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# Exploring the sports economic impact of COVID-19 on professional soccer

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## ABSTRACT

The COVID-19 pandemic has, among other things, a significant impact on the economic situation of sports in general and professional soccer in particular. Our paper points out the main effects of the crisis on professional soccer. To this end, the general effects of the pandemic on sports will be briefly outlined, followed by a discussion of matches played behind closed doors. Based on the general conditions and particularities of the team sports industry, possible solutions for dealing with any problems arising from the pandemic will be discussed from the perspective of economics. As a result, we prefer intra-industry market-based solutions such as a solidarity fund or measures of self-regulation to possible state subsidies.

## Introduction

Since the end of 2019, the COVID-19 pandemic has affected virtually all regions of the globe and most areas of private and public life. The manifold restrictions on everyday life have resulted in economic and financial effects, the extent of which can only be estimated incompletely so far, but which represent one of the biggest exogenous shocks for economies in the recent past. The International Monetary Fund (IMF) projects the global economy to contract by 3% in 2020, worse than during the financial crisis in 2008/2009.<sup>1</sup>

The pandemic and the measures to combat it are having different effects on different sectors. While some sectors such as tourism<sup>2</sup> and catering<sup>3</sup> have been particularly hard hit, there are also economic compensation effects, for example, in online trading or communication technology.<sup>4</sup> Conventional<sup>5</sup> professional sports, especially the ‘team sports industry’,<sup>6</sup> is also one of the sectors that is significantly affected by the pandemic from a financial perspective.<sup>7</sup>

So far, only a few studies<sup>8</sup> have dealt with the effects of the COVID-19 pandemic on sports in general and on professional soccer in particular. With respect to this – presumably only temporary – gap in literature, this essay will explore the most important aspects of COVID-19 for professional soccer from the perspective of (sports) economics. To this end, the influence of COVID-19 on the sports industry will first be outlined in section 2. In addition to the general implications of the pandemic on sports, the influence on the matches played behind closed doors will also be analysed. There are general and financial implications, but special attention is paid to the role of fans, who have been barred from attending matches and lending their teams live support. The consequences of COVID-19, resulting from the ‘peculiar economics of professional sports’,<sup>9</sup> will be discussed in

the next section. We will discuss the question of whether or not professional soccer should be eligible for government aid in section 4 before summarizing our findings in the end.

Overall, our analysis emphasizes the great importance of a specific consideration of the economic aspects of sports in general and soccer in particular using the current example of the COVID-19 pandemic, since professional soccer as a team sports industry has several specifics that cannot be adequately covered by conventional economic theory.<sup>10</sup>

## Influence of COVID 19 on the sports industry

### Current situation

The COVID-19 pandemic has been spreading globally since the end of 2019 and has increasingly affected virtually all aspects of public and private life. As an integral part of social life, sports have been no exception. Beginning in mid-January 2020, isolated sporting events in Asia were postponed or cancelled. These pandemic-related postponements or cancellations later expanded to affect organized sports at all levels and in almost all countries. The Olympic Games planned for 2020 in Tokyo were postponed to 2021, and soccer has not been an exception. The European Soccer Championship planned for 2020 was also postponed to 2021. In February and March, the many European soccer matches were either played behind closed doors, e.g. two matches of the UEFA Champions League in France and Spain, or cancelled. Before the COVID-19 pandemic, matches played behind closed doors ('ghost games') were only used to sanction clubs or their fans.

In the aftermath many national soccer leagues had postponed or even completely cancelled their matches. By the end of March 2020, no matches were being played in any European soccer league. Despite this hiatus, many leagues have been looking for ways to finish the regular season. Depending on the level of political support, many leagues were able to resume play. Table 1 gives an overview of selected leagues in European soccer and the implications of COVID-19.

Even though matches were postponed and no date had been set for the resumption of play, rumours and reports had repeatedly come to light that individual clubs in the 1st and 2nd divisions were at high risk of insolvency (German Bundesliga<sup>11</sup>). As a result, richer clubs of the Bundesliga

**Table 1.** COVID-19 related situation in selected European soccer Leagues.

Country	League	Date of postponement	Proceedings	Notes
Austria	tipico – Bundesliga	March 18	Restart June 2	Matches played behind closed doors
Belgium	Jupiler Pro League	March 13	Season cancelled May 15	Club Brugge appointed Champion
Czechia	Fortuna Liga	March 12	Restart May 23	Matches played behind closed doors
Denmark	3 F Superliga	March 12	Restart May 23	Matches played behind closed doors
England	Premier League	March 12	Restart June 17	Matches played behind closed doors
France	Ligue 1	March 13	Season cancelled April 30	Paris Saint Germain appointed Champion
Germany	Bundesliga	March 13	Restart May 16	Matches played behind closed doors
Italy	Serie A	March 9	Restart June 20	Matches played behind closed doors
Netherlands	Eredivisie	March 12	Season cancelled April 24	No champion appointed
Norway	Eliteserien	Season not started	Restart June 16	Matches played behind closed doors
Poland	PKO Ekstraklasa	March 13	Restart May 29	Matches played behind closed doors
Portugal	Liga NOS	March 12	Restart June 3	Matches played behind closed doors
Russia	Premier Liga	March 17	Restart June 19	Matches played behind closed doors
Scotland	Scottish Premiership		Season cancelled May 18	Celtic Glasgow appointed Champion
Spain	La Liga	March 12	Restart June 11	Matches played behind closed doors
Sweden	Allsvenskan	Season not started	Restart June 14	Spectators allowed
Switzerland	Raiffeisen Super League	March 2	Restart June 19	Matches played behind closed doors
Turkey	SPORTOTO SüperLig	March 19	Restart June 12	Matches played behind closed doors

started to cross-subsidize other clubs through a solidarity fund.<sup>12</sup> The four German clubs participating in the UEFA Champions League reacted to this by agreeing to provide a total of 20 million euros for the remaining clubs in the Bundesliga.

### ***'Ghost games': matches played behind closed doors***

#### ***General and financial implications***

If soccer leagues restarted after the COVID-19 compulsory break, most leagues did so with matches played behind closed doors without spectators in the stadium. An end to the exclusion of fans in the stadium and to this 'new normality' is presently unforeseeable. Critics may think that even a continuation under these conditions is too far-reaching, but a political decision must take into account the trade-off between the benefits of health protection measures and the costs of suspending the 'team sports industry' in accordance with the principle of proportionality, so that the decision can at least be understood under the specific conditions of soccer.<sup>13</sup> However, the playing of matches behind closed doors significantly changes the character of the game. One of the most important characteristics of professional soccer before COVID-19 was the typical stadium atmosphere, with fans applauding, booing, singing, etc.<sup>14</sup> With matches played behind closed doors, this distinctive stadium atmosphere is completely lost. For the behaviour of players and coaches it is crucial to become aware that any sound they make and every word they say is well understandable. It remains to be investigated what long-term effects this has on the game. However, the fact that the matches were played without fans in the stadium and thus without the typical stadium atmosphere has changed the character of the broadcast as well, even if some TV stations try to compensate the atmosphere by recorded fan soundings.<sup>15</sup> It may well be that even the demand for televised matches might be reduced if armchair fans miss the added flavour of stadium fans. It remains to be seen whether and how this will affect the television demand empirically. However, even before the outbreak of the COVID-19 pandemic, industry representatives had already heard that the atmosphere in the stadium certainly had an effect on the marketability of the television rights, although not a decisive one. It is therefore conceivable that interest in the transmission of matches played behind closed doors could decline because TV viewer demand and thus willingness to pay TV could dwindle. Consequently, this could affect the value of television rights with a time lag.

In one of the first studies on the impact of COVID-19 on soccer, Webb<sup>16</sup> found that 'both players and coaches adapt their behaviour due to the more sterile environment in which they are performing.' He sees opportunities for the rebalancing the relationships between referees, players and coaches in soccer through the reduction in negative behaviour. Another implication could be that the home game advantage diminishes without acoustic support from the home crowd.

From an economic point of view, the soccer clubs nevertheless had to forgo the payments from ticket sales and catering – provided that this is carried out on their own. However, there is no doubt that, in addition to sporting considerations, the continuation of the game was primarily undertaken with a view to generating revenues of any kind, namely from television marketing and the associated sponsorship money. The fact that especially the big soccer leagues were trying to restart as quickly as possible (unlike leagues in other sports such as hockey or handball) probably mainly due to the fact that income from ticket sales in soccer is of secondary importance in relation to income from television marketing.<sup>17</sup>

Figure 1 shows the sources of revenue by category for premier soccer leagues in Europe. It is obvious that media income, ranging from 39 % (German Bundesliga) to 59 % (English Premier League) is the most important source of income for professional soccer, followed by sponsorship payments, which correlates with media presence as well.

#### ***The special role of spectators***

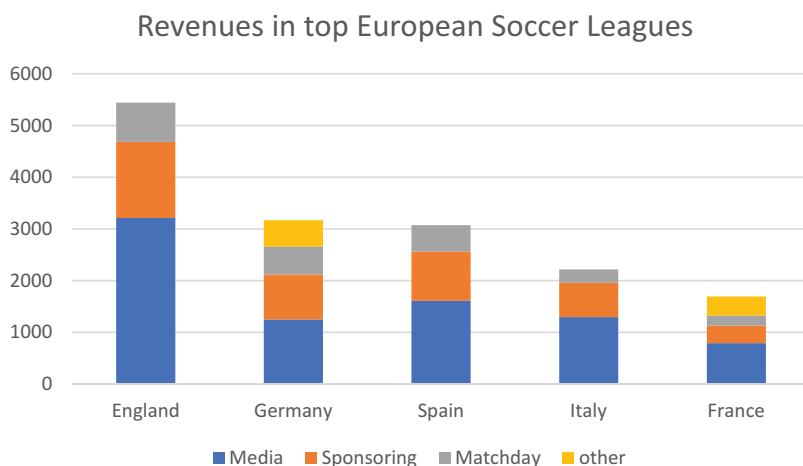
The role of spectators for professional sports is well-known within sports economics. For soccer in particular there is empirical evidence that fans have a considerable impact, for example, on

referees.<sup>18</sup> Reade, Schreyer and Singleton<sup>19</sup> therefore assume that the absence of fans during the COVID-19 crisis will have an impact on the results of sporting events in general. They refer to a study by Pettersson-Lidbom and Prinks<sup>20</sup> and are collecting new evidence within an ongoing project.<sup>21</sup>

Beside these effects on the outcomes of matches, we would like to focus the importance of spectators to produce the marketable product 'soccer'.<sup>22</sup> With the broadcasting of 'ghost games' on television, television viewers were served via the broadcasters. Television viewers are 'pure' consumers of the marketable product 'soccer game'. Demand for the product depends primarily on consumer preferences, the economic determinants (costs of access, income, etc.), and the quality of sporting competition (uncertainty of outcome, significance of the matches, etc.).<sup>23</sup>

In addition to these viewers who are to be classified as pure consumers, matches played behind closed doors have made obvious that there is a second group of demanders whose classification as 'pure consumers' is less clear. The reasoning would be as follows: The services produced are not the soccer matches but games with a stadium atmosphere, i.e. with a certain 'event character'. This product would be produced jointly by the clubs and the crowd making noise in the stadium. The clubs are responsible for the production of the match and the fans for the production of the stadium atmosphere. Thus, in addition to their role as spectators and consumers, fans would also be regarded as a production factor for the product 'games with a stadium atmosphere'.<sup>24</sup>

Previously, fans paid for tickets before attending the matches. If the fans saw themselves as production factors, it would theoretically be conceivable that they would be rewarded as such. In a sense, remuneration often takes the form of ticket subsidies, at least for traditional fan curves. From an economic perspective, however, only the net benefit that the club can derive from its supporters is of interest to the club. The gross benefit from the atmosphere and cheering on the team is reduced by any costs, e.g. by offensive signage or pyrotechnics. In addition, the very first Bundesliga match-day after the 'lockdown' suggests that there is a close connection between the mood in the stadium and the behaviour of players and the coaching team towards the referees. A heated atmosphere therefore not only motivates better performance, but can also encourage aggression, which can have negative effects.<sup>25</sup> It is therefore also necessary to differentiate within the heterogeneous fan group. For the vast majority of stadium visitors, it is certainly true that the club generates a positive flow of benefits. Nevertheless, the literature on sports economics and probably also the clubs understand the fan as a consumer who exchanges his visit to a soccer match as a service for money. There are various reasons why no remuneration has been paid so far:



**Figure 1.** Revenues in top European Soccer Leagues by category [based on 'Annual Review of Football Finance' (Deutsche Ausgabe, 2019)].

- So far, fans have not seen themselves as production factors and would also have reservations about commercializing fan culture in addition to the already strong and heavily criticized commercialization of soccer.
- A commercialization of fan culture could also lead to its professionalization.
- The balance of power and demand on the market allows clubs to ration entry to the stadium and exploit their willingness to pay.
- Fans see their entrance fees as support for 'their' club.

In this respect, it is unlikely that fans will demand a quid pro quo for the production of the stadium atmosphere in the future. However, the relationship between clubs and (stadium) fans could be readjusted and the clubs could take greater account of the interests of the fans in the future<sup>26</sup> because the clubs could be more aware of the importance of the fans for the production of a marketable product.<sup>27</sup> In essence, the overriding question is what the club's objective function is. While the discussion in the literature usually focuses on the distinction between victory and profit maximization, the maximization of fan satisfaction has so far been discussed rather rarely.<sup>28</sup> It is possible that the current situation here may give cause to reopen the discussion. Of particular interest would be empirical studies that examine the determinants of fan satisfaction and examine whether a change in the club's own objective function is desirable at all. In this discussion, it should of course not be overlooked that in a market economy, the owner should ideally bear the risk and expect a corresponding reward, so that there may be a soccer-specific optimization problem with several secondary conditions.

## **Specifics of team sports production and consequences of COVID-19**

### ***Team sports production***

The economics of professional sports in general and professional team sports especially are 'peculiar'.<sup>29</sup> In team sports there is a two-stage production process.<sup>30</sup> On the first level, the clubs or teams represent the producing company. However, the existence of other clubs or teams is a prerequisite for the production of a marketable game, since the cooperation of competitors is the necessary condition for the production of a marketable game. More complex sporting competition formats such as championships or cup competitions are held at the second level of the league. The clubs are thus faced with the peculiarity that, on the one hand, they compete with each other at various levels, but at the same time they have to cooperate with each other. Thus, clubs are interdependent.

Since clubs in Europe generally want to maximize their sporting success rather than profits,<sup>31</sup> there are incentives to invest too much in the players' squad and the coaching staff and to build up too few reserves.<sup>32</sup> These incentives are reinforced by the fact that clubs are in a 'rat race'.<sup>33</sup> One speaks of a 'rat race' when, in a competitive process, the resources used by competitors increase more than the revenues to be generated. The problem of the rat race poses a great challenge, especially for clubs in European sports. Because of the importance of the relative playing strengths, range externalities<sup>34</sup> exist which create further incentives for overproduction (in the players' squad and coaching staff).

Low profit orientation and incentives for overproduction mean that clubs build up few reserves and are poorly endowed with equity capital, and instead immediately reinvest additional income in improving the playing strength of their squad. Against this backdrop, the business model's vulnerability to crises becomes particularly evident when sources of income unexpectedly disappear, e.g. in the event of relegation, or when serious unplanned events occur due to the omnipresent uncertainty, as became apparent with the COVID-19 crisis.

## Consequences of COVID-19 for professional soccer

### Revenue sharing arrangements

Revenue sharing arrangements are frequently used in professional sports, with differing scopes in different leagues. With respect to the interdependencies described above, payments made from richer clubs to poorer clubs to ensure their survival are less surprising than it might look on first sight. The 20 million euros which the German Champions League participants have paid as a solidarity payment and which are available to the clubs of the 1st and 2nd Bundesliga do not only manifest solidarity, but can also be explained on the basis of the self-interest axiom.<sup>35</sup> Even top clubs have an inherent interest in ensuring that the financially less well-off clubs do not have to file for insolvency. And they have an interest in keeping well-known clubs in their league. After all, the marketability of the Bundesliga product as a whole is much better if well-known clubs with a long tradition are represented with a large following.

In addition, the uncertainty caused by the COVID-19 pandemic has increased the relative importance of domestic leagues compared to international competitions for the top clubs. As the continuation of international competitions is uncertain, only payments from national formats can be made. Moreover, in this situation, the establishment of an independent European Superleague<sup>36</sup> is not an option for the top clubs, so that opportunity costs are low and c.p. the present value of an investment in the continued existence of the domestic league rises.<sup>37</sup>

The COVID-19 crisis made it clear for some professional soccer clubs that revenue sharing arrangements can make sense in European soccer. In European soccer (and European professional sports in general) teams can compete in multiple competitions. While some clubs take part in three or four competitions in a single season, others only play two. Especially when some clubs have revenue sources that the other clubs in the league do not have, financing problems as well as problems with uncertainty of outcome result. This is the case with teams playing international competitions, which provide clubs that qualified with substantial additional income. As most of the other clubs lack these revenue sources, these clubs are at a disadvantage. Revenue sharing should therefore focus more on income from international competitions than on domestic revenues. Against the background of diverging revenue potentials of clubs playing internationally and those represented only in national competitions, an expansion of such a solidarity fund would certainly be a step towards greater league balance.

### Transfer market: salary caps and market values

During the COVID-19 lockdown, professional soccer clubs had few sources of income, while still having to bear their expenditures. The main category of expenses for all professional soccer clubs is salaries, in particular wages paid to players (see [table 2](#)).

**Table 2.** Selected revenue and expense figures in top European soccer leagues [based on 'Annual Review of Football Finance' (Deutsche Ausgabe, 2019)].

	England	Germany	Spain	Italy	France
	Premier League	Bundesliga	La Liga	Serie A	Ligue 1
Total revenues	5,440 Mio. EUR	3,168 Mio. EUR	3,073 Mio. EUR	2,217 Mio. EUR	1,692 Mio. EUR
Total personnel expenses	3,217 Mio. EUR	1,674 Mio. EUR	2,033 Mio. EUR	1,472 Mio. EUR	1,262 Mio. EUR
Total personnel expenses relative to total revenues	59.1 %	52.8 %	66.2 %	66.4 %	74.6 %



With income missing and the both the date and format of resuming play unclear, soccer clubs were under financial pressure. Clubs negotiated salary reductions with players. Managers from inside the industry repeatedly proposed the application of salary caps as they are used in North American Major Leagues such as Major League Soccer.

A salary cap is an agreement that clubs can only spend a limited amount of money on players' salaries, usually designed as a limit on personnel expenses for the whole roster. A prerequisite for the implementation would be that all clubs of the industry are taking part in this collusion; this prerequisite will not come into being as long as clubs strive to maximize their playing success rather than their profits. Furthermore, as the industrial structure in North American sports has more aspects of monopolistic and monopsonistic power, opportunities to create restrictive labour relations such as salary caps are poor. With leagues as well as clubs in Europe competing in a relatively-free labour market for players, an agreement with the introduction of a salary cap is very unlikely for European soccer<sup>38</sup> and would probably be in violation of European competition laws. Given the market structure of professional soccer in Europe with multiple leagues and a system of relegation and promotion, a salary cap would not be self-enforcing.<sup>39</sup>

From an economic point of view, the wage a club is paying for a player is determined by its expected subjective utility and is a result of the negotiations between two parties. A rational club would therefore not pay more than its marginal utility.<sup>40</sup> When we abstract from any domination or enforcement within the situation, and both parties respect their concession limits, the transaction follows the principle of reciprocity<sup>41</sup> and both parties, the club and the player, improve their economic positions. A salary cap would then – like every intervention in a market system – possibly lead to the concession limit of one party (the player) being violated and welfare being reduced (at least from a theoretical point of view).

Another important aspect of the COVID-19 lockdown between February and May has been the impact on player's market values provided by the website 'transfermarkt.de' which is well-known in soccer transfer practice as well as in sports economics literature.<sup>42</sup> Sports economics literature<sup>43</sup> assumes the transfermarkt.de market value as a function of player characteristics, player performance, player presentation, team performance and presentation. It is obvious that in times of lockdown the performance parameters are missing what should result c.p. in lower market values.<sup>44</sup> There are two interesting implications. On the one hand, we can state a so-called 'elevator effect',<sup>45</sup> so from a relative perspective compared to the peers, a player's market value is on the same level. On the other hand, recent findings by Frenger et al.<sup>46</sup> indicate that a player could partly compensate the missing performance data through social media activity. This impact of COVID-19 on market values is a very interesting research question for further studies, because the lockdown could be used as a natural experiment.

### ***Licencing procedure***

In 2010 UEFA implemented a set of self-regulations, called the Financial Fair Play (FFP).<sup>47</sup> It is a set of financial regulations. Clubs that wish to take part in one of UEFA's main competition (UEFA Champions League or UEFA Europa League) must undergo the licencing procedure. National associations or national leagues such as the Deutsche Fußball Liga (DFL) had implemented licencing procedures for clubs as a prerequisite for admission to its competitions long before the UEFA did so for its competitions.<sup>48</sup> The DFL's licencing procedure for assessing economic performance is considered a model for other soccer leagues in Europe and the other professional sports leagues in Germany. On the one hand, it must be acknowledged as a remarkable result of the established licencing procedure that since 1963 no club in the German soccer league has had to file for insolvency during an ongoing season.<sup>49</sup> On the other hand, the current crisis revealed the weaknesses of focusing on illiquidity as the reason for insolvency.

National and international licencing procedures have in common a focus on liquidity issues for the upcoming season.<sup>50</sup> Consequently, from a financial point of view, the licencing procedure is



primarily concerned with the question of whether solvency is guaranteed at all times. The focus of the licencing procedure is thus on the liquidity of the clubs. The liquidity of the clubs is assessed within the framework of the licencing procedure via the realistically planned payments. This procedure reaches its limits when serious unplanned events occur. In such an exceptional – but not unthinkable – case, companies need a risk buffer: equity capital. A fundamental characteristic of equity capital as the net assets of a company from an economic point of view is its potential to cover losses<sup>51</sup>; it thus reflects the risk-bearing capacity of the company. Thus, the study conducted during the pandemic also recommended the need for a stronger equity base.<sup>52</sup>

For FFP the club must make sure that no going concern-issues exist and that he does not have negative equity.<sup>53</sup> Thus, the UEFA licencing procedure also provides for capital requirements. The licencing procedure implicitly considers equity capitalization to be sufficient if the equity capital is positive. From the UEFA's point of view, even a minimum equity capital cover would suffice. In order to improve the clubs' risk-bearing capacity, even for hardly foreseeable, unusual situations, professional soccer should therefore in future aim for a better equity base for clubs in addition to securing liquidity overall. This could be achieved through the licencing procedures with appropriate incentives to ensure that the clubs have sufficient equity capital.

It is questionable what constitutes *sufficient* in this context.<sup>54</sup> There can be no optimum equity ratio (i.e. the ratio of equity to total capital) that applies to all companies across all industries, as the general conditions and business risks are too different. Moreover, a uniform standard would not be appropriate either, since the business models differ in terms of their equity intensity and the amount of capital required to start up the business is in particular a business decision which ideally depends on the individual goals and the scope for action of the owner(s).<sup>55</sup> A target capital structure such as that found in the literature on financing theory is economically problematic.<sup>56</sup> In principle, the higher the equity ratio, the better and more independent a company is. Clubs could improve their equity base either by internal financing through profit retention or external financing through the issue of additional shares. In the case of sports clubs, it must be taken into account with regard to equity financing that the independence of the clubs can decrease through the admission of external shareholders and unwanted rights of co-determination.<sup>57</sup>

## Public funding versus entrepreneurial responsibility

As governments all over the world try to rescue firms from the consequences of the COVID-19 lockdown and restart economic activity, they have provided an unprecedented volume of subsidies.<sup>58</sup> Professional soccer clubs are obviously employers for (from a sporting perspective) highly qualified and scarce human capital, and are taxpayers as well. When clubs are facing financial problems, they c.p. pay less or no taxes, and should they go out of business, they no longer provide jobs. Moreover, local and regional politicians are often closely linked to clubs. With these points in mind, financial rescue attempts by state authorities to aid ailing clubs would not have been surprising in the COVID-19 crisis. However, as a precautionary measure in the event that financial difficulties persist despite the continuation of the season, it should be noted that professional soccer already receives a wide range of support from the state. They take advantage of police services and use public facilities such as roads and parks. Stadiums often are co-founded by local communities. The media broadcasts in public broadcasting financed by licence fees can also be seen as a subsidy for professional soccer.<sup>59</sup> Subsidies for soccer as an industry in which income millionaires are not uncommon is always associated with (undesirable) distribution effects.

Soccer can be a great benefit for individuals and for the greater community.<sup>60</sup> But soccer also produces negative externalities, which have so far been borne by the general public rather than by the polluter-pays principle.<sup>61</sup> The negative external effects are particularly evident in so-called 'high-risk games', polluted roads and high traffic volumes. Given that soccer as an industry is already supported by subsidies and produces negatives externalities, state support with tax money would be very doubtful from an economic point of view. The question would also arise as to

whether state support would be justified under state aid law. This would not be the case if the support were likely to give an unfair advantage over competitors, thus damaging competition and distorting trade in the European Union. Professional soccer is not exempt from these rules.<sup>62</sup> E.g. in 2016 the European Commission concluded that public support measures granted by Spain to several professional soccer clubs were an unfair advantage over other clubs in breach of EU state aid rules.<sup>63</sup>

Following modern entrepreneurship theory, the entrepreneur is assigned various functions.<sup>64</sup> While Frank H. Knight<sup>65</sup> sees the entrepreneur as a bearer of uncertainty, Joseph A. Schumpeter<sup>66</sup> focuses the role as innovator. Besides the interpretations by Israel M. Kirzner (arbitrager<sup>67</sup>), Mark Casson (coordinator<sup>68</sup>), or in the recent literature such as Gerbaulet<sup>69</sup> in times of COVID-19, soccer clubs in particular are carriers of uncertainty and should be innovators. In general, it is the entrepreneurial responsibility to set up a risk management system and to include even unusual risks at least in simulations. The risk management system can, in turn, be assessed by licencing procedures over national and international bodies. The situation reveals the extent to which the deposit structure of most clubs depends on television funds, so that the diversification strategy may well be the future. Innovative Clubs could enter new market segments, e.g., in e-sports. Instead of socializing risks, subsidiary solutions should be sought when financial problems arise. In many cases, ownership structures allow financially strong investors to enter the market, so that there is no reason for financial support of any kind from tax money.

## Concluding remarks and outlook

The COVID-19 pandemic has created new challenges for virtually all industries. Among other things, many companies were exposed to economic and financial problems up to the point of corporate closure. Sports companies in general and soccer clubs in particular were no exception. It is a great advantage of market-based systems that companies can react flexibly to challenges, and so solutions were sought in all sectors. By continuing the 2019/2020 season as 'ghost games', the soccer leagues have demonstrated great entrepreneurial flexibility while complying with political conditions. As in all sectors, learning effects have occurred and further adjustments are expected.

Due to the influence of COVID-19, professional soccer clubs have been forced to realize that they are not only dependent on each other, but that they also depend on spectators in various ways. Spectators bring in the money for the soccer business, and when fans produce the specific stadium atmosphere, they can be seen as part of the production process rather than just demand factors. If any good is to be found in this crisis for professional soccer, it would be that clubs might now take into account the interdependencies within the industry. In addition, the companies in the team sports industry need to strengthen their resilience, which can be achieved, for example, by improving their equity base. UEFA or the national league organizations can work towards this in future licencing procedures. But even taking into account the incentives inherent in the industry, which (can) lead to insufficient equity capitalization and overinvestment, corporate responsibility must not be allowed to be shed in times of crisis. Professional soccer clubs should be professional enough to prepare for crises out of entrepreneurial self-interest, even if they come as a surprise. State support with taxpayers' money cannot be economically justified for this industry, which is none too short of financial resources, and is questionable from a state aid legal perspective.

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16. Webb, 'The future of officiating'.
17. Follert, 'Ökonomisierung des Fußballs', 668–670; Quitzau, 'Folgen der Corona-Krise'.
18. Boyko, Boyko and Boyko, 'Referee Bias Contributes to Home Advantage', 1185–94; Buraimo, Forrest, and Simmons, 'The 12th man?', 431–49.
19. Reade, Schreyer and Singleton, 'Echoes'.
20. Pettersson-Lidbom and Prinks, 'Behavior under social pressure', 212–4.
21. Reade, Schreyer and Singleton, 'Echoes'.
22. Rochet and Tirole, 'Platform Competition in Two-Sided Markets', 990–1029. It is also important that a soccer game has to be regarded as an intermediary economic platform which enables the interaction e.g. between business companies and spectators via sponsoring. Rochet and Tirole called this phenomenon a 'two-sided' or 'multi-sided-market'.
23. Daumann, *Grundlagen der Sportökonomie*.
24. Woratschek, Schafmeister and Ellert, *Das Wesentliche ist unsichtbar*. They speak of 'value co-creation' in this context.
25. Emrich, Pierdzioch and Rullang, 'For the love of football'; Webb, 'The future of officiating' (for the refereeing figure).
26. For German soccer, see FC Fair Play!, 'Situationsanalyse Profifußball 2017'.
27. On the effect of a stronger influence of the followers, see Madden and Robinson, 'Supporter Influence on Club Governance', 339–60.
28. Ibid., 201.
29. Neale, 'The Peculiar Economics of Professional Sports', 1–14.
30. Franck, *Die ökonomischen Institutionen der Teamsportindustrie*.
31. Sloane, 'The Economics of Professional Football', 121–146.
32. Breuer, 'Mit Risiken und Nebenwirkungen'.
33. Akerlof, 'The Economics of Cast and other Woeful Tales', 599–617.
34. Franck, *Die ökonomischen Institutionen der Teamsportindustrie*.
35. Follert and Daumann, 'Sportökonomische Hintergründe zum Bundesliga Neustart'.
36. Follert, 'Europäische Fußball-Superliga aus sportökonomischer Sicht', 148–50; Drewes and Rebeggiani, 'Die European Super League im Fußball', 127–42; Follert and Emrich, 'Was wäre wenn...?', 347–59.
37. Follert and Daumann, 'Sportökonomische Hintergründe zum Bundesliga Neustart'.
38. Drewes, 'Locked Out', 63–76.
39. Dietl, Franck and Nüesch, 'Voluntary Salary Cap?', 23–34.
40. For the relationship between subjective value and negotiation in general, see Follert, 'Ökonomisierung des Fußballs', 668–70.
41. Mauss, *The Gift*.
42. Gerhards, Mutz and Wagner, 'Die Berechnung des Siegers', 213–50; Herm et al., 'When the crowd evaluates soccer player's market values', 484–92; Müller, Simons and Weinmann, 'Beyond crowd judgements', 611–624; Ackermann and Follert, 'Einige bewertungstheoretische Anmerkungen', 21–41; and Richau, 'Performance indicators in football', 41–67.
43. Müller, Simons and Weinmann, 'Beyond crowd judgements', 611–24; Richau et al., 'Performance indicators in football', 41–67; and Frenger et al., 'Follow me...'
44. Transfermarkt.de, '1. Bundesliga, Marktwerte'.
45. Grass and Stützel, *Volkswirtschaftslehre*; Beck, *Risikogesellschaft*.
46. Richau et al., 'Performance indicators in football', 41–67; Frenger et al., 'Follow me...'
47. Peeters and Szymanski, 'Financial Fair Play in European Football', 346.
48. Strauß, *Fußballunternehmen in Europa*; Müller, 'Lizenzierungsverfahren und Finanzregulierung im Team sport'.

49. For recent appreciation on insolvencies in professional soccer, see Müller, 'Lizenzierungsverfahren und Finanzregulierung im Teamsport'; Szymanski and Weimar, 'Insolvencies in Professional Football', 54–68.
50. Müller, 'Lizenzierungsverfahren und Finanzregulierung im Teamsport'.
51. Waschbusch, Rolle and Biewer, 'Überlegungen zur Zweckadäquanz', 209 f.; Schild, Follert, and Behr, 'Die Abgrenzung von Eigen- und Fremdkapital', 745.
52. Zülch, Ottenstein and Manz, 'The German Bundesliga Clubs and Their Future'.
53. See Article 52 of the UEFA Club Licensing and Financial Fair Play Regulations, Edition 2018.
54. Drewes, Daumann and Follert, 'Sportökonomische Auswirkungen der COVID-19 Pandemie'.
55. Matschke, *Finanzierung der Unternehmung*; Bieg, Kußmaul, and Waschbusch, *Finanzierung*.
56. Hering, 'Betriebswirtschaftliche Anmerkungen', 197–199.
57. Hierl and Weiß, *Bilanzanalyse von Fußballvereinen*.
58. Daumann and Follert, 'COVID-19 and Rent Seeking Competition'.
59. Drewes, 'Fußball-Bundesliga', 588–593.
60. Gärtner and Pommerehne, 'Der Fußball-Zuschauer – ein homo oeconomicus?', 88–107; Flatau and Emrich, 'Exzessiver passiver Sportkonsum'.
61. Mause, 'Fußballspiele, Polizeieinsätze und Steuerzahler'.
62. Drewes, 'Fußball-Bundesliga', 588–93.
63. European Union, 'State aid'.
64. For an overview, see Gerbault, 'Zur funktionalen Analyse des Unternehmers', 736–767.
65. Knight, *Risk, Uncertainty and Profit*.
66. Schumpeter, *The Theory of Economic Development*.
67. Kirzner, *Competition and Entrepreneurship*.
68. Casson, *The Entrepreneur*.
69. Gerbault, *Der Unternehmer als Reputator*.

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