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Master Thesis

Football franchise pricing – Finding the right valuation method while factoring in potential investment motivations

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Foreword

What an incredible journey is coming to an end. It is time to show my appreciation for those that truly deserve it and without whom this experience would never have been possible.

First, I would like to thank my academic supervisor for his valuable help throughout the project. You deserve nothing but my sincere respect and gratitude for all your guidance and patience and for always making yourself available to help me.

I also want to thank my parents Carole and Fernand for their continuous support, for inspiring me to follow my dreams and for always believing in me. You have always supported me emotionally and financially throughout my studies and without you, I would never be where I am today. Lucky me for having you in my life.

Last but not least, to all my friends, thank you for your unconditional support and listening and offering advice when I needed it the most.

I could not have done this work without you all. Thank you!

Summary

Sports franchises are mostly privately held businesses whose financial data does generally not match the quality standards of conventional businesses as they are not subject to audit and other accounting regulations. In this context, it remains unclear how investors proceed in order to find reliable franchise value estimates since a valuation method standard has yet to be established in this field. It is also unclear what motivations drive investors to buy loss-making franchises at large premiums. In other words, I am investigating in this paper how analysts value football clubs and why they are actually incentivized to make the investment.

After analysing possible valuation methods from a theoretical standpoint and projecting them on football franchises, I have tested their applicability in this field and find that the income approach is the most reliable valuation method if data requirements are met, followed by Vogel's updated approach at second place. I also find that asset-based valuation methods are not suited for football clubs as they are unable to capture business skills and therefore significantly understate franchise value. Furthermore, the valuation results demonstrate the importance of data reliability and completeness by displaying the differences in valuation precision of public and private clubs' financial data. I have also developed a hedonic price index where global popularity, represented by "Facebook fans", and "Stadium capacity" turn out to be statistically significant value drivers. The index can be used to quantify the value of franchises' option-like features and thereby enhance the final value estimate by adding features that were not captured in the initial valuation. Last but not least, this paper provides alternative factors that may justify the large premiums paid by looking at tax advantages, soft power, the prestige of ownership, branding and marketing efforts or simple market dynamics such as the winner's curse of a bidding competition.

This thesis advances the field of sports franchise valuations through three points: First it points out the theoretical and practical applicability of potential valuation methods such that investors can find the best suitable valuation method before proceeding with a franchise valuation. Second, it extends Humphreys and Mondello (2008)'s hedonic price model with new variables that I consider missing in their paper. Third, the paper provides alternative explanations to why the gap between value estimates and actual transaction prices can be so large. This gives a completer picture of franchise valuation.

As a conclusion, this paper points out the most efficient way to obtain a solid value estimate for a franchise while simultaneously emphasizing on the subjective nature of such investments.

Keywords:
Sport economy · Sport finance · Football economy · Football club valuation · Value drivers · Intrinsic value · Relative valuation · Price index · Investment motivation · Pricing rationales

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1. Introduction

When football was codified in England in 1863, it was merely a national amateur sport that progressively changed over the years thanks to its ever-growing popularity and increased professionalism in the sport itself and its management. Nowadays, football franchises have gained world-wide media attention, which is illustrated by the global TV audience for the UEFA Champions League, the most prestigious competition in football at club-level, that even overshadows the popularity of the Super Bowl. The 2015 Champions League final was watched by an estimated audience of more than 180 million across more than 200 countries. (UEFA) The 2014 FIFA World Cup final in Brazil even reached more than one billion viewers. (FIFA) The global interest in this sport changed the football industry and turned football franchises into businesses that are run like real corporations, with some of them even being listed on the stock exchange.

With this extent of media attention on a global scale, football franchise "corporations" have seen a newly emerging trend since the end of the 20th century: Sports franchise acquisitions. More and more football franchises have caught the attention of wealthy investors that acquire them at large premiums even though these deals can hardly be justified with their return on investment, especially when most franchises appear to be loss-making entities. Especially foreign investors are increasingly entering the European football industry with costly franchise acquisitions. According to an article written by Liu Sha (2016), Chinese investors have acquired fourteen football franchises between 2015 and end of 2016, that included among others European heavyweights like Atletico Madrid, Manchester City, AC Milan and its rival Inter Milan, with all investments exceeding $2 billion in total.

This recent pattern of overseas investments led me to investigate three central questions. First, how do investors proceed with their valuation of football franchises and come up with the price that they are willing to pay? Since these franchises are mostly privately held and therefore not subject to audited financial statement publications, it is interesting to see how conventional valuation methods cope with the football industry and whether there are better-suited methods that are able to predict franchise value with greater precision. Second, why did this industry catch the attention of wealthy investors when most franchises are loss-making businesses? And third, what drives the value within such franchises?

I expect that finding answers to these three questions will provide a better understanding of the whole business part of the football industry and hopefully set a standard procedure for sports franchise valuations. In order to do so, I first provide the reader with a literature review to lay the groundwork for my research with the findings of other authors and then I analyse potential valuation methods from a theoretical perspective by pointing out its core idea and projecting it directly on the football industry. In a next step, I guide the reader through the data collection and methodology in order for him to properly understand the execution behind the practical application of the valuation methods. Last, I have a discussion about possible alternative explanations for the large premiums being paid before finishing with the results and the conclusion.

2. Related literature

Solntsev (2014) addresses practical problems that come from using the income approach in the field of football franchises. Aside from a detailed revenue and cost analysis, this article provides innovative solutions on how to estimate risk parameters and how to obtain solid forecasts when future performance is hard to predict. This paper follows a lucid and comprehensive structure, which is why I decided to make it the mainstay for my thesis and replicate its modus operandi for my other methods.

Vogel (1999) unveils two valuation methods that made an interesting addition to my selection of valuation methods. The first is an asset-based valuation that is adjusted by a multiple built on additional value factors, which was used in a court ruling in 1987 where a court had to estimate the value of a basketball franchise in order to calculate the amount of the compensation awarded to the plaintiff. The second is an updated valuation approach of the court's method which uses the average revenue and adjusts it with similar value factors as the court. It is interesting that Vogel argues that a franchise's revenue is the best indicator of its value and not its net asset value. Vine (2004) confirms Vogel's statement that revenue is the most important factor in determining franchise value after running several multivariate regression models that test different value drivers of sports franchises. Both Vogel and Levy's approach are in line with the two sports franchise valuation experts Forbes and Financial World magazine who also think that revenues are a better indicator of long-term values than operating income as the latter can be blurred by extraordinary expenses such as signing bonuses and thereby understate long-term value. Levy (2016), however, contradicts them after running two regression models with one being based on revenue figures and the other on operating income figures and his results show that operating income is a more accurate predictor of a franchise's market value, even though it can be blurred through earnings management. Unrelated to the previous two authors, Levy also tests the average precision of Forbes' value estimates compared to published transaction prices and found that, on average, Forbes understates value with over 50% which is equivalent to $153 million.

Despite the fact that several franchise owners testified in the case Fishman v. Estate of Wirtz that the ego factor played an important role in their investment decision, Vogel (1999) follows the court's reasoning that intangible assets, including player contracts, are not comparable due to their unique structure and decides to exclude them from its valuation method. Vine (2004) disagrees with this statement, arguing that the ego factor is an important factor in the investment decision to acquire a sports franchise, even though the premiums that are paid on top of the appraised value can only be partly explained by it. For Vine it is more the tax advantages that justify the large premiums.

Alexander and Kern (2004) run multivariate regressions of different value factors in order to test their significance and examine their effect on franchise value. They find that market size, team performance and a new stadium are significant value drivers. Humphreys and Mondello (2008) confirm that market size is a significant value driver, while they find that team performance and stadium age are not. They also find that the nature of the league, franchise age, stadium ownership and number of local competitors are significant value drivers, before going one step further and extending the variables to a hedonic price model.

3. The different valuation methods being studied

3.1. Intrinsic value approach

3.1.1. Income approach

The income approach is a search for intrinsic value where, according to Myers (1984), the value of the business is equal to the sum of the present values of the expected future benefits of owning the company. In other words, the market value of a firm is based on a business' fundamentals and how much income it is expected to generate in the future. That income measure is then discounted at a risk-adjusted discount rate to find its present value. This valuation approach is arguably the most important among all methods as it creates implicitly (for the market-based valuation) and explicitly (for the contingent claim valuation) the value basis for the others, which is why I write its method break-down in greater detail.

The most common valuation method within the income approach is the Discounted Cash Flow model (DCF). Shrieves and Wachowicz Jr. (2007) show that it can either be executed from the perspective of all claimholders so that it is based on expected free cash flows to the firm (FCFF) discounted at the weighted average cost of capital (WACC), or otherwise, from the viewpoint of equity investors where forecasted free cash flows to equity (FCFE) are discounted at the cost of equity. Investors that want to look at a business' profitability from a different angle can also use other less common variables such as dividends, residual income or others, as long as they are matched with the corresponding discount rate.

The formula for a one-stage DCF valuation is as follows:

$$(1)\ Enterprise\ value = \sum_{t=1}^{\infty} \frac{Cash\ Flow_t}{(1 + discount\ rate)^t}$$

Method break-down

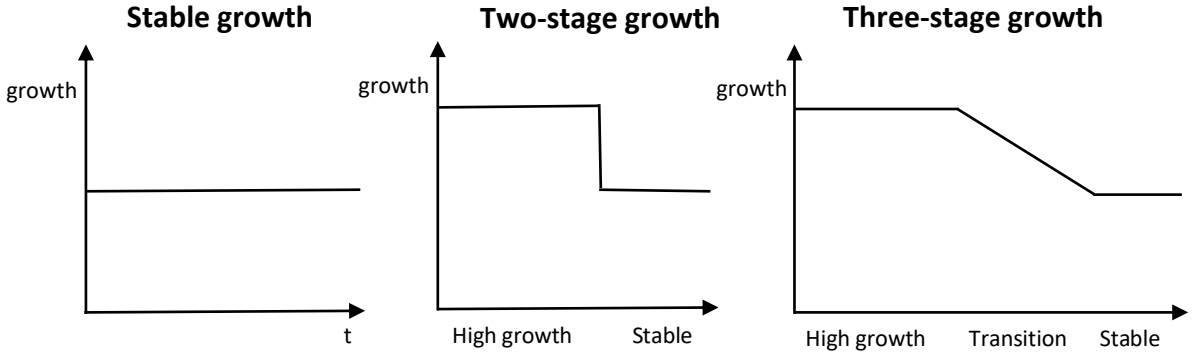
1) Make a thorough cost and revenue analysis.
2) Normalize financial data by adjusting irregular revenue and cost streams.
3) Capitalize specific costs.
4) Estimate growth rates in order to forecast financial data in a pro forma statement.
5) Calculate the cash flow variable.
6) Estimate the discount factor.
7) Plug all previously calculated items in the model in order to obtain the enterprise value.
8) Add financial assets and subtract interest-bearing debt to find market value of equity.

A thorough revenue and cost analysis is necessary to lay the fundament for the income valuation as it allows analysts to properly understand the company's financial structure and identify its past and current cash flows. This enables them to normalize financial data by adjusting abnormal revenue and cost streams and exclude non-recurring items in order to find a franchise's pure organic growth. In appendix I, I have assembled a typical revenue and cost structure of football franchises, based on Solntsev (2014)'s groundwork, with concrete examples of Manchester United. Since accounting conventions can distort the overall financial picture of a firm, it is also important to capitalize certain costs and thereby bring out its actual financial performance.

The previously calculated organic cash flows will be reused in order to establish a pro forma statement where all relevant revenue and cost items are individually forecasted over a chosen period. These forecasted items need to be based on growth rates that are estimated in a way that they reflect the firm's historical performance but also its expectations about the future, including emerging trends in the industry, the level of competition, market demand and other factors. According to Hill and Westbrook (1997), a SWOT analysis and Porter's five forces based on annual reports and forward-looking industry reports, can be very helpful in this regard. Since it is hard to estimate a firm's growth when there are no clear trends and no stable development, Solntsev (2014) recommends using pessimistic revenue projections and optimistic cost forecasts and that companies' expansion strategies can be a good indicator of how the company anticipates its future and provide a benchmark to compare the estimated growth rates with.

Company growth is never stable until perpetuity. As illustrated in Figure 1, the high growth rate over the first years can either abruptly change (as in the two-stage growth model) or gradually converge (as in the three-stage growth model) to the terminal growth rate where business grows at a steady pace into perpetuity[1]. Solntsev (2014) argues that, when a firm's future performance is unclear, it is better to use a shorter high growth period as the nearer future is more certain, even though this implies that most of the total value will come from the terminal growth period which is also uncertain, but as it grows at a slower pace, the overall valuation is more conservative.

Figure 1. Three different growth models



In a two-stage growth model, the DCF formula[2] changes to:

$$(2)\ Enterprise\ value = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{Terminal\ value}{(1+WACC)^n}$$

$$(3)\ Terminal\ value = \frac{FCFF_n \times\ (1+Terminal\ growth\ rate)}{(WACC - Terminal\ growth\ rate)}$$

[1] Note that I will use the two-stage growth model in my later application of the income approach, which is why I need to estimate a growth rate for both the high growth and the terminal growth period.
[2] Note that I will use the FCFF as cash flow variable as it the most commonly used and allows me to be more precise without running the risk of overgeneralizing the procedure.

FCFF consists of residual cash flows after meeting all operating expenses, reinvestment needs and tax obligations, but prior to payments to debt and equity holders. As stated by Damodaran (2012), it is calculated as follows:

$$(4)\ FCFF = EBIT \times (1 - Tax\ rate) - Net\ Capital\ Expenditures \pm\ change\ in\ noncash\ Working\ Capital$$

The cost of capital (WACC) is used to discount the FCFF in order to account for the time value of money and the risk of the expected future cash flows (which might be less than expected). In other words, it is the rate of return an investor requires from an investment with a comparable level of risk. Luehrman (1997) shows that WACC is calculated as follows:

$$(5)\ WACC = \frac{Equity \times Cost\ of\ Equity}{Debt + Equity} + \frac{Debt \times Cost\ of\ Debt}{Debt + Equity} \times (1 - Tax\ rate)$$

The cost of debt can be calculated by estimating the firm's default spread and adding it to the risk-free rate, while the cost of equity can be calculated with the help of the Capital Asset Pricing Model (CAPM):

$$(6)\ Cost\ of\ equity = Riskfree\ rate + ß \times (Equity\ risk\ premium)$$

The risk-free rate can be estimated by looking at the yield of long-term bonds of the market in which the company operates. ß (beta) measures the volatility of a security in comparison to the market as a whole, i.e. the systematic risk. ß > 1 means that the respective firm is more volatile than the market. The equity risk premium is equal to the difference between the market return and the risk-free rate. In other words, it's the excess return of the market.

Solntsev (2014) provides an innovative way to obtain a more reliable estimate for the cost of capital as he uses a point-based questionnaire that accounts for franchise-specific risks and calculates a risk premium that is used on top of the CAPM model. Since the franchises answer the questionnaire individually, the final discount rate will be better matched with their actual situation. You can find the questionnaire in the appendix II.

All previous variables are finally plugged in the DCF model in order to find the enterprise value of the firm. The market value of equity is then calculated by adding financial assets and subtracting interest-bearing debt as their value is disregarded in the valuation.

Bottom line

The income approach is able to measure value over long time horizons, theoretically even to infinity, by capturing financial performance. However, it is only suitable for specific types of football franchises. It is important that they have positive cash flows because otherwise income-based enterprise value is negative, implying that the buyer would receive money to acquire the franchise. Accordingly, unprofitable franchises are not eligible for this valuation approach. It is also problematic that this approach is unable to capture the value of unutilized assets, as for example unused land owned by the franchise, as they do not produce cash flows and are therefore not integrated in the value estimate.

Another requirement for football franchises to obtain a meaningful value estimate with the income approach is reliable and complete financial data. Since most football franchises are privately held, they are not subject to audit and can easily misrepresent their financial data by excluding certain items. They are not required by law to follow certain accounting standards, usually do not publish annual reports to provide deeper insights and can even refuse to disclose full data, which leaves plenty of room for misinterpretations. This means that their financial data is not necessarily honestly represented, transparent and complete and can give analysts a misleading picture that results in misrepresentative forecasts. This factor makes that certain franchises cannot be meaningfully estimated with the income approach. On the contrary, public football franchises are more suitable for this approach as they follow the same rules as conventional public businesses including mandatory audit.

It is also important to point out the lack of available market data for private football franchises that are infrequently sold such that are few reliable risk parameters that are needed to estimate the discount rate. To come around this problem, investors can either look at comparable firms' risk parameters or estimate them by relying on accounting variables, even though the latter may be less trustworthy.

As the income approach is extremely sensitive to assumptions about the future, football franchises are hard to value with this approach because their financial performance is difficult to forecast given the unpredictable nature of the game. Franchises are dependent on sports results that can change from one season to another. Success creates a chain reaction such that the fan base grows, which boosts ticket and merchandise sales and TV ratings, but also makes that sponsorship deals become more lucrative as the payee obtains a larger prospective customer base in return. In the end, revenue is directly linked to success and, as a result, input variables, such as cash flows and the cost of capital, can quickly be outdated and misrepresentative of a franchise's true financial performance. Accordingly, the precision of the value estimate is negatively correlated with the degree of uncertainty inherent in the input variables. Thus, only franchises with a stable performance are eligible for this type of valuation. The uncertainty can be lowered by matching forecasts with industry reports, internal development strategies and expansion plans that indicate where the franchise wants to position itself in the future, but some uncertainty persists. It is recommended to use a two- or three-stage growth model with a short time frame for the high growth period where financial performance is more predictable than in the longer run.

To conclude, only football franchises with positive and predictable cash flows, transparent financial data that is complete and free from error and representative risk proxies are suitable for the income approach. The further a franchise is from this ideal setting the more uncertainty is incorporated in the final value estimate. Accordingly, publicly traded franchises are usually best suited for this approach as they are subject to audit and issue reliable financial data. Elite franchises are also well-suited because it is improbable that they lose their market position in the near future and are therefore more predictable. However, finding accurate risk proxies is problematic for all of them. I expect the income approach to produce reasonable value estimates for franchises with complete financial data and positive cash flows, given that a reasonable risk proxy can be found.

3.1.2. Asset approach

According to Damodaran (2012) asset-based valuation follows the same principle as the conventional income approach, with the exception that it only considers the net value of the assets at the moment of the valuation and excludes all anticipations about the future. In other words, this model derives firm value purely from its assets and liabilities and can be compared to a limited discounted cash flow model. Even though there are several methods within the asset approach, all of them are based on the core idea that assets minus liabilities reflects overall firm value. What differentiates the methods from each other depends on which assets and liabilities are included in the valuation and which value measure (book value or market value) is being used. Each method allows investors to tackle the valuation process from a different perspective. Damodaran (2012) lays out three different methods.

The simplest method is the book value approach, where all items at stake are simply taken at the value at which they are carried on the balance sheet, i.e. the acquisition cost of the asset minus the accumulated depreciation at that point in time. In this case, the value of the firm is calculated by taking total assets and subtracting all liabilities. Since it is nearly impossible to find reliable book values for intangible assets such as patents, branding or human capital, some investors prefer to disregard them. The result of the book value approach is also referred to as net asset value and gives the firm's equity value (if intangible assets have not been excluded). It offers investors a neutral accounting perspective.

A second possibility is to look at the replacement value, i.e. estimating the cost of replacing all assets and paying off all liabilities that a company owns, in order to estimate total firm value. This approach allows investors to assess the firm from a buyer's perspective by looking at the net cash to be paid to recreate the business with an identic asset and liability structure at fair-market value. It follows a similar principle as Abratt and Bick (2003)'s Royalty Relief method which simulates how much it would cost if a company didn't own its brand and had to license it from a theoretical third party. Since the method uses market values rather than book values, it is easier to include intangible assets because, if the company was sold at least once, all intangibles were booked at market value at that point in time, generally reflecting the premium paid on top of the business market value.

A third option is to derive firm value from its liquidation value, i.e. the total proceeds from selling all the firm's tangible assets minus the total cost of paying off all its liabilities. In other words, this method simulates the bankruptcy of a company and thereby allows investors to value the firm from a seller's perspective, calculating the net cash to be received from a fire sale. In a such bankruptcy scenario, the firm's assets still have value but time pressure forces owners to sell them at a discount, i.e. below book value. If, however, the company is sold and not liquidated, such that assets are not individually sold but rather the business as a whole, its intangible assets should be included. In that case, the firm's value is referred to as its going-concern value. Same as the replacement value, it is calculated at fair-market value, even though it might be sold at a discount.

Assuming all assets and liabilities are included, the value measures produce different results and should generally be ranked as follows:

$$Liquidation\ value < Going\ concern\ value < Book\ value < Replacement\ value$$

When assets are first booked in the balance sheet at historical cost, i.e. book value, they can be seen as more or less neutral value estimates at the time of the acquisition and serve as a good benchmark to explain the other value estimates. Assets tend to increase in value in an economic environment with rising prices, which is why market values usually exceed book values, given that market demand remains the same. This explains why the replacement value method, based on market values, generally leads to the highest value estimates.

On the other hand, other value estimates decrease in value due to business' circumstances. The going concern and the liquidation value imply bankruptcy concerns, such that the business is sold at a loss to recover a part of the initial investment, resulting in a sale price below book value. In the going concern approach, the business is sold as a functioning unit and maintains therefore more value than if it is broken into assets that are individually sold in a fire sale as in the liquidation approach. Accordingly, the going concern value tends to exceed the liquidation value, while both are below book value. The value ranking depends also on whether the valuation method follows a buy or sell scenario, knowing that new assets will generally be bought at full price (as in the replacement cost approach) while used assets are usually sold at discount (as in the going concern and liquidation value approach).

Method break-down

1) Select all relevant items from the balance sheet that should be included in the valuation.
2) Adjust the value of every asset in order to capture its true current value. The value can either be increased or decreased, depending on the item's characteristics.
3) If needed, adjust the value of certain liabilities. However, they are generally already stated at fair market value, which can make step 3 obsolete.
4) Add up all selected (and possibly adjusted) assets and subtract total liabilities in order to obtain the net asset value of the business.

Bottom line

An asset-based valuation method provides a momentary picture of the football franchise. This is an interesting feature because the football industry is changing so rapidly that it is hard to coherently forecast the future. Bad player transfers, toxic team spirit or bad luck in important moments of a season are potential reasons why a stable top-tier team can be relegated to the second league from one season to another. Hence it can be advantageous to have a valuation method that focuses on the now and disregards all expectations about the future. As opposed to DCF valuations, the inputs in asset-based models have no or a low degree of uncertainty because they are based on available information and not forecasted based on estimated growth rates. Since an asset-based value estimate is obtained from the current state of the balance sheet, this method is useful in determining the value of firms whose business model does not include particular skills that create value as they cannot be reflected in the net asset value. At this point is not clear to what extent football franchises have specific value-enhancing skills, which is why this approach's momentary picture can be useful in later comparisons. If, however, franchises create value with special skills, the asset approach is inappropriate and franchise value would be understated.

A good example in this case is Athletic Bilbao, which is famous for its strong youth academy. Academy players' value is only booked in the balance sheet once they are sold, which means that, from an accounting perspective, they have zero value if they join Bilbao's first team. Accordingly, the skill of developing a strong academy plus the value of academy players that are not sold are not reflected in the balance sheet so that the net asset value understates the franchise's true value. An experienced coaching staff that has shaped a team for success, international marketing campaigns to extend the fan base and increase revenue and other distinctive skills are important value drivers in specific teams and cannot be captured with asset-based valuation, making the method inappropriate for franchises with distinctive skills or advantages. On top of that, it does not only disregard a franchise's know-how, but it is also static as it fails to consider any growth potential in its value estimation.

An advantage of the asset-approach is that, as opposed to the income approach, it allows to value franchises with negative cash flows because it bases its value estimate on current book value. This shows investors how much it would cost to recreate the franchise today, while disregarding past management decisions that are the reason for the franchise's losses and that the potential buyer intends to correct upon his arrival. This means that the asset-based valuation can provide a neutral value indicator for buyers that plan serious business changes in order to turn the franchise's financial situation around and make it a profitable entity in the near future. Accordingly, a valuation method that gives a momentary picture of the net asset value in place can be appealing to specific investors. One strategy for a prospective franchise owner could be to use the net asset value as an indicator whether he should simply buy a franchise or found a new one by rebuilding another's balance sheet, depending on the premium he would have to pay on top of the net asset value. That premium would then indicate how much the additional business skills are worth.

A serious drawback of the asset approach is that it is hard to restate asset value at market value if the amount of comparable sales is severely limited as their financial data is used as a benchmark to adjust the initial book values. The method relies also completely on the balance sheet data, such that engineered financial data can be misrepresentative and produce misleading value estimates.

To conclude, asset-based valuation is only beneficial if the prospective buyer intends to restructure the franchise after the acquisition or if it has no distinctive business skill such that firm value merely equals the net sum of all assets. However, net asset value can be used as an indicator for the franchise's minimum underlying value and reflect its value if it was not being operated. I expect the asset-based valuation to understate franchise value.

3.1.3. The court's approach in Fishman v. Estate of Wirtz

Seeking an answer to what is the most efficient valuation method to value a sport franchise, Vogel (1999) examines a court ruling from 1982 (Fishman v. Estate of Wirtz) where the court had to calculate the amount of damage to be awarded to a corporation that was prevented from purchasing the Chicago Bulls franchise in 1972. The court ruled that the indemnification should amount to the plaintiff's lost financial benefits from operating the Bulls franchise from 1972 to 1982 and decided to use an asset-based valuation approach to find the appropriate damage estimate. According to the court, the damage should be equal to the difference between the Bulls' net value in 1982, i.e. its market value of assets minus liabilities, and its market value in 1972, minus the book value of the net amount of money contributed by the franchise's shareholders (money contributed minus money distributed).

In order to find the franchise's net value at that time, the court had to determine the present market value of the Bull's assets first. To do so, the court proceeded in two steps. First, it identified five comparable NBA team sales that it used as a benchmark to estimate the current value of items in the Bull's assets. A thorough analysis of those comparable sales lead the court to the conclusion that intangible assets such as player contracts should be excluded. Even though the court considered player contracts to be valuable assets, it argued that they would not directly help in the assessment of the team's value because player contracts have a unique structure, making it impossible to compare them among each other. Regarding the overall valuation, the court also felt that the differences among teams were too significant, such that it had to make adjustments based on additional factors.

This lead the court to the second step, where it included the following factors in its valuation: (1) the trend in value of NBA clubs as shown by past sales; (2) profits and losses of NBA clubs, and the trend of profits and losses; (3) profits and losses of the Bulls, and the trend of profits and losses; (4) testimony of NBA owners and other experts; (5) changes in tax laws making ownership more or less desirable; (6) recent developments in pay TV; (7) changes in availability of arenas; (8) changes in free agent rules. The level of weight attributed to these factors was positively correlated with the level of difference between clubs and negatively correlated with the number of team sales. The court attributed the highest weight to pay TV and differences in arena availability and the lowest to changes in tax law and free agent rules. It also decided to disregard the prestige of franchise ownership in its valuation, arguing that corporations cannot enjoy the satisfaction from that factor.

Method break-down

1) Exclude intangible assets such as player contracts from the balance sheet
2) Use comparable franchise sales to convert all items on the balance sheet from book value to market value.
3) Sum up all selected (and possibly adjusted) assets and subtract total liabilities in order to get the net asset value of the business.
4) Further adjust the franchise's net asset value based on individually weighted factors that are of importance to the franchise.

Bottom line

This type of asset-based valuation is an upgrade compared to conventional asset-based methods because it provides prospective franchise buyers with a minimum value threshold, namely the net asset value, that is ultimately adjusted with weighted factors that can be individually selected for each franchise. In that sense, the initial net asset value can be seen as a certain value basis that is augmented with franchise-relevant value factors. This method is however not entirely free from uncertainty as book values need to be converted into market values based on similar franchise sales and as there is no standard method to quantify value drivers. The adjustment allows investors to obtain a more realistic value estimate that includes specific skills and value drivers instead of only reflecting book value.

One drawback of this method is that it excludes all intangible assets from the valuation, including player contracts, arguing that they are unique across teams and thus not reliable. Player contracts are generally one of the largest assets in a franchise's balance sheet and excluding them would clearly understate the net asset value. The method also excludes the ego factor, arguing that a corporation cannot benefit from it. However, a corporation is made of individual shareholders that could certainly enjoy the ego factor and after the testimony of several franchise owners that this factor was the primary reason for the acquisition, excluding it would understate a franchise's true value.

To conclude, the court's valuation approach is more extensive than conventional asset-based valuations because it adjusts book value based on franchise-specific factors, and thereby allows investors to integrate a franchise's individual context when putting a price tag on them. I expect this method's value estimates to be closer to franchises' true value, while still understating it.

3.1.4. Vogel's updated approach

After elaborating on the court's methodology to value the Chicago Bulls franchise, Vogel (1999) points out its limitations and suggests an updated approach that is in line with Financial World Magazine and Forbes's franchise valuation methodology. Instead of focusing on the franchise's net asset value and adjusting it with weighted factors that are linked to profitability, her updated approach rather looks at franchise revenues before adjusting it with complementary factors. She uses the team's average revenue for the past three years as a basis for the valuation, as opposed to the court using net asset value. Next, Vogel estimates a multiple based on different factors linked to the club's stadium (and whether it has favorable lease terms or not), the franchise's level of debt and the market it is playing in. A low level of debt and favorable lease terms lead to the highest multiples. The franchise's individually calculated multiple is then applied to its three-year-average revenue to obtain the final franchise value estimate.

Method break-down:

1) Calculate the franchise's three-year-average revenue.
2) Analyze the franchise's stadium characteristics, its lease terms, level of debt and market.
3) Calculate a multiple based on the factors from step 2 with the largest weight on favorable lease terms and low debt.
4) Multiply the franchise's average revenue with its multiple to obtain its value estimate.

Bottom line

This valuation method is interesting in the field of sports franchises because it is able to combine the positive feature of the income approach, such that it incorporates financial performance, with the main advantage of the court's approach, adjusting the value basis with franchise-relevant factors. Using revenue as a value basis is arguably more relevant because it actually creates value whereas net asset value merely gives a momentary picture. On top of that, the three-year-average revenue provides a stable value basis with a low degree of uncertainty because it uses historical financial performance instead of making assumptions about the future and because these revenue figures are already stated at market value. This seems especially pertinent for football franchises as their future is hard to predict and as there are only few comparable franchises that can be used to convert book values into market values. On the other hand, depending on how a franchise evolves, there is a risk that the past three years are no longer representative, especially if the franchise has recently been restructured or simply changed its business plan or management strategy.

Using revenue figures as value basis can also be misleading in the sense that operating expenses and cost of goods sold, i.e. its profit margin, are not taken into account and a larger revenue is automatically associated with more value, even though that is not necessarily true. Furthermore, this method disregards a franchise's assets which make up a part of its total value. A player contract can for example be terminated and converted into a direct revenue through a sale. This revenue potential is however not included in this method's value estimate which is why the latter can easily be understated.

To conclude, despite some drawbacks, this valuation method seems to be well suited for football franchises because it is not restricted by negative cash flows, while still having financial performance with a low degree of uncertainty at the center of the valuation and taking other value drivers into account. Accordingly, I expect the method to perform well.

3.1.5. Soccerex' Football Finance Index (FFI)

Soccerex (2015) has developed a new valuation method with the help of sport valuation experts. It includes a larger variety of factors that capture not only the franchises' financial strength (matched with the current reality of the market) but also the construction of the assets of each franchise, its economic power for future investments and its net debt. The FFI is based on five key variables, which are "playing assets" (A), "fixed assets" (B), "cash in the bank" (C), "owner potential investment" (D) and "net debt" (E). After quantifying the franchise's performance for each of the five key variables, the final FFI score is calculated by using the following formula:

$$(7)\ Score = \text{A FFI Score} + \text{B FFI Score} + \text{C FFI Score} + \text{D FFI Score} - \text{E FFI Score}$$

Bottom line

This method sounds promising as it analyses clubs from a broader perspective. However, Soccerex does not come up with value estimates but merely an index that allows them to rank each franchise's financial potential. It also does not provide any concrete insights on how to quantify its five key variables, which is why I could not replicate it. It shows however how Vogel's updated approach could be extended in order to obtain a completer picture.

3.2. Market approach

The core idea of the market approach is to use standardized multiples based on variables of interest in the firm and compare them to a specific reference point. That reference point is usually an industry average or individual multiples of comparable firms, but it can also be the analyzed firm's own multiple in the past.

As Damodaran (2007) points out, the most common method within the market approach is a cross-sectional comparison which derives the value of an asset by comparing it to the pricing of similar assets in the same industry. In other words, relative valuation estimates firm value by looking at what comparable businesses are worth contemporaneously. Damodaran (2012) states that the method is built on the assumption that market prices are on average correct, while individual assets can be mispriced. However, since assets are only similar to some degree, investors use standardized multiples that are related to the firms' fundamentals. This allows them to adjust for differences among firms by looking at the proportion of the variable of interest and thereby make comparisons more meaningful. In that sense, if a firm has higher earnings than the one it is being compared to, its market price may be proportionally bigger such that both companies' multiples are the same or not.

Analysts can also calculate an industry-average multiple as a benchmark to compare individual assets' multiple with in order to identify outliers and determine whether they are overvalued (if the individual multiple is above average) or undervalued (if the individual multiple is below average). According to Damodaran (2012), the comparison is however only meaningful if the firms have the same fundamental characteristics, i.e. similar risk, capital structure, accounting policy, business model, growth expectations and are in the same industry and geographical area. Otherwise, comparing their multiples is not conclusive because multiples cannot account for the different characteristics and backgrounds.

A second option is to compare a company's multiple to its own multiples in the past. This means that investors assess the firm's current level of performance in relation to its past and try to identify a trend. This method works well for companies with a long history, given that their fundamentals remain unchanged such that the level of risk and growth expectations are similar for the multiples being compared to each other. It is also important that market conditions as for example interest rates remain similar because comparisons across time are otherwise no longer meaningful.

A third option is to combine both previous methods and make cross-sectional comparisons across time. This means that you compare similar firms that are at the moment of the valuation in different life cycles. If for example, the firm at stake is in its first year whereas the benchmark firm is already mature, it can make sense to compare both firms' multiple of its first year, given that market conditions and company characteristics are similar.

There are a multitude of possible multiples to be used. The most common is the price-earnings ratio, followed by the price–book value ratio. The latter shows whether a firm is being sold at a discount (Market price < book value) such that the ratio is below 1 or the other way around with a ratio larger than 1. If a firm's market price exceeds its book value, the market sees the firm as more valuable than its current book value suggests. Accordingly, a ratio above 1 is generally an indicator for excellent future prospects for growth, expansion and increased profits, which will ultimately raise the book value of the firm in accordance with the market's perception. This ratio is a good multiple to measure long-term performance. Sales, EBIT, free cash flow or earnings per share or even cost figures such as net debt or replacement value are other examples of widely used variables. It is also common to use enterprise value instead of market value.

Method break-down

1) Make an industry analysis.
2) Make a selection of all comparable firms.
3) Select the multiples to use based on the firm's characteristics that are of central interest.
4) Calculate an industry average for the multiples selected in step 3.
5) Calculate the Individual multiples for the firm at stake and the firms selected in step 2.
6) Make the relative valuation by comparing all multiples.

Bottom line

Even though the market approach is simple and quick, it is seriously restricted in the context of football franchises due to the limited market data that is available with most franchise sales being undisclosed. Moreover, relative valuation is built on the implicit assumption that markets are correctly priced on average but with a low number of transactions, little transparency and no established valuation standard, it might be violated leading to biased results. The current transaction prices for football franchises are coined by large premiums, which means that either franchises are mispriced on average or that conventional valuation methods are inappropriate to value them. If the first scenario is the case, such that investors pay large premiums just because they don't care about money and can afford to waste it, relative valuation fails because instead of only one mispriced firm, the whole sector is overpriced and the benchmark is inexact.

On top of that, franchises are hard to compare with each other as they follow distinct business models, have diverging risk properties tied to factors such as management performance, leverage or financial reserves and their growth expectations differ depending on the level of media attention, sports results and financial means. The problem is that all these characteristics are not reflected in the multiples, making multiple comparisons across franchises meaningless if they don't have similar fundamentals and market conditions. Analysts can take advantage of this shortcoming and draw a misleading picture that confirms their bias.

In the end, relative valuation seems to be unsuitable for most franchise valuations. However, as the resulting multiples implicitly reflect investors' expectations about the future, they can serve as a logical check for value estimates from other valuation methods.

3.3. Contingent claim valuation approach

Damodaran (2012) states that a contingent claim valuation allows investors to value assets that have the characteristics of an option such that they only pay off under certain circumstances in the future. Put differently, the asset at stake depends, entirely or partially, on future cash flows that are contingent on whether an event occurs or not and contingent claim valuation models are able to take this uncertain payoff into account. It is however not the entire payoff that is added to the franchise's final value estimate because it is uncertain to happen. This approach is built on the assumption that markets intuitively recognize these option-like features in an asset and eventually incorporate the value of the option into the asset's market price. This means that using contingent claim model-based valuation pays off as soon as the market correction takes place.

A concrete example of a such option-like feature is a franchise that has the possibility to qualify for a competition that issues prize money, i.e. additional revenue and media attention. In that case, overall franchise value needs to include the value of the potential to qualify. Generally, investors believe to have a strategy on how to increase the probability of success, i.e. qualification for the competition, be it through more efficient management, new player or transfers or simple belief in the ability of the players, but the qualification is still not guaranteed. Accordingly, they value the franchise at:

$$(8)\ Franchise\ value = Initial\ franchise\ value + Value\ of\ the\ option\ to\ qualify$$

The initial franchise value can be referred to as a static net present value.

Method break-down

1) Find all important option-like value drivers and collect their data.
2) Run a regression to test which value drivers are significant.
3) Take all significant value drivers' coefficient to create the hedonic price index.

Bottom line

Contingent claim valuation appears to be particularly valuable in an industry that is coined by uncertainty about the future such as the football industry. Even if it is no stand-alone method, it enables analysts to include a franchise's option-like features in its final value estimate. Such events can be the qualification for an international competition, staying in the top-tier league, keeping/buying an important star player that guarantees international media attention or any other event that has a potential pay-off that is linked to whether a certain event occurs or not. It gives investors also a new perspective on an asset's option characteristics. While more volatility, i.e. risk, generally increases the cost of capital and thereby decreases an asset's value, option pricing models provide investors that face an option-like asset with an opportunity to turn risk into value.

A drawback of option pricing models is that it relies on input variables such as the company's current market value and its variance, which need to be extracted from financial markets. For nontraded assets like many football franchises and real options, such market data is not available and, as a result, needs to be estimated. Accordingly, option pricing models can entail more estimation error if they are not based on reported market data.

I expect the contingent claim valuation to be the complement that gives the final value estimate an edge over traditional valuation methods. If the procedure goes as planned, this type of valuation will produce a hedonic price index as an addendum to another valuation method. In the end it is important though to only include value drivers that are not yet reflected in the basis valuation method in order to avoid double-counting.

4. Data Selection and Methodology

The main data source of this paper is Bloomberg as it provides the franchises' financial statements, and thereby the basis for my valuations, and transaction prices for several franchise sales that are used for the calculation of the premiums paid. Details regarding the franchise sales can be found in the appendix III. Note that I followed the same method as Humphreys and Mondello (2008) such that I converted fractional sales prices into full prices. This means that if an investor purchased a 50% stake for €1 million, I count the full value of the franchise as €2 million. Since the transaction prices and value estimates are not always in euros, I convert the British pound and US dollar figures into euros by using the exchange rates from the end of the respective year. Appendix IV displays the exchange rates. They are re-used throughout the entire paper when currencies had to be converted.

Complementary data regarding franchise sales comes from Reuters, a world-renowned provider of financial market data, and Forbes. Franchise value estimates that do not originate from actual sales come from independent organizations' valuations, including KPMG (2017)'s annually published value estimates for Europe's top football teams, Marc Rohde and Christoph Breuer (2016)'s valuations and Forbes (2017)'s annual estimates. The value estimates cover the period from 2013 to 2017, whereas reported transactions can go back to 2005. It is worth mentioning at this point that the available financial data was fairly limited as most franchises are privately owned and therefore not required to publish financial data (and if they do so it is not subject to audit and special accounting standards).

When it comes to the value factors variables that were used in the regression, various sources were used in order to obtain the required data. Data regarding league characteristics originate from the five official league websites[3]. Population figures are mostly sophisticated estimates by national statistics organizations based on the regions' official census statistics as the population is only officially registered every 10 years. As the 2017 estimates were not published yet, I had no other choice but to estimate them by taking the average growth rate over the past years within each region. As there were no serious environmental catastrophes in Europe, cultural revolutions or any other changes that would seriously change population growth estimates, I expect the average growth rate to be representative, even though there might be minor deviations from the actual population number in the end.

[3] www.laliga.es, www.premierleague.com, www.bundesliga.com, www.legaseriea.it and www.lfp.fr

Regarding the GDP per capita data, apart from most of the 2017 figures and all years before 2010, the yearly figures originate from data released by Eurostat, the statistical office of the European Union. When there are no trustworthy estimates from statistics organization, I have used the IMF World Economic Outlook's growth rate of 1,5% (for the Euro area), published at Global Finance (2017), to estimate the missing GDP per capita figures of 2017.[4] Facebook fans figures obviously come from the individual teams' official Facebook page. Data regarding the variables linked to the franchises themselves and their stadium are provided by the official league websites, franchise website and Wikipedia.

Table 4.1 Summary statistics of value observations and potential value drivers over the period 2013-2017

	Observations	**Mean**	**Std. Dev.**	**Min**	**Max**
Price (million) (€)	110	763,11	888,80	27,60	3454,15
League competitors	110	0,85	0,36	0,00	1,00
Regional competitors	110	3,30	1,45	1,00	6,00
Premier League	110	0,32	0,47	0,00	1,00
1. Bundesliga	110	0,15	0,36	0,00	1,00
Ligue 1	110	0,10	0,30	0,00	1,00
Serie A	110	0,25	0,44	0,00	1,00
La Liga	110	0,17	0,38	0,00	1,00
Regional identity	110	0,94	0,25	0,00	1,00
Area population (million)	110	8,24	3,86	0,39	17,89
GDP per capita (€)	110	36795,25	13286,52	16800,00	72100,00
Facebook fans (million)	110	24,81	29,41	0,42	107,22
Franchise age	110	114,20	22,78	43,00	139,00
Top-tier seasons ratio	110	0,90	0,16	0,21	1,00
Final standing	110	4,77	3,64	1,00	16,00
Championships won	110	8,34	9,70	0,00	33,00
Stars on the team	110	4,56	4,60	0,00	16,00
Stadium ownership	110	0,50	0,50	0,00	1,00
Stadium capacity	110	61628,85	20101,22	18523,00	100000,00
Stadium age	110	11,25	9,73	0,00	44,00

The total number of value observations ("Price") is 110, with 17 in Germany, 35 in England, 11 in France, 28 in Italy and 19 in Spain and prices are all converted into euros.

I have decided to focus on the 5 major European football leagues, which are the Premier League, La Liga, 1. Bundesliga, Ligue 1 and Serie A, because they have similar characteristics and therefore make comparisons more meaningful. Focusing on one single sport is, in retrospect, more interesting as it allows to dig in deeper and focus on the details of the sport instead of making a broad and overgeneralized analysis. My first instinct was to analyse the valuation of all major sports in Europe, but the lack of publicly available data was a second reason that made me limit my analysis purely on football franchises.

[4] All other missing data in this regard is provided by statistics organizations, such as www.statista.com, and national or regional data websites such as www.insee.fr.

The data collection serves for three purposes:
First, I need the selected football clubs' (Atletico Madrid, Borussia Dortmund, AC Milan, Paris Saint-Germain and Manchester City) financial data as a basis for the franchise valuations. I have decided to pick one team from each league as it allows me to make comparisons across leagues. Opposed to privately owned franchises, listed ones, such as Borussia Dortmund, are handy as they provide investors with a current value assessment of the franchise thanks to its current market capitalization. That market price can be traced back in time and is supported with trustworthy financial data that is subject to audit and conventional accounting standards. More details regarding the individual valuation methodologies and deeper insights into its variables are provided in the result section.

Second, I need to find franchise sale prices in order to have market values for the franchises at a given point in time. Primary, the reported transaction prices are used as a benchmark for my valuation results and allow me to calculate the premiums being paid for each valuation method. Unfortunately, my sample of franchise sales in the twenty-first century is limited, consisting of merely eighteen observations, and the franchises' corresponding financial statements are only available for some of them. The initial plan was to test the valuation methods by applying them to different franchises with all transactions and valuations in the exact same year, as it would facilitate the comparison of the results. However, with the limited number of reported sales and the restricted financial data, matching my sample accordingly was not possible. As a result, the valuations are done for different years instead with Manchester City in 2008 and 2015, AC Milan in 2016[5], Paris Saint-Germain in 2010, Borussia Dortmund in 2015 and 2017 and Atletico Madrid in 2015.

Third, I need to find figures for variables that potentially affect franchise value in order to create a hedonic price index with a multivariate regression. Originally, I wanted to use only reported transaction prices as dependent variables as they are actual market values. However, eighteen observations are insufficient, which is why I was forced to augment the data sample with estimated franchise values, resulting in 110 observations. Humphreys and Mondello (2008) merely used reported transaction prices. Regarding the independent variables in my regression model, I use four packages that include different variables, which are linked to the characteristics of the league, the client base, the franchise itself and its stadium. The summary statistics above provide more insights into the individual variables.

The first package includes three variables that refer to the leagues' characteristics. Humphreys and Mondello (2008) test how "nature of the league" and "number of competing teams in the market" affect value, whereas Alexander and Kern (2004) do not associate any value creation with league characteristics. Since the "number of competing teams in the market" could be interpreted in two ways, I split the variable into two, namely "league competitors" and "regional competitors". The third variable in this package is the "league" itself. This set of variables is meant to control whether the nature of the league and the number of competing teams affect value and how value changes as soon as the franchise does not offer a regional monopolistic market position to the franchise owner due to regional competitors within the same league.

[5] Note that AC Milan's reported transaction price is in 2017 whereas the franchise's financial data is only available until 2016. However, as the transaction was executed at the beginning of 2017, it is sensible to use financial data of 2016 for the valuations.

The second package consists of four variables that reflect the franchise's, respectively the investor and future franchise owner's prospective client base's characteristics. Both Humphreys and Mondello (2008) and Alexander and Kern (2004) use "local market size", while the latter two authors add "regional identity", "change in location" and "change in location and identity". Since European football franchises cannot change their location to another city and obtain a new identity, as it can be done in American sports, the last two mentioned variables can be excluded. I use "area population" to reflect the local market size as both reference papers. I have decided to use regional data for this variable instead of city data because I am convinced that people living outside the official city borders but still inside the franchise's region, can have a strong affinity for the franchise and limiting this variable to mere city data would exclude all these fans. Area population provides a trailblazing estimate for the potential client base, given it has a regional identity. Accordingly, the next variable is "regional identity" and reflects how the franchise is perceived within the region. Having no regional identity shows that the franchise does not play an important role in that region and that the new owner will not obtain a reliable client base with the acquisition. This variable is arguably subjective.

After including the variables of past literature, I have chosen to augment the client base data with "GDP per capita" in order to analyse how the regional client base's financial means affect franchise value (even though, in a globalized world, this factor can become obsolete) and the number of "Facebook fans" as an indicator that does not only look at the regional fan base but extends it to a global scale. Since there are no official membership figures for the teams, the number of Facebook fans is my second-best estimate to reflect the franchise's global popularity. However, Facebook does not allow to look back at statistics at any moment in time, which is why I only have the current figures. I intend to make one regression where I include the "Facebook fans" variable and one where I exclude it, to see how the results ultimately change.

The third package is made of five variables that are linked to the franchise itself, including "franchise age" and "team performance" same as Humphreys and Mondello (2008) and Alexander and Kern (2004). "Franchise age" analyses whether its history is value-enhancing and how old franchises compare to newer ones. When it comes to team performance, both papers only consider recent performance, whereas I expect past performance to also affect value as it can create a prestigious image and increase a franchise's overall popularity. Humphreys and Mondello (2008) look at the wins percentage over the past five years.

I prefer to split this variable into "final standing" to reflect the current team performance and the number of "championships won" which puts the variable in a larger perspective by combining franchise history with historical performance. Having won many championships usually implies a higher mass appeal, i.e. a larger fan base, and thereby affects the current status of the franchise as it is associated with strong tradition and prestige. I also assume that using championships is more appropriate than using international competitions, like the UEFA Champions League, for two reasons. First, even though international competitions are more prestigious, championships are without knock-out stages and, second, there is one title per league instead of just one for entire Europe.

I have decided to enhance the franchise-package with variables that are not part of previous literature. As the prestige of being a top-tier team can positively affect franchise value, I add a variable called "top-tier seasons ratio" which reflects how many seasons the franchise has been playing in the highest national league in proportion to the data that is available. Using a ratio helps me come around a problem linked to the number of seasons in the first league. The English Premier League as we know it today was only launched in 1992, whereas English football goes back far beyond that. A similar problem in the Italian Serie A is due to the fact that I only have access to its season statistics over the past 31 years, even though the league is older than that. A ratio of 1 would be the highest possible outcome, meaning that the club has taken part in all possible league seasons of the total available data. A last variable that I include in this package is the number of "stars on the team" because it is a good indicator for a franchise's current appeal to football audiences and its worldwide media attention. Having a polarizing star-player strongly increases a franchise's popularity and its radiant power. When Neymar was transferred from FC Barcelona to Paris Saint-Germain, the club's international recognition, its fan base and its popularity were drastically enhanced with the Brazilian star's presence in the team. Classifying players as stars is however subjective.

The fourth and last package of variables consists of three variables that are related to the franchise's stadium. Both Alexander and Kern (2004) and Humphreys and Mondello (2008) analyse the impact of "stadium age" on franchise value. As new stadiums generally have better infrastructures, better VIP areas and more appeal to the fans, including this variable is sensible. A stadium that is no older than 8 years (since its creation or renovation) is considered as new in my analysis. Humphreys and Mondello (2008) go one step further and also investigate whether "stadium ownership" has an impact on franchise value. I have included this variable too because owning the stadium can be value-enhancing since full game-day revenues appertain to the franchise. In relation to the extent of stadium revenues, I figure that "stadium capacity" is a variable that also needs to be added to this package as a franchise's game-day revenue potential is positively correlated with its stadium capacity. In addition, it reflects how much of its fan base has the chance to physically attend games and make a real-life experience that stimulates their affiliation to the franchise. International matches only allow seated places, but since the majority of the franchises' games are at national stage, I have decided to use the stadium capacity figures for national matches where seating but also standing tickets are sold.

5. Results from the applied valuation methods

5.1. DCF Valuation

I have decided to use the FCFF and not the FCFE because I am not only interested in the equity part of the franchises but also want to include the clubs' debt structure as large debt can be an indicator for high risk. This implies that, in order to obtain the present values of the high growth period and of the terminal period, each period's value will be discounted at the WACC. As a shorter projection period is better suited for franchises whose financial results are highly uncertain in the medium to long run, I have decided not to use a customary projection period between five and ten years but rather use a shorter time frame of only three years. That way, the high growth period's value estimate is more probable to be correctly estimated and the overall value estimate is more conservative, even though a larger part of the franchise value comes from the terminal value.

Table 5.2 Calculation and results of the DCF valuation

FCFF calculation

Team	Manchester City	Borussia Dortmund	Atlético Madrid
Year	2015	2015	2015
Revenue	£ 351.766.000,00	€ 293.029.000,00	€ 225.222.834,00
Cost of Revenue	£ 75.629.000,00	NI	NI
Net Operating expenses	NI	€ 287.209.000,00	NI
EBIT	£ 1.953.000,00	€ 5.820.000,00	€ 40.059.834,00
Net interest expenses	£ 1.279.000,00	€ 7.159.000,00	NI
Pre-tax income	£ 674.000,00	-€ 1.339.000,00	€ 18.974.019,00
Taxes	NI	NI	€ 5.852.179,00
Net income	£ 1.054.000,00	€ 87.310,00	€ 13.121.840,00
Return on invested capital	/	/	55%
Reinvestment	/	/	€ 2.168.860,98
FCFF	/	€ 7.542.000,00	€ 10.952.979,02

DCF valuation

Team	Borussia Dortmund	Atlético Madrid
Year	2015	2015
Risk free rate	1,30%	2,20%
Cost of capital	6,15%	7,40%
Market risk premium	5,30%	5,90%
Expected growth rate	27,1%	6,3%
Terminal growth rate	2%	2%
Present enterprise value of the projection period	€ 40.332.114,71	€ 43.143.412,09
Present enterprise value of the terminal value	€ 181.734.939,76	€ 202.832.944,79
Total enterprise value	€ 222.067.054,47	€ 245.976.356,88
Financial assets	€ 53.739.000,00	€ 25.972.720,00
Interest-bearing debt	€ 31.270.000,00	€ 52.714.987,00
Market value of Equity	€ 244.536.054,47	€ 219.234.089,88
Valuation accuracy		
Reported transaction price	€ 309.900.000,00	€ 225.000.000,00
Premium paid based on DCF valuation with FCFF	€ 65.363.945,53	€ 5.765.910,12
in %	27%	3%

As shown in Table 5.2, I can only make the valuation for two franchises for two reasons. First, the income approach is only applicable to profitable franchises, which is why Manchester City (2008), AC Milan (2016), Paris Saint-Germain (2010) and Borussia Dortmund (2017) can't be valued with this method. Second, football franchises are mostly private businesses that are not required to publish financial data in accordance with accounting standards or additional details such as an annual report or complementary notes, leading to limited financial data. This is the case for Manchester City, which is why I can't calculate its FCFF and proceed with its valuation. This leaves me with only two teams that meet the requirements for the DCF valuation, namely Borussia Dortmund (2015) and Atletico Madrid (2015).

One conspicuity regarding the financial data is that Manchester City (2015)'s pretax income is lower than its net income. This can either be explained through deferred taxes from previous years or through net abnormal gains. The same applies to Borussia Dortmund (2015) which even has a negative pretax income followed by a positive net income. Since this franchise is publicly traded, its financial data is more extensive and shows that the franchise's positive income is due to large abnormal gains.

I use the following FCFF formula for the calculation of Atletico Madrid's FCFF:

$$(9)\ FCFF = EBIT \times (1 - Tax\ rate) - Reinvestment$$

$$(10)\ Reinvestment = \frac{Expected\ grwoth\ rate}{Return\ on\ invested\ capital} \times \big(EBIT \times (1 - Tax\ rate)\big)$$

Note that Borussia Dortmund's financial statements do not provide all inputs required for this formula, which is why I use its FCFF calculated by Bloomberg instead.

The risk-free rates are estimated with the help of Valuewalk (2018). As a result, the risk-free rate is 1,3% for Dortmund and 2,2% for Atletico Madrid. In order to obtain the appropriate expected growth rates for both teams' three-years high growth period and terminal period, I use Bloomberg's estimates from the teams' financial statements and find 1-year and 5-year growth rates for Borussia Dortmund of 36,30%, respectively 19,96%, and 23,18%, respectively 14,93%, for Atletico Madrid. Next, I adjust these growth rates as a function of the historical development of their operating income in proportion to each other. Last, I analyze the five-year evolution of both franchises' total debt and find that Dortmund's decreases at a rate of 21,18% whereas Atletico's increases only slightly by 0,73%. Since there is no formula to convert these growth indicators into a final expected growth rate, I have decided to make a worst-case and a best-case scenario and take the average of them to find the estimate for the expected growth rate that I use in my model. As a result, Dortmund's expected growth rate is 27,1%, while Atletico Madrid's is only 6,3%. This is more or less in line with Deloitte (2016)'s revenue predictions for 2016. The estimated terminal growth rate for both teams is 2%.

In order to estimate the cost of capital, I have combined several reference points. First, I take a cost of capital of 7,5% into account that, according to an article by Damodaran (2014) that replicates the valuation of the Los Angeles Clippers, is representative for sports franchises. Next, I compare the teams' liquidity and credit data from their financial statements and their default-risk from Bloomberg, which is 0,0352% for Dortmund and 0,2844% for Atletico. As a result, I estimate Dortmund's discount rate at 6,15% and Atletico Madrid's at 7,4%.

In the end, I plug in all previously estimated variables in the DCF model to obtain the franchises' enterprise value, add their financial assets and subtract their interest-bearing debt to finally find their market value of equity, which is illustrated in the table above. With an average premium of 15%, the FCFF-based valuation results come close to the franchises' reported market prices, showing that the income approach is suitable to value football franchises as long as they provide complete data and do not generate negative cash flows. Even though both valuations seem to produce accurate estimates, it is important to bear in mind that this method is able to value only two franchises out of seven. This shows that, even though the income approach can be precise, it relies heavily on input variables that are hard to estimate, which in turn limits the applicability of the income approach in the football industry. The biggest challenge is to obtain reliable market data and risk parameters. It is also worth mentioning at this point that, even if the results seem realistic, they are merely based on two observations. The valuation might be close to the reported transaction price for these two observations and largely differ for others. In order for these results to be more trustworthy, the number of observations needs to be increased.

The bottom line regarding the applicability of the income approach to football franchises is that, if certain financial data conditions are met, this technique appears to be a solid valuation method that brings investors close to the franchises' intrinsic value.

5.2. Asset-based valuation

The asset-based valuation comprises three different methods whose valuation results are displayed in table 5.3.

Table 5.3 Calculation and results of the asset-based valuation

Team		Manchester City	Manchester City	AC Milan	Paris Saint-Germain	Borussia Dortmund	Borussia Dortmund	Atlético Madrid
Year		2008	2015	2016	2010	2015	2017	2015
1. Book value approach (including intangibles)	Total assets	£ 248.505.000,00	£ 875.796.000,00	€ 469.208.330,00	€ 58.733.365,00	€ 386.539.000,00	€ 478.597.000,00	€ 544.445.350,00
	Total liabilities	£ 238.045.000,00	£ 199.549.000,00	€ 464.796.140,00	€ 57.643.283,00	€ 100.461.000,00	€ 166.295.000,00	€ 521.226.454,00
	Equity value	£ 10.460.000,00	£ 676.247.000,00	€ 4.412.190,00	€ 1.090.082,00	€ 286.078.000,00	€ 312.302.000,00	€ 23.218.896,00
	Equity value (€)	€ 10.816.959,67	€ 918.813.858,70	€ 4.412.190,00	€ 1.090.082,00	€ 286.078.000,00	€ 312.302.000,00	€ 23.218.896,00
2. Book value approach (excluding intangibles)	Total intangible assets	NI	NI	€ 162.800.330,00	NI	€ 96.340.000,00	€ 141.521.000,00	NI
	Total assets without intangibles	£ 248.505.000,00	£ 875.796.000,00	€ 306.408.000,00	€ 58.733.365,00	€ 290.199.000,00	€ 337.076.000,00	€ 544.445.350,00
	Total liabilities	£ 238.045.000,00	£ 199.549.000,00	€ 464.796.140,00	€ 57.643.283,00	€ 100.461.000,00	€ 166.295.000,00	€ 521.226.454,00
	Net asset value	£ 10.460.000,00	£ 676.247.000,00	-€ 158.388.140,00	€ 1.090.082,00	€ 189.738.000,00	€ 170.781.000,00	€ 23.218.896,00
	Net asset value (€)	€ 10.816.959,67	€ 918.813.858,70	-€ 158.388.140,00	€ 1.090.082,00	€ 189.738.000,00	€ 170.781.000,00	€ 23.218.896,00
3. The court's approach in Fishman v. Estate of Wirtz	Net asset value (€)	€ 10.816.959,67	€ 918.813.858,70	-€ 158.388.140,00	€ 1.090.082,00	€ 189.738.000,00	€ 170.781.000,00	€ 23.218.896,00
	Overall adjustment factor	1,625	2,015	1,796	1,358	1,882	2,164	2,046
	Adjusted net asset value (€)	€ 17.581.348,10	€ 1.851.731.739,66	-€ 284.486.860,80	€ 1.480.789,61	€ 357.041.417,56	€ 369.529.131,38	€ 47.504.013,87
Valuation accuracy								
Reported transaction price		€ 206.825.232,68	€ 2.817.179.158,51	€ 740.518.362,85	€ 110.407.659,05	€ 309.900.000,00	€ 562.200.000,00	€ 225.000.000,00
Premium paid based on valuation method 1		€ 196.008.273,01	€ 1.898.365.299,81	€ 736.106.172,85	€ 109.317.577,05	€ 23.822.000,00	€ 249.898.000,00	€ 201.781.104,00
in %		1812%	207%	16683%	10028%	8%	80%	869%
Premium paid based on valuation method 2		€ 196.008.273,01	€ 1.898.365.299,81	€ 898.906.502,85	€ 109.317.577,05	€ 120.162.000,00	€ 391.419.000,00	€ 201.781.104,00
in %		1812%	207%	-568%	10028%	63%	229%	869%
Premium paid based on valuation method 3		€ 189.243.884,58	€ 965.447.418,84	€ 1.025.005.223,65	€ 108.926.869,44	-€ 47.141.417,56	€ 192.670.868,62	€ 177.495.986,13
in %		1076%	52%	-360%	7356%	-13%	52%	374%

Book value approach (including intangibles)

In order to find the equity value of the five selected franchises, I take the reported total assets value and deduct the total liabilities value from it without making any adjustments. This means that the equity value is at book value and includes all intangible assets. I wanted to repeat the same method with assets converted into market values, but this was not possible due to limited data.

Book value approach (excluding intangibles)

This approach is exactly the same as the previous, except that intangible assets are excluded from the total assets. However, Manchester City, Paris Saint-Germain and Atletico Madrid do not indicate details about their assets, so that I cannot find the proportion of intangible assets within their total assets and their results do not change from the method before.

The court's approach in Fishman v. Estate of Wirtz

In order to replicate the court's valuation method, I exclude all intangible assets from the net asset value and use the same factors as described in the paper to adjust that value.

For the "trend in value", I use only value estimates published by Forbes from 2015 to 2017 in order to be coherent by tracking the growth rate from one single source instead of mixing different sources. As I do not have consistent data for earlier years, I simply assume that the trend is similar in past years. The overall coefficient for the factor is calculated by multiplying the average growth of the five selected franchises, which is near 22%, with individual coefficients ranging between 0 and 1, based on the franchise's individual growth.

For the "trend of profits and losses", I look at all franchises' income statements to estimate a weighting coefficient, which is 0 for franchises with negative net income growth over the two years preceding the year of the valuation and 1 for those with positive growth. Those coefficients are in turn multiplied with 14%, which is an approximation of the overall profit trend of the sample, in order to find coefficients for this factor. Following the same principle as the previous factor, "profits and losses of the club" are estimated with a basis coefficient of 14%, multiplied with weighting coefficients between 0 and 1 depending on the franchises' individual profit figure for the year of the valuation compared to the rest of the sample. These two factors are arguably subjective.

For the "recent developments in pay TV", I have decided to increase the weighting coefficient by extending its range from 0 to 3 depending on the league's and the franchise's most recent TV deal developments and multiply it with 30%, which is a moderate approximation of the WIPO's anticipation of the future. This is in line with Vogel (1999)'s paper that increased the weighting for this variable too.

The last factor that I included in the valuation is linked to "changes in availability of arenas" and obtains a coefficient of 1 if the franchise owns and operates the arena itself at the year of the valuation and 0 if it is merely rented. This coefficient is then multiplied by 20%, which is based on the rule of thumb as I find no appropriate source to quantify this factor.

The remaining three factors, namely "testimony of NBA owners", "changes in tax laws" and "changes in free agent rules", do not apply to my work which is why I disregard them. Just as in Vogel's paper, factors that measure TV rights developments and arena ownership obtain the highest coefficient. In the end, all individual coefficients are aggregated to one comprehensive factor that is used to adjust the net asset value.

One shortcoming of my application is that I am unable to convert my data from book values into market values before calculating the net asset value. Unfortunately, Vogel's paper does not indicate how it quantifies the multiples that are used to reflect the value factors. In order to obtain results with this method, I am forced to estimate coefficients in a way that they match the franchises' reality. I have tried to find coefficients that reflect the franchise's circumstances as good as possible, but some figures are merely sophisticated guesses. Accordingly, the final value estimates of this method are not as trustworthy as the other valuation methods.

After analyzing the results from the asset-based valuation methods, it is apparent that, in order to find solid value estimates, there is more to it than only net asset value. Especially if intangibles are excluded, final value estimates are extremely low, which means that the premium paid is proportionally higher. With the book value approach, the average premium paid is 4241% after including the intangibles and 1806% after excluding them. The court's approach leads to an average premium of 1220%. First of all, these premiums are unrealistically high and not even the wealthiest investor is willing to pay a such premium if the investment decision is rationale. The problem is not only that the net asset value is unable to capture the franchises' entire value, but also that the average premium is pushed up by Paris Saint-Germain's 10028%, respectively 7356%, AC Milan's 16683%, respectively -568% and -360%, and Manchester City (2008)'s 1812%, respectively 1076%. Excluding these outliers would lead to less extreme average premiums but they would be still too high.

Comparing the gap between reported market values and those three methods' estimates shows that the court's approach is the most accurate of the three asset-based methods, despite the fact that intangible assets are excluded and that it is still significantly off. The higher precision is a result of the inclusion of value-enhancing factors that are not incorporated in the other two methods.

It is noteworthy that the average premium of the book value method with intangibles excluded appears to be better than the one with intangibles included. However, apart from Borussia Dortmund and AC Milan, the other franchises' financial data is limited in a way that it does not indicate how much of their assets are intangibles. Therefore, only the premiums for these two franchises change with the second method. Borussia Dortmund's premiums become worse after excluding the intangibles and AC Milan's equity value becomes negative after disregarding intangibles. As a result, the average premium is misrepresentative in the second method as it suggests that the average gap is reduced, but it is only due to the negative equity of AC Milan that the overall premium improves downwards. Using absolute values draws a clearer picture as the average premium is then 1968% instead of 1806%.

To conclude, the net asset value is not able to capture all the franchises' value and clearly understates it. Only including a multiple based on other value drivers enables investors to come closer to its true value, but in the end, asset-based valuation is not suited for franchises that generate more value than merely the value of their net assets in place.

5.3. Vogel's updated approach

Vogel's updated approach follows the same principle as the court's asset-based valuation approach, while putting its central focus on franchises' financial strength, not their assets.

Table 5.4 Calculation and results of Vogel's updated approach

Team	Manchester City	Manchester City	AC Milan	Paris Saint-Germain	Borussia Dortmund	Borussia Dortmund	Atlético Madrid
Year	2008	2015	2016	2010	2015	2017	2015
3-year-average revenue	€ 71.985.522,23	€ 334.118.579,80	€ 23.669.333,33	€ 82.958.435,00	€ 280.605.000,00	€ 352.666.333,33	€ 184.035.326,67
Multiple	1,515	1,672	1,402	1,161	1,554	1,714	1,343
Franchise value estimate	€ 109.058.066,18	€ 558.646.265,43	€ 33.184.405,33	€ 96.314.743,04	€ 436.060.170,00	€ 604.470.095,33	€ 247.159.443,71
Stadium capacity	47400	55097	100000	44629	81360	81360	20000
Stadium Ownership	No	No	No	No	Yes	Yes	No
Total liabilities	£ 238.045.000,00	£ 199.549.000,00	€ 403.557.000,00	€ 57.643.283,00	€ 100.461.000,00	€ 166.295.000,00	€ 521.226.454,00
Total Equity	£ 10.460.000,00	£ 676.247.000,00	-€ 33.369.000,00	€ 1.090.082,00	€ 286.078.000,00	€ 312.302.000,00	€ 23.218.896,00
Total Assets	£ 248.505.000,00	£ 875.796.000,00	€ 370.188.000,00	€ 58.733.365,00	€ 386.539.000,00	€ 478.597.000,00	€ 544.445.350,00
Debt-to-equity ratio	22,76	0,30	-12,09	52,88	0,35	0,53	22,45
Debt ratio	0,96	0,23	1,09	0,98	0,26	0,35	0,96
Market	Premier League	Premier League	Serie A	Ligue 1	1. Bundesliga	1. Bundesliga	La Liga
Valuation accuracy							
Reported transaction price	€ 206.825.232,68	€ 2.817.179.158,51	€ 740.518.362,85	€ 110.407.659,05	€ 309.900.000,00	€ 562.200.000,00	€ 225.000.000,00
Premium paid based on Vogel's updated approach	€ 97.767.166,49	€ 2.258.532.893,08	€ 707.333.957,52	€ 14.092.916,01	-€ 126.160.170,00	-€ 42.270.095,33	-€ 22.159.443,71
in %	90%	404%	2132%	15%	-29%	-7%	-9%

First, Vogel's updated approach calculates a value basis by taking the average revenue over the past three years with the third year being the year of the valuation. The input figures are taken from the franchises' financial data obtained from Bloomberg.

As I do not have the 2006 revenue figures for Manchester City, I take its two-year-average revenue for its 2008 valuation. Note that Manchester City's 3-year-average revenue has been converted into euro, to find the final value estimate in euro. Its data for the multiple has not been converted as it is merely in proportion to each other and provides the same ratios with or without currency conversion.

As there is no direct guideline on how to create the multiple to adjust the average revenue, I am forced to find a reasonable estimate. First, the multiple is based on the franchise's venue, which is why I have decided to use the stadium capacity as a basis for this factor and adjust it upwards when the stadium is owned by the franchise and downwards when it is merely rented. Borussia Dortmund is the only franchise in my sample to own its stadium, which is why its stadium-multiple was upgraded. The multiple should also reflect the lease terms but unfortunately such information is not publicly available, which is why I disregard it. Atletico Madrid has by far the lowest stadium capacity and, on top of that, it does not own its stadium. Accordingly, it has the lowest multiple associated with stadium factors.

The next factor incorporated in the multiple is the franchise's level of debt. In order to obtain a bigger picture, I combine two ratios that reflect the level of debt. The debt ratio (Total liabilities/Total debt) is the first and shows how much debt is used to finance one unit of asset. It describes the franchise's financial health. While a high debt ratio (0,6 or higher) indicates high leverage risk that can make it harder and costlier to borrow money, a low debt ratio (0,4 or lower) is considered safer as the mandatory interest payments are proportionally lower and the risk of bankruptcy is reduced. However, too low debt ratios indicate that the franchise's potential is not fully exploited as the total return could be raised by financing increased operations through borrowing. Accordingly, the highest multiple is applied to a debt ratio of 0,4.

The second ratio is the debt-to-equity ratio which shows the relative proportion of equity and debt that is used to finance the assets. The best ratio here depends on the franchises' individual cost of debt and cost of equity, but since cost of debt is generally lower than cost of equity, the best multiple is assigned to ratios around 2. Following the principle of Vogel (1999), I have assigned the highest multiples to a low level of debt, even though I disregard the lease terms. AC Milan (2015) has a negative debt-to-equity ratio, which is why I ignore that ratio in this case and apply the full weight of the debt factor to its debt ratio.

The third factor to be included in the multiple is the market in which the team plays. For this variable I look at the popularity of the franchises' league and the respective broadcasting rights revenues. As the Premier League is unarguably the league with the most media attention and most lucrative TV deals, Manchester City obtains the highest multiple. The lowest multiple is assigned to Paris Saint-Germain as the French Ligue 1 is among the least popular leagues in Europe's top five. The final value of the overall multiples is displayed in the table above.

Vogel's updated approach appears to be a good valuation method for some franchises. The average premium paid based on this approach is 371%, whereas Manchester City (2015)'s 404% and especially AC Milan's 2132% are large outliers that have a strong impact on the average figure. Without these two franchises, the average premium would be -8%, meaning that it understates franchise value of the remaining four franchises on average by 8%. It is important to note that this method does not follow a pattern of constantly understating franchise value as the asset-based method and the DCF approach did. Therefore, it is more interesting to take the average premium based on absolute values, which is 384%, to show how the estimates deviate from the market value, regardless whether they over- or understate franchise value.

Since this approach uses the average revenue as the basis for the value, it is not affected by negative cash flows while still emphasizing on the franchises' strength to generate sales. This approach appears to be volatile throughout the sample as it overstates some while understating others with considerable differences of precision across franchises. This can be traced back to the multiple correctly reflecting some franchises' value-enhancing characteristics and misrepresenting others whose qualities are not fully captured.

Vogel's updated approach seems to be only appropriate for franchises whose value factors are perfectly captured by the multiple used in this approach. Once this is given, this valuation method is well suited to estimate franchise value, whereas the value estimates are far off as soon as franchises' skills are not reflected in the multiple.

5.4. Relative valuation

Relative valuation does not provide direct value estimates but merely provides ratios that allow investors to make comparisons based on specific variables of interest.

Table 5.5 Calculation and results of the relative valuation

Team	Manchester City	Manchester City	AC Milan	Paris Saint-Germain	Borussia Dortmund	Borussia Dortmund	Atlético Madrid
Year	2008	2015	2016	2010	2015	2017	2015
Price/Earnings ratio	-6,74	2672,85	-13,48	-3,92	3549,42	-10,26	17,15
Price/book ratio	19,12	3,07	167,83	101,28	1,08	1,80	9,69
Price/Sales ratio	2,43	5,89	28,52	1,48	1,12	1,39	1,00
Enterprise value/Sales ratio	/	/	/	/	1,02	1,33	1,09
Enterprise value/EBIT	/	/	/	/	48,21	-6,83	6,14
Enterprise value/Stadium Capacity	/	/	/	/	3448,59	6638,07	12298,82
Transaction price for 100%	€ 206.825.232,68	€ 2.817.179.158,51	€ 740.518.362,85	€ 110.407.659,05	€ 309.900.000,00	€ 562.200.000,00	€ 225.000.000,00
Earnings (Net income)	-€ 30.669.079,63	€ 1.054.000,00	-€ 54.950.053,00	-€ 28.139.583,00	€ 87.310,00	-€ 54.777.093,00	€ 13.121.840,00
Equity book value	€ 10.816.959,67	€ 918.813.858,70	€ 4.412.190,00	€ 1.090.082,00	€ 286.078.000,00	€ 312.302.000,00	€ 23.218.896,00
Sales (Revenue)	€ 85.103.412,62	€ 477.942.934,78	€ 25.967.488,00	€ 74.719.180,00	€ 276.048.000,00	€ 405.692.000,00	€ 225.222.834,00
Enterprise value	/	/	/	/	€ 280.577.107,00	€ 540.073.483,00	€ 245.976.356,88
EBIT	-€ 20.704.239,92	€ 2.653.532,61	-€ 67.531.638,00	-€ 27.891.225,00	€ 5.820.000,00	-€ 79.053.000,00	€ 40.059.834,00
Stadium capacity	47400	55097	80018	44629	81360	81360	20000

My ratio selection covers the franchise from different angles. The first three financial multiples are based on the franchise's market value, i.e. its transaction price. The most commonly used equity multiple is the Price/Earnings ratio (P/E). While it has the advantage of easily obtaining the required data, it has two serious drawbacks. First, franchises with negative earnings need to be excluded as they result in negative multiples, which are senseless. Second, different accounting policies and dishonest earnings management can flaw the earnings figures and lead to a misrepresentative multiple. The Price-to-book ratio (P/B) is another commonly used multiple and its main flaw is that book value is based on assets stated at historical cost, meaning that its value can be outdated and not representative for the firm's true value. The Price/Sales (P/S) ratio allows analysts to include loss-making firms and is less exposed to differences in accounting policies. It is however less meaningful because it attributes a larger multiple to franchises with high sales and a bad profit margin that result in low earnings than to franchises with moderate sales and a good profit margin with proportionally higher earnings. Experts see this multiple more as a broad, quick approximation.

The next two financial multiples are based on enterprise value. The Enterprise value/Sales ratio (EV/S) has the same characteristics as the P/S ratio. The Enterprise value/EBIT ratio (EV/EBIT) captures the effect of the profit margin as cost of goods sold and operating expenses are included. On the other hand, it is unable to include the potential of tax management strategies and can vary across firms due to differences in depreciation policy. Since most franchises' financial data does not provide information about enterprise value and negative EBIT figures do not allow me to calculate enterprise value with the DCF method, I am unable to calculate enterprise value-based multiples for all franchises, except Borussia Dortmund and Atletico Madrid whose enterprise value originates from its financial statements from Bloomberg, respectively from my DCF valuation.

The last ratio measures Enterprise value/Stadium capacity (EV/SC) and is a non-financial industry-specific multiple that analyzes the franchises from a different perspective. The stadium capacity has a direct effect on revenue as it reflects the potential game audience and gate receipts. It is also not susceptible to differences in accounting policies and allows analysts to come around negative earnings. On the other hand, it represents just a fraction of the franchise's total revenue and not all franchises own their stadiums, which means that a large part of the latter's gate receipts is siphoned off by the actual owner. This multiple can therefore only be used to compare teams with each other that own their stadium, respectively that rent it.

The P/E ratio results display the problematic with football franchise valuations. First of all, four of the seven ratios are negative, which is nonsense because it implies that investors are willing to pay a price that equals the ratio times the negative earnings. Second, two of the remaining three ratios are equal to 2672,85 and 3549,42. No investor would pay a price that is equal the earnings times such ratios. It is probable that these two ratios are linked to misrepresentative earnings management resulting in artificially low earning figures that distort the franchises' financial picture if they are set in proportion to their market price. Only Atletico Madrid has a ratio of 17,15 that can be more or less realistic. Overall, the P/E ratio does not seem to work well for football franchises.

The P/B ratio seems more appropriate for the industry as it is not subject to earnings management and merely sets the price in proportion to the respective equity value. Apart from AC Milan and Paris Saint-Germain's ratios that are extremely high, all others seem realistic. It is interesting to look how Manchester City's ratio evolves over time. In 2008 it is 19,12 which means that the market sees large potential in the franchise. Accordingly, in theory, if the franchise lives up to its expectations, its equity is supposed to converge to its market price and thereby lowers the ratio over time. Its ratio has decreased to 3,07 in 2015, which confirms the market's expectations and the franchise's equity development. The lower ratio also means that Manchester City is now expected to grow at a slower pace, as most of its potential is assumed to be exploited. The opposite is true for Dortmund whose ratio has slightly increased over time, meaning that after two years the market expects the franchise to grow more after 2017 than it was expected in 2015.

The P/S ratio indicates that Atletico Madrid, which has a ratio of 1, has a price that is equal to its sales. Borussia Dortmund has ratios that are also close to 1, which means that even if its sales are expected to slightly grow in the future, the market does not see a large potential for these franchises regarding their sales strength and are expected to stagnate. AC Milan has the highest P/S ratio, but since its previous two ratios were unrealistically high, I assume that its financial data is not reliable and does not match reality. If the ratio was true, the market would expect this franchise to grow its sales aggressively in the future. It is also interesting to look at Manchester City, whose ratio has more than doubled from 2008 to 2015, meaning that either the market expects the franchise to grow its sales even more over the years or that its sales have collapsed.

The EV/S ratio is conservative and shows that the enterprise value is almost equal to sales, whereas the EV/ EBIT ratio is less conclusive as Dortmund's ratio drops from a high ratio of almost 50 to a negative one of -6,83 in only two years. But after a deeper analysis, I realize that the high ratio is liked to a low but positive EBIT that turns into a high negative EBIT, creating the low negative ratio. Interpreting both ratios together, the market expects sales to remain stable and EBIT to have a favorable future so that EBIT must grow through a higher profit margin.

The enterprise value in relation to the stadium capacity is not useful and can be excluded. I expected it to be an interesting non-financial multiple but in retrospect, it does not provide investors with meaningful insights.

The bottom line is that relative valuation does not provide investors with a direct price estimate but helps them instead to see how the franchise is positioned in the industry and how the market anticipates its potential for the future. These results must however be treated with caution as most football franchises are privately held and can easily publish misrepresentative data. Accordingly, the ratios can help investors analyze whether a franchise's financial data is logical. Borussia Dortmund, the only public franchise in my sample, and Atletico Madrid have reasonable ratios throughout all variables and, beyond that, all valuations for these two franchises are more precise than the others. The opposite is true for AC Milan, which leads me to the conclusion that its financial data must have been engineered by its management to misrepresent its true financial health.

5.5. Contingent claim valuation

In order to obtain the hedonic price index presented in table 5.6, I have used a regression model with the "Price", i.e. transaction prices and value estimates between 2013 and 2017 included, as the dependent variable and all other variables as independent variables. However, since "League competitors" merely consists of either eighteen or twenty competitors and the variation is not large enough to obtain meaningful regression results, I create a dummy variable where 0 is assigned to eighteen competitors and 1 is assigned to twenty competitors. The same applies to "Leagues" where the answer was either "1. Bundesliga", "Premier League", "Ligue 1", "La Liga" or "Serie A", which is why I create a dummy variable for each of them with 1 if the observation is from the same league as the dummy variable and 0 otherwise.

In order to increase the precision of my regression, such that the R-squared is as high as possible and the Mean square error (MSE) as low as possible, I test how the individual variables are correlated with each other. That way I can see which variables are better used as mere control variables. Last but not least, as "Facebook fans" data is not available for the years of the observation but only for 2018, I run the model once with the variable included and once with it excluded to test which provides a more precise result.

The regressions are run based on panel data, such that the teams are analyzed over a time period from 2013 to 2017, and robust standard errors allow me to obtain unbiased standard errors under heteroscedasticity.

Table 5.6 Hedonic price index

	Hedonic Price	Robust standard errors
League competitors	-88.45	(113.0)
Regional competitors	-39.27	(86.59)
Regional identity	29.02	(156.1)
Area population	4.365	(18.54)
Facebook fans	16.35***	(-5.636)
Franchise age	4.442	(-2.891)
Final standing	2.691	(17.73)
Championships won	-0.290	(10.83)
Stars on the team	40.65	(31.27)
Stadium ownership	38.53	(143.4)
Stadium capacity	0.00671**	(0.00301)
Stadium age	4.284	(-4.825)
Premier League	289.5	(273.5)
Serie A	-78.93	(135.7)
La Liga	50.92	(228.9)
Constant	**1,288**	(-2,435)
Observations	110	
R-squared	0.697	
F (15, 94)	12,75	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

After running the aforementioned correlation tests, I find that the model has most explanatory power after excluding “GDP per capita”, “Top-tier seasons ratio”, “Ligue1” and “1. Bundesliga”. These variables have a strong correlation with other variables and are therefore merely used as control variables.

The results contradict the findings of Alexander and Kern (2004) and Humphreys and Mondello (2008), showing that “Facebook fans”, which measures the global popularity of the franchise, and “Stadium capacity” are the only two significant value drivers, such that value increases by €16,35 million, respectively €7000. Even though the other factors are not significant, they prove that the price index is meaningful as both previous factors, “Regional identity”, “Area population”, “Final standing”, “Stars on the team”, “Stadium ownership”, “Stadium age” and “Premier League” and “La Liga” have a positive impact on franchise value, whereas “League competitors”, “Regional competitors”, “Championships won” and “Serie A” affect it negatively. Except for “Stadium age” and “Championships won”, all of the variables affect franchise value as I expected them to do. The reason why Serie A affects value negatively whereas Premier League has the largest positive effect can be explained by the fact that the latter has a much larger media exposure and global fan base and more prestigious football franchises that mark European football and the league’s revenue potential. The Serie A, on the other hand, is the least prestigious among Europe’s top five and has just a handful of elite franchises whereas the rest is tiny in size, has bad financial results and is unknown on a global scale such that international media attention is close to inexistent.

In order to apply the price index, the constant of €1,288 million provides the value basis for every team of the top five European football leagues and all other factors that apply to a specific franchise are then added or subtracted from the basis. It is however also possible to use a DCF value estimate as value basis and merely use the other hedonic price variables.

As a result, the hedonic price index can be a very interesting addendum to other valuation methods. However, its results are to be treated with caution as only two of its variables are statistically significant.

6. Discussion

After analyzing the different valuation approaches, it is interesting to look whether there is more to it than merely assets, future profits and potential value drivers. Even though the franchise value drivers are pointed out in the hedonic price index, there could be personal motivations that drive specific investors' value assessment and explain why some investors are willing to pay larger premiums than others. As stated by Mona (1978), the mass asset theory suggests that "the value of a mass asset does not lie in its individual components, but the real value is in the whole." Different investors may look at a mass asset (a sports franchise in this case) and see individual components that they value differently. As a result, they value the aggregated asset as a function of what benefits they see in the components of the franchise and how they perceive their potential. They might be able to create synergies that other investors can't. Vogel (1999) provides an illustrative example in her paper when she asks the question what it actually is that is being valued in the Dodgers acquisition. Is it merely a baseball franchise that is bought or does the investor look further and sees potential in the franchise's undeveloped lands and its stadium? Vogel thinks that the buyer is someone who knows many ways to exploit the franchise and concludes that therefore he must value the franchise higher than someone who merely wants to own a sports team for fun. But whether this is the true reason behind the large premium or whether there is another explanation remains unclear. It is interesting to dig deeper into this discussion and point out other potential benefits and alternative explanations from industry experts on how such large premiums can be justified.

1) Ego factor

One factor that can raise prospective clients' willingness to pay a larger premium is the ego factor, also called the prestige of ownership. Similar to several papers that focus on franchise value, Vogel (1991) underlines the importance of the ego factor with several NBA franchise owners' testimony in court, stating that the ego factor is the predominant motivation of owning a franchise, not financial or tax considerations. Economic considerations of ownership are in that sense overshadowed by the prestige of ownership and the emotional aspect of joining a major league. Extremely wealthy individuals generally possess all imaginable luxury commodities, be it private jets, mansions or luxury cars, which is why owning a sports franchise may be seen as an exclusive luxury good that sets them apart from their billionaire friends. For that reason, the appeal of franchise ownership is not based on conventional return on investment but rather by its trophy value. Franchises are unique and guarantee their owners spotlight and massive media attention that satisfy their narcistic tendencies. Not only can they pose with their team's stars, but also can they market themselves in public and more importantly, make new connections with influential

people that they wouldn't meet if it wasn't for their new position as club owner. Franchise owners can also invite clients and business partners and impress them with backstage passes and introduce them to players. Such unique experiences can positively affect business relations. All these small perks are reflected in the ego factor and can be the reason why prospective buyers are willing to pay large premiums to own a franchise, especially when they have personal ties to the team. Their affinity for a specific franchise might be linked to their childhood dream of being a part of the team, growing up in the club's city or simply loving the sport itself.

2) Portfolio diversification

As Damodaran (2014) concludes based on an analysis of historical transactions, sports franchises tend to be below average risk as shown by their market betas. Additional tests demonstrate that there is no correlation between sport franchises' revenue growth (and game attendance) and macroeconomic variables, which makes these franchises a recession proof asset class. Accordingly, they provide investors with a good opportunity to take their portfolio diversification one step further. In a sports analytics conference at MIT Sloan (2015) it is stated that, with investments across all kinds of asset classes, sports franchises offer investors a new way to mitigate risk and thereby limit their risk exposure as not only the range of asset classes is increased but the portfolio is also enhanced with a "risk-free"-type asset. In a world that changes so fast, any conventional business might be gone in the near future, but sport franchises are almost guaranteed to persist. Even though the rate of return for a franchise is uncertain, it is nearly always positive and more importantly, does not bear the risk of going bankrupt as conventional businesses easily could. This makes football franchises a safe buy and hold asset.

Another interesting reflection from that conference is that franchises are assets that almost never go out of business because they cannot be replaced by a better version of themselves or driven out of the market by disruptive technology developments like conventional businesses. Au contraire, franchises have such a long life that they are able to use the new disruptive technologies to their advantage, capture their benefits and thereby increase their value. This means that franchises are not threatened by such technologies but use them to become more performant and increase revenue and on top of that allow investors to invest in stable businesses that indirectly capture the benefits of new disruptive technologies.

Last but not least, an investment in such assets is not only a form of risk control thanks to its risk-free-like features. If the investment is done on foreign ground, investors diversify their wealth by decreasing their exposure to the national market. This is especially interesting for investors from countries where economic development is closely related to politics and corruption. In that sense, sports franchise acquisitions are a win-win-win situation as they enhance portfolios from a risk-perspective thanks to geographical diversification, by adding a risk-free-type asset and capturing indirectly the benefits of new technologies.

3) Tax advantage

Even though the Internal Revenue Service (IRS) has tightened tax regulations over the past twenty years, franchise ownership is still considered a healthy tax shelter. A company owner can decide to buy a franchise and use its debt capacity to offset his profits from another business. In order to maximize his tax benefit from this synergy, the buyer follows the same procedure as described in Vine (2004) and Mona (1978) when all franchise assets have to be re-appraised at fair market value once the transaction is completed.

All assets are taxed differently and only certain types of assets can be amortized and thereby used to lower the current income, whereas others allow no cost recovery whatsoever. Intangible assets can only be amortized if they have a limited useful life, which is why buyers try to avoid allocating value to assets without a limited useful life, such as basic franchise rights, that are not amortizable. Such assets are tied up until the franchise is resold and do not lead to deductions that lower the current tax burden. For that reason, buyers avoid allocating value to the franchise itself and rather allocate value to intangibles with a limited useful life (and a favorable tax treatment) whose cost can ultimately be recovered in the form of tax deduction. As a consequence, buyers allocate as much of the purchase price as possible to player contracts as that asset can be written off.

According to Mona (1978), various owners have been able to allocate up to ninety-eight percent of the franchise purchase price to player contracts, even though the average allocation is estimated to be somewhere between seventy-five and eighty percent. As a result, this strategy allows owners to recover around three-fourths of the initial investment after several years through tax deductions. This strategy also implies that in the first years after the acquisition, most franchises show large book losses after offsetting the large amortization deductions, even if they are actually profitable. Franchise owners can then take advantage of this net loss as it allows them to pay no taxes on profit from their other business up to an amount equal to the loss. Especially corporations with large outside income benefit the most from the tax relief of franchise acquisitions after following the re-allocation strategy, as for example Disney and Time Warner do. As soon as player contracts are fully amortized, such tax shelters lose their vitality until the franchise is resold.

4) Branding

Buying a sports franchise is not necessarily directly linked to financial motivations. Often investors do not see the direct financial return as a priority but make the acquisition to follow a branding strategy of their other company. Creating a link between their company and the sports franchise can positively change the public's perception of that company and boost its image. The franchise owner can benefit from his new position in the spotlight and use the media attention not only to market himself but also to indirectly or even directly promote his other company. Especially if there are no competitors in the area where the owner's team plays, he has some sort of monopoly over a given geographic area. Ding Minghao, vice-president of Shankai Sports International, a leading sports marketing company in China, stated in Liu Sha (2016)'s article that "Branding through sports is a shortcut for Chinese companies to become known internationally."

However, branding is definitely no one-way street in this context. It is not only the franchise that is exploited to promote the owners' business but it's also the foreign franchise owners' local market that can be exploited in order to boost the franchise abroad. Foreign investors are well aware of the fact that overseas investments can be a catalyzer for their local market. Connecting the franchise to a new market does not only boost the popularity of the sport but it also expands the franchise's fan base and thereby raises franchise value through an increased audience and revenue. Especially since football has a global fan base, the investment can be even more interesting for foreign investors for all previously mentioned reasons. Nowadays, it is especially investors from China that buy European football franchises and connect them to the Chinese market to expand the franchise's Chinese fan base, stimulate the national love (and demand) for the sport and brand themselves on the European market.

5) Active role in the media rights negotiations and use of distribution channels

Being a franchise owner includes the right to participate in the negotiation of the broadcasting rights. This has become extremely valuable in modern football since broadcasting rights are the fastest growing revenue stream for top-tier teams and can easily increase franchise value. It is however not only the financial benefits from broadcasting rights, but it also allows new owners to have a say on the content that is being streamed. They can promote their own products and have a guaranteed audience of males aged between eighteen and forty-nine. Owning a franchise outright allows investors in most instances to cut out the middleman as they can directly exploit the franchise's media channels to promote their content of choice. They control the rights to games without having to pay someone for them. In other words, the purchase of a franchise allows buyers to own the content as well as the distribution, such that they are no longer relying on and losing money to an intermediary.

6) Soft power

Instead of buying a franchise to popularize and commercialize it in the investor's home market, the franchise can also be used the other way around as some sort of leverage to enter new markets that are in touch with the franchise and expand the company brand abroad. In that sense, investments in sports franchises facilitate business opportunities and access to new markets that indirectly lead to sizable returns.

Another favorable aspect of foreign sports investments is the negotiation power that the new owner obtains and that can easily lead to new business partnerships. With football's media attention on a global scale, franchise owners' international influence is strengthened. Even investments in sports companies have become popular. In 2015, Wanda bought Swiss Sports Group Infront Sports & Media as a strategy to "have a bigger say on the international stage of sports." According to Liu Sha (2016), this transaction could help China host sports events like the Winter Olympics in 2022 because Infront has important media agreements that guarantee broadcasting rights and media marketing rights. Wanda stated: "[Infront] is a major partner of FIFA. Had we not acquired Infront, we would not be able to attend the FIFA meeting or receive their respect." The same logic can be applied to football franchise acquisitions.

The sports investments can also be justified with a more political approach. In countries like China where economic development is closely related to government policies, sports investments can create a significant political leverage that can, in some cases, be more valuable than the actual direct return of the investment. According to Liu Sha (2016), China has released a five-year plan in 2016 that specifies that the total scale of the sports industry should amount to over RMB 3 trillion by 2020 and it should comprise 1% of GDP. Especially when the country has slowing GDP growth, service and entertainment industries provide investors with new opportunities. Such economic restructuring measures plus the Chinese President Xi Jinping publicly showing his love for football are strong incentives for Chinese firms to be publicly seen supporting state policy.

7) Other advantages

Sometimes franchises own specific assets that are of high interest to individual prospective buyers. One such example would be to exploit a franchise's land in a specific area and commercialize and promote it by building a new stadium for the franchise there. With the new stadium as the center of attraction, the chosen area turns into a popular industry zone with massive public attention. This increases the value of the area, mobilizes people and offers potential for other businesses like a shopping mall, office spaces, gym facilities, bars and whatever the franchise owner conceives. Another example would be to use a franchise's trademark rights to develop an amusement park like Real Madrid intended with the "Real Madrid Resort Island" in the United Arab Emirates.

As it is extremely hard to quantify the value of each of the previous factors, it is unclear whether these factors actually justify the large premiums paid and if yes, to what extent. Some industry experts argue that, even though these factors are valuable and might explain the premiums partly, the true reason behind these expensive investments can be traced back to simple market dynamics. In the sports analytics conference (2015), Damodaran links the large premiums paid for franchises to the winner's curse in a bidding competition. He adds that when supply is limited and lower than demand, prices get out of control. This is definitely the case in the football industry as there are more prospective buyers than internationally renowned sports franchises. Another expert from the same conference connects the premiums to the greater fool theory where investors buy a franchise, hold it and sell it at a higher price to a "greater fool" who intends to do the same. However, according to the expert, the law of large numbers will ultimately put an end to this theory. Franchises prices will continue to rise to a point where the number of potential buyers is lower than supply and the bubble bursts. Especially when interest rates are rising, risk-free-type investments in franchises will lose their attractivity and end the current price trend.

Damodaran goes even one step further, arguing that franchises are trophy assets where buyers use reversed engineering to justify the transaction price, even if it largely exceeds the franchise's intrinsic value. He adds that today's prices are not justifiable by cash flows, but that if an investor really wants to justify a price to not look like someone who is wasting his money, he crunches the numbers until they fit.

In the end, it remains unclear whether it is the valuation methods that understate the franchises' true value, or whether the previously mentioned individual motivations or the experts' economic theories explain the premiums paid.

7. Conclusion

An analyst who is interested in finding the true market value of a football franchise should make the valuation in four steps. The first step consists of a DCF valuation as it is the most trustworthy method according to my valuation results and provides investors with a solid basis value estimate. This is however only possible if the cash flows are positive and the financial data is complete and reliable. The second step disregards the asset-based valuation as it turned out to be inappropriate for franchise valuations and directly proceeds with Vogel's updated approach to get a second value estimate as a reference point to compare the first DCF-estimate with. It is a positive sign if both value estimates are close to each other. If they are not, the analyst can look at the franchise's characteristics and find the valuation method that captures them best with the help of my theoretical valuation part. In other words, he prioritizes certain value factors of the franchise and decides which valuation approach reflects these benefits best. As a third step, relative valuation can be used to check whether the previous two value estimates are in line with the expectations about the future that are inherent in the ratios. This step does not give an additional value estimate but is a logical check for the value estimate in comparison to other franchises and how they are expected to perform in the future. The fourth step is linked to the hedonic price index and possible alternative individual motivations. If these factors are not incorporated in the final value estimate, the analyst can simply add their value from the hedonic price index or quantify the benefits of individual motivations in order to find what premium he is willing to pay in addition to the basis value estimate. This last step is extremely important in the sports industry because it gives investors an edge over conventional valuation methods by taking these option-like features into account.

In retrospect, my results also prove the importance of the completeness and reliability of financial data. Borussia Dortmund is the only publicly traded franchise in my sample and comparing its average premium based on all valuation methods is 46%, which is by far the lowest compared to the other franchises in my sample. The valuation results of private franchises, which are not subject to audit and also not required to publish financial data, are fairly more unprecise as they are built on financial data that can easily be misrepresented through earnings management and other techniques that fake low profits. This clearly demonstrates the data reliability problem in this industry and how results can quickly improve once the data used is free from error and from willful misrepresentation.

Regarding the hedonic price index, I find that franchises' global popularity, which is represented by its number of Facebook fans, and their stadium capacity are significant value drivers. These results are not in line with Alexander and Kern (2004) who find that market size, team performance and a new stadium are significant value drivers, and neither with Humphreys and Mondello (2008)'s significant value drivers, namely market size, nature of the league, franchise age, stadium ownership and number of local competitors. Those variables turn out to be insignificant in my regression model.

At this point, it is also important to bear in mind that a firm's value estimate is rarely equal to its price tag. This can be explained through my discussion, where I find that individual motivations like tax advantages, the ego factor, portfolio diversification, soft power and others are responsible for divergences among investors on how they perceive franchise value. All these factors merely apply to some investors and their willingness to pay larger premiums increases as a function of the number of individual value factors that affect them and the corresponding aggregated utility that they obtain from them. Investors that are indifferent with regard to the potential additional value factors are therefore not incentivized to pay large premiums. This shows that the value in this scenario is subjective and largely depends on the investors' motivations behind the investments.

Critics argue that it is not these factors that raise value, but that value is purely tied to market dynamics. If demand is larger than supply, prices increase automatically without a rational explanation based on value drivers and profitability. Some trace the premiums back to the winner's curse of a bidding competition. Who is right in the end, is not clear and future research could start looking at a way to quantify these individual motivations to find out whether they explain the gap between the valuation estimates and the market prices. It can also be interesting to extend the sample to test the applicability of different valuation methods by increasing the number of observations and retest my results.

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Appendix

Appendix I. Revenue and cost structure analysis

Revenue structure	
Sponsorship deals	This type of revenue consists of commercial revenue from sponsorship deals with the lead sponsor, equiment suppliers, naming rights, partners and other deals.
Example	Manchester United's lead sponsors are Chevrolet (£52m-a-season) and Aon (£15m-a-season). The club has also signed a £750m sponsorship deal with its new kit-supplier Adidas for a 10-year-period from the 2015/16 season on and agreed to partnerships with about 50 other companies like DHL, EA Sports, Epson, Uber, Tag Heuer, Canon, 20th Century Fox. [4,5]
Comment	Sponsorship deals can range from advertisements on jerseys, around the pitch, on scoreboards, or on tickets, to licences for specific catering products such as beer or sausage brands to be sold at the stadium, to website publications to halftime shows names. Basically anything exposed to the public eye can be commercialized.
Broadcasting rights	This section represents the revenue from the sale of TV broadcasting rights.
Example	The English Premier league generated revenues of £191 million for the period between 1992 and 1997, £1.024 billion from 2004 to 2007 and £5.136 billion for the period between 2016 and 2019. (Statista) Manchester United obtained £38.1m from 2017's broadcasting revenue, which is 30.9% more than in the previous year. This large increase is linked to this year's Champions League and Super Cup Final participation and an extra Premier League home game. [3,1]
Comment	All European leagues (apart from the Portuguese and Spanish league) follow a collective system in the sense that the league sells the TV broadcasting rights for a 3-year-period to the highest bidder and distributes one part of the revenue as an equal share to all teams and the other part according to their current and past performance, number of fans and number of broadcasted matches.
Merchandising	Revenue figures in this section come from all kind of products that got redesigned with the club's logo and its traditional colors. Fanshops provide their fans with official player kits and football equipment , but also everyday-clothing for men, women and children/babies, souvenirs and homeware. Manchester United commercializes basically any gadget imaginable, even gadgets for pets.
Example	ManUnited's merchandises range from its official home, away and international ManUnited jerseys (£80), training jackets (£130) or personalized football boots (£200), to polo shirts (£44), body suits for babies (£18), back packs (£18), Teddy Bears (£20), mugs (£10), DVDs (£22), player miniatures (£5) and many more. [6]
Comment	Revenue from merchandises depends on one hand on the number of fans globally and their purchasing power and team support, and on the other on the club's marketing efforts product range, pricing policy and its sales networks in place.
Match day revenue	This includes ticket sales for standard and premium seats up to VIP boxes, catering services and merchandise sales to fans going to a game.
Example	Manchester United offers Premier League and FA cup single tickets between £31 and £53 and season tickets between £532 and £950 for adults. In the last quarter of 2017 the club's match-day revenue rose to £22.4m, an increase of 33.3% over the previous year, which is the highest worldwide. (BBC) (Manutd.com) [1,2]
Comment	Match day revenue is shaped by various factors such as stadium capacity and whether it is rented or owned, ticket prices, the efficiency of the club's sales channels, whether match day services are provided by employees of the club or are outsourced to external service providers that will claim a large percentage of the revenue and obviously the team's popularity and success. Since single ticket buyers turn out to be more prospective buyers of merchandise products than season ticket holders, the ratio between single and season tickets is an important factor in the club's revenue strategy.
Prize money	National and international competitions, with the UEFA Champions League being the highest prize money paying competition in the world, reward the participating teams based on their number of games, performance and according to which league the club comes from. Other lucrative European competitions are the Europe League and UEFA Super Cup and the national league cups.
Example	Manchester United is currently in the Champions League's round of 16, which means that its prize money purely based on performance amounts to approximately £23m and can potentially go up to £90m if the club wins this year's competition and by including UEFA's TV broadcasting income. [8]
Comment	Prize money from the previously mentioned international competitions varies every year as the prize money depends on the total gross revenue from all UEFA competitions that is distributed according to a specific pattern.
Player transfers	In recent years transfer fees have exploded to unprecedented sums. Depending on clubs' financial strategies, this type of revenue can be extremely important, especially for football clubs that lack international recognition and that are therefore unable to generate significant cash flows from other revenue streams like Europe's elite clubs.
Example	Since Manchester United is one of Europe's most profitable football clubs, if not the most profitable, the club's transfer policy favors sport success over potential revenues, which is why their net transfer revenue (revenue from the departure of old players minus costs of newly acquired players) is usually negative. To give an example, the club ceded Paul Pogba for free to Juventus Turin in 2012 where the Frenchman had his breakthrough season in 2015 before he was bought back for a, at that time, record high transfer fee of £89m. This year's net transfer revenue is around £-136,5m with expenditures of £146,7m and income of £10.2m. [7,11]
Comment	The true profit from a player sale is calculated by subtracting the book value of the player, after adjusting for amortization, from the transfer revenue.

Stadium revenues	This revenue stream does not only consider gate receipts for the club's matches (as mentioned in "Match day revenue") but it also includes other potential revenue streams such as guided stadium tours and leases from renting out its venue to other teams, even within different sports, and from arranging exhibitions, shows, concerts and other events. Some clubs even hire out properties on or near the stadium for office spaces, restaurants, hotels, fitness centers, bars... The sale of the stadium naming rights is another potential stadium revenue.
Example	Manchester United is one of the few teams that has not sold the naming rights for its Old Trafford stadium. Regarding stadium tours, the club offers a range of packages such as the "Legends tour" where a legend ex-player is leading the tour for £120 or the "Stadium and Museum tour" for £36. Old Trafford's East Stand has different offices and a world-renowned Mega-store, that is purely devoted to football, spread over 1500 square meters. [9,10]
Comment	The potential revenue from a stadium largely depends on the age of the stadium, the seating capacity and whether the club owns the stadium or only rents it itself.
Other revenue	This section includes revenue from non-operating business based the club's brand such as theme parks, history museums fan-bars and more. One can also mention the revenue from simple fan-memberships. Last but not least, some sort of revenue comes from the financial support of the club owner or shareholders that want to assist their club financially.
Example	Mancheter United offers a package of £325 per person that includes a museum tour with the opportunity to take a picture with the club's trophies, a buffet and drinks before heading to the Sir Alex Ferguson Stand to enjoy the game. The club provides its fans also with an fanbar in the stadium called Red Café where they serve food and drinks. [9]
Comment	The types of revenue mentioned in this section are only available to a very limited number of clubs.

Cost structure	
Player salaries	Football club's most significant cost burden generally comes from the players' salary packages that are composed of an individual weekly basis salary and performance-based boni such as winning a game, scoring a goal, not conceding a goal, becoming topscorer at the end of the season and others.
Example	Manchester United's newly signed star player Alexis Sanchez allegedly earns £350,000 a week, followed by Paul Pogba with £290,000 and David de Gea and Romelu Lukaku with £200,000. Last season, Manchester United spent £232m on player salaries. [12]
Player transfers	Closely linked to the salary costs are the transfer fees plus potential clauses linked to the player's performance that are either settled throug a one-time payment or split in tranches. On top of that, the club has to bear the players' agents costs that are usually a percentage of the trasfer fee.
Example	Manchester United bought the 24 year old Romelu Lukaku from Everton for about £75.5m and Nemanja Matic from Chelsea for about £40m. But these are just two examples of the club's 12 newcomers this season. An example of the costs linked to agents is the recent case where, according to the Sun, Paul Pogba's agent Mino Raiola claimed £25m for his brokering services between Juventus Turin and Manchester United. [11]
Comment	These staggering investments can be justified for two reasons. First, as Deloitte's Annual Review of Football Finance 2017 points out, the correlation coefficient between salary costs and the clubs' final league position is 0,42 for the 2015/2016 season compared to 0,24 for the preceding season. This means that offering high salaries becomes a more and more important factor to keep the club's talent on the pitch and guarantee sports success. Second, hiring new top-stars can increase the club's popularity and status, leading to an enlarged fan base which in turn increases merchandise sales while sponsorship deals and broadcasting revenue are rising at the same time. Paul Pogba's £89m-transfer to Manchester United for the 2016/17 season was followed by shirt sales worth more than £190 million in just the first three weeks and the popular Swede Zlatan Ibrahimovic who came as a free agent to ManU for the 2016/17 season generated £76 million in shirt sales after just one week. And if the new arriving players don't bring the same glamour to the club as the Pogba and Ibra, they still allow the club to enter the market of the region that these players represent. With transfer fees and salaries skyrocketing over the past years, it is no longer unusual that wealthy club owners or even shareholders voluntarily pick up the bill for their club and thereby cover payroll expenses and/or transfer fees in order to give its team a competitive edge over rivals.
Operating expenses	Operating expenses comprise all costs that are required to keep the football club running, such as security, cleaning and maintenance costs, payments for police surveillance and sport, finance and insurance consulting services, salaries of administrative staff including the management team, rental of training centers, transportation and accommodation expenditures but also costs related to the club's second team, women team and youth academies.
Example	After adding a medical center and sports science department in 2013 to Manchester United's "Aon Training Complex" that hosts its first team and its youth academy, its total costs amounted to more than £60 million. The club's total operating expenses for the last financial year were £143.1m which is an increase of 17,1% compared to the year before. [13,1]
Comment	One could argue that player, coaching and medical staff expenses should be integrated in this section but separating them gives a more comprehensive view that allows the readers to dig deeper into the different costs.

Coaching and medical staff salaries	This section includes the salaries for the team's head coach and his assistants (fitness coaches, video analysts, goalkeeper trainer …) but also for his medical team (physios, doctors, therapists…). It is even possible that the head coach picks the candidates for specific positions in the management team as for example the sports director who is in charge of the club's transfer policy.
Example	José Mourinho, Manchester United's current head coach, is the highest earning football coach in the world. After accumulating his gross salaries, bonuses and advertising revenues over this 2016/17 season, the star coach makes a total of £25m. [14]
Comment	Having an experienced and strategic head coach who is able to control his players and who is assisted by competent staff is crucial for the success of a team, which is why teams are spending more and more on coaching salaries. Even the most glamorous football stars can't win titles if the team is not in a good physical condition and lacks the right tactical instructions.
Legal costs	Legal costs can either be linked to lawyer salaries that represent the club in legal procedures and provide consulting services or to sanctions imposed by league associations due to misbehavior or neglecting safety measures.
Example	Examples of such sanctions are penalties for disregarding UEFA's financial fair play regulations that should prevent teams from spending more than they earn, disciplinary measures for players' misbehavior on the pitch or for clubs neglecting security measures imposed by the national federation. Insufficient security checks that fail to prevent supporters from smuggling forbidden items such as Bengal firework into the stadium are one example.
Comment	Costs linked to such sanctions widely differ among teams because financial fair play penalties are far from usual and most teams have made stadium security one of their top priorities.
Marketing expenses	Marketing expenses can come from usual advertisements, media channels (radio and TV, social media, Youtube, website, magazine…), overseas promotion tours, charity projects, fan contest and many more.
Example	During pre-season, Manchester United used the "Aon Tour 2017" to promote its franchise in the United States by competing against some of the MLS' most popular teams. The club also has 73m fans on Facebook, 21m followers on Instagram and 664t subscribers on its Youtube channel but administrating these accounts and sponsoring content comes evidently at a cost. [15]
Comment	A club's revenue figures are largely dependent on the franchise's popularity, i.e. its global fan base, which is why the latter is a club's most important asset because fans are prospective clients for sponsors and the club itself. Popularity in turn is mainly connected to factors such as sports results, franchise history or star players on the team. However, these factors cannot be changed overnight since the first two factors are the final result of a tedious process and because star players are too costly for mere business promotion. This means that in order to increase its fan base and simultaneously future revenue streams, clubs need to exploit the full potential of its marketing tools despite the fact that they are a cost without a direct revenue in return. The benefit comes indirectly through the enlarged fan base in the form of higher merchandise sales, better sponsorship deals and more revenue from broadcasting right sales. This is why clubs need to be aware of the power of its marketing tools and fully exploit them.

[1] BBC - Man Utd revenues grow thanks to TV and match-day income	www.bbc.com/news/business-42012949
[2] Manchester United Website - Tickets and Hospitality	www.manutd.com/en/Tickets-And-Hospitality/Ticket-Prices.aspx
[3] Statista - Premier League TV broadcasting rights revenue from 1992 to 2019	www.statista.com/statistics/385002/premier-league-tv-rights-revenue/
[4] BBC - Manchester United and Adidas in £750m deal over 10 years	www.bbc.com/news/business-28282444
[5] Manchester United Website - Partners	www.manutd.com/en/Partners.aspx
[6] Manchester United Fanshop	www.store.manutd.com/stores/manutd/en?portal=QYTMF8KF&CMP=PSC-QYTMF8KF
[7] TransferMarkt - Paul Pogba	www.transfermarkt.com/paul-pogba/profil/spieler/122153
[8] Total Sportek - UEFA Champions League Prize Money	www.totalsportek.com/money/uefa-champions-league-prize-money/
[9] Manchester United Website - Go behind the scenes	www.manutd.com/en/Visit-Old-Trafford/Museum-And-Stadium-Tour/Stadium-Tour.aspx
[10] Manchester United Website - THE MEGASTORE	www.manutd.com/en/Visit-Old-Trafford/Megastore.aspx
[11] TransferMarkt - Manchester United	www.transfermarkt.com/manchester-united/transfers/verein/985/saison_id/2017/pos//detailpos/0/w_s//plus/1#zugaenge
[12] Total Sportek - Manchester United Player Salaries 2018	www.totalsportek.com/money/manchester-united-player-salaries/
[13] Wikipedia – Trafford Training Centre	www.en.wikipedia.org/wiki/Trafford_Training_Centre
[14] Ecofoot - José Mourinho reste l'entraîneur le mieux payé au monde	www.ecofoot.fr/salaires-entraineurs-mourinho-1949/
[15] Manchester United website - Reds get set for Tour 2017	www.manutd.com/en/Tour-2017/Tour-2017-News/2017/Jul/q-and-a-guide-to-man-united-tour-2017-presented-by-Aon-as-squad-prepare-to-fly-to-US.aspx?AL

Appendix II. Questionnaire for the determination of franchise-specific risk premiums

Table 8 Questionary for determination of specific risk premium for Manchester United

Risk factors	Answers	Risk management (%)
Specialized education and experience in football	Yes	0
Head coach has experience with top-teams	Yes	0
Club has a development plan in certain areas: transfer policy, marketing, relationship with fans, media, global development, merchandising	Yes	0
Well-defined structure of the club	Yes	0
System of rewards and penalties, and real practice of its implementation	Yes	0
Non-involvement of shareholders to the team's management	No	5
Sum:		*5*
Number of factors:		*6*
Final risk:		***0.83***
History & infrastructure & image		
The club was founded more than 20 years ago	Yes	0
The club has its own stadium	Yes	0
The club has its own training ground	Yes	0
The club has second team	Yes	0
The club has youth academy	Yes	0
The club has representative offices in other countries	Yes	0
The club sells its branded products in other countries	Yes	0
The club has more than 500 000 fans (according to several independent sociological researches, official fan-club data, social networks)	Yes	0
Additional businesses in the club's structure: TV-channel, restaurants, etc.)	Yes	0
More than 100 items of products manufactured under license agreements	Yes	0
Official fan club with more than 100 000 members	Yes	0
Fans support shareholders and management of the club	No	5
For the last three seasons the average attendance was above 80 %	Yes	0
For the last three seasons the club sells season tickets for more than 50 % seats of home stadium (or has correspond number of requests)	Yes	0
The club is regularly mentioned in media without any negative	N/A	2.50
Sum:		*7.50*
Number of factors:		*15*
Final risk:		**0.50**

(Continued)

Table 8 (Continued)

Risk factors	Answers	Risk management (%)
Finance		
Availability of ongoing financial support from shareholders	No	5
Large world companies with good reputation among sponsors	Yes	0
Debt to Equity ratio < 1	No	5
Budget of the club is among the five largest in the respective league	Yes	0
The last 3 years the club finished with a net profit	No	5
Diversified income structure of the club with the share of each source not exceeding 40 %	Yes	0
The club regularly publishes annual reports, which reflect the financial position with a high degree of confidence	No	5
The club meets financial fair play requirements	Yes	0
Wage to revenue ratio < 70 %	Yes	0
Sum:		*20*
Number of factors:		*9*
Final risk:		***2.22***
Sports achievements		
Over the last 5 years the club at least once won a championship and the National Cup	Yes	0
Over the last 5 years the club at least once participated in Champions League or Europe League	Yes	0
Over the last 5 years the club at least once played in final of Champions League or Europe League	Yes	0
Over the last 5 years second team at least once won a championship	Yes	0
Over the last 5 years the club won some other trophies	Yes	0
Sum:		*0*
Number of factors:		*5*
Final risk:		**0**
Team squad		
The club regularly buys and sells players at the international level	Yes	0
During the last 5 years, the number of players from club's academy in the first team does not fall below 20 % (approximately)	Yes	0
Over the past 5 years, the average age of the players if main team does not exceed 27 years	Yes	0

(Continued)

Table 8 (Continued)

Risk factors	Answers	Risk management (%)
Every season (over the past 5) the club buys at least 1 player who stable plays for the main team for several seasons	No	5
Every season (over the past 5) no more than 2 players were injured for more than 6 months	Yes	0
The presence of players that played for their National teams on last World and Euro Cups (last 8 years)	Yes	0
The presence of well-known players with high popularity and charisma	Yes	0
No Third Party Player Ownership (TPPO) agreements with players	Yes	0
Sum:		*5*
Number of factors:		*8*
Final risk:		**0.63**
Specific risk premium for MU		**4.18**

Appendix III. Overview of the reported transaction prices

Team	Year	Acquisition info	Theoretical acquisition price for 100% (in €)
FC Chelsea	2003	$233 million for 100%	€ 184.744.687,60
Manchester United	2005	£790 million for 100%	€ 1.149.592.549,48
Paris Saint-Germain	2006	€49,74 million for 100%	€ 49.740.000,00
Manchester City	2008	£200 million for 100%	€ 206.825.232,68
Málaga CF	2010	€9,09 million for 100%	€ 9.090.000,00
FC Liverpool	2010	$477 million for 100%	€ 356.395.696,35
West Ham United	2010	£105 million for 50%	€ 74.687.828,22
FC Arsenal	2011	$1,2 billion for 100%	€ 926.497.838,17
Paris Saint-Germain	2011	$143 million for 100%	€ 110.407.659,05
AS Roma	2013	$400 million for 100%	€ 290.317.898,10
Inter Milan	2013	$480 million for 100%	€ 348.381.477,72
Atlético Madrid	2015	€45 million for 20%	€ 225.000.000,00
Espanyol Barcelona	2015	€54,53 million for 56%	€ 97.375.000,00
Manchester City	2015	$400 million for 13%	€ 2.817.179.158,51
Swansea City	2016	£100 million for 60%	€ 194.182.298,34
Inter Milan	2016	€270 million for 68,55%	€ 393.873.085,34
FC Southampton	2017	£190 million for 80%	€ 267.665.952,89
AC Milan	2017	€740 million for 99,93%	€ 740.518.362,85

Appendix IV. Exchange rates used to convert British pound and US dollar prices into euros

Exchange rates for **USD**	2003	2010	2011	2013	2015	2016	2017
1€ is worth:	$ 1,2612	$ 1,3384	$ 1,2952	$ 1,3778	$ 1,0922	$ 1,0567	$ 1,2011
Exchange rates for **GBP**	2005	2008	2010	2013	2015	2016	2017
1€ is worth:	£ 0,6872	£ 0,9670	£ 0,8569	£ 0,8420	£ 0,7360	£ 0,8583	£ 0,8873