubs might just have found ways to make it look good on the paper and in reality, nothing has changed. Sorting this out is very much out of the scope of this study, but in the future, this could be a good topic to study. Unfortunately studying this would probably require access to confidential information. However, since UEFA introduced these regulations and are monitoring that clubs are following the rules, one should believe that they'll also study the possible loop holes that clubs might be using to avoid the consequences of the regulations.

Table 7. EBIT models by time period

	(1) **EBIT 08-11**	**(2)** **EBIT 12-16**	**(3)** **EBIT 08-11**	**(4)** **EBIT 12-16**
EBIT PREV YEAR	0.899*** (0.000)	0.550*** (0.000)	0.895*** (0.000)	0.604*** (0.000)
LEAGUE POSITION	516* (0.068)	-155 (0.504)		
LEAGUE POSITION PREV YEAR			-33 (0.905)	-361 (0.127)
WINNER	11987 (0.137)	11124* (0.058)		
WINNER PREV YEAR			-6634 (0.420)	11551* (0.052)
SPA	3989 (0.384)	10823*** (0.003)	9436** (0.036)	13357*** (0.000)
GER	1260 (0.826)	9484* (0.053)	6853 (0.223)	14656*** (0.004)
ITA	-1143 (0.794)	-1919 (0.585)	3143 (0.469)	6706* (0.064)
FRA	20 (0.996)	-1328 (0.707)	5483 (0.194)	4999 (0.169)
Constant	-9124** (0.045)	-1764*** (0.619)	-9401** (0.034)	-6018 (0.101)
R^2	0.542	0.493	0.559	0.517
# of obs.	297	393	291	388

Table 7 reports results for EBIT models, which are separately run for time before UEFA FFP regulations and time after regulations. Multivariate linear regression models are same as previously presented *Models 2&4* in chapter 4. Dependent variable for all the models is EBIT. League position and winner variable are from current season for models (1) & (2) and from previous season for models (3) and (4). P-values are presented in parenthesis to evaluate significance of the results, $p<0.01$ ***, $p<0.05$ **, $p<0.1$ *.

6 Conclusions

In this study, I have investigated the relation between sporting and financial success of football clubs in European top-five leagues. Sporting success was divided to two indicators: league position and league winner, whereas financial success was measured by revenue and operational P/L. The relation between sporting and financial success was studied from three different point of views. Firstly, the connection was studied for the whole data and compared whether connection differs when using indicators from the same year/season in comparison to using sporting success measurements from previous season and financial success measurements from current season. Secondly, the relation was studied separately for each of the top-five leagues to see how the connection differs between Europe's top leagues. Lastly, it was studied how the connection is different on time before UEFA introduced Financial Fair Play Regulations in comparison to the time after the introduction of regulations. The sample consisted of 139 clubs on time period of 2008-2016, which in total meant 690 observations.

It is found that sporting success has statistically significant connection with higher revenues, which is line with previous research (e.g. Szymanski & Kuypers, 1999; Barajas, *et al*., 2005. Positive connection was also found between winning the league and greater operational result on the same year. When measuring sporting successfulness from the previous year, it was found that one league position affects almost twice the amount on the revenue on the next year than on the same year. At the same time winning the league is in connection with much greater revenues on the same year than what was the case on the next year.

Winning the league is connection with greater revenues for all of the top-five leagues, and the connection is highest in French Ligue 1 and lowest in English Premier League. Reaching higher position on the league table is also in statistically significant connection with greater revenues in England, Germany and Italy. This connection couldn't be found for Spain and France. Operational result is in connection with winning the league only in English Premier League, where winners report on average $33.3 million higher operational result than other teams. Positive connection between league position and operational result was only found in German Bundesliga, but surprisingly negative connection was found in

Italian Serie A, where one position higher on league table amounted on average to $0.6 million smaller operating result.

Revenue is in connection with winning the league and reaching higher position on the table both before and after the introduction of UEFA Financial Fair Play Regulations. Since the regulations were introduced, relations have slightly changed to the way that now current season's sporting success have greater effect on next year's revenue and smaller effect on current year's revenue. Operational result was surprisingly negatively connected with league position on the time before regulations, and after the regulations, statistically significant connection doesn't exist. Winning the league wasn't in statistically significant connection with operational result on time before the regulations, but since introduction, league winners have reported on average $11.1 million greater operational result on same year and $11.6 million greater result on next year.

Most important limitation of the study is being dependent on publicly available data, which isn't officially monitored. Financial data is gathered from a single source (Orbis –database) and it didn't include data for all of the clubs, and for some clubs only part of the data could be gathered. In addition, sporting success data, in this case league positions, are handpicked from archives of leagues' websites, which might increase the risk of falsified data. For some parts of the study, one should also be careful that not too far-reaching conclusions are made based on the data used in this study. This is especially the case when analysing connection between financial success and winning the league. Although data includes 33 data points for winner -variable, through competitive imbalance in European football, there are only 16 different league winner clubs. Thus, when comparing the connections between countries, it should be noticed that results might be a bit biased and tell us more about the particular club than the whole league. This is the case especially in Italian Serie A and German Bundesliga, where in both leagues one club represents more than 75% of the winner data points used in this study. Finally, also one important limitation that has already been discussed, is that the study doesn't provide a picture of cause and effect relationships in the found connections. Thus, one should also avoid making too far-reaching conclusions about causes and effects.

For further research, I would suggest taking into account sporting success also in other competitions than domestic league. Interesting findings could be also made when dividing clubs to the ones that have qualified for European competitions and to the others that haven't and compare their connections between sporting and financial success. As football is developing all the time and the Financial Fair Play Regulations are quite new, same kind of study could also be repeated in few years to see latest developments. Highly interesting would be also deeper analysis of this study's conclusions and if possible, finding and proving cause and effect relations.

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