Feverish Stock Price Reactions to COVID-19*

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Forthcoming, Review of Corporate Finance Studies

June 16, 2020

First version: March 6, 2020

Abstract

Market reactions to the 2019 novel coronavirus disease (COVID-19) provide new insights into how real shocks and financial policies drive firm value. Initially, internationally oriented firms, especially those more exposed to trade with China, underperformed. As the virus spread to Europe and the United States, corporate debt and cash holdings emerged as important value drivers, relevant even after the Fed intervened in the bond market. The content and tone of conference calls mirror this development over time. Overall, the results illustrate how anticipated real effects from the health crisis, a rare disaster, were amplified through financial channels. (*JEL* G01, G12, G14, G32, F14)

*We thank Andrew Ellul, Isil Erel, and Uday Rajan (the editors) for excellent comments. Vesa Pursiainen, Andreas Schrimpf, Jesse Wang, Richard J. Zeckhauser, and Alexandre Ziegler and seminar participants at the University of Zürich, the University of St. Gallen, IESEG, and the Corporate Finance Webinar shared insightful comments. Martin Saurer provided excellent research assistance. We acknowledge financial support from the University of Zürich Research Priority Program "Financial Market Regulation." We declare that we have no relevant or material financial interests that relate to the research described in this paper. Send correspondence to Alexander Wagner, alexander.wagner@bf.uzh.ch.

The outbreak of COVID-19 came as a shock to market participants.[1] Of the five risks listed as being most likely to materialize in the World Economic Forum (2020)'s Global Risk Report, published on January 15, 2020, all five concern environmental issues. The topic ''infectious diseases'' was ranked number 10 in terms of impact, but quite unlikely. Only a few weeks later, attention shifted dramatically. On March 11, the World Health Organization characterized COVID-19 as a pandemic.[2]

This paper studies the cross-section of stock price reactions to COVID-19. This analysis serves three purposes. First, COVID-19 provides an unfortunate, but valuable opportunity to gain insights into drivers of firm value using a truly exogenous shock. Studies of the firm value impacts of corporate financial decisions that exploit events, such as the global financial crisis, political events, or regulatory changes, may under- or overestimate these impacts in unknown ways. This is because such events (a) are at least partially endogenous to corporate decisions (e.g., the financial crisis), (b) often have a widely discussed, nontrivial probability of occurring (e.g., political events), and/or (c) are relatively slow to unfold (e.g., regulatory changes). The COVID-19 crisis---a health emergency serving as a natural experiment---provides a cleaner setting for such a study. In this paper, we exploit this setting to quantify the firm-level impact of a disruption in global trade, to identify the benefits of corporate financial strength, and to understand how real shocks can propagate through financial channels.

Second, the events of the first quarter of 2020 offer glimpses of how markets process information as a rare disaster unfolds. The rare disaster literature shows how some puzzles in

[1] ''COVID-19'' refers to what was previously known as the ''coronavirus disease 2019.'' The virus that causes it has been named ''SARS-CoV-2,'' though in line with common usage we sometimes refer simply to ''coronavirus'' in this paper.

[2] A present-day situation overview of the situation, including the numbers of confirmed cases and deaths in all countries, can be found here: `https://ourworldindata.org/coronavirus`.

finance (e.g., excess volatility and high equity premiums) can be rationalized as an attempt by investors to price in the tail risk of future disaster events (e.g., Gabaix, 2012; Gourio, 2012; Wachter, 2013). This literature highlights how the exposure of firms to tail risk events is difficult to assess empirically, because, fortunately, such events rarely materialize. This study of how financial markets react to the actual realization of a pandemic provides insights into which firm characteristics are associated with more or less fragility to tail risk events, and hence can also help to better understand how the possibility of such events differentially affects firm value during ''normal'' times.

Third, stock price reactions offer a preview of the future economic impact of COVID-19. The spread of the disease, its severity and mortality rate, the policy responses, and individual behavior are unknown, complicating attempts to quantify the expected economic impact of the disease. Asset price changes capture current expectations; the researcher does not need to trace all the future changes to cash flows and discount rates separately (Schwert, 1981). It is particularly interesting to study the timing of stock price reactions and analyst inquiries on corporate conference calls in the United States, which initially was not directly affected by COVID-19.

We organize our primary analysis along three periods, which we label *Incubation* (Thursday, January 2 through Friday, January 17), *Outbreak* (Monday, January 20 through Friday, February 21), and *Fever* (Monday, February 24 through Friday, March 20). We describe the timeline of events characterizing each of these periods in Section 1. Corporate managers and analysts clearly started paying attention to (or at least started openly talking about) the coronavirus in the Outbreak period. The first U.S. conference call in which the coronavirus was discussed (the earnings call of United Airlines) occurred on January 22. By the second

week of March, almost all conference calls discussed the topic.

We start by providing evidence of heterogeneous impacts of COVID-19 on stock returns *across* industries. For instance, as an ominous sign that the crisis is potentially wide-reaching, in the Fever period consumer services were the biggest losers, and food and staples retailers were among the strongest winners.

Our main analysis of stock price reactions focuses on differences *within* industries. We study the role of firm's exposure to international trade and of corporate debt and cash holdings. The former is of interest to study the initial real effects of COVID-19 on U.S. firms through the disruption in global trade. The latter is of interest to learn when and to what extent the real shock of COVID-19 was perceived by investors to also bring risks of disruption in access to capital.

First, more export or supply chain exposure to China---as measured by firm disclosures analyzed by Hoberg and Moon (2017, 2019)---resulted in substantially lower returns in the Incubation and Outbreak periods.[3] Investors penalized not only firms trading with China but also those that are internationally oriented more generally. These results identify the disruption of global trade as an early effect of COVID-19 on the real economy.

Importantly, toward the end of February, while the health situation in Europe and the United States began worsening, the situation in China actually started improving. One would expect, therefore, stocks exposed to China to do relatively better in anticipation of the reopening of the Chinese economy. This is indeed what we find.

Second, we study the role of cash and leverage for firm value as the COVID-19 crisis

[3]Firms exporting to China would arguably have been favored with the "Phase 1" agreement regarding trade between the United States and China, which was signed on January 15 and which entered into force on February 14. Thus, they may have suffered more from the COVID-19 outbreak if it had not been for the arguably good news contained in the agreement.

unfolded. It is far from clear what one would expect here. After all, lack of liquidity (low cash) and refinancing risks (high leverage) *per se* are not frictions of importance in well-functioning capital markets. We find, however, that within the same industry and controlling for standard firm characteristics, firms with little cash holdings suffered severely in the Fever period. Firms with high leverage also did poorly. The effects are economically sizeable: a one standard deviation in cash holdings explains approximately one-sixth of the standard deviation of returns in the Fever period, net of the effects of other firm characteristics and market beta, with another one-sixth explained by a one standard deviation in leverage.

Strikingly, the effects of cash and leverage are more important in those industries that suffered stronger stock price declines, that is, those harder hit by the effects of the pandemic. Moreover, leverage is of greater concern to investors in cash-poor firms, and in value firms.

Next, we study when and how managers and analysts discussed COVID-19 during conference calls. COVID-19 was a topic mostly during calls of internationally oriented firms and firms with low cash holdings. Interestingly, in the Outbreak period, calls covering the coronavirus had a more negative linguistic tone (Loughran and McDonald, 2011) for more internationally oriented firms; in the Fever period, calls covering the coronavirus had a more negative tone for highly leveraged firms. These findings confirm that the patterns identified in the cross-section of returns reflect real concerns about the prospects of individual firms.

In sum, the results show that the Incubation and Outbreak periods mostly saw investors price in the effects of the evolving health crisis on international trade. The Fever period brought about a switch in market participants' concerns to broader systemic issues, presumably also in light of preexisting fragilities in the credit markets.[4] Overall, these findings suggest

[4]Concerns about such fragilities have existed for a long time. See, for example, Kaplan (2019).

that investors expected the real (nonfinancial) shock caused by the outbreak of COVID-19 to be amplified by financial channels.

The focus of this paper is on the initial impact of COVID-19. However, ''beyond-study-period'' events suggest that some policy interventions helped in reassuring investors that the further propagation of financial stress would be softened. Specifically, on March 23 the Federal Reserve Board (Fed) announced two new facilities to support credit to large corporations, and on March 27 the CARES Act, a US$2 trillion relief bill, became law. In a 3-day window following the Fed's intervention, investor concerns about corporate debt and liquidity partially reversed. The concerns remained, however, at high levels and show up again in the cross-section of stock returns when extending the evaluation window to 10 days after the Fed's intervention, through April 3, 2020.

This paper contributes, first, by providing novel causal evidence of the importance for firm value of (a) trade and (b) financial policies. As for (a), some existing studies indicate that the stock prices of internationally oriented firms are significantly affected by changes in (expected) trade policies (e.g., Desai and Hines, 2008; Wagner, Zeckhauser, and Ziegler, 2018; Huang et al., 2019).[5] However, a concern with such political or regulatory changes is that they are often partially anticipated.[6] Given its sudden and disruptive nature, the COVID-19 crisis is a particularly strong setting to identify how the dependency of some U.S. firms on international trade, and specifically on relations with China, affects their value.[7]

[5]Desai and Hines (2008) document stock price losses for U.S. exporting firms in 1997, when the European Union (EU) asked the WTO to declare U.S. export subsidies illegal. Wagner, Zeckhauser, and Ziegler (2018) show that after the surprising outcome of the 2016 U.S. Presidential Election, stock prices adjusted to the shift in expectations on trade policy. In particular, more internationally oriented firms were penalized. Huang et al. (2019) show that the U.S.-China trade war in 2018 and 2019 affected the stock prices of firms exposed to U.S.-China trade.

[6]See Langer and Lemoine (2020) for a summary of these concerns and two novel methods for recovering the market's priced-in probability of events.

[7]See Baldwin and Tomiura (2020) for a macroeconomic discussion of China's role as the ''workshop of

As for (b), our paper capitalizes on the exogeneity of the COVID-19 shock to provide novel causal evidence of the role of leverage and cash for firm value during economic recessions. Prior work argues that leverage can significantly affect firms' operating performance during market downturns (e.g., Opler and Titman, 1994).[8] The role of cash as a buffer of liquidity has also received substantial attention (e.g., Almeida, Campello, and Weisbach, 2004; Bates, Kahle, and Stulz, 2009; Faulkender and Wang, 2006; Lins, Servaes, and Tufano, 2010). Some papers study these dimensions in the context of the Great Recession (see, e.g., Duchin, Ozbas, and Sensoy, 2010; Campello et al., 2011, 2012; Giroud and Mueller, 2017; Gilchrist et al., 2017; Joseph et al., 2020).[9] Two challenges need to be borne in mind when interpreting these studies. First, the slowing of investment opportunities and worsening of economic sentiment in anticipation of ''usual'' crises, including the Great Recession, is likely to affect firms' financial policies.[10] Second, while the finding that cash and leverage mattered so much in the Global Financial Crisis is important, it follows naturally from the origin of that crisis in the financial sector, which caused a shock to firms' access to credit.

By contrast, COVID-19 primarily is a shock to the real economy, initially unrelated to the availability of external finance. Our results on the stock price effects of leverage and

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the world.'' More broadly, the results add to the large literature that documents the importance of trade and global value chains in today's economy; see Antràs (2016) and Antràs (2020) for overviews.

[8]More generally, financial leverage is an important channel through which macroeconomic shocks propagate (Bernanke and Gertler, 1989; Kiyotaki and Moore, 1997).

[9]Duchin, Ozbas, and Sensoy (2010) find that during the 2007--2008 financial crisis, corporate investment declined more for firms with a higher dependency on external finance and that firms with high cash holdings performed better at the onset of the crisis. Campello et al. (2011) and Campello et al. (2012) study how cash holdings and credit lines affected real activities during the crisis. Gilchrist et al. (2017) provide evidence that firms with limited internal liquidity and high operating leverage were forced to increase prices in 2008. Giroud and Mueller (2017) document that high-leverage firms experienced larger employment losses during the great recession. Joseph et al. (2020) show that corporate cash holdings before the crisis also increased firms' competitive advantage during the recovery phase.

[10]Researchers are keenly aware of these endogeneity concerns. For instance, Duchin, Ozbas, and Sensoy (2010) measure firms' financial positions as much as 4 years prior to the crisis, whereas Joseph et al. (2020) exploit, among other things, cross-sectoral differences in predicted tightening of financial constraints.

cash indicate that the market anticipated a potential amplification of the real shock through financial channels. The exogenous nature of COVID-19 provides a powerful setting to obtain new insights into the benefits of financial strength during economic downturns.

As a second contribution, the paper provides the first analysis of cross-sectional stock price responses to the emergence of COVID-19, shedding light on how markets react to the realization of a tail risk event. Since the initial version of this paper, several studies have been released that consider other aspects of the financial market responses. Gormsen and Koijen (2020), Landier and Thesmar (2020), and Alfaro et al. (2020) study the interplay of changes in growth expectations and uncertainty in driving stock returns.[11] Fahlenbrach, Rageth, and Stulz (2020), Acharya and Steffen (2020), and Halling, Yu, and Zechner (2020) study the effects of firms' financial policies and financial decisions, adding further insights to those established in this paper.[12] Albuquerque et al. (2020) and Pagano, Wagner, and Zechner (2020) focus on other important dimensions of stock price resilience to the pandemic.[13] Ding et al. (2020), Gerding, Martin, and Nagler (2020), Ru, Yang, and Zou (2020), and Croce,

[11]Gormsen and Koijen (2020) look at the aggregate equity market and exploit the information contained in dividend futures. They conclude that the stock market fell well beyond changes in growth expectations due to changes in discount rates (uncertainty), consistent with the evidence in Shiller (1981) and Campbell and Shiller (1988). Landier and Thesmar (2020) draw similar conclusions from analysts' forecast revisions. Alfaro et al. (2020) show that stock returns respond to daily *unanticipated* changes in COVID-19 cases, implying declining stock market volatility as the trajectory of the pandemic becomes less uncertain. They also show that stock price reactions to COVID-19 forecast job losses at the regional level.

[12]Fahlenbrach, Rageth, and Stulz (2020) confirm our results on cash and debt. They also find that the ex ante *ability* of firms to access financial markets (based on popular measures of financial constraints) does not explain returns, whereas their actual *need* to access them in order not to run out of cash does. In their sample, firms that paid out more through dividends or repurchases before the crisis did not perform worse. Acharya and Steffen (2020) document the drawdowns of credit lines and bond issuance activities during the COVID-19 crisis. Halling, Yu, and Zechner (2020) study bond and equity issuance activities an d the changes in the determinants of corporate bond spreads.

[13]Albuquerque et al. (2020) document that firms with high environmental and social ratings fared better during the market turmoil. Pagano, Wagner, and Zechner (2020) find that firms in industries less affected by social distancing outperformed not only in the COVID-19 outbreak but also in the years before, whereas going forward these firms are expected to yield lower returns.

Farroni, and Wolfskeil (2020) employ international samples.[14]

Finally, a burgeoning literature is addressing the real economic consequences of the pandemic. The books edited by Baldwin and Weder di Mauro (2020a,b) provide an overview of some early contributions.[15] This paper informs this literature by showing how stock prices can serve as an incentivized and continuously updated summary of investors' expectations about the ultimate economic impacts of the virus.

1 Dates of Key Events and Investor Attention

We start by describing the key events and the evolution of investor attention to COVID-19 as the crisis unfolded.[16] We investigate three periods, which we label *Incubation* (Thursday January 2 to Friday, January 17), *Outbreak* (Monday, January 20 to Friday, February 21), and *Fever* (Monday, February 24 through Friday, March 20).

First, on December 31, 2019, cases of pneumonia detected in Wuhan, China, were first reported to the World Health Organization (WHO), and on January 1, 2020, Chinese health authorities closed the Huanan Seafood Wholesale Market after it was discovered that the wild animals sold there may be the source of the virus (World Health Organization, 2020a).[17]

[14]Ding et al. (2020) confirm the role of previously documented firm characteristics and additionally study the role of corporate governance; Gerding, Martin, and Nagler (2020) find stronger stock price reactions in countries with higher debt-to-GDP (gross domestic product) ratios; and Ru, Yang, and Zou (2020) find faster and stronger stock market responses in countries that suffered more from SARS. Croce, Farroni, and Wolfskeil (2020) study how major financial markets process news and tweets about COVID-19.

[15]For instance, Caballero and Simsek (2020) study how asset price spirals and aggregate demand contractions can amplify the COVID-19 supply shock. Lewis, Mertens, and Stock (2020) offer a (almost) real-time index of economic activity in the United States.

[16]For a detailed chronology of COVID-19, see `https://en.wikipedia.org/wiki/Timeline_of_the_2019-20_coronavirus_outbreak`.

[17]The cases originally reported to the WHO occurred between December 12 and December 29, according to Wuhan Municipal Health. In the meantime, it has transpired that the first known patient started experiencing symptoms on December 1 (Huang et al., 2020). He had not been to the Wuhan market.

The first trading day after these events was January 2, 2020. News continued to trickle out after this day. For example, Dr. Li Wenliang, an ophthalmologist at Wuhan Central Hospital warned alumni from his medical school class via WeChat about the emergence of SARS coronavirus, which later turned out to be the novel coronavirus (Green, 2020).[18] Some events occurred outside mainland China. For example, as early as January 6, Hong Kong began screening passengers on trains that had stopped at Wuhan, and the U.S. Centers for Disease Control and Prevention issued an advice to avoid animals, animal markets, and contact with unwell people if traveling to Wuhan.

Second, on January 20, Chinese health authorities confirmed human-to-human transmission of the coronavirus, and the following day the WHO issued the first situation report on the outbreak (China's National Health Commission, 2020; World Health Organization, 2020b). Monday, January 20 was Martin Luther King Jr. Day in the United States. The first trading day in the United States in this phase, therefore, was January 21.

Third, on Sunday February 23, Italy placed almost 50,000 people under strict lockdown (not far from the country's main economic center of Milan) in an attempt to control the outbreak after registering its first deaths from coronavirus on Saturday, February 22 (Italy's Council of Ministers, 2020). The first trading day in this phase, therefore, was February 24. Extraordinary events too numerous to list here followed. The President of the United States announced a travel ban on EU countries on March 11 and declared the COVID-19 outbreak a national emergency on March 13. The second-worst day ever of the Dow Jones Industrial Index happened on March 16; three of the 15 worst days ever occurred between March 9 and

[18]The fact *that* a coronavirus of the present sort might cause an epidemic is not a complete surprise. For example, a study published in March 2019 by researchers at the Wuhan Institute of Technology concluded that ''future SARS- or MERS-like Coronavirus outbreaks will originate from bats, and there is an increased probability that this will occur in China'' (Fan et al., 2019).

16. But also one of the top 10 surges in the market ever took place in this time period. On March 16, the Chicago Board Option Exchange's Volatility Index, known as the VIX, surged past the prior all-time peak (reached in the financial crisis more than a decade ago).[19]

We choose these three periods because they naturally follow from the timeline of events. We end the Fever period on March 20, because on March 23 the Federal Reserve Board announced major interventions in the corporate bond market. These interventions are discussed briefly in Section 4.

It is of course not surprising *that* COVID-19 received the attention of market participants; what is of interest is *when* COVID-19 caught their attention. To illustrate how intensely attention of market participants changed over time, Figure 1 plots the number of conference calls by U.S. firms on different dates.[20] It shows that corporate managers and analysts appear to have started paying attention to the novel coronavirus after January 20 only. The first conference call discussing any of the keywords ''coronavirus,'' ''covid-19," ''2019-ncov,'' or ''sars-cov-2'' took place on January 22. This was the earnings call of United Airlines. From that point onward, the fraction of U.S. firms discussing these topics markedly increased over time, to around 30% at the end of the Outbreak period. When the Fever period began, that fraction increased to around 50%. By the second week of March, almost all calls featured a discussion of COVID-19.

Figure 1 (Attention to Coronavirus in the United States) about here

[19]Baker et al. (2020) document the drastic spike in economic uncertainty in this period through an analysis of stock market volatility, newspaper-based uncertainty measures, and subjective uncertainty in business expectation surveys.

[20]To obtain a broad picture of the communication surrounding the topic, we include not only earnings conference calls but also other calls, such as a roadshow presentations and investor conferences. Thus, some firms show up multiple times in this sample.

The intensity of search on Google is a measure of retail investor interest in a topic (Da, Engelberg, and Gao, 2015). Therefore, we also consider Google searches for ''coronavirus.'' Again, the time pattern is of interest to us. Figure 1 shows (on the right y-axis) that search intensity increased after January 20.[21] Search intensity for ''coronavirus'' then somewhat subsided after its interim peak at the end of January. But in the Fever period, the search intensity surged, suggesting that retail investors were highly attentive and presumably active in the market at that time. (As shown in Figure A1 in the Internet Appendix, similar patterns are visible when looking at global conference calls and global Google search.)

It is important to note that some other events also occurred in this period. For example, on the weekend of March 7/8, a price war erupted in the oil market. Moreover, the U.S. Presidential Election Primaries were ongoing.[22] Finally, there were noticeable developments in the trade war between the United States and China.[23]

Therefore, contrary to an event study where there is one clear event date, which is followed by price adjustment, the situation here features a series of a news. At any given point in time it is impossible to state whether a price move is the incorporation of new information on that day, or continuation of adjustment (or reversal of adjustment) on prior days. Our

[21] A minor uptick in search activity for ''Wuhan'' in Chinese search can be detected in early January already, but this is not visible in U.S. searches.

[22] The relatively successful showing of Joe Biden on ''Super Tuesday'' on March 3, where presumably many investors had worried about a Bernie Sanders win, conceivably explains a positive market move that day. Some industries, such as health care, may be particularly sensitive to the probability of a Biden win.

[23] Seen overall, these events are likely to have helped U.S. firms exporting to China, but they do not significantly improve the situation for U.S. firms importing from China. First, on January 15, China and the United States signed the so-called ''Phase 1'' trade deal. Under the agreement, China agreed to purchase the extraordinary amount of an additional US$200 billion worth of U.S. exports. Most tariffs remained in effect, and China did not give in to U.S. demands on subsidies or state-owned enterprises. Second, on January 24, President Trump imposed new tariffs on around US$450 million of steel and aluminum products. While small in magnitude, the signal was negative. On February 14, the ''Phase 1'' deal went into effect. The average U.S. tariffs on imports from China remain elevated at 19.3%, more than six times higher than before the trade war began in 2018. Average Chinese tariffs on U.S. goods are 20.3%, down only slightly from 20.9% when the deal was announced in December 2019. For details, see `https://www.piie.com/blogs/trade-investment-policy-watch`.

goal is to provide an overall assessment of the stock price development over time.

2 Stock Price Reactions

This section presents results on stock price reactions. Section 2.1 presents the data and discusses the appropriateness of different returns as the variables of interest. Section 2.2 presents a descriptive overview of industry-level stock returns. Our main results are reported in Sections 2.3 and 2.4. We capitalize on the wide variation, within industries, in the potential exposure of firms to the effects of the Coronavirus. We focus on the role of international trade, debt, and cash holdings.

2.1 Data

2.1.1 Stock returns.

We retrieve daily stock prices for common shares from December 31, 2018 through April 3, 2020, from the Compustat Capital IQ North America Daily database (from Wharton Research Data Services, WRDS). We adjust prices for dividends through the daily multiplication factor and the price adjustment factors provided by Compustat. In cases of dual listings, we keep only the firm's security with the highest market capitalization. Our main sample consists of Russell 3000 constituents.[24] For our firm-level analysis, in line with the common practice in finance research, we exclude financial companies (with GICS sector code equal to 40) because a key variable of interest in that analysis is leverage, which is hardly comparable between

[24]The Russell 3000 index includes the 3,000 largest publicly held companies incorporated in the United States and represents approximately 98% of the total U.S. public equity market. No firm in our sample has less than US$10 million of market equity capitalization as of the end of 2019.

financial and nonfinancial firms (Fama and French, 1992).[25] (Our results hold even when including financials.)

To estimate each firm's market beta, we regress one year of daily excess returns (from January 2, 2019, through December 31, 2019) on a constant and the daily market factor. The market excess return and the return on the riskless asset (the U.S. 1-month Treasury-bill rate) are from Kenneth French's website. To ensure the precision of our estimates, we compute abnormal returns only for stocks with at least 127 daily observations in the estimation period. We compute capital asset pricing model (CAPM)-adjusted returns (CAPM alphas) as the daily excess return on the stock minus the stock's beta times the market excess return.[26] Similarly, we also compute Fama-French-adjusted returns as the daily excess return on the stock minus its factor exposures times the factor returns, where the factor exposures are computed on daily market excess return, size, and value factor returns (obtained from Kenneth French's website) throughout 2019.

Before embarking on our analysis of the stock price reactions, it is worthwhile reflecting on which approach is best suited to describe returns in our empirical setting. Conceptually, the purpose of adjusting returns in accordance with a factor model (CAPM, Fama and French, 1993; Carhart, 1997; Fama and French, 2015, among others) is to eliminate the impact of factors that are unrelated to the specific effects under investigation. For our empirical investigation, we consider two aspects.

[25]Throughout the paper, we adopt the GICS industry classification, mostly because of its broad popularity among practitioners, which fits well with our empirical goal of studying how investors reacted to COVID-19. For evidence on the superior performance of the GICS classification in explaining stock return comovements and other financial similarities between sectors, see, for example, Bhojraj, Lee, and Oler (2003).

[26]All our inferences remain unchanged if we compute CAPM-adjusted returns by subtracting from the excess returns, in addition to the stock's beta times the market excess return, also the stock's estimated 2019 alpha (which is equivalent to assuming full ''momentum'' on each stock's 2019 average performance).

First, Figure A2 in the Internet Appendix shows that our main firm characteristics of interest (international trade, cash holdings, and leverage) are positively correlated with the average loading on the market factor returns in 2019. To the extent that the aggregate market moves in our sample period are driven by COVID-19 concerns, using CAPM-adjusted returns may understate the role of firm-specific characteristics on stock returns. A fraction of their effects, in fact, is lost in the (removed) effect of the market beta. Similar considerations hold for the adjustment for Fama-French factors.[27]

Second, more importantly, when using adjusted returns, a key assumption is that the exposure to the (risk) factors has remained constant through the period under consideration. However, COVID-19 likely changed the perception of the market risk of many firms. That is, a beta estimated using 2019 returns is likely to represent only an imprecise proxy of the market risk exposure during and after the COVID-19 crisis. For example, when we reestimate the individual market beta of Russell 3000 nonfinancial firms using daily returns in Q1 2020, we find that it has a correlation of only 0.17 with the market beta estimated using 2019 returns. For comparison, the average quarter-to-quarter correlation of estimated market betas based on the four quarters of 2019 is 0.51.

In light of these considerations, we adopt the following complementary approaches: First, we run regressions using raw returns as the dependent variable and controlling for the stock exposure to the 2019 market factor (beta) directly in the regressions. Throughout, we control for year 2019 firm characteristics (firm size, book-to-market, and profitability). With this approach, we effectively quantify the explanatory power of international trade

[27]See Wagner, Zeckhauser, and Ziegler (2018) for an analogous discussion in the context of the 2016 U.S. Presidential election.

and financial policies for stock price moves relative to firms' prior risk perception. Second, we conduct the analysis using CAPM-adjusted returns as the dependent variable. Finally, we run regressions when controlling for the exposure to the Fama-French factors and when using Fama-French-adjusted returns. All these approaches yield similar inferences overall.

2.1.2 Firm characteristics.

We employ two data sources for U.S. firms' international trade: (1) data from Hoberg and Moon (2017, 2019) that relies on firms' disclosures about their international activities and (2) data from the Compustat Segments database.

First, Hoberg and Moon (2017, 2019) analyze 10-Ks for annually updated firm disclosures regarding their international activities. Effectively, their method counts the number of times each country is mentioned. Importantly, their method allows distinguishing between input-offshoring (sourcing supplies from another country) and export-offshoring (exporting).[28] We define *China (1/0)* as a binary indicator variable equal to one for firms with disclosed activities with China, via exporting, importing, or both. This variable captures the extensive margin. For the intensive margin, we define *China output (#)* and *China input (#)* as the number of times a firm mentions China in their 10-K in relation to importing or exporting activities.[29] *China (#)* is the sum of the two.

The global value chain is an entanglement in which products travel different countries

[28]The Hoberg and Moon data we employ cover all firms with a machine readable 10-K and also those without any disclosed offshore activities. Hoberg and Moon (2017) validate their measures with foreign trade as reported by the U.S. Census Bureau, the official source for nation-by-nation U.S. exports and imports. For both exporting and importing, the correlation of their measures with the export and import value is above 0.85.

[29]The Hoberg and Moon data also allow us to distinguish between input-offshoring based on whether the firm mentions owning physical assets in a given nation. Results, which are available on request, show that this level of granularity about imports from China does not add significance in explaining differences in returns.

before reaching their final use. Many U.S. firms directly import products from China. But also products imported from other countries may have been produced by using inputs from China. For example, a Mexican car parts manufacturer may source some elements from China, before they sell their product to a U.S. car manufacturer. The Hoberg and Moon measure thus quantifies each firm's own perception of the extent to which it is exposed to China. Hoberg and Moon provide data through 2017. Since then, firms could have conceivably adjusted their China exposure downward (in light of the trade war). This would work against finding a negative effect of China exposure in our sample period.

To more generally analyze the effects of firms' international orientation, not only specifically with China, we also retrieve the percentage of foreign revenues from the Compustat Segments database. This measure is available for a somewhat smaller set of observations, 1,839 firms, in our sample. It refers to fiscal year 2017 for 153 firms and to fiscal year 2018 for the remaining 1,686.

To capture heterogeneity in firms' financial strength, we compute firms' leverage and cash holdings based on the accounting data from the latest 2019 quarterly results referring to periods ending before January 1, 2020.[30] *Cash/assets* is cash and short-term investments, divided by total assets, in percentage points. *Leverage* is long-term debt plus debt in current liabilities, divided by total assets, in percentage points.[31] We also consider the short-term and long-term components of debt separately.

[30] All variables in our analyses are, therefore, predetermined for stock returns in the three periods under consideration. A robustness check shows that our results remain unchanged when using accounting data not only *referring* to periods ending before January 1, 2020, but also *reported* before that date.

[31] As a robustness check, we also consider *Market leverage* (long-term debt plus debt in current liabilities, divided by total assets minus book equity plus the market value of common equity) and *Net leverage* (long-term debt plus debt in current liabilities minus cash and short-term investments, divided by assets) and obtain very similar results.

Finally, we use three standard control variables. *Book-to-market* is the book value of equity divided by market valuation. *log(market cap)* is the logarithm of the equity market value as of December 31, 2019. *Profitability* is the return on assets (in percentage points) computed as the quarterly income before extraordinary items over total assets.

Table 1 contains descriptive statistics. The average firm realized a raw return of minus 38.81% between January 2 and March 20, with effectively all of this drop occurring in the Fever period. Around 42% of firms report having importing or exporting activities with China. However, the intensity of these relations (*China input (#)*) has a standard deviation of 13.36, a large variability compared to the mean of 5.15. Similarly, the average percentage of foreign revenues is 27.1%, but the standard deviation is 29.04%. Firms also differ widely with respect to their financial policies, with the standard deviations of leverage and cash (22.69% and 25.80%) approximately as large as their means (32.69% and 20.32%).

Table 1 (Descriptive statistics) about here

2.2 Industry-level results

To provide some descriptive background for our main analysis, Figure 2 plots the average CAPM-adjusted cumulative returns over the full period and in each of the three phases by GICS industry group.[32]

Figure 2 (Stock returns by industry) about here

[32]All industries experienced negative *raw* returns, and the ordering is very similar. These results are available on request.

Over the whole period, the Telecom industry did relatively well, as the demand for services supporting work at home has skyrocketed. Pharma & Biotech and Semiconductors also performed relatively well, especially in the Fever period.[33] Food and Staples Retailing performed negatively in the Incubation and Outbreak period, but surged in the Fever period, a striking indication that a broader crisis was anticipated by the market.

Utilities gained strongly in Incubation and Outbreak, arguably because these firms, being overwhelmingly domestic, do not rely much on global markets, and the demand for their products was seen not be much affected by the virus. However, in the Fever period, as investors sold all stocks as the worry of a U.S. recession grew bigger, these low-beta stocks underperformed.

Over the whole period, Energy, Consumer Services, and Real Estate suffered particularly. Again, the time pattern is striking. Consumer Services and Real Estate performed neutrally in Incubation and Outbreak, but severely dropped in Fever as the health crisis in the United States grew. The Energy sector consists of many oil companies, which would suffer in a recession. The oil price shock is likely to have additionally hurt these companies, but they already underperformed strongly in the Incubation and Outbreak periods, as well as in the first half of the Fever period.

The between-industry differences observed in the Fever period intuitively reflect differential degrees of disruption in firms' operations caused by social distancing and lockdown measures. This intuition is confirmed in the detailed analysis by Pagano, Wagner, and Zechner (2020). Using measures of the extent to which job activities in different sectors can be carried out

[33]Donadelli, Kizys, and Riedel (2017) document that pharmaceutical stocks positively respond to the WHO's warnings and other disease-related news. Huberman and Regev (2001) instead document that news related to possible medical breakthroughs is sometimes processed with a very long delay.

from home and without human interaction in physical proximity (Dingel and Neiman, 2020; Hensvik, Le Barbanchon, and Rathelot, 2020; Koren and Pető, 2020), they find that industries more affected in this dimension performed more poorly. All our firm-specific results in the following also hold accounting for these industry-level measures. We primarily use industry fixed effects because they pick up all potential drivers of the heterogeneous anticipated impact of COVID-19 on firms across industries.

2.3 Stock returns and international trade

The COVID-19 crisis began as a real shock to trade. Therefore, this subsection studies the time pattern in how investors priced international trade of firms. Table 2 summarizes regressions of returns in the three time periods on international trade exposure and control variables, in addition to industry fixed effects. Figure 3 shows the evolution of the coefficients, estimated through 55 regressions of cumulated CAPM-adjusted returns from January 2 up to each day.

Table 2 (Timing in the pricing of international trade) and Figure 3 (Stock prices and international trade) about here

Consider first the Incubation and Outbreak periods. As seen in columns 1 through 4 in panel A of Table 2, more mentions of exposure to China resulted in substantially lower cumulative returns in these periods, net of the effects of other firm characteristics and market beta. The effects were strongest in Outbreak. For example, the results in column 3 imply that a one-standard-deviation higher exposure to China (13.36) was associated with 1.36% (= 13.36 $\times$ 0.102) lower cumulative returns in the Outbreak period, net of other firm characteristics

and market beta. Taking into account the descriptive statistics from Table 1, this means that around 11.8% of a standard deviation of returns in the Outbreak period is explained by U.S. firm exposure to China.[34]

When using CAPM-adjusted returns (panel B), we observe that firms exposed to China suffered already a small, but statistically significant negative response in the Incubation period. These findings are interesting in light of the fact that firms exporting to China (and perhaps to a lesser extent those sourcing from China) would arguably have been favored with the ''Phase 1'' agreement regarding trade between the United States and China which was signed on January 15, and which entered into force on February 14. Thus, it is conceivable that sophisticated investors started pricing-in the concerns about supply chain disruptions already in the Incubation period. As noted in Section 1, news on the coronavirus were indeed coming out of China during this period. Concerns about the virus appear to have significantly outweighed the potential benefits of the trade deal.

Interestingly, column 4 shows that investors penalized not only firms trading with China but also internationally oriented firms more generally. This result indicates an initial general pessimism of market participants regarding the disruptive impact of COVID-19 on global trade. When accounting for the intensity of China exposure, a one-standard-deviation increase in the share of foreign revenues (29.04) is associated with 1.25% (= 29.04 $\times$ 0.043) lower cumulative returns over the Outbreak period.

[34] A separate calculation reveals that, in the first two periods combined, firms with any China exposure (i.e., firms for which either of the two China exposure variables is greater than zero) experienced 2.27% lower cumulated returns than comparable firms. We have also analyzed export and supply chain exposure separately. When including both measures, only the output orientation measure is significant. The two measures are highly correlated.

With the start of the Fever period, the outlook for the situation in China brightened relatively to the outlook in other countries. Confirmed cases and deaths fell in China but rose rapidly in Europe and the United States. Consequently, one would not expect firms exposed to China to continue their underperformance. Indeed, this is what we find in columns 5 and 6 of panel A. The markets seem to have anticipated the effects of the reopening of the Chinese economy, and a partial resumption of trade with China.[35] The reversal of the trade effects when the health crisis improved in China and worsened in the United States further supports the causal interpretation of the relation between stock returns and firm-level measures of international exposure.

China exposure is even significantly positively associated with CAPM-adjusted returns in this period (panel B). Investors appear to have effectively sold *all* stocks in this period. This led to an unusual underperformance of low-beta stocks in this down market. Conversely, since stocks with high China-exposure tend to be high-beta, these stocks did relatively better.

Looking at the control variables, we observe that high-profitability firms fared relatively better in the Fever period. This suggests that investors considered these firms more resilient to the expected disruption in cash-flows, a theme that previews the role of the financial strength of a company that is the topic of Section 2.4.

As shown in Table A1 in the Internet Appendix, all our results also hold not controlling for industry fixed effects. Interestingly, when not controlling for industry, firms and/or industries with high book-to-market perform poorly in the Fever period. This is as expected,

[35]Cerdeiro et al. (2020) use machine-learning techniques and maritime data on cargo ship signals to estimate in real time the effects of COVID-19 on international trade activity. They show that Chinese exports dramatically fell toward the end of January 2020, but partially resumed again in early March 2020. Our results show that the stock market anticipated these real consequences by a few weeks each.

because these firms derive most of their value from relatively near-term cash flows.[36]

Finally, all our results also hold when explicitly accounting for firm exposures to the Fama-French factors (see Table A2 in the Internet Appendix).

Overall, the main pattern that emerges from the analyses in this subsection is that China exposure and international orientation of firms are negatively associated with stock returns in the Incubation and Outbreak periods, but neutrally or positively so in the Fever period. These results provide strong evidence of the relevance of international trade for firm value and point to the disruption of global trade as one initial major economic consequence of COVID-19.

2.4 Stock returns, debt, and cash holdings

We now turn to how investors perceived debt (leverage) and cash holdings over the three phases. Columns 1, 4, and 7 in panel A of Table 3 show that during the Incubation and Outbreak periods, corporate leverage itself does not explain much of the cross-section of stock returns. However, in the Fever period concerns about corporate debt started playing a prominent role. In this phase, a one-standard-deviation increase in leverage (22.69%) is associated with 3.06% (= 22.69 × 0.135) lower cumulative returns, net of the effects of other firm characteristics and market beta. In other words, almost one sixth of the standard deviation of returns is explained by leverage. Panel B shows very similar findings when using CAPM-adjusted returns as dependent variable. As Figure 4 shows, the effect of leverage

[36] Tsai and Wachter (2016) show how the value premium puzzle (the finding that high book-to-market stocks have higher average returns than low book-to-market stocks, despite having apparent lower risk) can be rationalized by the fact that value stocks are likely to underperform during rare disasters, which are too infrequent to enter standard measures of risk. Relatedly, Zhang (2005) argues that value firms are riskier than growth firms because assets in place cannot easily be reduced when a recession hits.

started to be particularly pronounced with the extreme financial turmoil of the week of March 9 and beyond.

Table 3 (Timing in the pricing of debt and cash holdings) and Figure 4 (Stock prices, debt, and cash holdings) about here

Columns 2, 4, and 6 consider the relevance of corporate cash holdings. Interestingly, this variable can explain the cross-section of returns already in the Outbreak period, presumably because of an initial rise in uncertainty amongst investors during this phase. However, with the start of Fever, the value of cash increased particularly strongly: in this period, a one-standard-deviation higher cash (25.80%) is associated with approximately 2.99% (=25.80 $\times$ 0.112) higher cumulative returns, net of the effects of other firm characteristics and market beta.

Columns 3, 6, and 9 (both panels A and B) furthermore show that the findings on leverage and cash holdings are robust to simultaneously testing the significance of the two variables in the same regression and accounting for firms' level of international trade.

These results on the benefit of cash holdings in the COVID-19 crisis provide a striking contrast with the (implicit) cost of holding cash in regular times. To illustrate, in our sample *Cash/assets* is negatively correlated with prior profitability (-0.56, statistically significant at the 1% level). Cash holdings also can be a source of agency costs (e.g., Jensen, 1986; Harford, 1999; Gao, Harford, and Li, 2013). However, the costs of holding cash represent a premium that purchases investors insurance against risks that are otherwise difficult to hedge.[37] Intuitively, high-cash firms are more likely able to survive and to preserve their

[37]Indeed, cash-rich firms tend to be precisely those with higher cash flow volatility (Bates, Kahle, and Stulz, 2009) and higher market beta (Palazzo, 2012), that is, those with higher exposure to conventional

physical and human capital, and they also will be in a better position to undertake new investments in the recovery phase.[38] Overall, investors perceived the cash holdings of these firms as conveying a net advantage to cope with the real effects of the pandemic.

Moreover, the surge in the value of cash also suggests that as the crisis unfolded investors became increasingly concerned about a tightening of firms' access to external finance. A temporary shortage of cash should not be a major concern *per se* if firms can continue relying on capital markets to raise cash and roll over existing debt.[39] However, as shown in Table 4 in columns 1 and 2, we find that the effect of leverage on the stock performance in the Fever period interacts positively with the effect of cash holdings (contrary to what happens in previous periods). This result clearly indicates that investors perceived cash to be particularly valuable for firms expected to have the biggest problems accessing external capital in the worsened macroeconomic environment.[40]

Columns 2 and 4 of Table 4 provide further support of the idea of an anticipated tightening of financial frictions. Here, we include the interaction effect between leverage and book-to-market. The negative coefficient on this interaction term indicates that in the Fever period investors perceived high corporate debt as particularly problematic for higher book-to-market firms, that is for firms deriving most of their value from near-future cash flows. Conversely,

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business risks.

[38] De Vito and Gomez (2020) stress test the liquidity ratios of a global sample of listed firms. For example, if sales drop by 75%, an average firm with partial operating flexibility would exhaust its cash holdings in about two years, and one-tenth of firms would become illiquid in six months.

[39] See Faulkender and Wang (2006) and Opler et al. (1999) for discussions on the relation between the marginal value of corporate cash holdings and firm access to capital markets.

[40] Consistently with this interpretation, Acharya and Steffen (2020) document, using data on daily credit line drawdowns at the firm-loan level, that from March 1 through April 9, 2020, the lowest-rated investment-grade (BBB) firms accumulated cash by extensively drawing down their bank credit lines, whereas high-quality investment-grade firms (AAA-A) increased their bond issuance activities. Relatedly, Halling, Yu, and Zechner (2020) show that bond issues increased substantially during the COVID crisis, but especially so for bonds rated A or higher.

high debt was considered less of a problem for "growth" firms, whose value (and, therefore, also ability to repay) derives mostly from a more distant future. It is worth noticing here that most of the stock-price effect of leverage during the Fever period derives from long-term debt (its most important component), rather than from short-term debt (see columns 3 and 6). Apparently, especially so for value firms investors worried more about the obstacles created by high long-term debt in accessing new external funding, rather than about the extra cash needed to repay debt in the short run.

Table 4 (Interacting leverage with cash holdings and book-to-market) about here

Finally, the graphs in Figure 5 plot the average CAPM-adjusted returns in the Fever period by GICS industry group against the coefficients on leverage and cash holdings estimated through industry-specific regressions of CAPM-adjusted returns over the same period. These graphs offer two additional insights. First, the coefficients on leverage and cash holdings have the same sign in most industries, confirming the importance of these corporate dimensions throughout the U.S. economy, not just in a few isolated sectors. Second, the two financial policy dimensions are quantitatively more important *within* industries more heavily affected by COVID-19 in terms of negative stock returns, which anticipate real economic impacts.

Figure 5 (Effects of leverage and cash across industries) about here

As in the previous section, all our results also hold not controlling for industry fixed effects (see Table A1 in the Internet Appendix) and explicitly accounting for exposure to the Fama-French factors (see Table A2 in the Internet Appendix), though using Fama-French-adjusted

returns the effect of cash is not statistically significant. This latter result is explained by the strong negative correlation between cash holdings and exposure to the value factor (see the discussion in Section 2.1.1 and Figure A2 in the Internet Appendix). Given that the value factor is on average negative in the Fever period (-0.81), using Fama-French-adjusted returns understates the relative performance of high-cash firms.

Overall, these results highlight the importance of a strong financial position of a company as a matter of preparedness for (disaster) risks. The timing in the pricing of corporate leverage and liquidity suggests that in the Fever period investors started looking at COVID-19 as a catalyst for a recession amplified by financial channels.

3 Manager and Analyst Communications

This section shows that the relevance of international trade and financial strength in the Outbreak and Fever periods is visible not only through the lens of stock returns but also in managerial and analyst communication on corporate conference calls.[41]

3.1 Data

The conference call transcripts are obtained from Refinitiv / Thomson Reuters Streetevents. The sample consists of a total of 2,736 conference calls (both earnings conference calls and other calls, such as a roadshow presentations and investor conferences) of 1,945 nonfinancial Russell 3000 constituents held between January 20 and March 20, 2020. (We exclude calls

[41] Thus, we focus on communication about COVID-19 *during* the crisis. It is also interesting to analyze communication about pandemic risks *before* they materialize. For example, Hassan et al. (2020) study the contents of earning calls of listed firms across the globe to develop measures of firms' exposure to epidemic diseases. Loughran and McDonald (2020) examine all 2018 10-K filings of U.S. firms, and find that only around one-fifth of them contain any reference to pandemic-related terms.

of financial firms for the sake of consistency with the stock return results.) This analysis concerns calls held in the Outbreak and Fever period, because no conference call in the Incubation period discussed the coronavirus (see Section 1).

We preprocessed the conference call transcripts for natural language processing by performing standard cleanup tasks: remove special characters and punctuation; eliminate stop words; and perform lemmatization. Negativity is the frequency of negative words on the Loughran and McDonald (2011) word list in the conference call.

Summary statistics of the conference call variables used in this section are reported in Table 5.

Table 5 (Descriptive statistics of conference calls) about here

3.2 Results

On average, as one would expect, firms on whose calls the coronavirus was not discussed have higher average cumulative returns over the whole period. However, consistent with the fact that some firms are more negatively affected than others, the distributions of cumulative abnormal returns over the whole period for firms discussing the coronavirus on a conference call and for firms not discussing it overlap.[42]

Panel A of Table 6 analyzes the characteristics of firms more likely to talk about COVID-19.[43] Columns 1, 3, and 5 present results of logit regressions showing that a call is more

[42]See Figure A3 in the Internet Appendix. Results available on request show that all findings developed in the prior sections on stock price reactions hold controlling for whether a firm held a conference call that included a discussion of COVID-19.

[43]This analysis is performed within industries. Panel A of Figure A4 in the Internet Appendix shows the percentage of calls mentioning the coronavirus in the Outbreak and Fever periods by industry.

likely to discuss this topic when a firm has more international exposure. Analyses available on request show that these results (and those that follow) also hold when using *China (#)* as the explanatory variable of interest.

Table 6 (Talking about COVID-19 and firm characteristics) about here

Next, columns 2, 4, and 6 show that similar results obtain on the intensive margin: the coronavirus and related issues occur more frequently on calls in firms with stronger reliance on international trade. Similarly, conference calls of firms with a potentially higher liquidity concern (that is, lower cash holdings) are more likely to feature a discussion of COVID-19.

Panel B of Table 6 shows variation, over time, of factors explaining the number of mentions of COVID-19-related terms in analyst questions. While overall and in the Outbreak period, analysts' concerns were mostly focused on international trade (columns 1 and 3), this variable was somewhat less important in the Fever period (column 5); by contrast, the liquidity position of the firm only drove analysts' questions about COVID-19 in the Fever period, not before.

Finally, we consider negativity of calls featuring a discussion of the coronavirus. As one would expect, calls covering the coronavirus are on average more negative than calls not covering it; specifically, they have 0.15 (equal to one quarter of the standard deviation) higher negativity (p-value$<$.001). Panel B of Figure A4 in the Internet Appendix shows the average negativity of calls that mentioned the coronavirus by industry. Interestingly, the figure displays a pattern of ''winning'' and ''losing'' industries generally in line with the one observed in Figure 2 with respect to cumulative abnormal returns.

What explains negativity? Columns 2, 4, and 6 of panel B of Table 6 show the results.

Over the Outbreak and Fever period combined (column 2), negativity is higher in firms with stronger international orientation and higher leverage. However, international orientation only drove up negativity in the Outbreak phase (column 4), whereas leverage only explains negativity in the Fever phase (column 6). Consistent with this picture, Table A3 in the Internet Appendix shows that the higher average negativity of calls covering COVID-19, compared to those not covering it, is mainly driven by differences across firms in international trade in the Outbreak period, and by financial leverage in the Fever period. All these results align well with the pattern observed above for the drivers of the cross-section of stock returns.

Overall, these results confirm that international trade and the financial strength of companies were of significant concern to managers and analysts at different times, providing further support for the result that these factors play an important role in explaining the cross-section of stock price reactions.

4 Policy Interventions

The aim of this paper is to diagnose the impact of the emergence of COVID-19 on individual stocks. A detailed evaluation of policy interventions and their long-term effects will be the subject of future studies. However, the interventions by the Federal Reserve Board (Fed) deployed in the week of March 23 provide an early opportunity for an out-of-sample test of our main results. Specifically, on Monday, March 23 the Fed announced two new facilities---the ''Primary Market Corporate Credit Facility'' and the ''Secondary Market Corporate Credit Facility''---to support credit to large corporations at least up to the end of Q3 2020.

The Fed's announcement to purchase newly issued bonds and loans on the primary market

can be expected to support firms running low on cash because it means that they can effectively raise funds immediately from the Fed. The announcement to purchase outstanding corporate bonds and exchange-traded funds (ETFs) on the secondary market can be expected to support firms with high leverage. Consistent with these expectations, as indicated in columns 1--3 of Table 7, in the days immediately following the Fed's announcement the cross-sectional stock price reactions that had taken place in the Fever period partially reversed. Specifically, regressions of cumulative abnormal returns in a 3-day event window (from March 23 through March 25) on *Leverage* and *Cash/assets* yield coefficients of +0.092 (highly significant) and -0.031 (just below conventional significance levels), respectively. These coefficients can be compared to the effects observed in the Fever period, namely, the coefficients of -0.135 and +0.112 in columns 7 and 8 of panel A of Table 3.

Table 7 (Effects of the Fed intervention) about here

However, the reversal was only temporary. Columns 4--6 of Table 7 extend the event window from 3 to 10 days. The effects of *Leverage* and *Cash/assets* resumed the direction they had exhibited in the Fever period so far. By market close on April 3, 2020, the negative effect of leverage and the positive effect of cash on cumulative stock returns were significantly *higher* than they were two weeks before at the end of the Fever period. This is noteworthy also in light of the fact that on March 27 the U.S. President signed a US$2 trillion relief bill into law (CARES Act).[44] The additional bad news regarding the further spread of COVID-19 appear to have dominated investor expectations.[45]

[44]Support for this bill grew over the course of a longer time period, and in the morning hours of March 25 it became clear that there was bipartisan agreement in Congress.

[45]Figure A5 in the Internet Appendix shows the evolution of the coefficients on leverage and cash holdings when also including the period after the Fed's intervention analyzed in this section.

Thus, the unprecedented liquidity programs announced by the Fed in late March 2020 may have temporarily mitigated the symptoms of the crisis, but investors did not immediately perceive them as a cure. The concerns regarding corporate leverage and liquidity remained high. Presumably, one reason for the persisting concerns is that the Fed's purchasing programs were initially intended to cover only bonds of investment-grade firms, that is, the debt of relatively low-leveraged firms that the markets had already perceived less likely to face restrictions in continuing tapping external capital. On April 9, 2020, the Fed announced a significant expansion of both its primary and secondary market facilities. First, the programs now also cover bonds of firms downgraded to high yield *after* March 22, 2020 (the so-called ''fallen angels''). Second, the Fed can now also buy high-yield exchange-traded funds (ETFs). The future will reveal the long-term effects of these and other interventions.

5 Conclusion

The COVID-19 pandemic represents a fearsome and unprecedented challenge for individuals, policy makers, and investors. This paper presents the first analysis of how investors assessed the consequences of this tail risk event for individual companies.

As the disease spread, the market responded by weighing the economic consequences. We find strong causal evidence for the role of international trade and global value chains for corporate value: initially, as China was effectively shut down, investors shunned U.S. stocks with China exposure and internationally oriented companies; as the virus situation in China improved relative to the situation in Europe and in the United States, investors perceived those companies more favorably again. As the virus spread in Europe and in the United

States, leading to lockdowns in these economies, markets moved feverishly. However, the cross-section of returns exhibited clear patterns. Investors (and analysts) became concerned about high corporate debt and about the survival chances of firms with little cash. While cash holdings are expensive for companies in general (in terms of opportunity costs, and due to the potential for agency problems), the emergence of this pandemic highlights the importance of precautionary cash holdings for firm value.

Overall, the findings vividly illustrate that stock market participants anticipated the real economic effects of the COVID-19 health crisis to be amplified by financial channels. At this point, it is unknown whether the combination of the ongoing policy interventions and individual behavior changes will achieve the desired goal of stabilizing the situation, and ultimately healing the economic wounds inflicted by the virus. Even if they do, investors will presumably continue to keep an eye on a potential resurgence of COVID-19, the emergence of future pandemics, and perhaps even disaster risks more generally. The learnings on the dependence of firms on trade linkages and the importance of a strong financial position as a matter of preparedness if a calamity strikes remain relevant also prospectively.

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Figure 1: Attention to the coronavirus in the United States
This chart shows the total number of U.S. firms' conference calls held on each day from January 2 through March 20, for a total of 4,260 individual calls. The orange bars represent the number of calls mentioning at least one of the following terms: ''coronavirus,'' ''covid-19,'' ''2019-ncov,'' ''sars-cov-2.'' The chart also shows (right y-axis) the daily U.S.-specific Google Trends search value index for the term ''coronavirus'' from January 1, 2020, through March 20, 2020. The index varies from 0 to 100 and represents search interest relative to the highest point in the period.

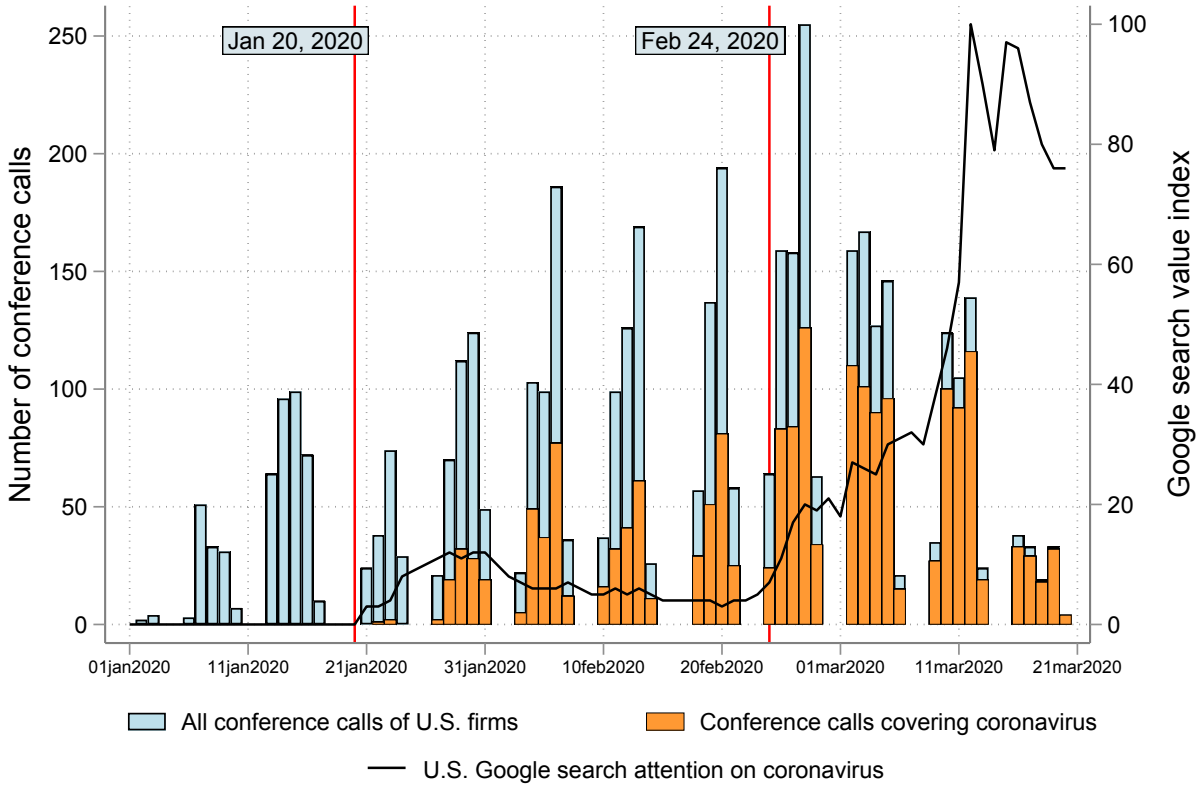


Figure 2: Stock returns by industry

This figure shows the average equally weighted cumulative abnormal returns by GICS industry group from January 2 through March 20, 2020 (the first bar for each industry) and the cumulative abnormal returns over the three subperiods: Incubation (from January 2 through January 17, 2020), Outbreak (from January 20 (effectively January 21 as January 20 was a holiday) through February 21, 2020), and Fever (from February 24 through March 20, 2020). The sample consists of Russell 3000 constituents. CAPM-adjusted returns are the daily excess returns on the stock minus beta times the market excess return.

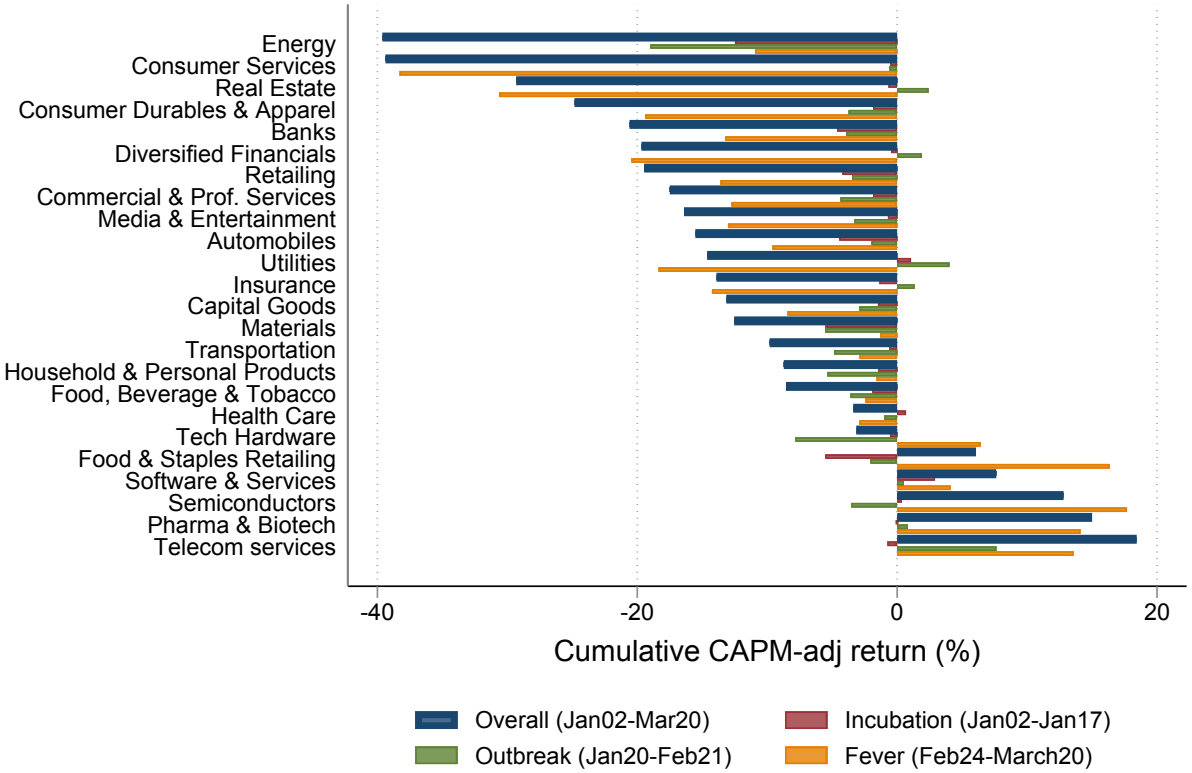


Figure 3: Stock prices and international trade
This graph shows the evolution of the coefficients on *China (#)* and *Foreign revenues* in regressions with the CAPM-adjusted cumulative abnormal returns of U.S. stocks from January 2, 2020, each day through March 20, 2020, as the dependent variable. The regressions control for GICS industry group indicators and firm characteristics (log(market cap), profitability, and market-to-book). *China (#)* is the number of times a firms mentions China in relation to importing or exporting activities in their 2017 10-K. These data come from Hoberg and Moon (2017, 2019). *Foreign revenues* is the percentage of non-U.S. revenues. The sample comprises Russell 3000 nonfinancial constituents. The red, vertical lines represent the beginning of the *Outbreak* and *Fever* periods, respectively.

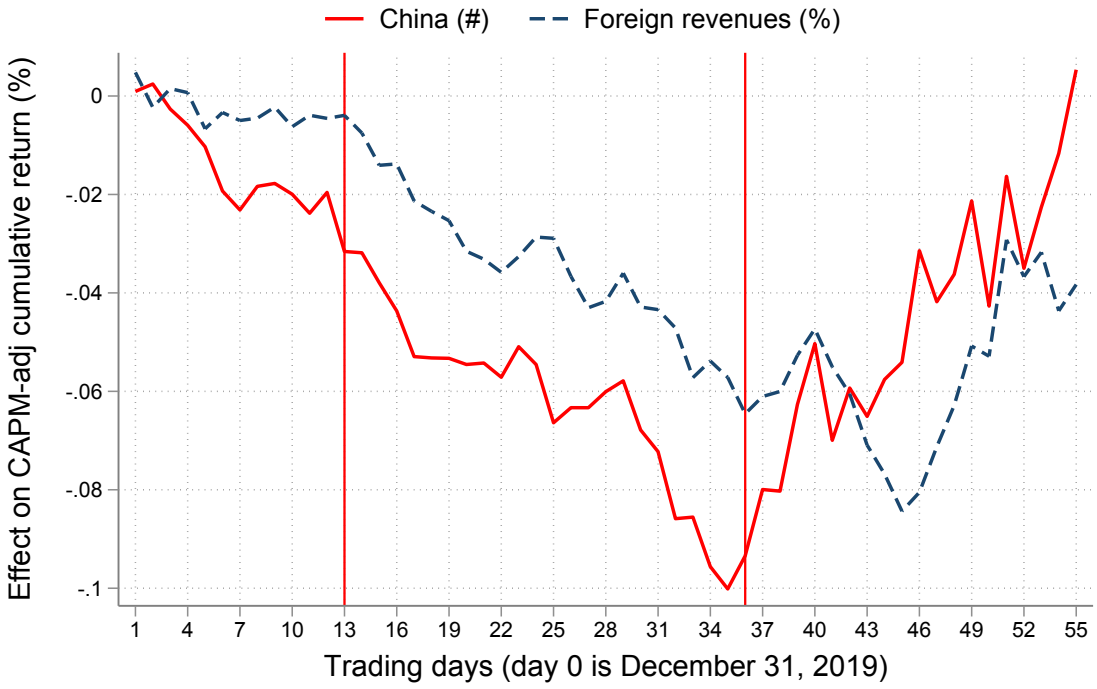


Figure 4: Stock prices, debt, and cash holdings
This graph shows the evolution of the coefficients on *Leverage* and *Cash/assets* in regressions with the CAPM-adjusted cumulative abnormal returns of U.S. stocks from January 2, 2020, each day through March 20, 2020, as the dependent variable. The regressions control for GICS industry group indicators and firm characteristics (log(market cap), profitability, and market-to-book). *Leverage* is the percentage of long-term debt plus debt in current liabilities over total assets: [(dltt + dlc)*100/at]. *Cash/assets* is the percentage of cash and short-term investments over total assets (che*100/at). The sample consists of Russell 3000 nonfinancial constituents. The red, vertical lines represent the beginning of the *Outbreak* and *Fever* periods, respectively.

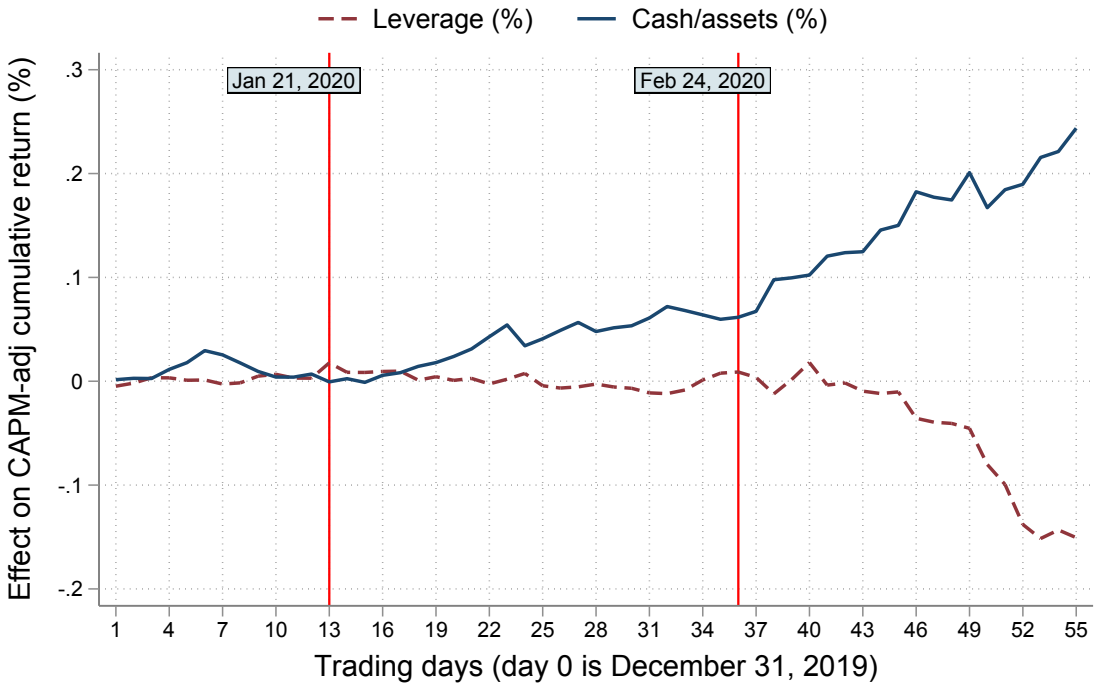
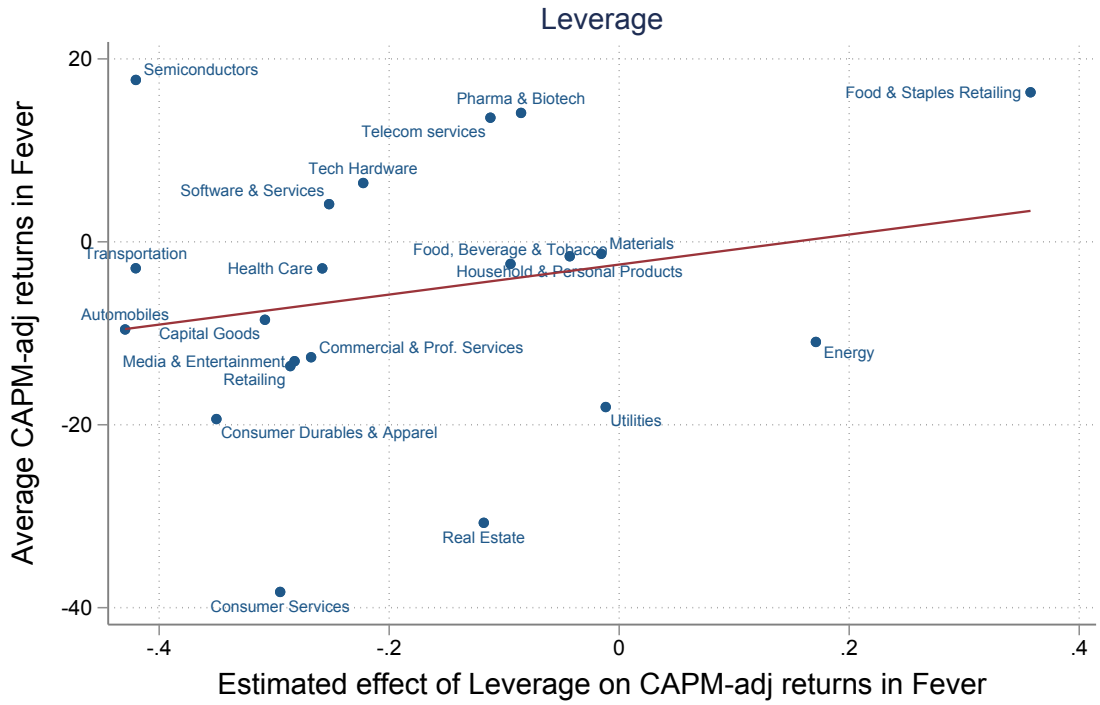


Figure 5: Value of leverage and cash against industry-level stock returns
These graphs plot the average equally weighted CAPM-adjusted cumulative returns in the Fever period (February 24 through March 20, 2020) by GICS industry group against the coefficients on *Leverage* (top) and *Cash/assets* (bottom) estimated through industry-specific regressions of CAPM-adjusted cumulative returns over the same period. The regressions control for firm characteristics (log(market cap), profitability, and market-to-book). The sample consists of Russell 3000 nonfinancial constituents.



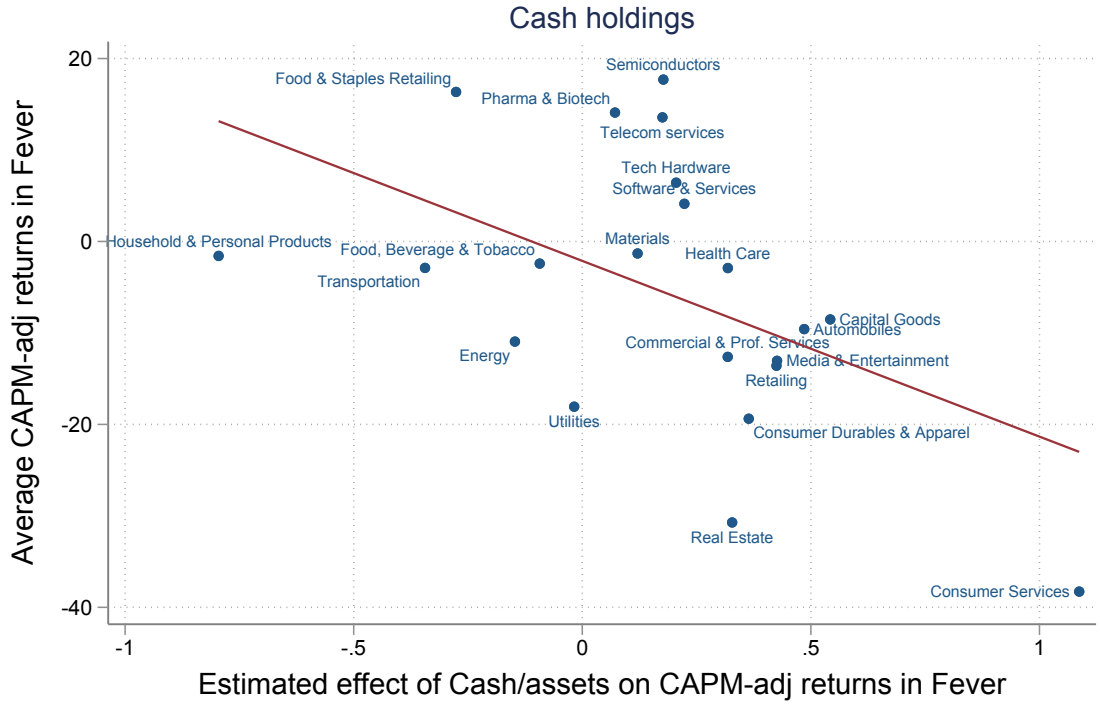


Table 1: Descriptive statistics

This table shows descriptive statistics of the variables used in the analyses. The sample consists of Russell 3000 nonfinancial constituents with available data. Returns (adjusted for stock splits and dividends) are computed based on stock prices retrieved from the Compustat North-America database. To compute CAPM-adjusted returns, we first estimate each stock's market beta by regressing its daily excess returns from January 2, 2019, through December 31, 2019, on a constant and the daily value-weighted market return (in excess of the daily U.S. 1-month Treasury-bill rate). CAPM-adjusted returns are the daily excess returns on the stock minus beta times the market excess return. China offshoring data come from Hoberg and Moon (2017, 2019) and refer to 2017 (the latest available year). *China (1/0)* is a dummy variable equal to one for firms with activities with China. *China (#)* is the number of times a firm mentions China in their 10-K in relation to importing or exporting activities. *Foreign revenues* is obtained from the Compustat Segments database and is the percentage (truncated at 100) of non-U.S. revenues in 2017 (153 firms) or 2018 (1,686 firms). Accounting data are computed based on the results of the latest 2019 quarter ending before January 1, 2020, retrieved from Compustat on February 20, 2020 (mostly Q3 2019). *Leverage* is the percentage of long-term debt plus debt in current liabilities over total assets: [(dltt + dlc)*100/at], truncated at 100. *Leverage (short)* and *Leverage (long)* consider debt in current liabilities and long-term debt, respectively, over total assets. *Cash/assets* is cash and cash equivalents over total assets, in percentage points (che*100/at). *Book-to-market* is the book value of equity divided by market valuation. *log(market cap)* is the logarithm of the equity market capitalization as of December 31, 2019. *Profitability* is the return on assets (in percentage) computed as the quarterly income before extraordinary items over total assets.

	N	Min	p25	Mean	p50	p75	Max	SD
Raw returns								
Jan02-Mar20	2,349	-93.43	-53.17	-38.81	-39.65	-25.72	278.88	24.07
Jan02-Jan17 (Incubation)	2,350	-48.67	-2.46	2.02	1.81	5.79	96.69	9.99
Jan20-Feb21 (Outbreak)	2,346	-60.05	-9.79	-2.04	-2.17	5.08	215.04	16.01
Feb24-Mar20 (Fever)	2,348	-88.03	-50.79	-39.06	-38.50	-27.71	209.57	19.71
CAPM-adjusted returns								
Jan02-Mar20	2,349	-90.79	-31.43	-10.05	-13.08	6.05	430.43	35.97
Jan02-Jan17 (Incubation)	2,350	-50.77	-6.07	-1.62	-1.38	2.55	88.37	9.82
Jan20-Feb21 (Outbreak)	2,346	-60.64	-10.49	-2.75	-2.87	4.44	207.20	15.89
Jan20-Feb21 (Fever)	2,348	-82.46	-26.12	-5.72	-7.38	10.99	354.65	32.49
Market beta	2,350	-0.87	0.81	1.14	1.13	1.47	5.62	0.52
Firm characteristics								
China (1/0)	2,078	0.00	0.00	0.42	0.00	1.00	1.00	0.49
China (#)	2,078	0.00	0.00	5.25	0.00	4.00	161.00	13.36
Foreign revenues	1,839	0.00	0.00	27.08	18.66	46.80	100.00	29.04
Leverage	2,339	0.00	14.22	32.69	32.13	46.83	100.00	22.69
Leverage (short)	2,339	0.00	0.49	3.10	1.37	3.71	92.52	5.35
Leverage (long)	2,349	0.00	11.71	29.98	28.86	43.16	100.00	22.12
Cash/assets	2,350	0.00	2.61	20.32	8.47	26.48	99.42	25.80
Book-to-market	2,350	-44.91	0.17	0.49	0.35	0.63	15.20	1.26
log(market cap)	2,350	16.35	20.14	21.46	21.35	22.57	27.92	1.76
Profitability	2,350	-30.46	-0.88	-0.98	0.69	1.71	7.85	5.98

Table 2: Timing in the pricing of international trade

This table shows results of ordinary least squares (OLS) regressions of individual stock returns in three time periods (indicated in the column headers), on variables measuring international trade and standard firm characteristics (size, profitability, and book-to-market). The dependent variables are cumulative (raw) returns in panel A (including market beta as an additional firm control) and CAPM-adjusted cumulative returns in panel B. (As a robustness check, Table A2 in the Internet Appendix reports the results when using Fama-French-adjusted factors.) *China (#)* is the number of times a firm mentions China in their 10-K in relation to importing or exporting activities. *Foreign revenues* is the percentage of non-U.S. revenues. All models also control for GICS industry group fixed effect indicators. The sample consists of nonfinancial Russell 3000 constituents. t-statistics based on robust standard errors in parentheses. $^{*}p<.1$; $^{**}p<.05$; $^{***}p<.01$.

	Incubation Jan02-Jan17		Outbreak Jan20-Feb21		Fever Feb24-Mar20	
	(1)	(2)	(3)	(4)	(5)	(6)
A. Dependent variable: Cumulative returns						
China (#)	-0.011	-0.011	-0.102***	-0.074***	0.035	0.048
	(-0.92)	(-0.76)	(-4.06)	(-2.76)	(1.17)	(1.47)
Foreign revenues		-0.000		-0.043***		-0.014
		(-0.00)		(-2.85)		(-0.75)
Market beta	-1.237**	-0.785	-3.080***	-3.593***	-6.722***	-6.963***
	(-2.21)	(-1.35)	(-3.42)	(-3.62)	(-6.34)	(-5.98)
log(market cap)	0.364***	0.492***	0.515**	0.806***	0.311	0.401*
	(2.82)	(3.18)	(2.26)	(3.44)	(1.43)	(1.66)
Profitability	-0.187***	-0.194**	-0.012	-0.066	0.199**	0.393***
	(-2.82)	(-2.17)	(-0.09)	(-0.33)	(2.06)	(3.12)
Book-to-market	0.048	0.217	-0.491	-0.507	-0.842	-1.089*
	(0.11)	(0.58)	(-0.95)	(-1.03)	(-1.17)	(-1.71)
Observations	2,078	1,701	2,074	1,698	2,076	1,699
R-squared	.136	.166	.119	.143	.222	.245
B. Dependent variable: CAPM-adjusted cumulative returns						
China (#)	-0.024*	-0.020	-0.112***	-0.083***	0.118**	0.118**
	(-1.96)	(-1.37)	(-4.42)	(-3.03)	(2.52)	(2.26)
Foreign revenues		-0.005		-0.047***		0.006
		(-0.40)		(-3.10)		(0.22)
log(market cap)	0.508***	0.625***	0.653***	0.969***	-0.469	-0.365
	(4.00)	(4.19)	(2.87)	(4.13)	(-1.19)	(-0.87)
Profitability	-0.131**	-0.137	0.031	-0.012	-0.008	0.253
	(-2.06)	(-1.63)	(0.24)	(-0.06)	(-0.05)	(1.22)
Book-to-market	0.014	0.208	-0.494	-0.480	-1.347	-2.021
	(0.03)	(0.51)	(-0.86)	(-0.88)	(-0.76)	(-1.31)
Observations	2,078	1,701	2,074	1,698	2,076	1,699
R-squared	.141	.173	.116	.139	.235	.236
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 3: Timing in the pricing of debt and cash holdings

This table shows results of OLS regressions of individual stock returns in three time periods (indicated in the column headers), on leverage, cash holdings, and standard firm characteristics (size, profitability, and book-to-market). The dependent variables are cumulative (raw) returns in panel A (including market beta as an additional firm control) and CAPM-adjusted cumulative returns in panel B. (As a robustness check, Table A2 in the Internet Appendix reports the results when using Fama-French-adjusted factors.) *Leverage* is the percentage of long-term debt plus debt in current liabilities over total assets. *Cash/assets* is the percentage of cash and cash equivalents, divided by total assets. Regressions in columns 3, 6, and 9 also control for *Foreign revenues*. All models also control for GICS industry group fixed effect indicators. The sample consists of nonfinancial Russell 3000 constituents. t-statistics based on robust standard errors in parentheses. $^{*}p<.1$; $^{**}p<.05$; $^{***}p<.01$.

	Incubation Jan02-Jan17			Outbreak Jan20-Feb21			Fever Feb24-Mar20		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A. Dependent variable: Cumulative returns									
Leverage	0.013		0.014	0.006		0.006	-0.135***		-0.140***
	(0.96)		(0.87)	(0.30)		(0.28)	(-6.85)		(-6.59)
Cash/assets		0.009	0.043**		0.053**	0.086***		0.112***	0.104***
		(0.66)	(2.51)		(2.51)	(3.24)		(4.82)	(3.95)
Foreign revenues			-0.008			-0.062***			0.002
			(-0.73)			(-4.57)			(0.10)
Market beta	-1.532***	-1.484***	-1.149*	-2.495***	-2.438***	-3.642***	-5.033***	-5.885***	-5.794***
	(-2.79)	(-2.73)	(-1.90)	(-3.07)	(-2.97)	(-3.82)	(-5.17)	(-5.98)	(-5.11)
Observations	2,339	2,350	1,829	2,335	2,346	1,826	2,337	2,348	1,827
R-squared	.136	.136	.177	.118	.121	.151	.206	.196	.282
B. Dependent variable: CAPM-adjusted cumulative returns									
Leverage	0.003		0.003	-0.001		-0.004	-0.156***		-0.159***
	(0.23)		(0.20)	(-0.05)		(-0.20)	(-5.05)		(-4.71)
Cash/assets		0.007	0.030*		0.051**	0.072***		0.185***	0.229***
		(0.50)	(1.81)		(2.46)	(2.83)		(4.57)	(5.10)
Foreign revenues			-0.014			-0.069***			0.043
			(-1.42)			(-5.00)			(1.61)
Observations	2,339	2,350	1,829	2,335	2,346	1,826	2,337	2,348	1,827
R-squared	.139	.139	.182	.116	.120	.147	.211	.212	.262
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: Interacting leverage with cash holdings and book-to-market
This table shows results of OLS regressions of individual stock returns in the Fever period (February 24 through March 20, 2020) on leverage, cash holdings, and the interactions between leverage and cash, and leverage and book-to-market. The dependent variables are cumulative (raw) returns in columns 1 to 3 (including market beta as an additional firm control) and CAPM-adjusted cumulative returns in columns 4 to 6. All models control for GICS industry group fixed effect indicators and standard firm characteristics (size, profitability, and book-to-market). The sample consists of nonfinancial Russell 3000 constituents. t-statistics based on robust standard errors in parentheses. $^{*}p<.1$; $^{**}p<.05$; $^{***}p<.01$.

Dependent variable:	Cumulative returns in Fever			Cumulative CAPM-adj returns in Fever		
	(1)	(2)	(3)	(4)	(5)	(6)
Leverage	-0.171***	-0.093***		-0.168***	-0.059*	
	(-7.22)	(-4.31)		(-4.25)	(-1.68)	
Cash/assets	0.011	0.081***	0.081***	0.087*	0.186***	0.184***
	(0.37)	(3.34)	(3.31)	(1.68)	(4.44)	(4.38)
Leverage ×	0.002***			0.002*		
Cash/assets	(2.85)			(1.65)		
Leverage ×		-0.057***			-0.141***	
Book-to-market		(-4.05)			(-4.86)	
Leverage (long)			-0.094***			-0.061*
			(-4.12)			(-1.71)
Leverage (long) ×			-0.051***			-0.124***
Book-to-market			(-3.65)			(-4.24)
Leverage (short)			-0.046			0.012
			(-0.50)			(0.08)
Leverage (short) ×			-0.164			-0.414
Book-to-market			(-1.02)			(-1.27)
Market beta	-5.062***	-5.765***	-5.779***			
	(-5.18)	(-5.91)	(-5.87)			
Observations	2,337	2,337	2,337	2,337	2,337	2,337
R-squared	.212	.217	.218	.216	.236	.237
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: Descriptive statistics of conference calls

This table shows descriptive statistics of the conference call variables used in regressions in Table 6. The sample consists of 2,736 conference calls of 1,945 nonfinancial Russell 3000 constituents held between January 20 and March 20, 2020. *COVID-19 (0/1)* is a dummy variable equal to one for calls mentioning coronavirus-related terms (''coronavirus,'' ''covid-19,'' ''2019-ncov,'' ''sars-cov-2''). *COVID-19 (#)* is the number of coronavirus-related mentions in the call. *COVID-19 questions* is the number of coronavirus-related mentions by financial analysts. *Call negativity* is the relative frequency of negative words based on the Loughran and McDonald (2011) dictionary covering coronavirus, expressed as percentage points.

	N	Min	p25	Mean	p50	p75	Max	SD
COVID-19 (0/1)	2,736	0.00	0.00	0.53	1.00	1.00	1.00	0.50
COVID-19 (#)	2,736	0.00	0.00	2.19	1.00	3.00	52.00	3.61
COVID-19 questions	2,736	0.00	0.00	0.61	0.00	1.00	19.00	1.18
Call negativity	2,736	0.16	1.32	1.72	1.65	2.04	4.42	0.57

Table 6: Talking about COVID-19

This table shows results of analyses of the relation between firms' characteristics and coverage of COVID-19 in conference calls during the Outbreak and Fever periods. In panel A, columns 1, 3, and 5 show logit regressions of an indicator equal to one for coronavirus-covering conference calls on variables measuring capital structure and international trade. Columns 2, 4, and 6 show results of OLS regressions of the number of coronavirus-related mentions on firm characteristics. In panel B, columns 1, 3, and 5 show OLS regression results of the number of coronavirus-related analyst questions on firm characteristics. Columns 2, 4, and 6 show results of OLS regressions of call negativity on firm characteristics, for coronavirus-covering calls. Our definition of negativity follows that of Loughran and McDonald (2011). All models control for GICS industry group fixed effect indicators and standard firm characteristics (size, profitability, and book-to-market). The sample includes conference calls of nonfinancial Russell 3000 constituents held between January 20 and March 20, 2020. t-statistics based on robust standard errors clustered at the firm level in parentheses. $^{*}p<.1$; $^{**}p<.05$; $^{***}p<.01$.

	Outbreak + Fever Jan20-Mar20		Outbreak Jan20-Feb21		Fever Feb24-Mar20	
	(1)	(2)	(3)	(4)	(5)	(6)
A. Talking about COVID-19						
Dependent variable:	COVID-19 (0/1)	COVID-19 (#)	COVID-19 (0/1)	COVID-19 (#)	COVID-19 (0/1)	COVID-19 (#)
Foreign revenues	0.024***	0.035***	0.031***	0.036***	0.020***	0.034***
	(9.44)	(8.79)	(8.61)	(7.79)	(5.22)	(5.30)
Leverage	0.002	0.004	-0.002	-0.004	-0.004	0.001
	(0.82)	(0.91)	(-0.49)	(-1.00)	(-1.02)	(0.10)
Cash/assets	-0.007**	-0.011**	-0.013**	-0.009*	-0.008*	-0.015**
	(-2.26)	(-2.31)	(-2.38)	(-1.78)	(-1.70)	(-2.22)
Observations	2,242	2,242	1,176	1,176	1,032	1,066
Pseudo-R-squared	.093		.159		.089	
R-squared		.104		.177		.128
B. Analyst questions and linguistic tone of call content						
Dependent variable:	COVID-19 questions	Call negativity	COVID-19 questions	Call negativity	COVID-19 questions	Call negativity
Foreign revenues	0.008***	0.002***	0.010***	0.004***	0.005**	0.002
	(5.51)	(3.19)	(5.96)	(3.63)	(2.36)	(1.59)
Leverage	0.000	0.002*	-0.000	-0.001	-0.001	0.003**
	(0.07)	(1.69)	(-0.19)	(-0.47)	(-0.61)	(2.47)
Cash/assets	-0.002	-0.001	-0.000	-0.002	-0.005*	-0.000
	(-1.19)	(-0.41)	(-0.16)	(-0.77)	(-1.87)	(-0.28)
Observations	2,242	1,214	1,176	488	1,066	726
R-squared	.058	.151	.139	.195	.075	.178
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: Effects of the Fed's intervention

This table shows results of OLS regressions of CAPM-adjusted returns in the post-analysis period, on leverage, cash holdings, and standard firm characteristics (size, profitability, and book-to-market). The dependent variables are cumulative (raw) returns in panel A (including market beta as an additional control) and CAPM-adjusted cumulative returns in panel B. Columns 1 to 3 look at the returns over a 3-day window after the Fed's intervention on March 23, 2020. Columns 4 to 6 cover the entire period from March 23 through April 3, 2020. *Cash/assets* is the percentage of cash and cash equivalents, divided by total assets. *Leverage* is the percentage of long-term debt plus debt in current liabilities over total assets. All models also control for GICS industry group fixed effect indicators. The sample consists of nonfinancial Russell 3000 constituents. t-statistics based on robust standard errors in parentheses. $^{*}p<.1$; $^{**}p<.05$; $^{***}p<.01$.

	March23-March25 (3-day window)			March23-April03 (10-day window)		
	(1)	(2)	(3)	(4)	(5)	(6)
A. Dependent variable: Cumulative returns						
Leverage	0.092***		0.099***	-0.036**		-0.017
	(5.45)		(4.83)	(-1.98)		(-0.80)
Cash/assets		-0.031	0.025		0.081***	0.122***
		(-1.61)	(1.03)		(4.07)	(4.70)
Foreign revenues			0.004			0.026
			(0.26)			(1.49)
Market beta	0.860	1.422	0.530	-5.017***	-5.247***	-6.434***
	(0.98)	(1.59)	(0.47)	(-5.04)	(-5.32)	(-5.28)
Observations	2,338	2,349	1,828	2,330	2,341	1,824
R-squared	.146	.133	.160	.121	.124	.145
B. Dependent variable: CAPM-adjusted cumulative returns						
Leverage	0.073***		0.077***	-0.053***		-0.044**
	(4.46)		(3.86)	(-2.99)		(-2.02)
Cash/assets		-0.035*	-0.002		0.061***	0.066**
		(-1.84)	(-0.08)		(3.02)	(2.53)
Foreign revenues			-0.007			0.003
			(-0.46)			(0.20)
Observations	2,338	2,349	1,828	2,330	2,341	1,824
R-squared	.161	.154	.169	.128	.125	.139
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes