COVID-19 and the value of CEOs: The unintended effect of soccer games across European stocks[*]

Juan-Pedro Gómez[¤]

Maxim Mironov[§]

July 2020

Abstract

This paper studies the effect of the number of cases of COVID-19 on stock returns from over 3,500 publicly listed firms headquartered across 167 regions in 10 European countries. We instrument the number of cases per million inhabitant in each region with its population, density, and the soccer games celebrated in the region. Daily cases of COVID-19 grow faster in regions where a soccer game took place two weeks earlier, consistent with the estimated incubation period of the virus. In addition, regions that hosted a soccer match during March show 30% more accumulated cases of COVID-19 in the same month. Within the same country and industry, an increase in the number of instrumented cases per million people in the region during March implies a decrease in stock returns over March and April. The market discount increases significantly among firms managed by CEOs 60 years and older. Overall, we interpret this as evidence of the market anticipating the potential loss of firm value in the event of the CEO dies of COVID-19.

JEL Codes: G01, G12, G14, M12

Keywords: COVID-19, CEO value, soccer, stock returns.

[*] We thank Antonio De Vito, Rüdiger Fahlenbrach, Garen Markarian, and Kevin Rageth for their help and comments. The usual caveat applies.

[¤] IE Business School, IE University. María de Molina 12, 28006 Madrid, Spain. Email: juanp.gomez@ie.edu

[§] IE Business School, IE University. María de Molina 12, 28006 Madrid, Spain. Email: Maxim.Mironov@ie.edu

1. Introduction

We study whether the spread of COVID-19 cases across regions in Europe in March 2020 affected the cross-section of stock returns over March and April the same year among firms headquartered in these regions. Our hypothesis is that markets discounted the likelihood of firms' CEOs falling sick or even dying due to COVID-19.

To identify the effect of regional cases of COVID-19 on stock returns, we instrument the former with the region's population, its density and, alternatively, three variables related to the soccer matches celebrated in the region during March 2020. In particular: a dummy variable that takes a value of one if there was a soccer game in the region during the month, zero otherwise; a variable that accumulates all the spectators that attended the games during the period; and a variable that accumulates the capacity (maximum number of spectators) of the venues where the matches took place.

We believe that the *exclusion restriction* of our instruments is well founded. There is no reason to believe that population and density across regions within a country should have a *direct* effect on the cross section of stock returns due to the pandemic.[1] As per the soccer games, national leagues and pan-European tournaments, like the UEFA Champions and Europa leagues, were scheduled well before the original outbreaks of COVID-19 in China. Although there is evidence of the behavioral impact of victories and losses of soccer matches on stock returns at the market level (e.g., Edmans, García, and Norli (2007)), our soccer-related instruments are totally unrelated to the game's output. As far as we know, there is neither theory nor evidence that links *directly* the cross-section of individual stock returns within a country with the number of attendants to a soccer match or the capacity of the venue where it is played.

On the other side, as per the *relevance* of our instruments, the effect of population and population density on the propagation of the virus is well documented (e.g., Rocklöv and Sjödin (2020)). There is anecdotal evidence that soccer games have contributed to the spread of the pandemic in Europe.[2] Part of our contribution is to provide strong support for this conjecture.

We collect data from soccer games from all competitions (domestic and international) played in 194 regions across Belgium, France, Italy, Germany, the Netherlands, Poland, Spain, Sweden, Switzerland, and the UK, between January 1 and until the end of March, 2020 (most games in Europe were canceled after March 10). We only include games played in venues with a minimum capacity of 25,000 people. In total, there are 1,051 qualifying games during this period. We also collect the confirmed cases of COVID-19 in these regions until the end of March, plus several economic and demographic variables: gross regional product, population, and density. There are 3,551 publicly listed firms in these regions with available accounting data as of fiscal year-end 2019. We estimate their cumulative daily raw and abnormal (Fama and French (1992), three-factor risk-adjusted) excess returns over March and April 2020. Finally, we collect the sector, revenue, leverage, cash holdings (relative to assets), and Tobin's Q of each firm. We will use these variables as controls.

---

[1] Hong, Kubik, and Stein (2008) show that population density across US Census regions is correlated with the ratio of aggregate book value of all firms headquartered in the region, divided by the aggregate income of all households living in the region. This ratio, on time, predicts higher stock prices, hence *indirectly* linking low expected returns to low population density. Their results, however, come from a panel of annual data from 1970 through 2005. We believe it is far less likely that population density affects *directly* the cross-section of European stock returns specifically over March and April 2020 in reaction to the pandemic.

[2] "The first three S viruses identified in Spain are from samples taken on February 26 and 27 in Valencia. A week before, 2,500 soccer fans from the region had traveled to Milan to see Atalanta play Valencia, an event that was described as a `biological bomb' by the mayor of Bergamo, Giorgio Gori." El País, April 23, 2020.

We document the following three findings. First, for any single country and day from March 1 through 14, the rate of change in the number of COVID-19 cases relative to the previous day is, on average, 5.6 percentage points higher in regions where there was at least one soccer game two weeks earlier relative to regions with no games in the same period. Games celebrated, either the previous week or earlier than 2 weeks before, had no significant effect in the increment of daily cases. This is consistent with the incubation period documented for the virus.[3] In addition, within the same country, the number of cases per million people in March in regions where there was at least one soccer match during the month is, on average, 30 percentage points higher than in regions where there were no games. Both results are statistically significant. To the best of our knowledge, we are the first to provide evidence about the effect of soccer matches on the spread of COVID-19 in Europe.

Second, firms within the same country and the same industry have an accumulated daily abnormal return over March and April 2020 about 6 basis points lower for every percentage point increase in the instrumented number of cases of COVID-19 per capita during March in the region where their headquarters are located. In economic terms, stocks are 7 percentage points lower, on average, for a one-standard deviation increase in the instrumented cases per million people. This is at least twice as large as the effect of the company's size, leverage, cash holdings, or Tobin's Q on stock returns.

Third, we divide the sample of firms based on the CEO's age. When the CEO is at least 60 years old, stocks decrease, on average, by 10 percentage points for a one-standard deviation increase in the instrumented number of cases per million people in the region. There is no significant effect for younger managers. This result is confirmed when we interact the cases of COVID-19 with the probability of dying from COVID-19 based on the CEO's age. Importantly, these findings are not robust when we replace the CEO with other top executives in the firm. We interpret this as evidence that the market is discounting the probability that (particularly more aged) CEOs fall sick or even die of COVID-19. When we run the same regressions but without instrumenting the cases of COVID-19 these results vanish. This speaks to the relevance of our instruments and the underlying endogeneity issues.

We contribute mainly to three strands of the literature. First, several papers have investigated the effect of COVID-19 on the cross section of stock returns and its interaction with corporate liquidity and leverage. Ramelli and Wagner (2020) show that high company leverage and low cash holdings are associated with lower stock return as the virus spread to Europe and the United States. Fahlenbrach, Rageth and Stulz (2020) document that US firms with less financial flexibility experienced worse stock returns at the outset of the epidemic and benefited more from after the stimulus announced by the FED. Acharya and Steffen (2020) provide evidence that US firms with access to liquidity perform better during the first quarter of 2020. Alfaro, Chari, Greenland, and Schott (2020) show that unexpected changes in the US aggregate estimates of COVID-19 predict stock returns and that less profitable and more debt-laden firms are more exposed. Hassan, Hollander, van Lent, and Tahoun (2020) show through textual analysis that firms in the US and across 80 countries that more exposed to the risks of COVID-19 perform worse. Alburquerque, Koskinen, Yang, and Zhang (2020) document that US stocks with higher environmental and social rankings are more resilient during the first quarter of 2020.

Relative to these papers, we contribute by, first, analyzing the effect of the regional, rather than countrywide, spread of the virus on stock returns. Second, methodologically, our instruments

[3] "Coronavirus disease 2019 (COVID-19) Situation Report – 73," WHO, April 2, 2020.

identify the causal effect of COVID-19 on the cross-section of stock returns after controlling for the set of corporate variables used in these studies. Third, we offer evidence of an unexplored effect of COVID-19 on shareholders' value: the probability of losing the CEO.

Our second contribution lies precisely on the literature that analyzes the effect of CEOs on firm value (e.g., Bertrand and Schoar (2003), Pérez-González (2006), Bennedsen, Nielsen, Pérez-González, and Wolfenzon (2007), Bloom and Van Reenen (2007), and Bloom et al. (2013)). Unlike in most of these papers that use a dichotomous and infrequent exogenous shock (the CEO's death), we identify the value of CEOs through a continuous variable: the instrumented spread of regional COVID-19 cases. In that sense, our contribution is closer to Bennedsen, Pérez-González, and Wolfenzon (2020) who use days of CEO hospitalization among a sample of Danish firms. Similar to this paper, we show that CEOs are unique to shareholders: an increase in the number of COVID-19 cases in the region has no distinctive effect on older, non-CEO, senior executives. Relative to that paper, we analyze a broader set of firms across 10 European countries in reaction to a common shock: the pandemic.

Finally, we also contribute to a literature that links sports to stock returns. Ashton, Gerrad and Hadson (2003) show that the return on the FTSE100 index is strong and symmetrically correlated with the performance of the England soccer team. On the other side, Boyle and Walter (2002) conclude that there is no evidence in favor of any effect of rugby on New Zealand's stock market. Edmans, García and Norli (2007) use a cross-section of 39 countries to show that losses in soccer matches have an economically and statistically significant negative effect on the losing country's stock market index. They extend this evidence to other sports like cricket, rugby, ice hockey, and basketball. As far as we know, the number of soccer matches, their attendance, or the venue capacity have never been used as instruments to predict the cross-section of stock returns. We are also the first to show formally the link between these events and the propagation of the virus in Europe.

The rest of the paper is organized as follows. Section 2 describes the data and our empirical strategy. Results are presented in Section 3. The paper's conclusion is in Section 4. Appendix A includes the definition and sources of all variables used in the empirical analysis. Additional evidence and robustness tests are presented in Appendix B.

2. Data and empirical strategy

Our first sample consists of 2,162 region-day observations.[4] We collect the accumulated number of diagnosed cases of COVID-19 per day and region from day 1 through 14 of March 2020, in 194 regions from Belgium, France, Italy, Germany, the Netherlands, Poland, Spain, Sweden, Switzerland, and the UK.[5] We call this variable *Cases*. Panel A of Table 1 shows that, on average, there are 96 accumulated cases per day and region with an average of 35 accumulated cases per million regional inhabitants and day (variable *Cases/Population*).

Then, we collect data from soccer games from all competitions (domestic and international) played in the 194 regions between January 1 and until the end of March, 2020 (most games in Europe were canceled after March 10). We only include games played in venues with a minimum capacity of 25,000 people. In total, there are 1,051 qualifying games during the sample period.

[4] Data on COVID-19 cases from Poland start on March 4, from Switzerland on March 6, and from England on March 9.

[5] So far, we are unable to obtain regional data of COVID-19 cases from Northern Ireland, Scotland, or Wales. Hence, only English regions are considered for the moment.

From each game, we collect date, playing teams, attendance (when available), venue capacity, and the region and country where it is located. Each day from March 1 through 14, 2020, in each of the 194 regions, we estimate three variables: *# Games* accumulates the number of games played over the previous 6 weeks; *Attendance* accumulates the number of people that attended those games; *Capacity* accumulates the capacity of the venues where the games were played. Table 1, Panel A shows that, on average, for every day and region there are 3 games accumulated over the previous 6 weeks, attended by an average of 78,270 (accumulated) people and played in venues with an average (accumulated) capacity of 134,103 spectators. Table B.1 in the Appendix includes a list of all regions, with the accumulated number of cases, games, attendance and venue capacity in our sample.[6] Finally, we also collect the following demographic variables from each region: *Population*, *Density*, and *Gross Regional Product (GRP)* per capita*.* Table A in the Appendix shows the exact definition and source for each variable.

[Insert Table 1 about here]

We want to explore if there is a pattern in the relation between the attendance to these events and the propagation of the virus. Therefore, every day, from March 1 through 14, we calculate the number of matches, attendance and venue capacity that took place in each region 1, 2,…, and up 30 days before. Figure 1 plots the average value of each variable across the 14 days and 194 regions for each day lag. Notice that game attendance and the venue capacity are highly correlated across lags (correlation coefficient 0.98). The average match attendance is about 60% of venue capacity and this percentage is very stable across lags. The figure shows periodic spikes around 7, 21, and 28-day lags for the 3 variables. Taking into account that the first day of our sample is Sunday, March 1, these spikes reflect the higher concentration of soccer matches on weekends (70% of soccer matches take place on weekends). Figure 2 confirms this by plotting the number of soccer games across all regions in our sample, from January 14 through March 14. In the horizontal axis, we include the Saturdays. We can see that a disproportionate number of games fall on Saturday or Sunday. In order to smooth out the effect of weekends, we accumulate games, attendance and venue capacity over weekly windows. Thus, for every region in our sample and for every day from March 1 through 14, we estimate the number of soccer matches, the accumulated attendance, and the accumulated venue capacity 1, 2,…, and up to 6 weeks earlier. We also create the variable *I_Games* that takes a value of 1 if there was at least one soccer match in the region during a given week, zero otherwise. Panel B of Table 1 presents the average of each variable across the 14 sample days and 194 regions for each week lag. With the exception of the first week,[7] the estimates are very similar across weeks. On average, across weeks 2 through 6, 33% of the regions celebrated at least one soccer match per week. There were 0.55 games per week and region, attended by 13,407 people and played in venues with average capacity for about 23,000 spectators.[8]

[6] There are 112 regions with no qualifying games (i.e., played in venues with minimum capacity of 25,000 spectators) during the sample period. Thus, the median value of the three variables in Table 1 is zero.
[7] Games were canceled throughout Europe around March 10. Thus, the variable estimates from March 11 through 14 over the first week-lag are smaller than the corresponding estimates for weeks 2 through 6.
[8] If the region did not have any games, the capacity is zero. Thus, the average capacity is below 25,000, the minimum required stadium capacity to be included in the sample.

[Insert Figure 1 about here]

The data in Table 1 will allow us to analyze the relation between the number, attendance, and venue capacity of the soccer games celebrated until all competitions were interrupted, and the propagation of COVID-19 cases across days and regions during the first two weeks in March 2020. In other words, the relevance of our instruments.

In the second part of our study, we analyze the instrumented effect of the accumulated cases of COVID-19 on the accumulated daily stock returns over March and April 2020 of firms headquartered in each region. We collect data from 3,551 publicly listed firms located across 167 regions in the ten countries.[9] Firms will be the unit of observation in this part of the analysis. For each firm, we retrieve from Compustat-Capital IQ the following variables: *Size* (proxied by the company's revenue in USD million), *Debt/Assets*, *TobinQ*, and *Cash/Assets.* We also collect the *Age* of the company's CEO or Board Chair from Boardex, when available. If CEO and Chair are different persons, we take the average age. We borrow from the Spanish Ministry of Health the case fatality rate (CFR) across age groups defined as the number of confirmed deaths due to COVID-19 by the number of confirmed cases in Spain during March 2020.[10] We map each company's CEO/Chair age into the corresponding probability to create the step-linear variable *Prob. Death (CEO)*. Each variable's definition and source is explained in Appendix A. Table 2 shows that the average firm in our sample has revues of almost USD 4 billion, 23% leverage, Tobin's Q of almost 2, and close to 13% of cash relative to total assets. The average (and median) CEO/Chair is 59 years old and has a probability of 1.6% to die conditional on testing positive for COVID-19. We also control for country and industry dummies across at the two-digit SIC level (70 industries).

[Insert Figure 2 about here]

For each firm and day in March and April 2020, we estimate raw and abnormal returns. Raw returns are calculated as the log difference of adjusted daily closing stock prices from Compustat. To obtain abnormal returns, we estimate alphas and betas from the Fama and French (1992) three-factor model for European stock markets using daily closing stock prices from 2019. We then estimate daily abnormal returns in March and April 2020 as the difference between the actual return and the stock return predicted by the three-factor model. All data are in USD. We subtract the daily return on the one-month Treasury bill to obtain abnormal excess returns. Daily returns, both raw and (excess) abnormal, are accumulated from March 1 through April 30, 2020. Appendix A describes in detail all the variables and steps involved in the estimation of stock returns. Panel A in Table 2 shows that the average company in our sample has negative 9.4% cumulative return over the two months and negative 3.2% excess abnormal return over the same period.

Cases in each region are accumulated from the beginning of available records until March 31. The number of cases per inhabitant is higher than in Table 1 since data in that table comprises

[9] We only include firms with available accounting data from fiscal-year-end 2019.

[10] Analysis with CFRs reported by Oner et al. (2020) for the Italian case yield similar results. See Figure 3 for CFRs from South Korea and China collected by *Our World in Data.*

the period from March 1 through 14. We accumulate *# Games*, *Attendance*, and *Capacity* across the 167 regions where firms are located from March 1 through 30. The average figures are very similar to those reported in Table 1, Panel A. On average, across all firms, there were 2.84 accumulated games, attended by (accumulated) 94,973 people in venues with an (accumulated) maximum capacity of 130,842 spectators. The variable *I_Games* takes a value of 1 if there was a soccer match in the region where the firm is located from March 1 through 30, zero otherwise. Table 2 shows that, on average, about 74% of the firms are located in regions with soccer games during that period.

Finally, the statistics of *Population*, *Density,* and Gross Regional Product per capita (*GRP*) in Table 2 are virtually the same as in Table 1. Panel B presents the pairwise correlations among the main variables in our analysis. Regional population and the soccer variables show the highest correlation (about 0.75). Intuitively, it makes sense the larger and more densely populated cities host more games. Table B.2 in Appendix B shows the statistics per region and firm.

[Insert Table 2 about here]

We describe now our empirical strategy. Our objective is to study whether and how the spread of COVID-19 cases across regions in Europe affected the cross-section of stock returns of the firms headquartered in these regions. Our hypothesis is that markets discount the likelihood that firm's top management falls sick due to COVID-19.

We argue that a simple OLS regression of the cross section of stock returns on the lagged number of regional COVID-19 cases would be inconclusive. Let us consider first our explanatory variable, i.e., the number of COVID-19 cases. Although the original outbreak of the pandemic in China at the end of 2019 could be consider exogenous, the distribution and propagation of cases across countries and regions in Europe is not. The cases in each country are highly concentrated in certain regions.[11] This is hardly random. There is evidence, for instance, that regions with international airports and hubs are more likely to be affected first and harder by the virus (Paraskevas and Dimitriou (2020)). In addition, the number of inhabitants and high population density enhance the virus spread (Rocklöv and Sjödin (2020)). At the same time, the most populous and densely inhabited areas in each country tend to be relatively wealthier. On the one side, they are likely to concentrate more economic and medical resources to counterattack the pandemic than other regions within the same country. On the other side, these regions are likely to perform more tests, hence overestimating the relative number of cases with respect to less densely populated areas.

Looking at firms now, headquarter location is not random either. Headquarters in Europe, like in the rest of the world (e.g., Strauss-Kahn and Vives (2009)), are highly concentrated in a few metropolitan areas and regions within each country (Heidenreich and Baur (2015)). Shilton and Stanley (1999), for instance, show that a higher number and more diversified headquarters are associated with metropolitan areas with higher income per capita. The positive effects of agglomeration in densely populated areas is a factor known to affect the location of firms' headquarters (Henderson and Ono (2008)).

[11] European Centre for Disease Prevention and Control (https://covid-statistics.jrc.ec.europa.eu/Home/Maps).

Therefore, some variables, like income per capita or population density, are correlated both with the spread of the virus and headquarters location. A high concentration of firms from highly sensitive sectors in regions more likely to affected by the virus would yield a spurious correlation between the regional number of COVID-19 cases and stock performance.[12] In addition, the response to the virus in the European Union has not be uniform, neither in time nor in policy. This is true not only at the medical but also at the economic level: the difference in magnitude, timing, and nature of the measures adopted by governments across Europe, both national and regional, to palliate the economic consequences of the lockdown are notorious and not free of controversy.[13] This is likely to reinforce the endogenous link between the cases of COVID-19 and stock returns.

We tackle this by instrumenting first the accumulated number of COVID-19 cases per million inhabitant in each region during March 2020 with the region's *Population*, its *Density*, and, alternatively, one the three variables related to the soccer matches played in the region during that month: *I_Games*, *Attendance*, and *Capacity.* Wealthier regions are likely to be more densely populated, and have more stadiums and soccer teams. Thus, we control for the region's *GRP.* Several firm variables have been shown to affect stock returns in relation to the virus outbreak. Therefore, we control for each firm's *Size*, *TobinQ*, *Debt/Assets*, and *Cash/Asset.* Since countries and sectors differ in their regional concentration and their exposure and reaction to the pandemic, we include country and industry fixed effects.

The instrumented cases are then used to predict the cross-section of accumulated daily stock returns over March and April. We include the same controls and fixed effects than in the first-stage regressions. Fatality rates of infected cases increased non-linearly with age. Figure 3 shows available statistics from two countries in our sample, Italy and Spain, together with China and South Korea. If our hypothesis is correct, markets should discount more heavily the stock value of firms led by older CEOs and Chair. To test this hypothesis we follow two approaches. First, we split the sample into firms with CEO/Chair younger than 60 years and firms with CEO/Chair aged 60 or older and perform the same second-stage regressions on the cross-section of stock returns just described. If our hypothesis is correct, the coefficient of the number of cases of COVID-19 should be negative and significant for the subsample of firms with older CEO/Chair, and different from the coefficient on firms with relatively younger CEO/Chair. Second, we interact the instrumented *Cases/Population* in each region with the instrumented *Prob. Death (CEO/Chair)*, using the instruments and controls previously discussed for both variables. Then, we introduce both variables and the interaction in the regression on the cross-section of stock returns, including the all the controls and fixed effects. Our hypothesis predicts that the coefficient on the interaction should be negative.

[Insert Figure 3 about here]

3. Results

[12] Gardiner, Vu, and Martin (2020) show that there exist variation in sector concentration across regions in Europe. Manufacturing of food, beverages, and tobacco are the most regionally concentrated sectors while, expectedly, retail trade (excluding motor vehicles) are the less regionally concentrated (Figure 4.15b). Across countries in our sample, France and Sweden, have more regional specialization whereas Poland and, especially, the Netherlands have less regionally concentrated sectors (Figure 4.12c).

[13] "How major economies are trying to mitigate the coronavirus shock," Financial Times, March 30, 2020.

3.1 Test on the relevance of the instruments

There is evidence that the incubation period of COVID-19 (that is, the "pre-symptomatic" period of time between becoming infected and developing symptoms of the disease) can be as long as two weeks. Thus, there is likely a lag between the time when the match spectators become infected and the time they are tested after developing symptoms compatible with the disease. This is especially relevant in the first two weeks of March 2020 when mass testing (in particular across asymptomatic people) had not been yet implemented in any country. Figure 4 shows that by March 15, all countries in our sample, except Switzerland and (marginally) Germany, had a ratio of COVID-19 tests per thousand people below 0.2. Most likely, at the onset of the pandemic, only people with symptoms were tested and, eventually, diagnosed as new cases of COVID-19 infections. Therefore, considering the incubation window, we expect the predictive power of our instruments to become significant in about two weeks after the game.

[Insert Figure 4 about here]

To test this prediction, we run the following panel regression in region *r* and day *t* from March 1 through 14, 2020:

$$\begin{aligned}\Delta Log\left(1 + Cases_{r,t}\right) &= a + b_1 Log(Population_r) + b_2 Log(Density_r) \\ &+ b_3 Log(GRP_r) + \sum_{w=1}^{6} c_w WX_{r,t-w} + FE_{c\times t} + \epsilon_{r,t}.\end{aligned} \tag{1}$$

$\Delta Log\left(1 + Cases_{r,t}\right)$ represents the (log) difference in 1 plus the number of cases in region *r* and day *t* with respect to day *t-1*. For every lagged week $w = \{1,2,\dots,6\}$ and region *r*, the variable $WX_{r,t-w}$ represents, alternatively, the dummy variable, I_Games_{t-w}, that takes a value of one if there was a soccer match in the region any day $t \in (t - (1 + 7 \times (w-1)), t - 7 \times w)$; the natural logarithm of 1 plus the accumulated number of match attendants over the week, $Log(1 + Attendance_{t-(1+7\times(w-1))} - Attendance_{t-7\times w})$; and the natural logarithm of 1 plus the accumulated venue capacity over the week, $Log(1 + Capacity_{t-(1+7\times(w-1))} - Capacity_{t-7\times w})$. We control for each region's population, density and gross regional product per capita (GRP). Our object of interest is the series of coefficients on the weekly lagged predictors, $c_{w=\{1,2,\dots,6\}}$. $FE_{c\times t}$ represents country times day fixed effects. All variables are defined in Appendix A. Standard errors are clustered at the region level.

Table 3 presents the results from regression (1) for the three instruments. The rate at which the daily number of cases of COVID-19 increases is higher in more populated and wealthier (higher Log(*GRP*)) areas. With respect to the lagged soccer variables, only he coefficient c_2 corresponding to *I_Games*, Log(*Attendance*), or Log(*Capacity*) two weeks earlier are significant. The other lags are non-significant for any of the three instruments. In specification (1), for any single country and day from March 1 thought 14, the rate of change in the number of COVID-19 cases relative to the previous day is, on average, is higher by 5.6 percentage points in regions where there was a soccer game two weeks earlier relative to regions with no games in the same period. This result is significant at the 1% level. Specifications (2) and (3) show that the rate of change is, on average, about 6 basis points higher for every 1% increase in attendance and venue capacity, respectively. Both results are significant at the 1% level.

These results are consistent with the documented incubation period of the virus. They support the relevance of soccer games to predict the virus expansion and to study its potential effect on the stock return of firms headquartered in more affected regions. This is what we study in the following section.

[Insert Table 3 about here]

3.2 Test on the cross-section of stock returns

In this section, we study how the instrumented number of cases of COVID-19 across regions in Europe during March 2020 affected the cross-section of stock returns over March and April.

3.2.1 The first-stage regressions

Each observation is a firm *f* located in region *r*. In the first stage, we instrument the number of COVID-19 cases per million in the region where the firm is located with the region's *Population*, *Density* and, alternatively, one of the three soccer variables, namely: *I_Games*, *Attendance*, and *Capacity*. Specifically, we run the following regression:

$$\begin{aligned} Log\left(\frac{1+Cases}{Population_{r,f}}\right) \\ &= \theta_0+\theta_1 Y_r+\theta_2 Log(Population_r)+\theta_3 Log(Density_r) \\ &+\theta_4 Log(GRP_r)+\theta_5 Log(Size_f)+\theta_6 \frac{Debt}{Assets_f}+\theta_7 TobinQ_f \\ &+\theta_8 \frac{Cash}{Assets_f}+FE_c+FE_i+\epsilon_{r,f}. \end{aligned} \quad (2)$$

$\frac{1+Cases}{Population_{r,f}}$ is the accumulated number of COVID-19 cases per million people in region *r* where firm f is located since statistics are available until March 31, 2020. $Y_{r,f}$ is, alternatively, I_Games_r, a dummy variable that takes a value of one if there was a soccer match in region *r* where firm f is located from March 1 through March 30, zero otherwise; $Log(1+Attendance_r)$, the natural logarithm of 1 plus the accumulated number of match attendants to those games; $Log(1+Capacity_r)$, the natural logarithm of 1 plus the accumulated venue capacity where the games were played. FE_c and FE_i stand for country and industry fixed effects, respectively. The rest of variables are defined in Appendix A. Their summary statistics are reported in Table 2. Standard errors are clustered at the region level.

[Insert Table 4 about here]

Table 4 presents the coefficients estimated from regression (2). In column (1) the instruments are the dummy variable *I_Games*, (Log) *Population*, and (Log) *Density*. In this case, the coefficient θ_1 means that, within the same country and industry, the number of cases per million people in regions where there was at least one soccer match during March is, on average, 30 percentage points higher than in regions where there were no games. This coefficient is significant at the 1% level.

When we look at (log) *Attendance* or (log) *Capacity* in specifications (2) and (3), the coefficient θ_1 should be interpreted as the elasticity of the number of COVID-19 cases per million people with respect to the number of attendants to the soccer games in each region and the venue capacity, respectively. Thus, given the sample statistics in Table 2, for the average region in our sample, a 1% increase in the accumulated number of attendants to soccer games (about 950 spectators on average) increases the cases of COVID-19 per million by 0.23 (=1%×0.0241×976) or, equivalently, 1.3 (=0.23×5.43) new cases in the region in March 2020. This result is significant at the 5% level. Finally, in specification (3), a 1% increase in the venue capacity (about 1,300 spectators on average) is associated to an increment of 0.27 (=1%×0.0281×976) new cases of COVID-19 per million or about 1.5 (=0.27×5.43) new cases in the average region of our sample during March 2020. This coefficient is significant at the 1% level.

Log(*Population*) is non-significant in any specification, which is not surprising given its high correlation with the three soccer-related variables. Log(*Density*) is strongly significant as we expected. Coefficient θ_3 means that a 1% increase in regional population density is associated with 11 basis points increment in the number of cases of COVID-19. The size and significance of this coefficient is very stable across the three specifications. It is important to notice that the statistical significance of *I_Games*, Log(1+*Attendance*) and Log(1+*Capacity*) is never inferior to the statistical significance of Log(*Density*), and it is higher in specification (3).

As expected, Log(*GRP*) is highly significant and an important determinant in the change of the number of cases. A 1% increase in gross regional product is associated with 84 basis points increase of COVID-19 cases. It is important to notice that, in spite of the high significance, both statistical and economic, of Log(*GRP*) the three instrument variables associated to soccer games are significant and economically meaningful predictors of new cases of COVID-19. We interpret all this evidence as strong support of their relevance. Finally, also expectedly, the coefficients on the firm variables (size, leverage, Tobin's Q, and cash holdings) are all no-significant.

Once we have estimated the coefficients in regression (2), we obtain the predicted values of the (log) number of the accumulated COVID-19 cases per million for each firm *f* in region *r* in March 2020:

$$\begin{aligned} Log\left(\frac{1+\widehat{Cases}}{Population}_{r,f}\right) &= \hat{\theta}_0+\theta_1 Y_r + \hat{\theta}_2 Log(Population_r) + \hat{\theta}_3 Log(Density_r) \\ &+ \hat{\theta}_4 Log(GRP_r)+\hat{\theta}_5 Log\left(Size_f\right) + \hat{\theta}_6 \frac{Debt}{Assets_f} + \hat{\theta}_7 TobinQ_f \\ &+ \hat{\theta}_8 \frac{Cash}{Assets_f}. \end{aligned} \tag{3}$$

3.2.1 The second-stage regressions

Given the predicted values from (3), we run the following regression across daily abnormal (excess) stock returns accumulated over March and April 2020 on the instrumented number of cases of COVID-19 per million inhabitant in the region where the firm is located plus the firm and demographic controls, and the fixed effects in (2). Standard errors are clustered at the regional level.

$$R_{r,f} = \alpha + \beta Log\left(\frac{1+\widehat{Cases}}{Population}_{r,f}\right) + \gamma_1 Log(GRP_r) + \gamma_2 Log(Size_f) + \gamma_3 \frac{Debt}{Assets_f} + \gamma_4 TobinQ_f + \gamma_5 \frac{Cash}{Assets_f} + FE_c + FE_i + \epsilon_{r,f} \quad (4)$$

$R_{r,f}$ is the daily abnormal (excess) return on stock from firm *f* headquartered in region *r* accumulated over March and April 2020. $Log\left(\frac{1+\widehat{Cases}}{Population}_{r,f}\right)$ is the natural logarithm of the accumulated number of COVID-19 cases per million in region *r* from March 1 through 30, 2020 instrumented according to equation (3) with Log(*Population*), Log(*Density*), and, alternatively, *I_Games*, Log(1+*Attendance*), and Log(1+*Capacity*) in specifications (1), (2), and (3) of Table 5, respectively. For comparison, specification (4) reports the coefficients from an OLS regression where the number of cases per million people have not been instrumented. The rest of variables are defined in Appendix A. Standard errors are clustered at the region level.

[Insert Table 5 about here]

The coefficient on the instrumented number of cases per million people is negative and significant at least at the 10% level in the three specifications (5% in the case of Log(*Attendance*) in specification (2)). It is also of similar magnitude: firms within the same country and industry had an abnormal return over March and April between 5.2 and 6 basis points lower for every percentage point increase in the (instrumented) number of cases per capita in the region where their headquarters are located. The average drop in abnormal returns in our sample over the same period was negative 3.2%.

Relative regional wealth (Log(*GRP*)) is unrelated to the cross-section of stock returns. The coefficients on all firm characteristics are strongly significant and with the expected sign: larger and more indebted firms performed relatively worse while firms with higher Tobin's Q and more cash reserves performed relatively better. They are almost identical across specifications.

In terms of economic significance, in specification (2), a one-standard deviation increase in the predicted Log(*Cases/Population*) in March 2020 implies, on average, 7 percentage points (=-0.061×1.153×100) lower abnormal returns over March and April. In comparison, the variation in abnormal returns is negative 1.9, negative 1.7, 2.6, and 1.8 percentage points for a one-standard deviation increase in the company's size, leverage, Tobin's Q and cash reserves, respectively. Thus, in absolute terms, the standardized effect of the number of predicted cases of COVID-19 per capita in the region on stock returns is, on average, at least double the effect of the standardized firm attributes. In specifications (1) and (3), the results are qualitatively analogous, with an average drop in abnormal returns of about 5 percentage points for a one-standard deviation increase in the predicted Log(*Cases/Population*).

To evaluate the impact of instrumenting the number of cases, specification (4) reports the coefficients from the OLS regressions without instrumenting Log(*Cases/Population*). The coefficient is still negative and significant at the 5% level. In economic terms, however, the magnitude drops by more than half to an average 3.2 percentage points (=-0.027×1.153×100) lower abnormal return for a one-standard deviation increase in the number of *raw* (non-instrumented) cases of COVID-19 per million people in the region. This speaks to the relevance of our instruments and the underlying endogeneity issues in the relation between the spread of COVID-19 cases and stock performance.[14]

3.2.1 The effect of the age of the company's CEO/Chair

If our hypothesis is correct, we should expect stock markets discount the incidence of COVID-19 in the region where the firm's top management is located more heavily when the probability of the CEO or Chair's death is higher. As Figure 3 shows, COVID-19 is significantly more lethal among older people. Thus, given the number of COVID-19 cases in the region, we test whether stock returns drop further among firms managed by a more aged CEO or Chair.

We approach this in two ways. First, we obtain the CEO's age from Boardex for 2,422 firms. When the CEO and the board Chair are different individuals, we take the average of both ages. We then map this age into the probability of dying contingent on being infected of COVID-19 (known as Case Fatality Rates or CFR) from the statistics reported by the Spanish Ministry of Health in March 2020. This statistics are collected by the project *Our World in Data* of Oxford University.

Figure 3 shows the CFR of Spain, Italy, China, and South Korea. They are reported in age tranches of ten years up to 80 years and a final tranche of 80 years and above. The average and median CEO age in our sample is 60 years. Below that age, the CFR in March 2020 was 0.4% in Spain, and 1% in Italy. For people older than 80 years, these probabilities raised to 15.6% in Spain, and 20.22% in Italy. Therefore, based on this data, we can say that the probability of death due to COVID-19 is highly nonlinear with respect to the patient's age. We create the variable *Prob. of Death (CEO)* that maps the age of the company' CEO into the CFRs based on the Spanish data. Results are similar when we use the figures based on Italian data. Based on age, as of March 2020, the average CEO in our sample had a probability of 1.56% to die from COVID-19 conditional on being infected.

We interact Log(*(1+Cases)/Population*) with *Prob. of Death (CEO)*. Our object of interest in the coefficient of the instrumented interaction term in the regression of the cross-section of stock returns. Table B.4 in Appendix B shows the first-stage regression of Log(*(1+Cases)/Population*), in specifications (1)-(3), and Log(*(1+Cases)/Population*)× *Prob. of Death (CEO)*, in specifications (4)-(6), on the three combinations of instruments that we used in Table 4. We include the same controls as in Table 4 plus *Prob. of Death (CEO)* as an additional regressor. The coefficients in specifications (1)-(3) are virtually the same reported in Table 4 and they are insignificant in specifications (4)-(6). On the other side, *Prob. of Death (CEO)* is a (strongly) significant predictor

[14] Conclusions are analogous when we use raw returns in Table B.3 in Appendix B.

for the interaction in specifications (4)-(6), while statistically insignificant as a predictor of Log(*(1+Cases)/Population*) in specifications (1)-(3).

We then estimate the predicted value of the logarithm of cases per million people and its interaction with the probability of death from COVID-19 for the company's CEO. We use these estimations in the following regression:

$$\begin{aligned} R_{r,f} = \alpha + \beta_1 Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right) + \beta_2 Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right) \\ \times Prob.of\ \widehat{death}\ (CEO_f) + \gamma_1 Log(GRP_r) \\ + \gamma_2 Log(Size_f) + \gamma_3 \frac{Debt}{Assets_f} + \gamma_4 TobinQ_f + \gamma_5 \frac{Cash}{Assets_f} \\ + \gamma_6 Prob.of\ death\ (CEO_f) + FE_c + FE_i + \epsilon_{r,f} \end{aligned} \tag{5}$$

This regression is analogous to equation (4). $Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right)$ is now instrumented in specifications (1)-(3) of Table B.4. We also include the instrumented interaction term $Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right) \times Prob.of\ \widehat{death}\ (CEO_f)$ from specifications (4)-(6) in the same table, and $Prob.of\ death\ (CEO_f)$ as an additional regressor. Our object of interest is the coefficient β_2 on the (instrumented) interaction term. We report the regression coefficients in Table 6.

[Insert Table 6 about here]

The coefficient is negative and very consistent in magnitude across specifications (1)-(3). It is marginally statistically significant at the 10% level in all specifications. The significance increases to the 5% when we consider raw returns in Table B.5 in Appendix B. Taking the derivative of (5) with respect to Log((1+*Cases)/Population*) and replacing the estimated coefficients from specification (2) in Table 6 yields:

$$\frac{\partial R_{r,f}}{\partial Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right)} = 0.096 - 10.18 \times Prob.of\ \widehat{death}\ (CEO_f) \tag{6}$$

Thus, on average, an increase of 1% in the number of cases of COVID-16 per capita in the region where the firm is headquartered decreases abnormal stock returns by 10.18 bps per additional percentage point of probability of death for the company's CEO. This means that for any probability of CEO death above 0.94%, a rise in the number of cases per capita depresses stock returns. Considering the conditional probabilities from Spain in Figure 3, this happens, on average, when the CEO is 60 years or older. Therefore, Table 6 suggests that markets distinguish between relatively younger and older CEOs when discounting the threat of COVID-19 to the company management. The conclusions are analogous when we use the estimated coefficients from specifications (1) or (3).

On the other side, in specification (4) we report the coefficients estimated if we fail to instrument the cases per capita and its interaction with the probability of CEO death. The coefficient on the interaction term becomes negligible and statistically insignificant. Therefore, our instruments unveil a pattern that otherwise we would not observe due to potential endogeneity issues.

As a second approach, we split the sample in two subsamples: on the one side, companies with CEOs younger than 60; on the other, companies with CEOs 60 years old or above. 60 years is the average and median CEO age in our sample. Moreover, Table 6 shows that markets start discounting the spread of COVID-19 in the region where the headquarters are located when the CEO is older than 60. Table B.6 in Appendix B shows that both subsamples are statistically indistinguishable in means across all variables except leverage and size. Firms with relatively older CEOs are smaller and slightly less leveraged.

We first run regression (2) for each triplet of instruments and for each subsample. Coefficients are reported in Table B.7 in Appendix B. They are very similar to those reported for the full sample in Table 4. We then use the predicted Log((1+*Cases/Population*)) in the regression on the cross section of stock returns in equation (4), for each triplet of instruments and for each subsample. We also include the OLS regression coefficient estimates without instrumenting for comparison. All results are reported in Table 7.

Consistently with the findings in Table 6, and regardless of which soccer variable is added as an instrument, stock returns are lower for firms headquartered in regions with higher predicted cases of COVID-19 per capita only if the CEO is 60 years old or above. The coefficients on the instrumented Log((1+*Cases/Population*)) are virtually identical across specifications (2), (4), and (6). They are all significant at the 1% level. On average, stocks within the same country and industry drop 12 basis points for every one-percentage point increase in the (instrumented) number of cases per capita in the region where the firm is headquartered. Importantly, this is only true when the company's CEO is 60 years old or above. When the CEO is younger than 60, the coefficients are positive albeit insignificant in specifications (1), (3), and (5). In economic terms, a one-standard deviation increase in Log((1+*Cases/Population*)) decreases abnormal return by 10 percentage points (=-0.12×0.841×100) for firms managed by CEOs 60 years and older across specifications (2), (4), and (6).

When we look at the OLS regressions, the coefficient in specification (8) is statistically significant at the 5% level. A one-standard deviation increase in Log((1+*Cases/Population*)) decreases abnormal return by 3.4 percentage points (=-0.041×0.841×100) for firms with CEOs 60 years and older. However, the coefficient on the instrumented Log((1+*Cases/Population*)) is not statistically different from specification (7) for the subsample of CEOs older or younger than 60. Table B.8 in Appendix B reports the results of the same regressions using raw returns. Results are qualitatively analogous. The coefficient on Log((1+*Cases/Population*)) is significant at the 5% in specifications (1), (3) and (5), non-significant otherwise. In contrast, the coefficients in specifications (7) and (8) for the OLS, un-instrumented regressions are both statistically insignificant.

Importantly, when we replace the age of CEOs with the average age of top executives (other than CEOs) the previous results vanish. That is, there is no significant difference in stock returns from regional cases of COVID-16 per capita between firms with relatively younger or older executives. We interpret this as evidence of the singular value of CEOs for shareholders.

[Insert Table 7 about here]

4. Conclusion

In this paper, we have analyzed the effect of the regional increment of COVID-19 cases across 10 European countries on the stock returns of companies headquartered in the region. The number of cases of COVID-19 per million people in each region is instrumented by the number of inhabitants, the population density, and the soccer games celebrated in the region during March 2020.

We control for the regional gross product (GRP), firm characteristics (i.e., size, leverage, cash holdings and Tobin's Q), sector, and country fixed effects. Stock abnormal returns over March and April 2020 are 7 percentage points lower for every one-standard deviation increase in the number of COVID-19 cases per million people in the region during March the same year. This negative effect is even larger in absolute terms (negative 10 percentage points) among firms managed by CEOs at least 60 years old.

These results are not robust when we replace CEO's age with the average age of other firm top executives, which we interpret as evidence of the singular value of CEOs for the firm perceived by the market. The results also vanish when we fail to instrument the cases of COVID-19. This speaks to the relevance of our instruments and the underlying endogeneity issues.

Although there was anecdotal evidence of the role of soccer games in the original propagation of the virus in Europe, no formal test had been performed so far. Regions in which there was at least a soccer game in March 2020 show 30 percentage points more cases of COVID-19 per million inhabitant than regions where there was no game, after controlling for GRP and the region's population, and its density. The dynamic effect of soccer games on the number of cases shows a patter consistent with the virus incubation period. Only games celebrated two weeks earlier show a positive and significant effect on the daily increment of the number of cases in the region.

Overall, our results present novel evidence of the value of CEOs for shareholders and the effect of the pandemic on stock returns.

As quarterly data becomes available, we want to explore the effect of our instrumented predictor on the company's decisions, including leverage, credit availability, and cash holdings.

References

Acharya, V. and Sascha Steffen, 2020. The risk of being a fallen angel and the corporate dash for cash in the midst of COVID, forthcoming in COVID Economics: A Real Time Journal

Albuquerque, Rui A. and Koskinen, Yrjo J and Yang, Shuai and Zhang, Chendi, 2020. Resiliency of Environmental and Social Stocks: An Analysis of the Exogenous COVID-19 Market Crash, European Corporate Governance Institute – Finance Working Paper No. 676/2020.

Alfaro, L., Chari, A., Greenland, A., and Schott, P. K., 2020. Aggregate and Firm-Level Stock Returns During Pandemics, in Real Time, NBER Working Paper No. 26950.

Ashton, John, Bill Gerrard, and Robert Hudson, 2003. Economic impact of national sporting success: Evidence from the London Stock Exchange, Applied Economic Letters 10, 783–785.

Bennedsen, Morten, Kasper M. Nielsen, Francisco Pérez-González, and Daniel Wolfenzon. 2007. Inside the Family Firm: The Role of Families in Succession Decisions and Performance, Quarterly Journal of Economics, May, Vol. 122, No. 2: 647-691.

Bennedsen, Morten, Francisco Pérez-González, and Daniel Wolfenzon, 2020. Do CEOs Matter? Evidence from Hospitalization Events, forthcoming in the Journal of Finance.

Bertrand, Marianne, and Antoinette Schoar, 2003. Managing with Style: The Effect of Managers on Firm Policies, Quarterly Journal of Economics, 118 (4), pp. 1169-1208.

Bloom, Nicholas and John Van Reenen. 2007. Measuring and Explaining Management Practices Across Firms and Countries, Quarterly Journal of Economics, Vol. 122 No. 4, 1351-1408.

Bloom, Nicholas, Benn Eifert, Aprajit Mahajan, David McKenzie, John Roberts, Does Management Matter? Evidence from India 2013, Quarterly Journal of Economics 128 (1), 1–51.

Boyle, Glenn, and Brett Walter, 2002. Reflected glory and failure: International sporting success and the stock market, Applied Financial Economics 13, 225–235.

Edmans, A., D. García, and Ø. Norli, 2007. Sports Sentiment and Stock Returns. The Journal of Finance 62, 1967-1998.

Fahlenbrach, R., Rageth, K., and Stulz, R., 2020. How Valuable is Financial Flexibility when Revenue Stops? Evidence from the Covid-19 Crisis, NBER Working Paper No. 27106.

Fama, Eugene F & French, Kenneth R, 1992. The Cross-Section of Expected Stock Returns, Journal of Finance 47(2), 427-465.

Gardiner, B., Vu, A. and Martin, R., 2020, Sectoral Analysis and Assessment of Geographical Concentration of EU Industries, Publications Office of the European Union, Luxembourg.

Heidenreich M., Baur N., 2015. Locations of Corporate Headquarters in Europe: Between Inertia and Co-evolution. In: Lundan S. (eds) Transnational Corporations and Transnational Governance. Palgrave Macmillan, London

Hassan, T.A., Hollander, S., van Lent, L, and Tahoun, A., 2020. Firm-level Exposure to Epidemic Diseases: Covid-19, Sars, and H1N1, NBER Working Paper No. 26971.

Henderson, J.V., and Yukako Ono, 2008, Where do manufacturing firms locate their headquarters? Journal of Urban Economics 68, 431-450.

Hong, H., Jeffrey D. Kubik, Jeremy C. Stein, 2008. The only game in town: Stock-price consequences of local bias, Journal of Financial Economics 90 (1), 20-37.

Onder G, Rezza G, Brusaferro S., 2020, Case-Fatality Rate and Characteristics of Patients Dying in Relation to COVID-19 in Italy. JAMA. doi:10.1001/jama.2020.4683.

Paraskevas Nikolaou, and Loukas Dimitriou, 2020. Identification of critical airports for controlling global infectious disease outbreaks: Stress-tests focusing in Europe, Journal of Air Transport Management 85.

Pérez-González, Francisco. 2006. Inherited Control and Firm Performance, American Economic Review, Vol. 96, No. 5, 1559-1588.

Ramelli, Stefano and Wagner, Alexander F., 2020. Feverish Stock Price Reactions to COVID-19, forthcoming in the Review of Corporate Finance Studies.

Rocklöv, Joacim, and Henrik Sjödin, 2020. High population densities catalyze the spread of COVID-19, Journal of Travel Medicine 27.

Shilton, L., Stanley, C., 1999. Spatial patterns of headquarters. Journal of Real Estate Research 17, 341–364.

Strauss-Kahn V., Xavier Vives, 2009. Why and where do headquarters move? Regional Science and Urban Economics 39 (2), 168-186.

Appendix A
Variables definition and source

Main variables

Cases	Accumulated number of COVID-19 diagnosed cases per region from the following sources:

Country	Agency/Website	Country	Agency/Website
Belgium	Epistat	Poland	Serwis Rzeczypospolitej Polskiej
France	Santé Publique France	Spain	Instituto de Salud Carlos III
Italy	Dipartimento della Protezione Civile	Sweden	Folkhalsomyndigheten
Germany	Robert Koch Institute	Switzerland	FOPH
The Netherlands	RIVM	UK	GOV.UK

Cases/Population	Accumulated number of COVID-19 diagnosed cases per million inhabitant per region.
# Games	Accumulated number of soccer matches per region. Collected from the website https://www.thesportsman.com/football
I_Games	A dummy variable that takes a value of 1 if there was a soccer match in the region where the firm is located, zero otherwise.
Attendance	Accumulated number of attendants to all soccer matches in each. Various websites, including www.footlive.com, www.azscore.com, www.soccerway.com, www.fbref.com, and www.sofascore.com.
Capacity	Accumulated maximum capacity in all venues with a minimum capacity of 25,000 spectators that hosted soccer matches per region. Retrieved from the website: https://en.wikipedia.org/wiki/List_of_European_stadiums_by_capacity.

Demographic variables

Population	Thousands of inhabitants in the region in 2018, from EUROSTAT.
Density	Thousands of inhabitants per square-Km in the region in 2018, from EUROSTAT.
GRP	Gross Regional Product: USD per capita in 2018, from EUROSTAT.

Firm variables

Size	Firm's sales (SALE) in USD Millions from Compustat , as of FYE 2019
Debt/Assets	Book value of debt (DLTT+DLC) over book assets (AT) from Compustat, as of FYE 2019.
TobinQ	Book value of assets (AT) minus book value of equity (CEQ) plus the market value of equity (CSHO×PRCC) all divided by book value of assets (AT) from Compustat, as of FYE 2019.
Cash/Assets	Cash holdings (CHE) over book assets (AT) from Compustat, as of FYE 2019.
Raw return (r)	For every day *t*, we define raw return as: r_t=Log (($PRCCD_t/AJEXDI_t$)×$TRFD_t$)-Log (($PRCCD_{t-1}/AJEXDI_{t-1}$)×$TRFD_{t-1}$), all variables from Compustat. We then accumulate daily returns from March 1 through April 30, 2020.
Abnormal return (R)	For every stock, we regress daily raw returns (in excess of the one-month Treasury Bill) on the three-factor model of Fama and French (1992) during 2019. All data from Compustat. Adjusted stock prices are converted into USD using the exchange rates from the IMF. Daily data for the European three factors (in USD) and the one-month US Treasury Bill return are downloaded from Kenneth French website. Abnormal (excess) daily returns are calculated as the difference between the actual raw returns and the predicted returns from the three-factor model. We then accumulate daily returns from March 1 through April 30, 2020.
Age (CEO)	Age in years of the company's CEO or Chair. If CEO and Chairman are different persons, we take the average age. From Boardex.
Prob. Death (CEO)	Given *Age (CEO)*, we assign a probability of death from COVID-19 to the company's CEO/Chair based on the Case Fatality Rates for Spain collected by the Spanish Ministry of Health in March 2020 and reported by *Our World in Data* (Figure 3):

Age (CEO)	*Prob. Death*	*Age (CEO)*	*Prob. Death*
00-19 years	0.00%	50-59 years	0.40%
20-29 years	0.22%	60-69 years	1.90%
30-39 years	0.14%	70-79 years	4.80%
40-49 years	0.30%	80+years	15.60%

Table 1
Summary Statistics for the Sample of Region-Days

In Panel A, each observation is a duple region-day. Every day from March 1 through March 14, 2020, *Cases* is the accumulated number of diagnosed cases of COVID-19 in the region during that period. *Cases/Population* is the number of cases per million inhabitants. We consider all regions in Belgium, France, Italy, Germany, the Netherlands, Poland, Spain, Sweden, Switzerland, and the UK. The distribution of observations across regions is in Table B.1 of Appendix B. Every day from March 1 through March 14, *# Games, Attendance*, and *Capacity* is the accumulated number of soccer matches played in the region, their attendance, and the venue capacity, respectively, over the previous 6 weeks. *Population* is thousands of inhabitant per region; *Density* is number of inhabitants per square-Km; *GRP* is the Gross Regional Product per capita in USD. Log (x) denotes the natural logarithm of x. Δ Log(1+x_t)=Log((1+x_t)/(1+x_{t-1})). In Panel B, we report the average across regions of the weekly accumulated number of games, attendance and venue capacity for up to 6 weekly lags. *I_Games* is a dummy variable that takes a value of 1 if there was at least one soccer match in the region where the firm is located in a given week, zero otherwise. Appendix A includes the definition and source of each variable.

Panel A. Accumulated variables per day and region

	Mean (1)	Median (2)	St. dev. (3)	# Regions (4)	# Obs. (5)
Cases	96	8	507	194	2,162
Cases/Population	35	7	87	194	2,162
Log(1+*Cases*)	2.434	2.197	1.902	194	2,162
Δ Log(1+*Cases*)	0.228	0.152	0.286	194	2,073
Log(1+*Cases/Population*)	-11.486	-11.554	1.643	194	2,162
# Games	3.216	0	5.162	194	2,162
Attendance	78,270	0	162,846	194	2,162
Capacity	134,103	0	242,985	194	2,162
Log(1+*Attendance*)	5.107	0	5.818	194	2,162
Log(1+*Capacity*)	5.47	0	6.14	194	2,162
Population, 000	2,287	1,199	2,782	194	2,162
Density	451	160	1,046	194	2,162
GRP	37,428	35,240	14,728	194	2,162
Log(*Population*)	13.920	13.997	1.344	194	2,162
Log(*Density*)	5.091	5.081	1.327	194	2,162
Log(*GRP*)	10.464	10.470	0.359	194	2,162

Panel B. Statistics by Weekly Lags

Weeks ago	*# Games* (1)	*I_Games* (2)	*Attendance* (3)	Log (1+*Attendance*) (4)	*Capacity* (5)	Log (1+*Capacity*) (6)
1	0.466	0.299	11,233	2.657	19,120	3.246
2	0.534	0.327	13,085	3.095	22,259	3.553
3	0.568	0.339	13,741	3.268	23,790	3.694
4	0.535	0.328	12,999	3.200	22,043	3.576
5	0.549	0.342	13,501	3.302	23,097	3.734
6	0.564	0.321	13,712	3.133	23,794	3.519

Table 2
Summary Statistics for the Sample of Companies

Each observation is a firm. For each firm, we retrieve from Compustat-Capital IQ the following variables: *Size* (proxied by the company's Revenue in USD million), *Debt/Assets*, *Tobin's Q*, and *Cash/Assets* as of FYE 2019. *Abnormal returns* (in decimals) are calculated netting the expected returns predicted by the Fama and French (1992) three-factor model from the actual returns. *Raw returns* (in decimals) are calculated as the log difference of adjusted daily closing stock prices from Compustat. We report the accumulated daily excess (over the one-month T-bill) abnormal return and raw returns over March and April 2020. *Cases* are accumulated in each region through March 30. *Cases/Population* is the number of cases per million inhabitants. *#Games*, *Attendance* and *Capacity* are accumulated in each region from March 1 through 30. I_*Games* is a dummy variable that takes a value of 1 if there was a soccer match in the region where the firm is located from March 1 through 30, zero otherwise. The rest of variables are defined in Table1. Log (*x*) denotes the natural logarithm of *x*. Appendix A includes the definition and source of each variable. Panel B reports the correlation matrix of the main variables.

Panel A. Summary Statistics

	Mean (1)	Median (2)	St. dev. (3)	# Regions (4)	# Obs. (5)
Size (USD Million)	3,788	164	16,225	167	3,551
Log(*Size*)	5.071	5.107	2.790	167	3,551
Debt/Assets	0.231	0.203	0.203	167	3,551
Tobin's Q	1.908	1.195	2.114	167	3,551
Cash/Assets	0.129	0.069	0.175	167	3,551
Abnormal return	-0.032	-0.048	0.314	167	3,551
Raw return	-0.093	-0.091	0.262	167	3,551
Cases	6,328	2,122	9,015	167	3,551
Cases/Population	976	800	1,080	167	3,551
Log((1+*Cases)/Population*)	-7.488	-7.131	1.153	167	3,551
Age (CEO)	59.226	59.000	6.725	152	2,424
Prob. Death (CEO)	1.562	1.150	1.596	152	2,424
# Games	2.844	2.000	3.343	167	3,551
I_Games	0.743	1.000	0.437	167	3,551
Attendance	94,986	35,174	148,917	167	3,551
Capacity	130,860	89,925	163,235	167	3,551
Log(1+*Attendance*)	8.057	10.468	5.049	167	3,551
Log(1+*Capacity*)	8.711	11.407	5.169	167	3,551
Population, 000	5,543	4,646	4,359	167	3,551
Density	1,187	360	1,877	167	3,551
GRP	48,239	45,175	16,783	167	3,551
Log(*Population*)	15.100	15.351	1.071	167	3,551
Log(*Density*)	6.108	5.888	1.348	167	3,551
Log(*GRP*)	10.719	10.718	0.371	167	3,551

Panel B. Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(*Population*)(1)	1						
Log(*Density*)(2)	0.336	1					
Log(*GRP*)(3)	0.178	0.446	1				
Log(1+*Cases/Population*)(4)	0.224	0.377	0.616	1			
Log(1+*Attendance*)(5)	0.746	0.394	0.236	0.220	1		
Log(1+*Capacity*)(6)	0.753	0.346	0.212	0.275	0.958	1	
I_Games (7)	0.718	0.274	0.159	0.236	0.938	0.991	1

Table 3
Regression of Change in *Cases* on Weekly Lagged *Attendance* and *Capacity*

This table reports the coefficients from the following regression:

$$\Delta Log(\,1 + Cases_{r,t}\,) = a + b_1 Log(Population_r) + b_2 Log(Density_r) + b_3 Log(GRP_r) + \sum_{w=1}^{6} c_w WX_{r,t-w} + FE_{c\times t} + \epsilon_{r,t}.$$

$\Delta Log(\,1 + Cases_{r,t}\,)$ represents (Log) difference in 1 plus the number of cases in region *r* and day *t* with respect to day *t-1*. For every lagged week w={1,2,…,6} and region *r*, the variable $WX_{r,t-w}$ represents, alternatively, the dummy variable, I_Games_{t-w}, that takes a value of one if there was a soccer match in the region any day $t \in (t-(1+7\times(w-1)), t-7\times w)$; the natural logarithm of 1 plus the accumulated number of match attendants over the week, $Log(1 + Attendance_{t-(1+7\times(w-1))} - Attendance_{t-7\times w})$, or the natural logarithm of 1 plus the accumulated venue capacity over the week, $Log(1 + Capacity_{t-(1+7\times(w-1))} - Capacity_{t-7\times w})$. We control for each region's *Population*, *Density* and Gross Regional Product per capita (*GRP*). $FE_{c\times t}$ Represents country times day fixed effects. Appendix A includes the definition and source of each variable. Standard errors (in parenthesis) are clustered at the region level. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	I_Games (1)	Log(1+*Attendance*) (2)	Log(1+*Capacity*) (3)
Log(*Population*)	0.029	0.028	0.030
	(0.008)***	(0.008)***	(0.008)***
Log(*Density*)	-0.002	-0.002	-0.002
	(0.007)	(0.007)	(0.007)
Log(*GRP*)	0.052	0.052	0.052
	(0.026)**	(0.027)*	(0.026)**
Lagged week 1 (c_1)	-0.031	-0.001	-0.003
	(0.022)	(0.002)	(0.002)
Lagged week 2 (c_2)	0.056	0.006	0.005
	(0.021)***	(0.002)***	(0.002)***
Lagged week 3 (c_3)	-0.015	-0.003	-0.001
	(0.026)	(0.002)	(0.002)
Lagged week 4 (c_4)	-0.014	-0.001	-0.001
	(0.02)	(0.002)	(0.002)
Lagged week 5 (c_5)	-0.004	-0.001	0.000
	(0.022)	(0.002)	(0.002)
Lagged week 6 (c_6)	-0.013	-0.002	-0.002
	(0.023)	(0.002)	(0.002)
Country × Day FE	Y	Y	Y
R-sq	0.178	0.178	0.178
Number of Obs.	2,073	2,073	2,073
Number of Regions	194	194	194

Table 4
First-stage regression of COVID-19 cases against instruments

This table reports the coefficients from the following regression:

$$Log\left(\frac{1+Cases}{Population}_{r,f}\right) = \theta_0+\theta_1 Y_r + \theta_2 Log(Population_r) + \theta_3 Log(Density_r) + \theta_4 Log(GRP_r)+\theta_5 Log(Size_f) + \theta_6 \frac{Debt}{Assets}_f + \theta_7 TobinQ_f + \theta_8 \frac{Cash}{Assets}_f + FE_c + FE_i + \epsilon_{r,f}.$$

$\frac{1+Cases}{Population}_{r,f}$ is the accumulated number of COVID-19 cases per million people in region *r* where firm *f* is located since statistics are available until March 31, 2020. Y_r is, alternatively, I_Games_r, a dummy variable that takes a value of one if there was a soccer match in region *r* where firm *f* is located from March 1 through March 30, zero otherwise; $Log(1+Attendance_r)$, the natural logarithm of 1 plus the accumulated number of match attendants to those games; $Log(1+Capacity_r)$, the natural logarithm of 1 plus the accumulated venue capacity where the games were played. FE_c and FE_i stand for country and industry fixed effects, respectively. Appendix A includes the definition and source of each variable. The F-test is a test on the joint-significance of the three instruments. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	(1)	(2)	(3)
I_Games	0.306		
	(0.107)***		
Log(1+*Attendance*)		0.024	
		(0.012)**	
Log(1+*Capacity*)			0.028
			(0.01)***
Log(*Population*)	0.068	0.065	0.053
	(0.053)	(0.06)	(0.057)
Log(*Density*)	0.112	0.110	0.109
	(0.043)***	(0.044)**	(0.043)**
Log(*GRP*)	0.842	0.843	0.831
	(0.153)***	(0.159)***	(0.154)***
Log(*Size*)	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)
Debt/Assets	0.007	0.017	0.009
	(0.032)	(0.034)	(0.032)
TobinQ	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)
Cash/Assets	-0.039	-0.038	-0.038
	(0.037)	(0.037)	(0.037)
Country FE	Y	Y	Y
Industry FE	Y	Y	Y
F-test	16.085	12.783	16.668
R-sq	0.906	0.904	0.906
Number of firms	3,545	3,545	3,545
Number of regions	167	167	167

Table 5
Cross-section of Abnormal Stock Returns

This table reports the coefficients from the following regression:

$$R_{r,f} = \alpha + \beta \text{Log}\left(\frac{\widehat{1 + \text{Cases}}}{\text{Population}_{r,f}}\right) + \gamma_1 \text{Log}(\text{GRP}_r) + \gamma_2 \text{Log}(\text{Size}_f) + \gamma_3 \frac{\text{Debt}}{\text{Assets}_f} + \gamma_4 \text{TobinQ}_f + \gamma_5 \frac{\text{Cash}}{\text{Assets}_f} + \text{FE}_c + \text{FE}_i + \epsilon_{r,f}$$

$R_{r,f}$ is the daily abnormal (excess) return in decimals on stock from firm *f* headquartered in region *r* accumulated over March and April 2020. $\text{Log}\left(\frac{\widehat{1+\text{Cases}}}{\text{Population}_{r,f}}\right)$ is the natural logarithm of 1 plus the accumulated number of COVID-19 cases per million in region *r* from March 1 through 30, 2020 instrumented in Table 4 by Log(*Population*), Log(*Density*), and, alternatively, *I_Games*, Log(1+*Attendance*), and Log(1+*Capacity*) in specifications (1), (2), and (3), respectively. FE_c and FE_i stand for country and industry fixed effects, respectively. The rest of variables are defined in Appendix A. Specification (4) uses $\text{Log}\left(\frac{1+\text{Cases}}{\text{Population}_{r,f}}\right)$ without instrumenting in a standard OLS regression. Standard errors are clustered at the region level. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	Soccer Instrument			
	I_Games	Log (1+*Attendance*)	Log (1+*Capacity*)	OLS
	(1)	(2)	(3)	(4)
Log((1+*Cases*)/*Population*)	-0.053	-0.061	-0.052	-0.027
	(0.0292)*	(0.0302)**	(0.0291)*	(0.0119)**
Log(*GRP*)	0.044	0.055	0.043	0.010
	(0.0428)	(0.0442)	(0.0427)	(0.026)
Log(*Size*)	-0.007	-0.007	-0.007	-0.007
	(0.0026)***	(0.0026)***	(0.0026)***	(0.0027)**
Debt/Assets	-0.081	-0.081	-0.081	-0.082
	(0.0303)***	(0.0303)***	(0.0303)***	(0.0307)***
TobinQ	0.012	0.012	0.012	0.012
	(0.0028)***	(0.0028)***	(0.0028)***	(0.0028)***
Cash/Assets	0.104	0.104	0.104	0.105
	(0.0486)**	(0.0486)**	(0.0486)**	(0.0492)**
Country FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
R-sq	-	-	-	0.150
Number of firms	3,545	3,545	3,545	3,545
Number of regions	167	167	167	167

Table 6
Cross-section of Abnormal Stock Returns Including Probability of Death of the CEO

This table reports the coefficients from the following regression:

$$R_{r,f} = \alpha + \beta_1 Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right) + \beta_2 Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right) \times Prob.of\ \widehat{death}\ (CEO_f) + \gamma_1 Log(GRP_r) + \gamma_2 Log(Size_f) + \gamma_3 \frac{Debt}{Assets_f} + \gamma_4 TobinQ_f + \gamma_5 \frac{Cash}{Assets_f} + \gamma_6 Prob.of\ death\ (CEO_f) + FE_c + FE_i + \epsilon_{r,f}$$

$R_{r,f}$ is the daily abnormal (excess) return in decimals on stock from firm *f* headquartered in region *r* accumulated over March and April 2020. $\mathrm{Log}\left(\frac{1+\widehat{\mathrm{Cases}}}{\mathrm{Population}_{r,f}}\right)$ is the natural logarithm of 1 plus the accumulated number of COVID-19 cases per million in region *r* from March 1 through 30, 2020 instrumented in Table B.4 by Log(*Population*), Log(*Density*), and, alternatively, *I_Games*, Log(1+*Attendance*), and Log(1+*Capacity*) in specifications (1)-(3), respectively. Analogously, $\mathrm{Log}\left(\frac{1+\widehat{\mathrm{Cases}}}{\mathrm{Population}_{r,f}}\right) \times Prob.of\ \widehat{death}\ (CEO_f)$ is the instrumented interaction term in specifications (4)-(6) in Table B.4. $Prob.Death\ (CEO_{r,f})$ is the probability (in decimals) of death from COVID-19 of the CEO of company *f* based on the Case Fatality Rates for Spain in March 2020 collected by the Spanish Ministry of Health and reported by *Our World in Data* (see Figure 3). $\mathrm{FE_c}$ and $\mathrm{FE_i}$ stand for country and industry fixed effects, respectively. The rest of variables are defined in Appendix A. Specification (4) uses $\mathrm{Log}\left(\frac{1+\mathrm{Cases}}{\mathrm{Population}_{r,f}}\right)$ and $\mathrm{Log}\left(\frac{1+\mathrm{Cases}}{\mathrm{Population}_{r,f}}\right) \times Prob.of\ death\ (CEO_f)$ without instrumenting in a standard OLS regression. Standard errors are clustered at the region level. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	Soccer Instrument			
	I_Games	Log (1+*Attendance*)	Log (1+*Capacity*)	OLS
	(1)	(2)	(3)	(4)
Log((1+*Cases*)/*Population*)	0.119	0.096	0.122	-0.024
	(0.097)	(0.089)	(0.095)	(0.014)*
Log((1+*Cases*)/*Population*) ×*Prob. of Death (CEO)*	-11.588	-10.180	-11.771	-0.207
	(6.565)*	(5.818)*	(6.443)*	(0.408)
Log(*GRP*)	0.061	0.063	0.061	0.020
	(0.051)	(0.051)	(0.052)	(0.027)
Log(*Size*)	-0.006	-0.006	-0.006	-0.005
	(0.003)**	(0.003)**	(0.003)**	(0.003)**
Debt/Assets	-0.079	-0.078	-0.079	-0.076
	(0.038)**	(0.037)**	(0.038)**	(0.034)**
TobinQ	0.015	0.015	0.015	0.014
	(0.003)***	(0.003)***	(0.003)***	(0.003)***
Cash/Assets	0.157	0.156	0.157	0.148
	(0.062)**	(0.061)**	(0.062)**	(0.061)**
Prob. of Death (CEO)	37.125	32.578	37.716	0.380
	(21.189)*	(18.83)*	(20.777)*	(1.277)
Country FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
R-sq	-	-	-	0.159
Number of firms	2,422	2,422	2,422	2,422
Number of regions	152	152	152	152

Table 7
Cross-section of Abnormal Stock Returns
Subsamples by CEO age

This table reports the coefficients from the following regression:

$$R_{r,f} = \alpha + \beta \mathrm{Log}\left(\frac{1+\widehat{\mathrm{Cases}}}{\mathrm{Population}_{r,f}}\right) + \gamma_1 \mathrm{Log}(\mathrm{GRP}_r) + \gamma_2 \mathrm{Log}(\mathrm{Size}_f) + \gamma_3 \frac{\mathrm{Debt}}{\mathrm{Assets}_f} + \gamma_4 \mathrm{TobinQ}_f + \gamma_5 \frac{\mathrm{Cash}}{\mathrm{Assets}_f} + \mathrm{FE}_c + \mathrm{FE}_i + \epsilon_{r,f}$$

$R_{r,f}$ is the daily abnormal (excess) return in decimals on stock from firm *f* headquartered in region *r* accumulated over March and April 2020. $\mathrm{Log}\left(\frac{1+\widehat{\mathrm{Cases}}}{\mathrm{Population}_{r,f}}\right)$ is the natural logarithm of 1 plus the accumulated number of COVID-19 cases per million in region *r* from March 1 through 30, 2020 instrumented in Table B.6 by Log(*Population*), Log(*Density*), and, alternatively, *I_Games*, Log(1+*Attendance*), and Log(1+*Capacity*) in specifications (1), (2), and (3), respectively. <60 (alternatively, >=60) includes only firms whose CEO is less than (alternatively, equal or above) 60 years old. FE_c and FE_i stand for country and industry fixed effects, respectively. The rest of variables are defined in Appendix A. Specification (4) uses $\mathrm{Log}\left(\frac{1+\mathrm{Cases}}{\mathrm{Population}_{r,f}}\right)$ without instrumenting in a standard OLS regression. Standard errors are clustered at the region level. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

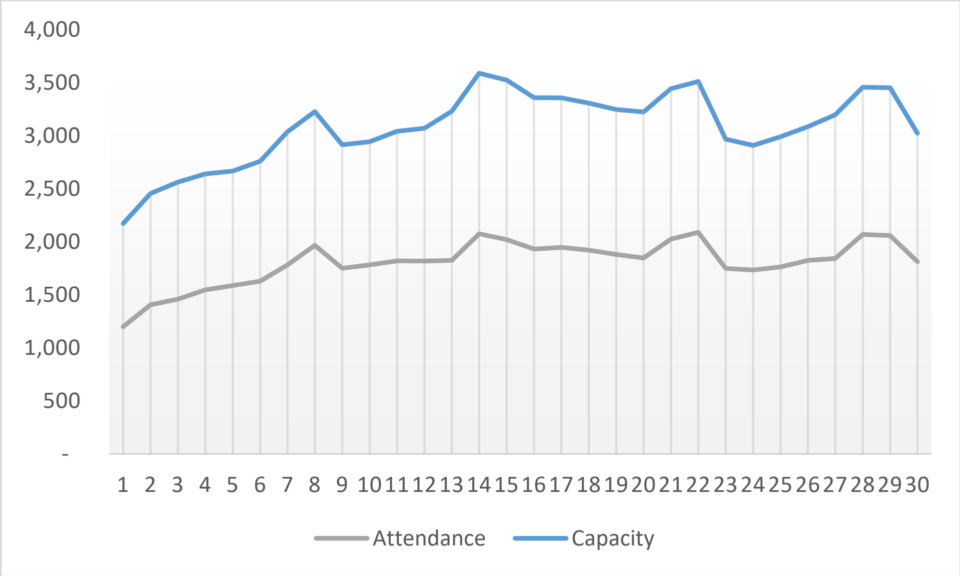
	Soccer Instrument							
	I_Games		Log (1+*Attendance*)		Log (1+*Capacity*)		OLS	
	<60	>=60	<60	>=60	<60	>=60	<60	>=60
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log((1+*Cases*)/*Population*)	0.026	-0.123	0.011	-0.124	0.024	-0.122	-0.013	-0.041
	(0.0469)	(0.0396)***	(0.0455)	(0.0429)***	(0.0466)	(0.0403)***	(0.023)	(0.0164)**
Log(*GRP*)	-0.074	0.164	-0.054	0.164	-0.072	0.162	-0.020	0.061
	(0.0792)	(0.059)***	(0.0762)	(0.0633)***	(0.0786)	(0.06)***	(0.0459)	(0.0368)*
Log(*Size*)	-0.004	-0.007	-0.004	-0.007	-0.004	-0.007	-0.004	-0.008
	(0.0039)	(0.0033)**	(0.0038)	(0.0033)**	(0.0039)	(0.0033)**	(0.0039)	(0.0034)**
Debt/Assets	-0.069	-0.103	-0.067	-0.103	-0.069	-0.103	-0.065	-0.103
	(0.0492)	(0.0458)**	(0.0492)	(0.0458)**	(0.0492)	(0.0458)**	(0.0498)	(0.0476)**
TobinQ	0.010	0.015	0.010	0.015	0.010	0.015	0.010	0.016
	(0.0046)**	(0.0066)**	(0.0046)**	(0.0066)**	(0.0046)**	(0.0066)**	(0.0048)**	(0.0069)**

Cash/Assets	0.255	-0.009	0.255	-0.009	0.255	-0.009	0.254	-0.017
	(0.0863)***	(0.0636)	(0.0865)***	(0.0635)	(0.0864)***	(0.0635)	(0.0899)***	(0.0656)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
R-sq	-	-	-	-	-	-	0.176	0.189
Number of firms	1,338	1,084	1,338	1,084	1,338	1,084	1,338	1,084
Number of regions	130	132	130	132	130	132	130	132

Figure 1
Instrument variables estimated with lags from 1 through 30 days

For every region in our sample and for every day from day 1 through 15 of March 2020, we estimate *# Games*, *Attendance*, and venue *Capacity x* days earlier, where *x* takes the value of 1 through 30. Panel A (B) presents the average *Attendance* and *Capacity* (*# Games*) over the 2,162 observations for every lag from 1 through 30 days. Variables are defined in Table 1.

Panel A
Average Attendance and Capacity



Panel B
Average # Games

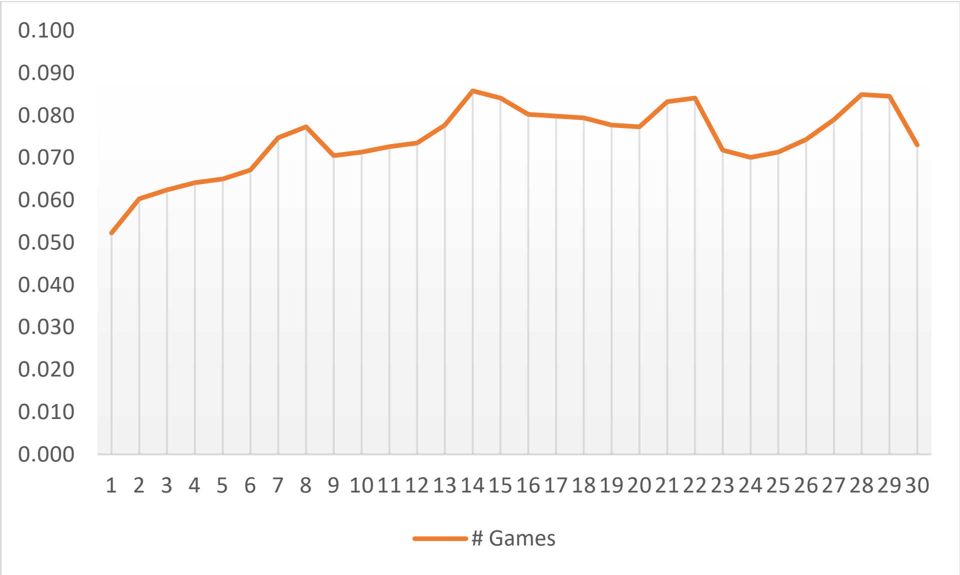


Figure 2

Total number of soccer games per day in our sample

The figure represents the total numbe of games each day from january 14 through March 14 across all regions in our sample. In the horizontal axis, we include all Satudays.

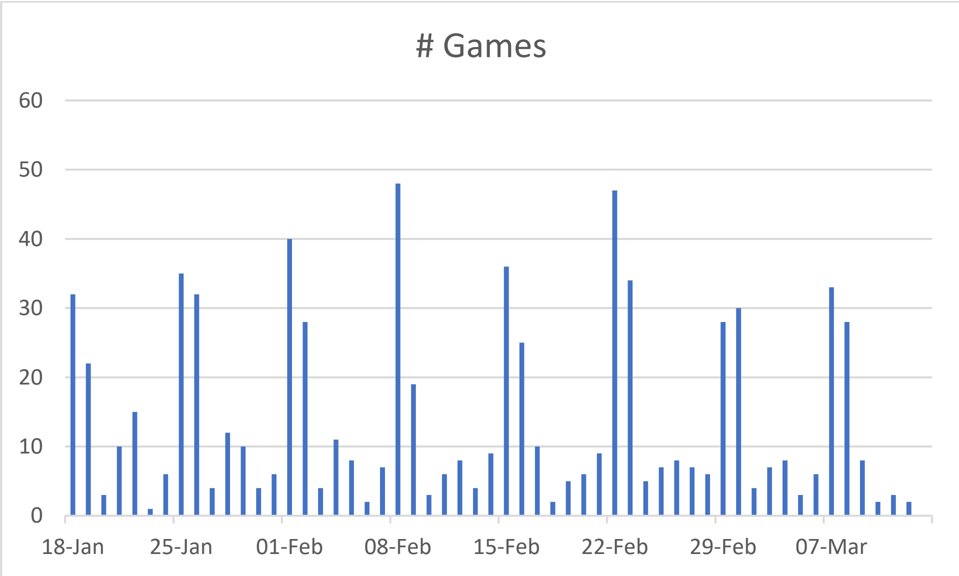


Figure 3
COVID-19 Fatality Rates By Age

The figure shows Case Fatality Rates (CSF) of COVID-19 in four countires where data is available. CSF per age group is defined as the total number of confirmed deaths due to COVID-19 divided by the number of confirmed cases. The graph is retrieved from https://ourworldindata.org/mortality-risk-covid#case-fatality-rate-of-covid-19-by-age. Data is collected by Our World in Data by Oxford Martin School at the University of Oxford. The figures come from the Chinese Center for Disease Control and Prevention (CDC) as of 17th February; Spanish Ministry of Health as of 24th March; Korea Centers for Disease Control and Prevention (KCDC) as of 24th March; and the Italian National Institute of Health, as presented in Onder et al. (2020).

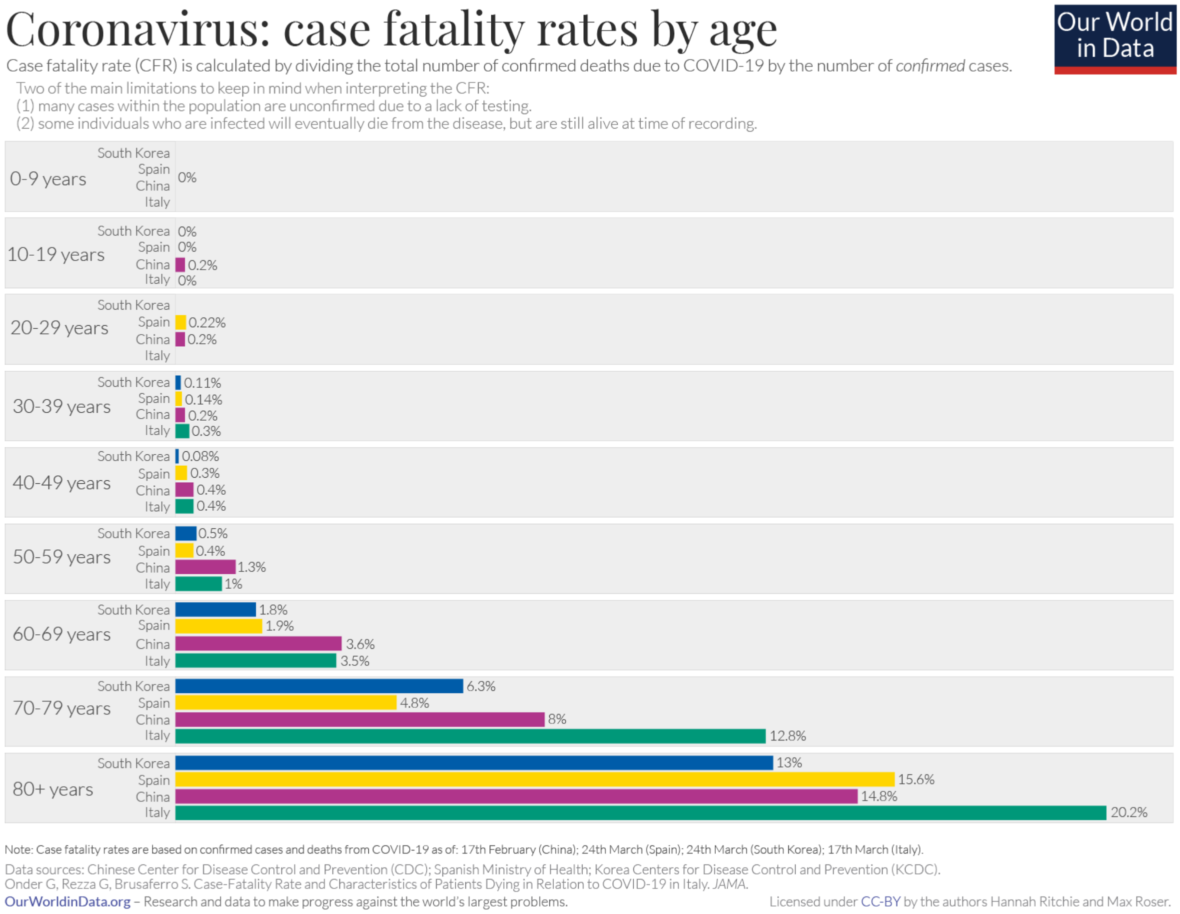
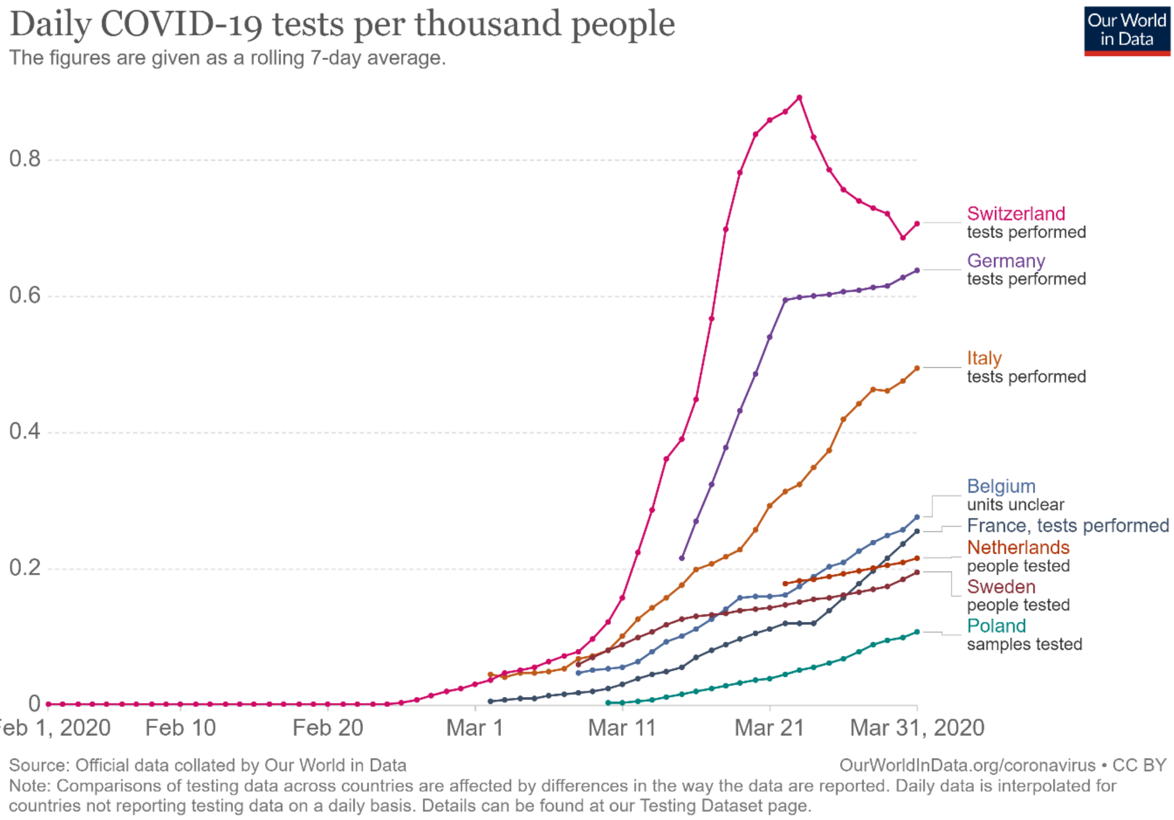


Figure 4
Daily COVID-19 test per thousand people

The figure shows the number of daily test of COVID-19 per thousand people from February 1 through March 31, 2020, for the countries in our sample for which there is data available. The graph is retrieved from https://ourworldindata.org/coronavirus-testing. Data is collected by Our World in Data by Oxford Martin School at the University of Oxford. Data description and sources per coutry can be found at https://ourworldindata.org/coronavirus-testing#source-information-country-by-country



Appendix B

Table B.1

Statistics per Region and Day

Each day in one observation. Every day from March 1 through March 14, 2020, *Cases* is the accumulated number of diagnosed cases of COVID-19 in the region until that day. *# Games, Attendance,* and *Capacity* are the accumulated number of soccer matches played in the region, their attendance, and the venue capacity, respectively, over the previous 6 weeks. *Population* is thousands of inhabitant per region; *Density* is number of inhabitants per square-Km, both as of 2018. The table reports the average value of each variable and region from March 1 through 14. Appendix A describes all variables and their source.

Country Region	Cases	# Games	Attendance	Capacity	Population	Density	# Obs.
Belgium Brussels	70	-	-	-	1,199	7,381	14
Belgium Flanders	322	9.21	140,116	276,198	6,553	481	14
Belgium Wallonia	165	9.79	78,607	293,571	3,624	214	14
France Auvergne-Rhône-Alpes	171	12.29	362,220	665,764	7,917	113	14
France Bourgogne-Franche-Comté	117	-	-	-	2,818	59	14
France Brittany	66	3.36	93,004	99,969	3,307	121	14
France Centre-Val de Loire	16	-	-	-	2,578	66	14
France Corsica	31	-	-	-	330	38	14
France Grand Est	346	6.50	132,825	180,914	5,555	97	14
France Hauts-de-France	187	7.86	251,519	348,176	6,007	189	14
France Normandy	33	4.14	35,226	104,321	3,336	111	14
France Nouvelle-Aquitaine	41	2.93	64,568	123,337	5,936	70	14
France Occitanie	62	3.00	42,800	99,450	5,808	80	14
France Pays de la Loire	25	6.43	107,287	204,370	3,738	116	14
France Provence-Alpes-Côte d'Azur	78	8.64	274,276	431,566	5,022	160	14
France Île-de-France	293	4.21	190,014	201,987	12,117	1,009	14
Germany Badendeath Württemberg	208	12.14	319,334	443,882	10,880	304	14
Germany Bavaria	228	9.50	442,626	515,194	12,844	182	14
Germany Berlin	57	3.43	154,714	255,939	3,520	3,946	14
Germany Brandenburg	13	-	-	-	2,485	84	14
Germany Bremen	13	3.57	148,673	150,357	671	1,598	14
Germany Hamburg	35	6.29	247,474	277,885	1,787	2,367	14
Germany Hesse	47	5.36	252,136	275,893	6,176	292	14
Germany Lower Saxony	60	7.00	177,349	264,286	7,927	167	14
Germany Mecklenburgdeath Vorpommern	12	2.79	34,076	80,786	1,612	69	14
Germany North Rhinedeath Westphalia	448	36.29	1,307,019	1,701,549	17,865	524	14
Germany Rhinelanddeath Palatinate	28	7.57	173,961	322,803	4,053	204	14
Germany Saarland	9	-	-	-	996	388	14
Germany Saxony	21	6.43	221,229	239,863	4,085	221	14
Germany Saxonydeath Anhalt	10	3.50	58,349	95,375	2,245	110	14
Germany Schleswigdeath Holstein	16	-	-	-	2,859	181	14
Germany Thuringia	8	-	-	-	2,171	134	14
Italy Abruzzo	33	-	-	-	1,312	121	14

Italy Aosta Valley	13	-	-	-	126	39	14
Italy Apulia	50	10.86	117,088	411,101	4,029	206	14
Italy Basilicata	4	-	-	-	563	56	14
Italy Bolzano	39	-	-	-	521	79	14
Italy Calabria	14	3.79	43,359	104,270	1,947	128	14
Italy Campania	102	14.64	162,686	618,583	5,802	424	14
Italy Emilia-Romagna	1,204	10.07	92,181	320,486	4,459	199	14
Italy Friuli-Venezia Giulia	90	8.14	57,341	204,646	1,215	153	14
Italy Lazio	109	13.79	313,579	973,740	5,879	341	14
Italy Liguria	129	10.36	98,136	379,061	1,551	286	14
Italy Lombardy	4,773	20.79	512,609	1,195,928	10,061	422	14
Italy Marche	313	-	-	-	1,525	162	14
Italy Molise	11	-	-	-	306	69	14
Italy Piedemont	332	11.00	124,778	415,073	4,356	172	14
Italy Sardinia	17	-	-	-	1,640	68	14
Italy Sicily	55	11.29	76,326	357,356	5,000	194	14
Italy Trentino-South Tyrol	50	-	-	-	1,072	79	14
Italy Tuscany	197	6.86	91,255	324,343	3,730	162	14
Italy Umbria	32	-	-	-	882	104	14
Italy Veneto	775	4.93	46,283	192,436	4,906	267	14
Netherlands Drenthe	7	-	-	-	493	188	14
Netherlands Flevoland	3	-	-	-	422	299	14
Netherlands Friesland	2	7.14	74,363	186,429	650	196	14
Netherlands Gelderland	24	4.07	62,696	101,786	2,084	420	14
Netherlands Groningen	1	-	-	-	586	252	14
Netherlands Limburg	26	-	-	-	1,118	521	14
Netherlands North Brabant	129	2.50	86,400	87,500	2,563	523	14
Netherlands North Holland	26	4.29	225,453	235,671	2,878	1,082	14
Netherlands Overijssel	7	6.00	80,600	181,230	1,162	350	14
Netherlands South Holland	36	3.07	143,993	157,187	3,706	1,317	14
Netherlands Utrecht	42	-	-	-	1,354	981	14
Netherlands Zeeland	3	-	-	-	384	216	14
Poland Greater Poland	2	3.00	31,614	137,490	3,398	114	11
Poland Holy Cross	0	-	-	-	1,273	109	11
Poland Kuyavia-Pomerania	-	-	-	-	2,068	115	11
Poland Lesser Poland	1	3.55	58,265	118,773	3,287	217	11
Poland Lower Silesia	4	2.91	23,987	124,425	2,887	145	11
Poland Lublin	3	-	-	-	2,162	86	11
Poland Lubusz	1	-	-	-	1,009	72	11
Poland Masovia	4	3.55	82,805	110,274	5,204	146	11
Poland Opole	1	-	-	-	1,033	110	11
Poland Podlaskie	-	-	-	-	1,191	59	11
Poland Pomerania	0	1.91	19,007	80,151	2,220	121	11
Poland Silesia	5	-	-	-	4,646	377	11
Poland Subcarpathian	2	-	-	-	2,099	118	11

Poland Warmia–Masuria	2	-	-	-	1,427	59	11
Poland West Pomerania	2	-	-	-	1,693	74	11
Poland Łódź	2	-	-	-	2,549	140	11
Spain Andalucia	99	10.14	339,071	453,185	8,450	96	14
Spain Aragon	38	3.50	90,463	117,628	1,349	28	14
Spain Asturias	31	5.93	104,055	179,357	1,077	102	14
Spain Canarias	34	2.50	30,219	81,000	2,118	284	14
Spain Cantabria	17	-	-	-	594	112	14
Spain Castilla y Leon	55	3.00	61,847	83,538	2,546	27	14
Spain Castilla-La Mancha	87	-	-	-	2,122	27	14
Spain Cataluña	166	7.86	373,219	576,342	7,571	236	14
Spain Ceuta	0	-	-	-	84	4,422	14
Spain Extremadura	20	-	-	-	1,108	27	14
Spain Galicia	36	5.57	126,220	185,571	2,781	94	14
Spain Islas Baleares	14	-	-	-	1,119	224	14
Spain La Rioja	113	-	-	-	324	64	14
Spain Madrid	916	9.00	588,469	676,052	6,499	809	14
Spain Melilla	1	-	-	-	81	6,216	14
Spain Murcia	15	3.00	-	93,537	1,474	130	14
Spain Navarra	44	-	-	-	645	62	14
Spain Pais Vasco	193	10.64	400,259	447,445	2,193	303	14
Spain Valencia	73	11.71	227,139	448,804	5,129	221	14
Sweden Blekinge	3	-	-	-	160	54	14
Sweden Dalarna	1	-	-	-	287	10	14
Sweden Gotland	1	-	-	-	59	19	14
Sweden Gävleborg	2	-	-	-	287	16	14
Sweden Halland	10	-	-	-	329	60	14
Sweden Jämtland	3	-	-	-	130	3	14
Sweden Jönköping	12	-	-	-	361	34	14
Sweden Kalmar	2	-	-	-	245	22	14
Sweden Kronoberg	3	-	-	-	200	24	14
Sweden Norrbotten	2	-	-	-	250	3	14
Sweden Skåne	54	-	-	-	1,362	123	14
Sweden Stockholm	156	4.29	37,971	175,786	2,344	360	14
Sweden Södermanland	4	-	-	-	295	48	14
Sweden Uppsala	12	-	-	-	376	46	14
Sweden Värmland	13	-	-	-	281	16	14
Sweden Västerbotten	3	-	-	-	270	5	14
Sweden Västernorrland	3	-	-	-	245	11	14
Sweden Västmanland	1	-	-	-	274	53	14
Sweden Västra Götaland	56	-	-	-	1,710	71	14
Sweden Örebro	3	-	-	-	302	35	14
Sweden Östergötland	2	-	-	-	462	44	14
Switzerland Aargau	18	-	-	-	678	388	9
Switzerland Appenzell Ausserrhoden	2	-	-	-	55	220	9

Switzerland Appenzell Innerrhoden	0	-	-	-	16	87	9
Switzerland Basel-Landschaft	25	-	-	-	290	502	9
Switzerland Basel-Stadt	55	6.00	75,895	227,964	200	5,072	9
Switzerland Bern	42	1.33	34,498	42,385	1,035	158	9
Switzerland Fribourg	17	-	-	-	319	141	9
Switzerland Geneva	92	5.00	11,914	150,420	499	1,442	9
Switzerland Glarus	1	-	-	-	40	51	9
Switzerland Graubünden; Grisons	24	-	-	-	198	26	9
Switzerland Jura	5	-	-	-	73	82	9
Switzerland Luzern	8	-	-	-	410	233	9
Switzerland Neuchâtel	24	-	-	-	177	206	9
Switzerland Nidwalden	2	-	-	-	43	138	9
Switzerland Obwalden	2	-	-	-	38	66	9
Switzerland Schaffhausen	0	-	-	-	82	246	9
Switzerland Schwyz	8	-	-	-	159	143	9
Switzerland Solothurn	4	-	-	-	273	308	9
Switzerland St. Gallen	9	-	-	-	508	222	9
Switzerland Thurgau	3	-	-	-	276	229	9
Switzerland Ticino	120	-	-	-	353	110	9
Switzerland Uri	0	-	-	-	36	33	9
Switzerland Valais	17	-	-	-	344	53	9
Switzerland Vaud	109	-	-	-	799	188	9
Switzerland Zug	7	-	-	-	127	416	9
Switzerland Zürich	67	5.11	25,964	133,420	1,521	701	9
UK Bedfordshire	3	-	-	-	669	542	6
UK Berkshire	12	-	-	-	911	722	6
UK Bristol	3	-	-	-	463	4,224	6
UK Buckinghamshire	7	3.33	28,249	101,667	809	432	6
UK Cambridgeshire	2	-	-	-	853	252	6
UK Cheshire	2	-	-	-	1,059	452	6
UK Cornwall	5	-	-	-	568	160	6
UK Cumbria	7	-	-	-	499	74	6
UK Derbyshire	6	5.83	150,093	195,983	1,053	401	6
UK Devon	21	-	-	-	1,194	178	6
UK Dorset	3	-	-	-	772	274	6
UK Durham	3	-	-	-	867	324	6
UK East Riding of Yorkshire	2	4.33	49,732	110,067	600	242	6
UK East Sussex	9	5.00	63,266	153,750	845	472	6
UK Essex	8	-	-	-	1,833	499	6
UK Gloucestershire	5	-	-	-	916	291	6
UK Greater London	145	31.50	1,211,548	1,447,249	8,899	5,671	6
UK Greater Manchester	27	13.17	415,219	563,642	2,813	2,204	6
UK Hampshire	18	3.00	87,876	97,515	1,844	489	6
UK Herefordshire	1	-	-	-	192	88	6
UK Hertfordshire	18	-	-	-	1,184	721	6

UK Isle of Wight	1	-	-	-	142	372	6
UK Kent	10	-	-	-	1,846	494	6
UK Lancashire	6	4.33	54,252	135,924	1,498	487	6
UK Leicestershire	4	3.83	118,206	123,863	1,053	489	6
UK Lincolnshire	2	-	-	-	1,088	156	6
UK Merseyside	10	6.50	318,321	322,475	1,423	2,200	6
UK Norfolk	-	2.00	54,120	54,488	904	168	6
UK North Yorkshire	5	4.00	83,202	139,952	1,159	134	6
UK Northamptonshire	6	-	-	-	748	316	6
UK Northumberland	-	-	-	-	320	64	6
UK Nottinghamshire	9	4.00	113,541	122,412	1,154	535	6
UK Oxfordshire	14	-	-	-	688	264	6
UK Rutland	-	-	-	-	40	104	6
UK Shropshire	2	-	-	-	498	143	6
UK Somerset	2	-	-	-	965	232	6
UK South Yorkshire	7	8.00	206,392	297,166	1,403	904	6
UK Staffordshire	4	4.00	92,488	120,356	1,131	417	6
UK Suffolk	1	5.00	95,139	151,555	759	200	6
UK Surrey	11	-	-	-	1,190	716	6
UK Tyne and Wear	8	7.00	254,218	348,211	1,136	2,105	6
UK Warwickshire	4	-	-	-	571	289	6
UK West Midlands	12	19.33	425,726	592,587	2,916	3,235	6
UK West Sussex	4	-	-	-	859	431	6
UK West Yorkshire	11	7.67	203,289	254,780	2,320	1,143	6
UK Wiltshire	6	-	-	-	720	207	6

Table B.2

Statistics per Region and Firm

Each firm in one observation. *Cases* is the accumulated number of diagnosed cases of COVID-19 in the region where the firm is located until March 31. *# Games*, *Attendance*, and *Capacity* are the accumulated number of soccer matches played in the region where the firm is located, their attendance, and the venue capacity, respectively, from March 1 through 30 . *Size* is the firm revenue in 2019 in USD million. *Population* is thousands of inhabitant per region; *Density* is number of inhabitants per square-Km, both as of 2018. The table reports the average value of each variable across firms in the region. Appendix A describes all variables and their source.

Country Region	Cases	# Games	Attendance	Capacity	Population	Density	Size	# Obs.
	(1)	(4)	(5)	(6)	(2)	(3)	(7)	(8)
Belgium Brussels	1,872	-	-	-	1,199	7,381	3,504	37
Belgium Flanders	9,710	3	34,179	89,925	6,553	481	1,792	50
Belgium Wallonia	5,146	2	26,007	60,000	3,624	214	118	17
France Auvergne-Rhône-Alpes	4,374	4	165,801	202,372	7,917	113	1,828	61
France Bourgogne-Franche-Comté	2,202	-	-	-	2,818	59	261	6

France Brittany	673	1	24,818	29,778	3,307	121	182	11
France Centre-Val de Loire	789	-	-	-	2,578	66	377	3
France Grand Est	7,983	1	14,797	26,661	5,555	97	227	16
France Hauts-de-France	2,626	2	40,164	88,409	6,007	189	669	9
France Normandy	902	1	5,948	25,181	3,336	111	504	3
France Nouvelle-Aquitaine	1,281	1	15,799	42,115	5,936	70	759	14
France Occitanie	1,630	1	13,301	33,150	5,808	80	196	20
France Pays de la Loire	884	1	20,704	37,473	3,738	116	752	9
France Provence-Alpes-Côte d'Azur	2,492	2	70,749	103,178	5,022	160	323	23
France Île-de-France	14,269	2	47,542	95,858	12,117	1,009	7,455	307
Germany Badendeath Württemberg	12,334	3	107,605	116,320	10,880	304	5,574	59
Germany Bavaria	14,810	3	131,048	155,660	12,844	182	6,031	116
Germany Berlin	2,575	1	58,028	74,649	3,520	3,946	617	40
Germany Brandenburg	798	-	-	-	2,485	84	99	4
Germany Bremen	294	-	-	-	671	1,598	831	5
Germany Hamburg	2,191	2	70,863	86,546	1,787	2,367	1,744	30
Germany Hesse	3,283	2	51,500	103,000	6,176	292	2,920	60
Germany Lower Saxony	4,063	3	52,395	109,000	7,927	167	21,143	21
Germany Mecklenburgdeath Vorpommern	366	1	12,297	29,000	1,612	69	173	1
Germany North Rhinedeath Westphalia	13,225	13	405,198	592,700	17,865	524	7,974	88
Germany Rhinelanddeath Palatinate	2,726	3	61,341	117,780	4,053	204	6,393	13
Germany Saarland	782	-	-	-	996	388	508	2
Germany Saxony	1,882	3	114,385	117,182	4,085	221	231	4
Germany Saxonydeath Anhalt	680	1	17,095	27,250	2,245	110	55	3
Germany Schleswigdeath Holstein	1,120	-	-	-	2,859	181	782	10
Germany Thuringia	784	-	-	-	2,171	134	358	8
Italy Campania	2,092	3	30,424	129,086	5,802	424	275	4
Italy Emilia-Romagna	14,074	2	-	55,812	4,459	199	1,996	34
Italy Friuli-Venezia Giulia	1,593	3	2,345	75,396	1,215	153	22,676	5
Italy Lazio	3,095	2	45,000	141,268	5,879	341	9,391	28
Italy Liguria	3,416	2	-	73,198	1,551	286	774	3
Italy Lombardia	43,208	4	24,000	159,197	10,061	422	1,481	108
Italy Marche	3,825	-	-	-	1,525	162	788	3
Italy Piedemont	9,301	2	-	83,014	4,356	172	2,229	16

Italy Sardinia	722	-	-	-	1,640	68	212	3
Italy Tuscany	4,608	1	-	47,300	3,730	162	1,198	7
Italy Umbria	1,078	-	-	-	882	104	265	3
Italy Veneto	9,155	2	6,511	78,090	4,906	267	1,609	15
Netherlands Flevoland	166	-	-	-	422	299	801	2
Netherlands Friesland	130	2	25,950	52,200	650	196	1,247	1
Netherlands Gelderland	1,475	1	14,210	25,000	2,084	420	874	4
Netherlands Limburg	1,426	-	-	-	1,118	521	5,241	2
Netherlands North Brabant	3,412	1	35,000	35,000	2,563	523	4,163	12
Netherlands North Holland	1,845	1	52,707	54,990	2,878	1,082	10,637	40
Netherlands Overijssel	698	2	27,000	60,410	1,162	350	843	2
Netherlands South Holland	1,949	2	95,000	102,354	3,706	1,317	25,048	20
Netherlands Utrecht	1,046	-	-	-	1,354	981	5,373	7
Poland Greater Poland	149	1	8,634	45,830	3,398	114	244	43
Poland Holy Cross	49	-	-	-	1,273	109	84	8
Poland Kuyavia-Pomerania	76	-	-	-	2,068	115	245	15
Poland Lesser Poland	192	2	35,174	67,000	3,287	217	158	48
Poland Lower Silesia	274	1	6,149	42,771	2,887	145	148	56
Poland Lublin	132	-	-	-	2,162	86	696	11
Poland Lubusz	42	-	-	-	1,009	72	66	6
Poland Masovia	544	2	48,076	62,206	5,204	146	457	220
Poland Opole	70	-	-	-	1,033	110	999	8
Poland Podlaskie	36	-	-	-	1,191	59	140	4
Poland Pomerania	54	1	13,055	41,984	2,220	121	495	29
Poland Silesia	264	-	-	-	4,646	377	210	61
Poland Subcarpathian	95	-	-	-	2,099	118	534	7
Poland Warmia–Masuria	58	-	-	-	1,427	59	9	4
Poland West Pomerania	68	-	-	-	1,693	74	180	4
Poland Łódź	208	-	-	-	2,549	140	72	15
Spain Andalucía	6,392	3	105,167	136,265	8,450	96	712	5
Spain Asturias	1,322	2	34,591	60,500	1,077	102	301	2
Spain Castilla y León	6,847	1	21,632	27,846	2,546	27	106	2
Spain Castilla-La Mancha	7,047	-	-	-	2,122	27	11	1
Spain Cataluña	19,991	2	107,395	139,287	7,571	236	1,762	22

Spain Galicia	4,432	1	25,965	34,600	2,781	94	6,592	5
Spain Islas Baleares	1,131	-	-	-	1,119	224	2,009	1
Spain La Rioja	1,960	-	-	-	324	64	21	2
Spain Madrid	29,840	2	138,779	148,986	6,499	809	5,871	72
Spain Murcia	1,041	1	-	31,179	1,474	130	163	1
Spain Navarra	2,497	-	-	-	645	62	410	3
Spain País Vasco	6,838	1	36,350	53,289	2,193	303	6,877	17
Spain Valencia	5,922	4	63,826	146,955	5,129	221	4,731	4
Sweden Blekinge	22	-	-	-	160	54	46	2
Sweden Dalarna	123	-	-	-	287	10	1,891	6
Sweden Gävleborg	100	-	-	-	287	16	867	2
Sweden Halland	101	-	-	-	329	60	560	4
Sweden Jämtland	82	-	-	-	130	3	778	2
Sweden Jönköping	142	-	-	-	361	34	2,165	9
Sweden Kalmar	36	-	-	-	245	22	1,186	3
Sweden Kronoberg	39	-	-	-	200	24	3,973	5
Sweden Norrbotten	59	-	-	-	250	3	7	1
Sweden Skåne	290	-	-	-	1,362	123	2,362	88
Sweden Stockholm	2,122	3	26,451	124,000	2,344	360	7,561	275
Sweden Södermanland	281	-	-	-	295	48	130	2
Sweden Uppsala	198	-	-	-	376	46	2,076	26
Sweden Värmland	51	-	-	-	281	16	1,637	3
Sweden Västerbotten	63	-	-	-	270	5	564	3
Sweden Västernorrland	55	-	-	-	245	11	4,976	3
Sweden Västmanland	83	-	-	-	274	53	2,115	5
Sweden Västra Götaland	426	-	-	-	1,710	71	7,215	67
Sweden Örebro	118	-	-	-	302	35	222	4
Sweden Östergötland	429	-	-	-	462	44	442	8
Switzerland Aargau	364	-	-	-	678	388	583	5
Switzerland Appenzell Ausserrhoden	44	-	-	-	55	220	858	1
Switzerland Basel-Landschaft	502	-	-	-	290	502	902	9
Switzerland Basel-Stadt	573	-	-	-	200	5,072	11,308	13
Switzerland Bern	767	-	-	-	1,035	158	2,450	12
Switzerland Fribourg	333	-	-	-	319	141	289	5

Switzerland Geneva	2,779	-	-	-	499	1,442	3,221	14
Switzerland Glarus	192	-	-	-	40	51	103	1
Switzerland Graubünden; Grisons	374	-	-	-	198	26	1,353	2
Switzerland Jura	119	-	-	-	73	82	56	1
Switzerland Luzern	267	-	-	-	410	233	1,436	10
Switzerland Neuchâtel	290	-	-	-	177	206	262	1
Switzerland Nidwalden	60	-	-	-	43	138	9,746	2
Switzerland Obwalden	33	-	-	-	38	66	78	1
Switzerland Schaffhausen	35	-	-	-	82	246	1,687	4
Switzerland Schwyz	115	-	-	-	159	143	21,795	1
Switzerland Solothurn	142	-	-	-	273	308	679	3
Switzerland St. Gallen	287	-	-	-	508	222	4,218	11
Switzerland Thurgau	130	-	-	-	276	229	1,321	5
Switzerland Ticino	1,408	-	-	-	353	110	464	2
Switzerland Uri	325	-	-	-	36	33	937	2
Switzerland Valais	921	-	-	-	344	53	226	2
Switzerland Vaud	2,533	-	-	-	799	188	7,061	15
Switzerland Zug	237	-	-	-	127	416	990	22
Switzerland Zürich	2,793	-	-	-	1,521	701	5,760	64
UK Bedfordshire	224	-	-	-	669	542	2,497	6
UK Berkshire	239	-	-	-	911	722	5,706	19
UK Bristol	103	-	-	-	463	4,224	2,604	9
UK Buckinghamshire	253	1	7,880	30,500	809	432	1,079	17
UK Cambridgeshire	165	-	-	-	853	252	1,519	21
UK Cheshire	185	-	-	-	1,059	452	420	17
UK Cumbria	380	-	-	-	499	74	677	2
UK Derbyshire	379	2	57,969	67,194	1,053	401	254	6
UK Devon	207	-	-	-	1,194	178	338	3
UK Dorset	105	-	-	-	772	274	488	2
UK Durham	202	-	-	-	867	324	22	1
UK East Riding of Yorkshire	49	1	16,178	25,400	600	242	1,828	1
UK East Sussex	117	1	30,124	30,750	845	472	348	3
UK Essex	473	-	-	-	1,833	499	302	14
UK Gloucestershire	222	-	-	-	916	291	1,224	6

UK Greater London	7,121	10	461,871	495,752	8,899	5,671	3,445	407
UK Greater Manchester	901	3	95,591	129,496	2,813	2,204	346	14
UK Hampshire	721	1	30,096	32,505	1,844	489	894	13
UK Hertfordshire	396	-	-	-	1,184	721	7,170	15
UK Kent	461	-	-	-	1,846	494	347	10
UK Lancashire	351	1	13,099	31,367	1,498	487	612	4
UK Leicestershire	259	2	59,306	64,624	1,053	489	1,454	10
UK Lincolnshire	142	-	-	-	1,088	156	26	1
UK Merseyside	462	4	147,964	187,290	1,423	2,200	2	1
UK Norfolk	148	-	-	-	904	168	428	4
UK North Yorkshire	241	1	18,884	34,988	1,159	134	1,187	10
UK Northamptonshire	170	-	-	-	748	316	2,480	4
UK Nottinghamshire	318	1	27,307	30,603	1,154	535	2,034	3
UK Oxfordshire	198	-	-	-	688	264	246	23
UK Somerset	135	-	-	-	965	232	177	8
UK South Yorkshire	685	3	77,522	112,326	1,403	904	600	10
UK Staffordshire	318	1	23,126	30,089	1,131	417	180	5
UK Suffolk	116	2	34,503	60,622	759	200	103	2
UK Surrey	387	-	-	-	1,190	716	2,405	24
UK Tyne and Wear	468	2	82,091	101,045	1,136	2,105	1,263	11
UK Warwickshire	161	-	-	-	571	289	350	4
UK West Midlands	1,541	5	107,569	146,251	2,916	3,235	917	21
UK West Sussex	146	-	-	-	859	431	251	11
UK West Yorkshire	430	2	50,733	64,596	2,320	1,143	1,121	26
UK Wiltshire	112	-	-	-	720	207	1,154	11
UK Worcestershire	170	-	-	-	592	340	147	1

Table B.3
Cross-section of Raw Stock Returns

This table reports the coefficients from the following regression:

$$r_{r,f} = \alpha + \beta \text{Log}\left(\frac{1+\widehat{\text{Cases}}}{\text{Population}}_{r,f}\right) + \gamma_1 \text{Log}(\text{GRP}_r) + \gamma_2 \text{Log}(\text{Size}_f) + \gamma_3 \frac{\text{Debt}}{\text{Assets}_f} + \gamma_4 \text{TobinQ}_f + \gamma_5 \frac{\text{Cash}}{\text{Assets}_f} + \text{FE}_c + \text{FE}_i + \epsilon_{r,f}$$

$r_{r,f}$ is the daily raw percent return on stock from firm *f* headquartered in region *r* accumulated over March and April 2020. $\text{Log}\left(\frac{1+\widehat{\text{Cases}}}{\text{Population}}_{r,f}\right)$ is the natural logarithm of 1 plus the accumulated number of COVID-19 cases per million in region *r* from March 1 through 30, 2020 instrumented in Table 4 by Log(*Population*), Log(*Density*), and, alternatively, *I_Games*, Log(1+*Attendance*), and Log(1+*Capacity*) in specifications (1), (2), and (3), respectively. FE_c and FE_i stand for country and industry fixed effects, respectively. The rest of variables are defined in Appendix A. Specification (4) uses $\text{Log}\left(\frac{1+\text{Cases}}{\text{Population}}_{r,f}\right)$ without instrumenting in a standard OLS regression. Standard errors are clustered at the region level. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	Soccer Instrument			
	I_Games	Log (1+*Attendance*)	Log (1+*Capacity*)	OLS
	(1)	(2)	(3)	(4)
Log((1+*Cases*)/*Population*)	-0.047	-0.051	-0.044	-0.018
	(0.0226)**	(0.0233)**	(0.0225)*	(0.0098)*
Log(*GRP*)	0.042	0.047	0.038	0.003
	(0.0336)	(0.0346)	(0.0335)	(0.0211)
Log(*Size*)	-0.012	-0.011	-0.012	-0.012
	(0.0029)***	(0.0029)***	(0.0029)***	(0.003)***
Debt/Assets	-0.092	-0.092	-0.092	-0.092
	(0.0233)***	(0.0233)***	(0.0233)***	(0.0236)***
TobinQ	0.012	0.012	0.012	0.012
	(0.002)***	(0.002)***	(0.002)***	(0.002)***
Cash/Assets	0.056	0.056	0.056	0.057
	(0.0353)	(0.0353)	(0.0353)	(0.0357)
Country FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
R-sq	-	-	-	0.247
Number of firms	3,545	3,545	3,545	3,545
Number of regions	167	167	167	167

Table B.4
First-stage regression of COVID-19 cases per capita and its interaction with the CEO's probability of death against instruments

This table reports the coefficients from the following regression:

$$Z_{r,f} = \theta_0 + \theta_1 Y_r + \theta_2 Log(Population_r) + \theta_3 Log(Density_r) + \theta_4 Log(GRP_r) + \theta_5 Log(Size_f) + \theta_6 \frac{Debt}{Assets_f} + \theta_7 TobinQ_f + \theta_8 \frac{Cash}{Assets_f} + \theta_9 Prob.Death\,(CEO_f) + FE_c + FE_i + \epsilon_{r,f}.$$

$Z_{r,f} = Log\left(\frac{1+Cases}{Population_{r,f}}\right)$ in specifications (1)-(3), and $Z_{r,f} = Log\left(\frac{1+Cases}{Population_{r,f}}\right) \times Prob.Death\,(CEO_f)$ in specifications (4)-(6). $\frac{1+Cases}{Population_{r,f}}$ is the accumulated number of COVID-19 cases per million people in region *r* where firm *f* is located since statistics are available until March 31, 2020. $Prob.Death\,(CEO_{r,f})$ is the probability (percent) of death from COVID-19 of the CEO of company *f* based on the Case Fatality Rates for Spain in March 2020 collected by the Spanish Ministry of Health and reported by *Our World in Data* (see Figure 3). Y_r is, alternatively, I_Games_r, a dummy variable that takes a value of one if there was a soccer match in region *r* where firm *f* is located from March 1 through March 30, zero otherwise; $Log(1 + Attendance_r)$, the natural logarithm of 1 plus the accumulated number of match attendants to those games; $Log(1 + Capacity_r)$, the natural logarithm of 1 plus the accumulated venue capacity where the games were played. FE_c and FE_i stand for country and industry fixed effects, respectively. Appendix A includes the definition and source of each variable. The F-test is a test on the joint-significance of the three instruments. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	Log((1+*Cases*)/*Population*))			Log((1+*Cases*)/*Population*)) × *Prob. Death* (*CEO*)		
	(1)	(2)	(3)	(4)	(5)	(6)
I_Games	0.350			0.002		
	(0.1116)***			(0.0017)		
Log(1+*Attendance*)		0.024			0.000	
		(0.0128)*			(0.0002)	
Log(1+*Capacity*)			0.031			0.000
			(0.0102)***			(0.0002)
Log(*Population*)	0.079	0.087	0.065	0.002	0.002	0.001
	(0.049)	(0.0576)	(0.0536)	(0.001)	(0.0011)*	(0.001)
Log(*Density*)	0.121	0.125	0.119	0.003	0.003	0.003
	(0.0484)**	(0.0498)**	(0.0494)**	(0.0008)***	(0.0008)***	(0.0008)***
Log(*GRP*)	0.783	0.756	0.764	0.011	0.011	0.011
	(0.1683)***	(0.1714)***	(0.1699)***	(0.0029)***	(0.0029)***	(0.0029)***
Log(*Size*)	0.001	0.001	0.002	0.000	0.000	0.000
	(0.0036)	(0.0038)	(0.0036)	(0.0001)	(0.0001)	(0.0001)
Debt/Assets	0.037	0.044	0.038	0.000	0.000	0.000
	(0.0398)	(0.0405)	(0.0396)	(0.0016)	(0.0016)	(0.0016)
TobinQ	0.002	0.002	0.002	0.000	0.000	0.000
	(0.0027)	(0.0027)	(0.0026)	(0.0001)	(0.0001)	(0.0001)
Cash/Assets	-0.053	-0.054	-0.051	0.000	0.000	0.000
	(0.0522)	(0.0531)	(0.052)	(0.0019)	(0.0019)	(0.0019)
Prob. Death (*CEO*)	0.353	0.317	0.341	3.233	3.232	3.233
	(0.455)	(0.4599)	(0.4556)	(0.1454)***	(0.1454)***	(0.1454)***
Country FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
F-test	25.402	19.538	25.527	10.038	8.983	10.067
R-sq	0.827	0.822	0.827	0.933	0.933	0.933
Number of firms	2,422	2,422	2,422	2,422	2,422	2,422
Number of regions	152	152	152	152	152	152

Table B.5
Cross-section of Raw Stock Returns
Including Probability of Death of the CEO

This table reports the coefficients from the following regression:

$$r_{r,f} = \alpha + \beta_1 Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right) + \beta_2 Log\left(\frac{1+\widehat{Cases}}{Population_{r,f}}\right) \times Prob.of\ \widehat{death}\ (CEO_f) + \gamma_1 Log(GRP_r) + \gamma_2 Log(Size_f) + \gamma_3 \frac{Debt}{Assets_f} + \gamma_4 TobinQ_f + \gamma_5 \frac{Cash}{Assets_f} + \gamma_6 Prob.of\ death\ (CEO_f) + FE_c + FE_i + \epsilon_{r,f}$$

$r_{r,f}$ is the daily raw return in decimals on stock from firm *f* headquartered in region *r* accumulated over March and April 2020. $\mathrm{Log}\left(\frac{1+\widehat{\mathrm{Cases}}}{\mathrm{Population}_{r,f}}\right)$ is the natural logarithm of 1 plus the accumulated number of COVID-19 cases per million in region *r* from March 1 through 30, 2020 instrumented in Table B.4 by Log(*Population*), Log(*Density*), and, alternatively, *I_Games*, Log(1+*Attendance*), and Log(1+*Capacity*) in specifications (1)-(3), respectively. Analogously, $\mathrm{Log}\left(\frac{1+\widehat{\mathrm{Cases}}}{\mathrm{Population}_{r,f}}\right) \times Prob.of\ \widehat{death}\ (CEO_f)$ is the instrumented interaction term in specifications (4)-(6) in Table B.4. $Prob.Death\ (CEO_{r,f})$ is the probability (in decimals) of death from COVID-19 of the CEO of company *f* based on the Case Fatality Rates for Spain in March 2020 collected by the Spanish Ministry of Health and reported by *Our World in Data* (see Figure 3). $\mathrm{FE_c}$ and $\mathrm{FE_i}$ stand for country and industry fixed effects, respectively. The rest of variables are defined in Appendix A. Specification (4) uses $\mathrm{Log}\left(\frac{1+\mathrm{Cases}}{\mathrm{Population}_{r,f}}\right)$ and $\mathrm{Log}\left(\frac{1+\mathrm{Cases}}{\mathrm{Population}_{r,f}}\right) \times Prob.of\ death\ (CEO_f)$ without instrumenting in a standard OLS regression. Standard errors are clustered at the region level. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	Soccer Instrument			
	I_Games	Log (1+*Attendance*)	Log (1+*Capacity*)	OLS
	(1)	(2)	(3)	(4)
Log((1+*Cases*)/*Population*)	0.126	0.128	0.138	-0.023
	(0.08)	(0.08)	(0.081)*	(0.012)**
Log((1+*Cases*)/*Population*) ×*Prob. of Death (CEO)*	-12.007	-12.077	-12.709	0.140
	(5.544)**	(5.317)**	(5.639)**	(0.293)
Log(*GRP*)	0.061	0.060	0.060	0.013
	(0.048)	(0.049)	(0.049)	(0.023)
Log(*Size*)	-0.012	-0.012	-0.012	-0.011
	(0.003)***	(0.003)***	(0.003)***	(0.002)***
Debt/Assets	-0.081	-0.081	-0.082	-0.079
	(0.03)***	(0.03)***	(0.031)***	(0.027)***
TobinQ	0.016	0.016	0.016	0.015
	(0.003)***	(0.002)***	(0.003)***	(0.002)***
Cash/Assets	0.081	0.081	0.081	0.072
	(0.052)	(0.052)	(0.053)	(0.05)
Prob. of Death (CEO)	38.797	39.023	41.063	-0.419
	(17.941)**	(17.298)**	(18.217)**	(0.986)
Country FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
R-sq	-	-	-	0.237
Number of firms	2,422	2,422	2,422	2,422
Number of regions	152	152	152	152

Table B.6
Summary Statistics for the Sample of Companies
Subsamples by CEO age

Each observation is a firm. For each firm, we retrieve from Compustat-Capital IQ the following variables: *Size* (proxied by the company's Revenue in USD million), *Debt/Assets*, *Tobin's Q*, and *Cash/Assets* as of FYE 2019. *Abnormal returns* (in decimals) are calculated netting the expected returns predicted by the Fama and French (1992) three-factor model from the actual returns. *Raw returns* (in decimals) are calculated as the log difference of adjusted daily closing stock prices from Compustat. We report the accumulated daily excess (over the one-month T-bill) abnormal return and raw returns over March and April 2020. *Cases* are accumulated in each region through March 30. *Cases/Population* is the number of cases per million inhabitants. *#Games*, *Attendance* and *Capacity* are accumulated in each region from March 1 through 30. I_*Games* is a dummy variable that takes a value of 1 if there was a soccer match in the region where the firm is located from March 1 through 30, zero otherwise. The rest of variables are defined in Table 1. Log (*x*) denotes the natural logarithm of *x*. Appendix A includes the definition and source of each variable. CEO<60 years (alternatively, CEO>=60 years) includes only firms whose CEO is less than (alternatively, equal or above) 60 years old.

	CEO <60 years		CEO >=60 years			
	Mean (1)	St. dev. (2)	Mean (3)	St. dev. (4)	Diff. in means (5)	T-stat diff. in means (6)
Size (USD Million)	5,968	21,233	4,750	16,870	-1,218	-2.35
Log(*Size*)	5.886	2.757	5.858	2.637	-0.027	-0.23
Debt/Assets	0.247	0.200	0.224	0.188	-0.022	-2.47
Tobin's Q	1.925	2.000	1.731	1.776	-0.193	-1.60
Cash/Assets	0.129	0.170	0.120	0.163	-0.009	-0.92
Abnormal return	-0.059	0.310	-0.067	0.287	-0.008	-0.54
Raw return	-0.130	0.255	-0.142	0.230	-0.012	-1.05
Cases	6,724	8,182	7,466	9,212	742	1.22
Cases/Population	1,041	953	1,165	1,164	124	1.59
Log((1+*Cases)/Population*)	-7.193	0.827	-7.121	0.841	0.072	1.31
Age (CEO)	54.6	4.2	65.0	4.5	10.4	33.40
Prob. Death (CEO)	0.008	0.005	0.025	0.019	0.018	25.53
# Games	3.217	3.605	3.416	3.762	0.198	1.08
I_Games	0.748	0.435	0.757	0.429	0.009	0.32
Attendance	113,350	163,397	126,814	171,491	13,464	1.53
Capacity	150,750	176,368	161,578	184,548	10,828	1.21
Log(1+*Attendance*)	8.292	5.097	8.426	5.132	0.135	0.43
Log(1+*Capacity*)	8.878	5.207	9.007	5.165	0.130	0.38
Population, 000	5,892	4,654	5,974	4,540	82	0.28
Density	1,475	2,016	1,678	2,200	203	1.59
GRP	52,420	16,060	51,100	16,110	-1,320	-1.17
Log(*Population*)	15.111	1.146	15.135	1.151	0.023	0.36
Log(*Density*)	6.431	1.322	6.530	1.388	0.099	1.31
Log(*GRP*)	10.817	0.325	10.790	0.329	-0.027	-1.21
# Obs.	1,339		1,085			

Table B.7
First-stage regression of COVID-19 cases against instruments
Subsamples by CEO age

This table reports the coefficients from the following regression:

$$Log\left(\frac{1+Cases}{Population}_{r,f}\right)=\theta_0+\theta_1 Y_r+\theta_2 Log(Population_r)+\theta_3 Log(Density_r)+\theta_4 Log(GRP_r)+\theta_5 Log(Size_f)+\theta_6\frac{Debt}{Assets_f}+\theta_7 TobinQ_f+\theta_8\frac{Cash}{Assets_f}+FE_c+FE_i+\epsilon_{r,f}.$$

$\frac{1+Cases}{Population_{r,f}}$ is the accumulated number of COVID-19 cases per million people in region *r* where firm *f* is located since statistics are available until March 31, 2020. <60 (alternatively, >=60) includes only firms whose CEO is less than (alternatively, equal or above) 60 years old. Y_r is, alternatively, I_Games_r, a dummy variable that takes a value of one if there was a soccer match in region *r* where firm *f* is located from March 1 through March 30, zero otherwise; $Log(1+Attendance_r)$, the natural logarithm of 1 plus the accumulated number of match attendants to those games; $Log(1+Capacity_r)$, the natural logarithm of 1 plus the accumulated venue capacity where the games were played. FE_c and FE_i stand for country and industry fixed effects, respectively. Appendix A includes the definition and source of each variable. The F-test is a test on the joint-significance of the three instruments. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	<60	>=60	<60	>=60	<60	>=60
I_Games	0.343	0.326				
	(0.1217)***	(0.1102)***				
Log(1+*Attendance*)			0.023	0.022		
			(0.0132)*	(0.0132)*		
Log(1+*Capacity*)					0.030	0.028
					(0.0109)***	(0.0104)***
Log(*Population*)	0.078	0.077	0.086	0.088	0.065	0.065
	(0.0479)	(0.0591)	(0.056)	(0.0686)	(0.0523)	(0.0648)
Log(*Density*)	0.128	0.121	0.133	0.123	0.126	0.119
	(0.0523)**	(0.0468)***	(0.0535)**	(0.0484)**	(0.0529)**	(0.048)**
Log(*GRP*)	0.815	0.756	0.801	0.718	0.797	0.735
	(0.1704)***	(0.1782)***	(0.1744)***	(0.1799)***	(0.1706)***	(0.1802)***
Log(*Size*)	0.000	0.001	0.001	0.0002	0.0002	0.001
	(0.0032)	(0.0067)	(0.0033)	(0.0067)	(0.0032)	(0.0067)
Debt/Assets	0.081	-0.019	0.084	-0.007	0.080	-0.014
	(0.0627)	(0.0654)	(0.0638)	(0.0656)	(0.0624)	(0.0654)
TobinQ	-0.0003	0.001	0.001	0.0002	0.0002	0.001
	(0.0032)	(0.0067)	(0.0033)	(0.0067)	(0.0032)	(0.0067)
Cash/Assets	-0.060	-0.018	-0.077	-0.001	-0.059	-0.016
	(0.0667)	(0.0835)	(0.0699)	(0.0841)	(0.0666)	(0.0833)
Country FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
F-test	24.217	23.894	20.076	15.846	24.315	24.175
R-sq	0.847	0.816	0.842	0.812	0.847	0.815
Number of firms	1,338	1,084	1,338	1,084	1,338	1,084
Number of regions	130	132	130	132	130	132

Table B.8
Cross-section of Raw Stock Returns
Subsamples by CEO age

This table reports the coefficients from the following regression:

$$r_{r,f} = \alpha + \beta \text{Log}\left(\frac{\widehat{1+\text{Cases}}}{\text{Population}_{r,f}}\right) + \gamma_1 \text{Log}(\text{GRP}_r) + \gamma_2 \text{Log}(\text{Size}_f) + \gamma_3 \frac{\text{Debt}}{\text{Assets}_f} + \gamma_4 \text{TobinQ}_f + \gamma_5 \frac{\text{Cash}}{\text{Assets}_f} + \text{FE}_c + \text{FE}_i + \epsilon_{r,f}$$

$r_{r,f}$ is the daily raw return in decimals on stock from firm *f* headquartered in region *r* accumulated over March and April 2020. $\text{Log}\left(\frac{\widehat{1+\text{Cases}}}{\text{Population}_{r,f}}\right)$ is the natural logarithm of 1 plus the accumulated number of COVID-19 cases per million in region *r* from March 1 through 30, 2020 instrumented in Table B.6 by Log(*Population*), Log(*Density*), and, alternatively, *I_Games*, Log(1+*Attendance*), and Log(1+*Capacity*) in specifications (1), (2), and (3), respectively. <60 (alternatively, >=60) includes only firms whose CEO is less than (alternatively, equal or above) 60 years old. FE_c and FE_i stand for country and industry fixed effects, respectively. The rest of variables are defined in Appendix A. Specification (4) uses $\text{Log}\left(\frac{1+\text{Cases}}{\text{Population}_{r,f}}\right)$ without instrumenting in a standard OLS regression. Standard errors are clustered at the region level. ***, **, * represent statistical significance at the 1, 5, and 10% level, respectively.

	Soccer Instrument							
	I_Games		Log (1+*Attendance*)		Log (1+*Capacity*)		OLS	
	<60	>=60	<60	>=60	<60	>=60	<60	>=60
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log((1+*Cases*)/*Population*)	-0.018	-0.066	-0.029	-0.064	-0.019	-0.063	-0.021	-0.016
	(0.0352)	(0.0296)**	(0.0342)	(0.0318)**	(0.0351)	(0.0299)**	(0.0171)	(0.0147)
Log(*GRP*)	-0.014	0.092	0.001	0.089	-0.013	0.088	-0.009	0.030
	(0.0586)	(0.0465)**	(0.0571)	(0.0489)*	(0.0586)	(0.0466)*	(0.0356)	(0.0324)
Log(*Size*)	-0.010	-0.012	-0.010	-0.012	-0.010	-0.012	-0.010	-0.012
	(0.0039)***	(0.0038)***	(0.0039)***	(0.0038)***	(0.0039)***	(0.0038)***	(0.004)**	(0.0039)***
Debt/Assets	-0.079	-0.074	-0.078	-0.074	-0.079	-0.074	-0.079	-0.074
	(0.04)**	(0.0292)**	(0.0401)*	(0.0292)**	(0.04)**	(0.0291)**	(0.0408)*	(0.0299)**
TobinQ	0.012	0.017	0.012	0.017	0.012	0.017	0.012	0.018
	(0.0027)***	(0.0045)***	(0.0027)***	(0.0046)***	(0.0027)***	(0.0046)***	(0.0028)***	(0.0047)***

Cash/Assets	0.150	-0.047	0.149	-0.047	0.150	-0.047	0.149	-0.051
	(0.0709)**	(0.055)	(0.0711)**	(0.0548)	(0.071)**	(0.0549)	(0.0735)**	(0.0566)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
R-sq	-	-	-	-	-	-	0.253	0.275
Number of firms	1,338	1,084	1,338	1,084	1,338	1,084	1,338	1,084
Number of regions	130	132	130	132	130	132	130	132