The impact of a full Premier League-takeover on house prices

Abstract

For the last two decades, football became a billion-dollar industry. Nowadays, a lot of clubs are owned by private (foreign) investors. Football clubs became large organizations with a strong brand. In England, 90% of the clubs in the Premier League and the Championship are owned by private majority investors. Experts think that these money-injecting private investors are the only competitive business model in nowadays football and expect more takeovers in the future. Because of the investments in players and facilities, takeovers do have a positive impact on the team performance. This attracts more fans to the stadium which attracts more amenities to the area around the stadium. It also could bring optimism and civic pride to the area. This could increase local house prices. But when the performances do not meet the high expectations it can cause pessimism and decreasing house prices. Because of the possible takeover of Newcastle United by a Saudi investment group, Stripehomes released an article where they stated that on average takeovers cause an increase in house prices of 15%. This study checks the impact of full takeovers on nearby house prices by using the difference in difference method. This study has found no evidence to support the statement of Stripehomes. However, there are indications that the source of income of the new owner plays a role in the impact of the takeover on house prices.

Keywords: Premier League, difference in difference, full takeover, amenities

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4-03-2021

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Introduction

Football is the biggest sport in the world, and it is watched all over the world. For the last two decades, money is getting more and more important in football. The football industry is growing rapidly and became a billion-dollar industry. Accountancy firm Deloitte describes this in their annually ranking of revenue of football clubs. According to the Deloitte annual review of football finance, the Premier League is the biggest competition with a revenue of 2.5 billion euros. In 2002 Manchester United was the club with the highest revenue of 217 million euros where Internazionale completed the top 10 with a revenue of 112.8 million euros. In 2010 Real Madrid earned 401 million euros and in 2020 Barcelona earned 840 million euros as biggest clubs (Deloitte, 2020). Also, the landscape of football has changed as more clubs are owned by private investors. Six of the top ten clubs are privately owned. In England 90% of the clubs in the Premier League and the Championship are owned by private majority investors and about 60% of the Premier League clubs is owned by foreign investors (Rohde & Breuer, 2016). This is probably because the Premier League is interesting for foreign investors as it is the most watched national competition in the world. Pickvisa (2020) did a research on the most popular football clubs by looking at the social media followers. In the top 10 five teams are playing in the Premier League. The foreign investors are coming from the Middle East, United States of America, Russia, South East Asia etc. These investors are most of the time majority owners or full owners so they can easily make investment decisions. Majority owners own 51% of the shares or more and full owners own all the shares. Experts think that these money-injecting private investors are the only competitive business models in nowadays football (Kuper, 2009). This means that the only way to play at the European top, is that the club is privately owned by investors who are willing to invest heavily. With the money they can buy the best players in the world. Without the money it is almost impossible to play at the top, according to the experts. Football club boards feel the pressure from fans to perform. Welcoming a new owner with a lot of money is an option for them. Therefore, it is expected to see more takeovers in the future.

In 2020, a state-owned investment group coming from Saudi Arabia wanted to buy Newcastle United. Because of this, local property developer StripeHomes released a research about the 20 previous big-name Premier League takeovers. The research shows that house prices benefit from big name takeovers with 5% in the first year and 15% in three years. This article was widely spread in the British (real estate) media. According to the managing director of StripeHomes, a takeover of Newcastle by the Saudi's will cause a rise in house prices because it puts the city on the map. They see the takeover as a boost for the local economy. He stated that it will attract more people to the pubs, clubs and restaurants in the city (StripeHomes, 2020). If this is the case it could lead to more jobs within local companies. Also, with more fans in the stadium also more staff will be needed. However, this research raises questions. It seems that they only compared the average house prices before and average house prices after the takeovers without controlling for any variables such as inflation.

Undertaken on behalf of Visit Britain, research by the Office for National Statistics has shown that 800,000 fans from overseas visited Premier League stadiums in 2014. The overall economic gain was 770 million euros (The Guardian, 2015). This supports the theory that football clubs add value to the local economy. Stadiums and club museums of successful clubs will be visited by tourists as these places are often suggested to visit by traveling websites. More tourists could attract more amenities to the area around the stadium.

When a team is playing in the top of the Premier League, they qualify for the Champions League, which is also broadcasted all over the world. The Champions League final of 2015 is watched by 380 million people which is almost four times more viewers than the Superbowl has (Infogram, 2015). So, a club which is playing in the top of the most broadcasted national competition and is also playing in the Champions League, will attract a lot of foreign fans and tourists to the area. The club then advertises the city. It could reinforce the effect of increasing amenities and thus increasing house prices. It could also attract fans from other regions in the United Kingdom who do not have a big club to support or want to support another club. For decades, supporting two football teams was a bit of a taboo in the United Kingdom. Nowadays, according to research by COPA90, 42% of 16-24-year old's in the United Kingdom support at least two football teams. They state: "Modern Football Fan is less inclined than previous generations to settle for enjoying just one team, style or dimension of the football world" (Coleman, 2018). They explained that this is because of the growing availability of goals, highlights and videogames. So, it seems there is room for clubs to expand their fanbase in the United Kingdom as well.

However, it is important to stay with the facts and not just believe all the stakeholders. For example, developers and football clubs want to convince local governments that a new stadium is good for the local economy as they need it to make money. The same applies to stakeholders who want to believe and want to convince other parties that there is a positive effect of takeovers on investments and the local economy. This is a known phenomenon that occurs with organizing the Olympics and the World Cup. A lot of stakeholders want governments to believe that it is beneficial for the local economy. But almost all studies conclude that it is a money-losing project for the cities/countries who are hosting the event (Baade and Matheson, 2016). The same applies to takeovers is football. These takeovers have multiple stakeholders:

- Cities, as clubs are attracting tourists and are part of the city marketing. Visiting stadiums and club museums are often recommended on tourists-websites.
- Governments, who do not want political influence from other countries.
- Companies, who sponsor the club whose name is shown all over the world.
- Very rich people, who want fame by leading/buying a club.
- Former owner, who wants to sell the club for a good price.
- Fans, who want their club to win. But some fans also do not want a private (foreign) owner.

Some stakeholders (e.g. supporters and/or former owners) want to convince the local government and the Football Association (FA) to cooperate with the takeover by arguing that it has economic benefits. Therefore, it could be interesting to check the statements of the British estate agent StripeHomes if a takeover has a positive impact on house prices. The results of this study could play an important role in the decision-making process of governments in the case of future takeovers. It is also interesting for developers who can invest in the area around the stadium after a takeover to see if it results in a positive impact on house prices. For the possible takeover of Newcastle United by the Saudi state-owned investment group, the government decided not to give permission for the takeover because they do not want the influence of Saudi Arabia in the United Kingdom. During the decision-making process, it could be a substantial factor whether a takeover will lead to a boost on the local economy in terms of house prices.

There are differences between owners of football clubs. Some owners want to make money with a takeover and others are investing in a club based on different goals. Prestige could be a reason to buy a club but also building trust or gaining political influence to enter the European Market. Arabic oil

companies are investing a lot of money in sports around the world. Examples of stadiums with names of Arabic companies are the Emirates Stadium of Arsenal and the Etihad stadium of Manchester City. This study will also provide an analysis about the potential effect of owners' main source of income. New owners who were previously active in the fossil energy industry could have a different effect because of their spending power. The good results from Chelsea, Manchester City, Paris Saint-Germain, Anzhi and Malaga CF have one thing in common: the results came after a takeover with money coming from the fossil energy industry.

- Chelsea was bought by Russian oil-tycoon Roman Abramovic in 2003.
- Manchester City was bought by Abu Dabi United Group in 2008.
- PSG was taken over by Qatari investors in 2011.
- FC Anzhi was purchased by gas billionaire Suleyman Kerimov in 2011.
- Malaga was taken over by Sheikh Abdullah Al Thani from Qatar in 2010.

This is probably because there is a lot of money in this industry. The oil and gas industry was the largest industry in the world in 2019 followed by technology and banking (Globaldata, 2019). Saudi Arabia's oil company Saudi Aramco was in 2018 the most profitable company in the world with 355,9 billion dollars revenue and a profit of 111 billion dollars (Guardian, 2019). This large amount of profit means that there is a lot of money to invest. According to the United Nations countries like Kuwait, Qatar, United Arab Emirates (UAE) and Saudi Arabia produce the highest amount of oil per capita per year. Companies in these countries probably have a lot of money to invest. But why would they invest so much money in football? One of the reasons is soft diplomacy and marketing. A lot of (big) football clubs in Europe are playing with companies from Russia and the Arabic world on their jersey. This is their way of getting influence in the sport and its country (Gupta, 2020). Rose and Spiegel (2010) stated that countries and companies who invest a lot of money in (foreign) sports that they want to send a message to the world: they can be trusted to do business with. The Gulf states attract leading players to the region and investing in the top football competitions. The UAE and Qatar used the investments of football to promote investment in other sectors for example tourism and they try to make a good impression as Arabic investors (Thani&Hennan, 2017). Manchester City and Paris Saint-Germain's owners have injected millions into their respective football clubs, turning around their balance sheets and buying some of the world's best players. Sheikh Mansour, owner of Manchester City already invested 1 billion British Pounds in the club. The direct economic benefits from investing in sports are debatable. However, there are intangible reasons that explain why the likes of Mansour and Al-Thani have diversified oil revenues into football. The perceived status and prestige from sport boosts their states' brands globally and attracts business (Thani&Heenan, 2017). "It looks sometimes like there is a match between two teams and a larger play for foreign influence that continues after the match is over" (Gupta, 2020).

With the large amount of money this industry invests in football and facilities, it is conceivable that the source of income of the new owner does have an impact on the area. It is expected that an owner coming from the fossil-energy has an (extra) positive effect on the nearby house prices. The Arabic investors are not only interested in players but also the facilities. The growth of elite football academies has led to Arabic investment and partnerships with leading global football brands. The Qataris have invested heavily in the Aspire Academy which is an elite football school training with around 400,000 boys each year from Asia, Africa, South and Central America. The Aspire Academy has been used by Manchester United, Everton and Liverpool. They invest not only in players but also in the accommodation for example the stadium and the trainings facilities (Thani&Hennan, 2017). Sheik Mansour invested with a 1-billion-dollar deal in the stadium, the training complex of Manchester City and the land around it with a three-phase plan (Smith, 2010):

1. The construction of a new training complex
2. Stadium expansion
3. Leisure attraction

This investment will transform one of the poorest areas of the city into "world class sports and leisure complex" by creating thousands of jobs (Smith, 2010). Similar investments were done by the new owners of Chelsea and Paris Saint Germain. These land developments could have an impact on house prices.

It is important that we can predict house prices after such takeovers. According to a spatial analysis, Premier League stadiums are often in deprived areas (Rae, 2015). Policymakers probably want to stimulate this area. If a takeover lead to a local economic boost and higher house prices, it is more likely that local governments will cooperate with a takeover. If the house prices do not increase, they can counter the argument that a takeover will increase house prices and decide to not cooperate. So, the outcome of this study could be interesting for governments and investors. The aim of this research is to measure the effect of a takeover of a Premier League football club on the nearby house prices. But as not every takeover is the same, the focus of this research is on full takeovers. Most of the clubs have a lot of shareholders or a majority owner for whom it is harder to make large investments. A full owner has the authority to do it at any time without permission of other shareholders. This study tries to predict possible house price changes after a takeover. Because owners coming from the fossil energy sector tend to invest more money in their clubs, this could have more impact on house prices. Therefore, this study also focuses on the origin of money of the new owner to look for differences. Another reason is the lack of information of each takeover about the investments of the new owner.

The main research question is:

- *What is the effect of full ownership takeovers of Premier League clubs on nearby house prices?*

This question will be answered by using a difference-in-difference model which is used in multiple studies to investigate the effect of certain events or (re)developments on house prices. Takeover cases shown in table 1 will be analyzed to investigate the effect. Sub questions will be used to answer the main research question. The first subject question is:

- *What does the literature say about the impact of football clubs on house prices?*

This question will be answered by the academic literature. The findings about the impact of stadiums, investments and team success on house prices will help to answer this question. The second sub question is:

- *Is there a difference in effect looking at the source of income by the new owner?*

This question will be answered by dividing the origin of income into two groups: fossil energy (Manchester City and Chelsea) and "other" (Newcastle, Sunderland and Manchester United).

Literature review and theoretical framework

There are many factors playing a role in house prices but eventually it is about the willingness to pay of a buyer for a specific house. But not everyone will pay the same amount for the same house because of taste and utility. A lot of research has been done on this topic. These factors are used by most studies and estate agents:

- Location: Think of the distance to certain amenities.
- House characteristics: For example, size of house/land, building year, condition etc.
- Economic factors: If the economy is booming, people have more money to spend on a house.
- Demand: On the short term the supply is fixed. So, if demand increases, house prices will increase.
- Supply: How many houses are vacant and how many houses will be built. But also, which property types are in the area? What percentage is freehold/leasehold? Are there many houses for social rent? All these supply variables can determine the house prices.
- Interest rates: If interest rates are low, people could afford higher loans and when they can borrow more money, they can spend more money on a house.

This study will focus on the location and the (local) economic factors. When focusing on the factor "location" it means focusing on the location relatively to amenities. A football club and especially the stadium can be an amenity for many people, they can benefit from it by watching a football match.

Many studies have been performed on the effect of stadiums on house prices and economic development. Multiple studies (Tu, 2005; Ahlfeldt and Kavetsos, 2011; Feng and Humphreys, 2012) have shown that a new stadium has a positive impact on house prices. Ahlfeldt and Kavetsos (2014) found a rise in property prices nearby the new Wembley in London and the Emirates stadium of Arsenal in London. Nearby Wembley this resulted in a 15% increase of property prices, this gradually decreases with distance to the stadium. Dehring et al. (2007) investigated the effect of the announcement of the Dallas Cowboys searching for a new host city in the Dallas-Fort Worth area. They found that house prices in Dallas increased because of the announcement of a possible new stadium in the city while house prices in the rest of Dallas county decreased. The results of Tu (2005) also found a positive effect of a new stadium on house prices. Chikish et al. (2018) analyzed house prices in Oklahoma City from 2000 to 2016. They found that the opening of a new arena together with the arrival of a new permanent NBA team in the city had a positive impact on house prices. The football industry is growing, and football clubs are getting bigger and so are their stadiums. A stadium is not just hosting a weekly football match, it has a lot more amenities in it. For example, shops, cinema's, casino's, hotels, restaurants, museums etc. A stadium can also be the host of concerts, congresses and other (sport) events. Ahlfeldt and Maenning (2010) listed some expectations about the impact of a stadium. Some expectations could also apply to the effects by a takeover because a new stadium and the takeover are expected to attract more fans to the stadium and better performances of the team. For example, the positive effect of spending money by foreign fans, consumption benefits and civic pride.

It seems that there is consensus about the positive impact of a stadium on house prices. But Coates (2007) is questioning the economic development by the stadium: "There may be substantial public benefits from stadiums and franchises, but those too are insufficient to warrant large-scale subsidies by themselves." Baade and Dye (1988) state that a new stadium is only good for the economy when it is part of a larger package of planned and balanced development. So, there is still no consensus about the economic benefits of new stadiums. Football clubs also bring negative externalities for the local area. According to

Mason et al. (1983), noise nuisance is the most localized negative externality where parked cars and congestion are the most extensive. They also found that the degree of nuisances caused by noise, pedestrians and hooliganism decreases with distance. On the other hand, the incidence of the parked cars nuisance and, to a lesser extent, the traffic nuisance are less in the immediate surrounding area of the stadium when compared to the area a little further away (Mason et al., 1983). All these negative externalities could become more severe and more frequently after a takeover because a better performing team is playing more matches than before. A takeover can also lead to decreasing house prices because of the expectations. If the team does not meet the high expectations this could cause pessimism. Pessimism could lead to less civic pride and therefore less consuming which leads a decrease in amenities and finally a decrease in house prices.

For this study it could be interesting what the literature says about the possible the impact of team performance on house prices and/or the local economy. This is because the focus of this study is on the impact of takeovers where they often promise a bright future and that they (the new owners) create hope and promise for better results in the future. British estate agent House Shop did research on the impact of the performance from a football club on local property prices. They stated that property prices increasing when the club has success compared to unsuccessful times (Home House Buyers, 2018). Roberts et al. (2016) found a positive impact of the promotion of Swansea City to the Premier League on the local economy. Besides the research on the impact of a new stadium, Ahlfeldt and Kavetsos (2014) also did a regression with team performance and house prices, but they did not find significant results. However, they stated that it was probably because the stable performance of Arsenal and the England National Team. This makes it hard to investigate the impact of team performances. The results of this study might be different especially with the successes achieved by Chelsea and Manchester City (who are in the dataset for this study) after the takeovers. They performed significantly better where the performances of other clubs in this dataset did not really change. Therefore, this study can be an addition to the literature.

Takeovers of football clubs cannot be seen as a homogeneous deal. The deal itself can differ in percentage of shares. A majority owner has 51% of the shares or more and a full owner has all the shares. An owner with 51% of shares faces much more resistance with investments than an owner who has full ownership and has 100% of the shares. Rohde & Breuer (2016) stated that based on the property rights theory, concentrated ownership by private companies has been determined to be beneficial since all rights are concentrated with the owner which implies the highest economic efficiency and lowest welfare loss. Compared with shareholder ownership, full owners have less restrictions on excessive spending. They are often argued as owners who derive utility from winning and fame (Franck & Lang, 2014). Good examples are sheiks who want to beat each other. Therefore, this study will only focus on full takeovers which means that the new owner should own all the shares. The new owner must buy all the shares within a year to make the impact measurable.

A takeover by a private majority investor does have a positive effect on a football club (Rohde & Breuer, 2016). For full takeovers it is reasonable to think that the positive effect is bigger as the decision-making process is faster and it is easier to make large investments. Investments could be a new stadium, new training complex, new players etc. These investments can put a club on the global map when they attract the best players and play a role in the top of European club football. For example, full takeovers of Leicester City, Paris Saint-Germain, Malaga FC, FC Anzhi, Manchester City and Chelsea resulted in impressive team performances. As already mentioned, the football industry is a billion-dollar industry.

The Premier League is broadcasting all over the world. This means that clubs are brands. With good results, clubs can be a stronger brand so their revenue will increase. Paris Saint-Germain is now one of the biggest clubs in the world because of the takeover. Because they bought the best players in het world it became a strong brand which even reached the fashion world (BBC, 2019). These clubs attracted a lot of new fans after the takeover. Chelsea and Manchester City were relatively unknown clubs before the takeover who played at the bottom of the Premier League. Both clubs are now in the top 10 of clubs with the most fans worldwide. The same applies to Paris Saint-Germain. Both clubs have nearly 100 million fans (Pickvisa, 2020). As already mentioned, a lot of foreign fans are visiting Premier League games (The Guardian, 2015) with a 770-million-pound economic gain in 2014. This amount is probably increasing every year because of the increasing popularity of the Premier League worldwide. Biagi et al. (2015) found a positive effect of tourism on house prices in Italy. This would support the theory of increasing house prices after a takeover as more tourists can be expected after a takeover.
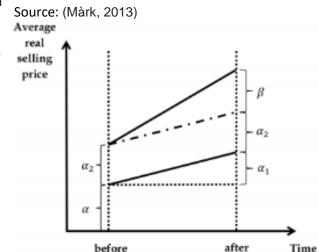
However, takeovers can also be experienced as negative. Arsenal Supporters Trust is not happy with the majority takeover by Stan Kroenke. They believe that Arsenal is too important to be owned by one person (Tongue, 2013). Also, a group of Manchester United supporters left the club after the takeover by the Glazer Family. They founded a new club: FC United of Manchester (FC United of Manchester,2021). There are more examples where the fans are not happy with the takeover of their club.

Important for this study is what the literature tells about the effect of takeovers on investments and team performance. Recent research found that majority takeovers have a positive effect on team investments, revenues and competitiveness (Rohde & Breuer, 2016). They did research on 30 football clubs in the top leagues in Europe. They also found that financial success is driven by national and international success as well as their brand value. Sporting success is driven by team investments. Their most important finding is that they provided evidence for a positive impact of private majority investors on team investments. But this impact can mainly be reduced to foreign majority investors (Rohde & Breuer, 2016). They also concluded that the impact of takeovers by private majority investors indicate positive short- and long-term effects on team investments. Because takeovers have a positive impact on investments, revenues and team performance, a takeover could also have a positive effect on the local economy as good results could lead to an increase in house prices. As teams tend to perform better after a takeover, more fans will visit the stadium. Because more people are visiting the stadium, it is possible that more amenities will move to the area around the stadium. These amenities could cause an increase in nearby house prices. Clubs play more matches when they win more matches. Because they qualify for example, for the European cups and get to the final stages of these tournaments. This effect reinforces the increasing number of fans going to the stadium which leads to an increase in amenities in the area. The property prices could rise because the investments and the better team performances attract amenities such as bars, restaurants and hotels around the stadium as more (foreign) fans are visiting the stadium.

The aim of this research is just to look at the impact of full takeovers on nearby house prices. There is a lot of research done on the impact of stadiums and team performances on house prices. Only StripeHomes analyzed the impact of takeovers on house prices. However, it is questionable how academic this research is. This study fills the gap in the literature by analyzing the impact of takeovers on house prices. The hypothesis of this research is: Full takeovers of a Premier League Club has a positive impact on nearby house prices.

Methodology

The difference in difference method is often used for studies on changing house prices because of a certain event. This method is suitable to measure the effect by using data before and after the event with a target and a control area. Especially about the effect of infrastructural projects on house prices. Dube et al. (2014) did a spatial difference in difference estimation to evaluate the effect of public mass transit systems on house prices. Braakmann and McDonald (2020) used the same data source (HM Land Registry) as this study does and did a difference in difference analysis to measure the effect of major subsidy cuts on house prices in England and Wales.

Figure 1: Visual representation of Diff-in-diff coefficients

Source: (Màrk, 2013)

For this study, the difference in difference approach is the best way to measure the potential effect of takeovers on house prices. Because it investigates whether an intervention influences an outcome over time by comparing observed differences in a target area that receives the intervention with observed differences in a control area which does not (Heckert and Mennis, 2012). Pre-existing differences in house prices between cities or between the target and control group is not a problem. If the effect is significant there should be a difference in outcome between the two areas over time due the hypothesized treatment. This method isolates the treatment effect from any other difference that would have been expected regardless of the treatment, for example because of inflation.

The focus of this study is on takeovers in the Premier League where the new owner has full ownership. Therefore, a couple of requirements are made to select the takeover cases:

1. On the moment of takeover, the club should play in the Premier League.
2. The new owner has full ownership. This means that he has all the shares. This must be done within a year, otherwise it is hard to measure the effect of a takeover.
3. One clear owner, not a combination of a few people.
4. No other case nearby.

Some takeovers were about full ownership, but the club was not playing in the Premier League at the time. For example, the takeover of 2016-Champion Leicester City, where the new owner bought all the shares, but the club was playing in the Championship at the time in 2010. Other examples who did not play in the Premier League at the time of the takeover are Wolverhampton Wanderers and Watford. Known takeovers of clubs who did play in de Premier League but not meet the full ownership requirements are West Bromwich, Everton, Southampton, Tottenham Hotspur, Arsenal and Brighton & Hove Albion. These five takeovers meet all the requirements. Only Ellis Short is not the current owner anymore he sold the club in 2018. Important to note is that these clubs did not moved to a new stadium during the period so this will not affect the house prices. Only the Etihad Stadium of Manchester City is expanded with 8,000 seats.

Table 1: Premier League takeovers with full ownership

Owner	Club	Year of takeover
Sheik Mansour	Manchester City	2008
Roman Abramovich	Chelsea	2003
Glazer Family	Manchester United	2004
Mike Ashley	Newcastle United	2007
Ellis Short	Sunderland	2009

To study the potential effect of full takeovers on house prices, sales transactions were necessary. The data from HM Land Registry is used for this. They have all the property sales for England and Wales since 1995. However, the data is limited. The property characteristics are limited to address, paid price, date of transaction, building type, newly build or not and whether the property is free- or leasehold. Important features are missing in this dataset, for example the number of floors, bedrooms and the square meters of the house. Since the location of these houses is very important for the research, the distance to the stadium was needed. ArcMap makes it possible to measure the distances. With geocoding and the use of postal code layers from Ordnance Survey it is possible to determine the location of each address. However, it was not possible to match the layer with postcodes within 2km from the Chelsea stadium. For those transactions, the geocoding tool is used to determine the location. The Point Distance-Tool is used to measure the distance from each address to the stadium and the distance to the central business district (CBD) of the city. With this variable we control for this possible effect according to the bid rent theory. Then, a buffer of 8 kilometers around the stadium is made so that only the necessary transactions are in the dataset.

The dataset contained some outliers. There are some garage boxes in it and some extreme paid prices up to £250 million. They were not regular houses but student buildings and other buildings which were not houses and probably "typo's". The percentile-based method is used for identifying outliers. According to artificial intelligence magazine Becoming Human, dropping the top and bottom 1% of the data is commonly used in for real estate data (Becoming Human, 2020). After dropping the top and bottom 1%, the minimum paid price now is £13000, and the maximum paid price is £2.400.000. This difference is because of the difference in land costs between cities and the moment of transaction. House prices in Sunderland in 1995 are totally different from house prices in London in 2020. Therefore, this is a reasonable explanation for the wide range. Observations with "transaction category B" are also dropped because this transaction is not only the value of the house. The sales transactions in the year of the takeover are also dropped so it is easier to identify the effect of the takeover. Finally, transactions with percentage growth smaller than -30% and higher than 400% are dropped because the growth would be unreasonable. It is unrealistic that a house of £1,2million is sold a couple of years later for £150k. HM Land Registry house price index data found that for the United Kingdom, house prices in 2020 are 400% higher than in 1995 (start of dataset). So that is why the 400% is used as top growth. The dataset contains only the first transaction before and the first transaction after the takeover. There are a few duplicates in the dataset because of the overlapping control area of the two Manchester clubs. But this is not a problem as these takeovers are not in the same year.

For the difference in difference analysis, it is important to determine a target and control area. Several studies found that the impact of stadiums on house prices stops at a maximum distance of 5km from the

stadium (Tu, 2005; Ahlfeldt and Kavetsos, 2013; Ahfeldt and Maennig, 2012). This makes sense because there are a lot of amenities in a stadium. Nowadays a stadium is not only a football club but also supermarkets, cinema's, halls for congresses, schools, restaurants etc. Therefore, a 5km target area is a good area to measure the impact. However, this study will use a 3km radius as the target area to measure the impact of a takeover instead of the existence of the stadium and the club. This smaller target area is used because it is not expected that a takeover will have an impact further than 3km from the stadium. It is also not expected that people who live 5km away from the stadium experience differences on matchdays compared to regular days. Because studies on the impact of new stadiums showed an impact till 5km away from the stadium, the control group for this study will be the 5-8km ring from the stadium. This control area is chosen to be certain that the control group is not affected by the stadium and the takeover. Also, the impact of every 1-kilometer ring is analyzed to get a better picture about the impact of the takeovers.

The dataset contains 158,562 transactions. For each house there is one transaction before and one transaction after the takeover so there are 79,281 houses in this dataset. Table 3 shows the descriptive statistics. The target area contains less transactions (26%) than the control area (74%). But this is not a problem because of the high number of observations. This ratio can also be seen in the mean distance to the stadium which is higher than the 3km-target area.

Table 3: Descriptive statistics per club

	Chelsea*	Manchester City*	Manchester United	Newcastle	Sunderland	Total
Number of transactions	66.056	30.011	43.342	23.581	9.822	158.561
Mean price paid in	£390.759	£121.520	£131.319	£178.133	£117.587	£247.153
Mean price difference	£249.764	£57.388	£75.926	£56.153	£31.867	£141.497
% Houses in 3km target area	22%	11%	23%	68%	75%	26%
Mean distance to stadium in km	5,5	6,2	5,5	3,2	2,7	5,3
Property type frequency						
Flat	81%	18%	19%	38%	1%	44%
Terraced	15%	39%	38%	33%	59%	31%
Semi-detached	3%	37%	36%	22%	38%	21%
Detached	1%	6%	7%	7%	10%	4%
Estate Type frequency						
Freehold	18%	56%	54%	52%	100%	44%
Leasehold	82%	44%	46%	48%	0	56%

*Owner has fossil energy as source of income

Besides the statistics of the total dataset, table 3 also shows the statistics per club. What stands out is the number of observations between the clubs, where Chelsea has 4,5 times more observations than Sunderland. By controlling for the city of London and because of the high number of observations, there are no problems expected. There are also substantial differences in the mean price paid between the clubs. Because the dataset contains the first sale before the takeover and the first sale after the takeover, the mean price difference is given. We can see that the prices of the London market exploded compared with the other housing markets. Therefore, the results of the regression will be checked for robustness in

the next chapter by comparing London with the other cities. Another possible interesting feature of this dataset is the percentage observations in the target area are much higher for Newcastle and Sunderland compared to the Manchester clubs and Chelsea. This has everything to do with the size of the city where Newcastle and Sunderland are smaller than London and Manchester. But problems with this are not expected because of the large number of observations in the dataset. The average distance of every house to the stadium of the clubs is showing the same trend. There are also some interesting statistics in the property type section where London differs from the other cities. This can be explained by the land costs which are higher in London, therefore the urban morphology differs. This results in a large proportion of flats in London and a large proportion of detached houses in Sunderland.

For the analysis by distance rings around the stadium, it is interesting to know the distribution per 1-km ring. The distribution should be divided proportionally. Table 4 shows the distribution per ring. The first ring around the stadium is a just a small percentage but the number of observations is still good enough to analyze.

Table 4: House distribution per 1km-ring

House distribution by 1km-rings around stadium	Frequency	Percentage
Ring 0-1km	3030	3,82%
Ring 1-2km	7534	9,50%
Ring 2-3km	9929	12,52%
5-8km	58788	74,16%
Total	79281	100

The idea of a difference in difference strategy is to compare the change in house price in a certain period of two groups. These groups are the target group and control group. A basic difference in difference model is therefore:

$$DD = (\bar{Y}Treatment,Post - \bar{Y}Treatment,Pre) - (\bar{Y}Control,Post - \bar{Y}Control,Pre) \qquad (1)$$

It is important that both areas are affected the same by time-varying factors besides the treatment (proximity of the stadium). For this study, we want to know whether there is a difference in house price change after the takeover nearby the stadium (<3km) and the control area (5-8km). This study also included control variables for example property characteristics, area fixed effects, year effects and estate type. Additionally, the variable "oil" was used to measure the impact of owners coming from the fossil energy industry. The hedonic difference in difference model of for this study will be:

$$LnP_{jit} = \alpha + \beta_1 After + \beta_2 Target + \beta_3 Target * After + \beta_4 Source + X_j + y_t + a_i + \varepsilon_t \quad (2)$$

Where LnP_{jit} is the Log price of house j in location i at time t. β_1 is a dummy variable where 0=before and 1= after takeover. β_2 is a dummy where 0= control area and 1= target area. β_3 is the interaction effect of the area of interest with the period of interest. β_4 is about the source of income and is a dummy variable

with 0=non-oil and 1=oil. X is a set of property characteristics about the property type and the estate type. y and a are year and area fixed effect with year dummies, the city and the distance to the CBD. ε_{it} is the random error term.

The most important coefficient is β_3 as it shows the potential impact of the takeover. β_4 could also be interesting to study possible differences between takeovers and for example the origin of the source of income from the new owner (fossil energy or not). Property characteristics are the property type (terraced, flat, semi-detached and detached) and estate type (freehold or leasehold). Year effects are dummies. Area fixed effects is the distance to CBD. Robustness checks will be done by comparing London with the other cities because the London housing market acted differently from the rest of the United Kingdom.

Results

This chapter shows the results of the difference-in-difference analysis. Different models are analyzed, and the results are discussed to answer the research questions. The chapter also contains the results of the robustness check where London is compared to other cities. Model 1 of table 5 is the baseline model with the dummy variables target area, after takeover the interaction between them and the included fixed variables. The fixed variables are the property characteristics, year effects and area fixed effects. Property characteristics are the property type (flat, terraced, semi-detached or detached) and the estate type (freehold or leasehold). The year effects are dummy variables, and the area fixed effects are the distance to the CBD. The coefficient of interest is the coefficient of the interaction variable Target*After. Model 2 contains only the cases where the new owner is coming from the fossil energy industry. These observations are from the cases Chelsea and Manchester City. The coefficient of interest remains Target*After and represents the impact of the "oil-owners" in the target area after the takeover. The model can be compared to Model 3 which contains the clubs with the "non-oil owners". Model 4, 5 and 6 are models where the impact per 1km ring around the stadium and within the target area is shown. These are all interaction variables with "after the takeover".

Table 5: Difference in difference regression of the logged paid price

Model 3km Target	1	2	3	4	5	6
	All	**Oil**	**Non-oil**	**All**	**Oil**	**Non-oil**
Target	0,1179*** (0,0020)	0,1387*** (0,0027)	0,1161*** (0,0031)			
After	-0,0583*** (0,0026)	-0,1107*** (0,0037)	-0,0010 (0,0047)	-0,584*** (0,0026)	-0,1109*** (0,0041)	0,0014 (0,0046)
Target*After	-0,0171*** (0,0026)	0,0050 (0,0039)	-0,0237*** (0,0035)			
0-1km Ring				0,1316*** (0,0042)	0,1642*** (0,0052)	0,0794*** (0,0089)
1-2km Ring				0,1353*** (0,0028)	0,1860*** (0,0039)	0,0957*** (0,0042)
2-3km Ring				0,0996*** (0,0026)	0,0641*** (0,0043)	0,1258*** (0,0034)
0-1km Ring*After				-0,0274*** (0,0059)	0,0012 (0,0073)	-0,0502*** (0,0093)
1-2km Ring*After				-0,0188*** (0,0039)	0,0050 (0,0055)	-0,0234*** (0,0052)

2-3km Ring*After				-0,0126***	0,0068	-0,0203***
				(0,0034)	(0,0061)	(0,0041)
Property characteristics	Included	Included	Included	Included	Included	Included
Year effects	Included	Included	Included	Included	Included	Included
Area fixed effects	Included	Included	Included	Included	Included	Included
constant	4,3183	4,5682	4,3541	4,3153	4,5781	4,3680
Observations	158561	96067	62494	158561	96067	62494
R-squared	0,6058	0,5608	0,4794	0,6063	0,5653	0,4813

Note: Dependent variable is the log paid price.
Significance levels: *p<0,1 **p<0,05 ***p<0,01

Model 1 explains 60.58% of the variance and shows us that the takeover has a negative effect of 1,71% on the price in the 3km target area and is significant for the 0,01 level. This result would not support the hypothesis that a full takeover is leading to higher nearby house prices. This could have many reasons. One of them could be disappointing results after the takeover. A lot of times, new owners are promising that they will bring the club to the top. So, the owners create high expectations. And when the club is not performing, it could lead to disappointment. Three of the five clubs in this study did not meet the meet the high expectations after the takeover. This could cause pessimism and less civic pride. Less people want to celebrate the game with a beer and consuming less. But takeovers in general could lead to disappointment among the fans and can lead to a loss in connection with the local community. As already mentioned, supporters may feel alienated from the club and leave the club. For example, supporters of Manchester United left the club and started a new club. All this could cause a slight decrease in house prices. This could explain the results of this model. Only two of the five clubs in this study performed better after the takeover. For example, Newcastle United relegated two years after the takeover. Sunderland performed stable for the first couple of years after the takeover and then relegated twice to play in League One, which is the third tier. Manchester United performed very stable after the takeover and remain their position in the top of European football. However, for the last couple of years not performing that well anymore. Only Manchester City and Chelsea performed significantly better after the takeover.

In model 2 and 3, this study divided the takeovers by owners coming from the fossil energy industry and the owners who are not coming from this industry. Model 2 represents takeovers where the owners earned their money in the fossil energy industry. The coefficient of interest remains the coefficient of the Target*After variable. This result is different from the result of model 1. The coefficient of model 2 is positive but not significant. It shows that the "oil takeovers" have a positive but not significant impact of 0,50% on the paid price. The R-squared is relatively high but is a bit lower than model 1. As described earlier, this effect could be explained, because investors coming from the fossil energy industry are known for their excessive spending in sports in general but especially in football. The same applies to these two "oil-owners" of Chelsea and Manchester City. Two years ago, The Guardian posted that Manchester City-owner Sheikh Mansour invested £1,3 billion British pounds in the club since the takeover in 2008. Chelsea-owner Abramovich invested £1,17 billion pounds in his club since he bought it in 2003 (Conn, 2018). With these investments Chelsea and Manchester City became one of the biggest clubs in the world. At the time of the takeover, Manchester City and Chelsea played at the bottom of the Premier League and after the takeover, they became Champions of the Premier League. So instead of playing against relegation, they

play for the title. They are also both playing Champions League every year. Chelsea even won the Champions League in 2012. This attracts lots of (foreign) fans. Which also attract more amenities to the area around the stadium. This causes an increase of local house prices.

The coefficient of interest of the "non-oil" owners shows a negative effect of 2,37% on the paid price and is significant for the 0,01-significance level. As already mentioned, this is possible because of the performance of these clubs. The clubs of "non-oil owners" performed stable or even worse after the takeover. Most of the time, the expectations after a takeover are very high as the new owner promise to invest in the squad and aim for the top. Probably for these clubs, the performances after the takeover did not meet the expectations. Also, some supporters could feel alienated from the club. This could lead that less fans and amenities are moving to the stadium and therefore could cause a slight decrease in house prices. It could be argued that the better performances of Manchester City could cause a movement of amenities from the area around the Manchester United stadium to the area around the Manchester City stadium. However, as both Manchester clubs are rivals, most fans will probably stick to their club.

Models 4, 5 and 6 are 1km ring analysis of the target area. Model 4 shows a positive significant effect for houses located in the target area. But after the takeover these are all negative. This result gives the same picture as in model 1. Notable is the impact on this first kilometer ring where the coefficient dropped the most. This could be because of possible negative externalities. Nowadays, more competitions are organized and clubs in general are playing more matches throughout the season than before. Also, when a club becomes bigger, more supporters are coming to the stadium. For example, on matchdays, the large number of supporters will cause congestion and noise and there is also a possibility of riots. It is conceivable that households with children do not want to live here. Also, the other kilometer rings probably experience less or no negative externalities of a football match. For example, it is unlikely that there is a lot of congestion 3 kilometers of the stadium because of a football match. Model 5 shows a significant positive effect for the target area. But after the takeover, this is not significant anymore. Non-oil takeovers turned coefficients for all kilometer rings from positive to negative (model 6).

To check for robustness the London Club Chelsea (model 1) is compared with the other clubs (model 2). London is one of the most expensive cities in the world. House prices exploded in the past decades. A research of Savills showed that house prices in 1995 were 1.3 times higher in London than in the rest of the United Kingdom. In 2017 the house prices were 2.3 times higher (Cook, 2020). The other cities are comparable in this dataset in terms of average house prices, in terms of percentage leasehold/freehold, and in terms of property type distribution. The London housing market differs on all these terms from the other cities. London has higher house prices, more leasehold (80% compared to ~50%) and a totally different property type distribution with 81% Flats compared to 20-40% for the other cities.

Therefore, the case of Chelsea could react differently as compared to the other clubs. Previous models also showed that the impact of the London variable was enormous on the log paid price. The target area for these two models remains the 3km radius around the stadium.

Table 6: Robustness checks of London compared to the other cities

Model	1	2
	London	**Other**
Target	0,2513***	0,0026**
After	0,0580***	-0,0031***
Target*After	-0,0024	-0,0235***
Property Type	Included	Included
Year effects	Included	Included
Area fixed effects	Included	Included
constant	5,1660	4,5187
Observations	66,056	92,505
R-squared	0,5075	0,4531

Note: Dependent variable is the log paid price.
Significance levels: *p<0,1 **p<0,05 ***p<0,01

By comparing the first two models the coefficient of interest is the Target*After which shows the effect on the log paid price after the takeover in the target area. For London we see a small negative but insignificant coefficient. The model for the other cities shows a negative coefficient which is significant. The R-squared of both models is comparable with 0,51 and 0,45. This means that the London housing market reacts different to the takeover than the other cities. But this could also be because this club has an owner who is coming from the oil industry. However, we can conclude that both models are not showing a positive impact because of the takeover for the 3km radius as the target area.

Discussion

The topic of this study is an addition to the academic literature. However, the study itself is probably just a start of an addition. This is because it is still hard to answer the research question. Because most of the studies on house prices are done with square meters, we could not definitely falsify the statements made by Stripehomes. More research is needed on this topic but maybe more important: more detailed data is required. It is important to have more property characteristics, especially the square meters. With the square meters we can precisely calculate the square meter price. Other important variables could be the number of bedrooms, number of floors and the square meters of the plot. But these are most of the time not available for students. To get access to this data, the research should be done by a professor, a company or the government.

Another limitation of this study is that the positive effect for "oil-takeovers" cannot be attributed to the source of income. This is because the "oil clubs", in this case Chelsea and Manchester City, performed much better after the takeover than the other clubs in the dataset. So, the study can only confirm the hypothesis that better performances of a club have a positive effect on house prices. It would be interesting to look at the impact of amount of money invested and team performance on house prices. However, this data was not available. The data about investments are hard to collect. Most of the time it is only the transfer fee that is published. Data about salaries and bonuses of players and staff are hard to collect.

 For this study it is hard to reject/confirm the hypothesis about the effect of takeovers on house prices. This study is only just an argument to state that takeovers in general do not have a positive impact on house prices because of the lacking data. It cannot say anything about the impact of oil takeovers. This study contained a relatively small number of takeover cases. Further research is necessary to conclude if there is a positive effect of oil takeovers on house prices. Research with more and different takeovers is necessary. For example, "non-oil takeovers" who perform significantly better than before the takeover. But also, oil takeovers where the performances remain the same.

There are more questions to be raised. Suppose a takeover has a positive effect on house prices, is the increase of house prices an addition or is it just a shift? In other words: does a takeover create value or is it just a shift of value? If it is the case that amenities move from other parts of the city to the stadium, it is probably a shift of value. But if the number of restaurants, bars, clubs and hotels are increasing after a takeover, a takeover probably adds value to the city. A research on amenities in the area after a takeover would also be an interesting topic for further research.

It could also be interesting to study on takeovers of teams not playing in the Premier League at the time of takeover. Those takeovers could have a big impact on smaller communities. Think of Leicester, Wolverhampton Wanderers and Brighton & Hove Albion, who are playing now in the Premier League. This study is focused on full takeovers where the new owner bought 100% of the shares. But for further research it could be interesting to look at majority takeovers who own 51% or more. There are also a lot of private owners in Spain, France and Italy. So, it could be interesting to do the same study in those countries.

Conclusion

The aim of this study is to look for the impact of full Premier League takeovers on nearby house prices. The literature did not consist information for the impact of takeovers on house prices. But there are a lot of articles written about the effect of stadiums on local house prices. The literature is convinced about the positive effects of stadiums on local house prices. Especially new stadiums are hosting much more than only one match every two weeks. Multiple articles are written about takeovers and its effect on investments and club success. In a recent study on financial growth of European football clubs, majority takeovers have a positive effect on team investments, revenues and competitiveness (Rohde & Breuer, 2016). Pickvisa (2020) performed a research on the most popular football clubs by looking at the social media followers. In the top 10, five teams are playing in the Premier League. About 60% of the Premier League clubs is owned by foreign investors. The investors are coming from the Middle East, United States of America, Russia, South East Asia etc. Experts think that these money-injecting private investors are the only competitive business models in nowadays football (Kuper, 2009). This means that clubs need to have a wealthy owner who is willing to invest heavily to play in the top of European football. Without these wealthy owners, clubs will lose their spot in the top. Therefore, it is expected that there will be more takeovers in the future.

Undertaken on behalf of Visit Britain, research by the Office for National Statistics has shown that 800,000 fans from overseas visited Premier League stadiums in 2014. The overall economic gain was 770 million euros (The Guardian, 2015). British estate agent HouseShop did research on the impact of the performance from a football club on local property prices. Both stated that there is an increase in property prices when a club has success (Home House Buyers 2018). Bars, restaurants and hotels might move closer to the stadium if more people are visiting the stadium. Then, local property prices could increase.

Stadiums and museums of successful clubs will be visited by tourists as these places are often suggested to visit by traveling websites. The increasing amenities and the jobs that they create, could lead to an increase in property prices. However, for the houses close to the stadium also experience negative externalities as more fans and tourists coming to the stadium. These externalities are congestion, noise, hooliganism, parked cars etc. These problems could be more severe after a takeover because successful clubs are playing more games.

The Premier League is interesting for foreign investors because it is the biggest competition of the greatest sport in the world. It is especially interesting for investors coming from the fossil energy industry. There is a lot of money in this industry and they are investing heavily in football. Owners coming from this industry who invest in European football clubs are sometimes politically motivated. Sometimes the takeovers are from state-owned companies from the Arabic world. These "oil-parties" tend to invest excessively in their football clubs so they can buy the best players in the world which will lead to better results.

This study used price paid data from HM Land Registry. The difference in difference approach is used to measure the possible impact of full Premier League takeovers on house prices 3km around the stadium. Multiple regressions are done: all takeovers, with only "oil takeovers" and with "non-oil takeovers". Looking to the results of the difference in difference analysis, we can conclude that full takeovers do not have a positive impact on house prices in the 3km target-area. The regression showed instead of a positive effect a small negative effect. This is probably because the team performances did not meet the high expectations for three of the five clubs. This could cause pessimism and less civic pride. Less people want

to celebrate the game with a beer and consuming less. But there are also fans who do not want a private owner and leave the club. Therefore, the amount amenities could decrease which could lead to a decrease in house prices. The "oil-takeovers" have a small positive impact, but this is not significantly. This is probably because they team performance of the club was significantly better than the other clubs.

According to Stripehomes, the takeover of Manchester City caused a negative effect of 11% on nearby house prices. But because the takeover was in 2008, house prices probably decreased because of the Great Financial Crisis. They also found a positive effect of 16% for the takeover of Manchester United in 2004. This study found a positive effect of the Manchester City takeover and a slight negative effect of the Manchester United takeover. So, there are different findings between this study and the study of Stripehomes.

To conclude, according to the literature, the stadium and good performances of football clubs could have a positive impact on nearby house prices. In the difference in difference analysis this study did not found a positive effect for takeovers in general. But when looking only to the takeovers with owners coming from the fossil energy industry, a positive effect on nearby house prices is founded. However, this could also be because of the good performances by the clubs after the takeover and not necessarily because of these takeovers.

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