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Financial Flexibility and Corporate Employment

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Working Paper 21-119

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Funding for this research was provided in part by Harvard Business School.

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April 2021

We study the role of financial flexibility on COVID-19 employment actions. Using daily data from March through May 2020 for 354 of the largest U.S. employers, we find that firms facing a negative demand shock were 28.8 percentage points more likely to reduce their workforce and 17.3 percentage points less likely to provide pay increases to frontline workers, compared to other sample firms. Pre-pandemic financial flexibility attenuates these effects, reducing the likelihood of workforce reductions by almost half. The role of financial flexibility is greatest in firms with better governance, a more asymmetric cost structure, and better treatment of workers.

Keywords: Employment, financial flexibility, COVID-19, pandemic
JEL Codes: G31, J01, J20, J30, M40, M50

Acknowledgements: We thank JUST Capital for providing data; in particular, we are grateful to Martin Whittaker, Alison Omens, Teresa Yung, Kavya Vaghul, and Robert Marsh. Also appreciate feedback from Brandon Gipper, Joao Granja, John Kepler, and seminar participants at the Early Insights in Accounting seminar series, the Rotman School of Management, and the University of Nebraska. Outstanding research assistance was provided by Christina Becher, Kevin Eappen, Jiayeng Feng, Akari Furukawa, Shilpa Kannan, Carolyn Liu, Caitlin McCarthy, and Xuan Su. Research support was also provided by the Data, Analytics, and Research Computing group at the Stanford Graduate School of Business; we acknowledge Brian Chivers, Daphne Chang, Wonhee Lee, Alex Storer for their assistance with data collection, processing, and archiving. *Corresponding author; mailing address 655 Knight Way, Stanford, CA 94305.

1. Introduction

The economic shock induced by the COVID-19 pandemic created significant financial and operating uncertainty for firms.[1] In response, companies took an unprecedented number of actions, ranging from increasing the pay of frontline workers to furloughing or laying off employees. This paper studies the role of firm financial characteristics in determining how firms initially responded to the pandemic-induced economic shock. Specifically, we show that greater financial flexibility, measured as the pre-pandemic level of cash holdings net of short-term obligations, altered the employment actions of the nation's 354 largest public companies during the first 90 days of the pandemic.

Financial flexibility means that a firm "can avoid financial distress in times of negative shocks and readily fund investment when profitable opportunities arise" (Gamba and Triantis, 2008; see also Almeida, Campello, and Weisbach, 2004 and Denis, 2011). Financially flexible firms are characterized as having greater cash holdings and easier or less costly access to external debt financing. Prior work demonstrates that financial flexibility is a key factor in managers' financing and employment decisions (Graham and Harvey, 2001; Caggese, Cunat, and Metzer, 2019) and that it affected firms' responses to the global financial crisis (Campello, Graham, and Harvey, 2010; Duchin, Ozbas, and Sensoy, 2010; Chodorow-Reich, 2014). Recent work shows that financially flexible firms experienced relatively better stock price performance in the initial weeks of the pandemic (Fahlenbrach, Rageth, and Stulz, 2020; Ding, Levine, Lin, and Xie, 2020).

We extend this literature by studying the role of financial flexibility in firms' specific employment actions. In particular, we focus on two major labor decisions frequently announced

[1] We use the term "pandemic" when referring to the global spread and consequences of the virus SARS-CoV-2 and the related COVID-19 illness induced by the virus.
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during the first three months of the pandemic: (i) reduced workforce via furloughs and layoffs, and (ii) increased pay and/or hiring of essential additional workers. Examining how financial flexibility affected firms' workforces is important given the substantial policy and public concerns related to the initial level of pandemic-induced unemployment in the United States. Furthermore, despite the substantial and growing literature on the pandemic, very few papers study firm-specific decisions, instead focusing on aggregate or industry-level analyses. Our analysis examines discrete firm decisions for a prominent sample of U.S. employers, thereby complementing recent survey findings showing financial flexibility contributes to stronger employment and investment plans (Barry, Campello, Graham, and Ma, 2021).

We first descriptively study the effect of the pandemic on firms' propensity to announce workforce reductions or pay increases using detailed daily employment announcement data from March through May 2020. These data were primarily compiled by JUST Capital ("JUST"), a not-for-profit organization. In early March 2020, JUST began collecting data on corporate responses to the pandemic by the nation's 100 largest domestic employers. The information was collected from company disclosures and a thorough search of prominent media outlets. JUST launched the first "Covid-19 Corporate Response Tracker" on its website on March 23, seven days after the first shelter-in-place order was announced (in northern California) and the U.S. federal government issued its first coronavirus guidelines. We first spoke with JUST on April 7, 2020, after which we collaborated on a data collection process to augment the information publicly available on the JUST website and expand the sample of firms. The daily data permit tests of both the likelihood and timing of particular labor announcements during the early months of the pandemic.

The 354 large publicly traded companies in our sample collectively employ approximately 27 million workers worldwide, accounting for 38% of the total worldwide employment reported by

U.S. public firms as of the end of 2019. The sample includes companies across a range of industries.[2] All firms report assets in excess of $1 billion as of the end of 2019. 28.0% of the sample announced furloughs or layoffs, whereas one-quarter of the sample announced hourly pay increases, bonuses, or hiring of essential workers.

We expect that the likelihood a firm takes one of these two specific employment actions is primarily a function of how the pandemic affected the firm's operations. We identify whether a firm experienced a pandemic-induced negative demand shock based on whether the firm reported lower sales in the second calendar quarter of 2020 than it did in 2019. Our first tests then exploit the pandemic shock to descriptively compare and quantify employment actions by firms that were exogenously negatively shocked to a comparison group of firms that were positively shocked. Although these negatively shocked firms were similar to the positively shocked firms along a number of dimensions during the pre-pandemic period, we show that they were 28.8 percentage points more likely to reduce their workforce once the pandemic began. Furthermore, these firms announce workforce reductions more quickly, beginning on March 17, 2020. Despite the fact that a large proportion of the negatively shocked firms employed essential workers, we also find that these negatively shocked firms were 17.3 percentage points less likely than positively shocked firms to increase employee pay.

These magnitudes provide a baseline assessment to examine our primary research question: Did financial flexibility alter the impact of the pandemic-induced demand shock on a firm's workforce? We expect that financial flexibility will enable a firm to maintain its workforce during the pandemic. Specifically, we predict that the likelihood a negatively shocked firm announces a workforce reduction is attenuated among firms with greater financial flexibility. Similarly, we also

[2] Online Appendix Table 1 provides a list of the companies in the sample.

expect that financial flexibility will better enable firms to compensate their frontline workers during the pandemic. Indeed, several corporate disclosures from March and April of 2020 cite financial flexibility as a key determinant of corporate labor practices in the early days of the pandemic.[3]

However, *ex ante* it is unclear whether financial flexibility will influence the likelihood of these labor policy changes. First, prior literature shows that labor and capital do not necessarily move commensurately (Leon-Ledesma, McAdam, and Willman 2010; Chirinko and Mallick 2016; Lester 2019), implying that we could observe different effects than those in Duchin et al. (2010) when studying employment decisions. Second, given the uncertain nature of the pandemic, firms may have other pressing operational needs, investment commitments, or shareholder payout obligations that they prioritize over workforce decisions, particularly during the early months of the pandemic (e.g., Flitter and Eavis, 2020; Fung, 2020; Long, 2020).[4]

To test our prediction that financial flexibility attenuates the pandemic-induced negative demand shock, we sort the sample based on levels of financial flexibility as of the firm's most recent preceding year-end (2019). We regress labor policy changes on the interaction of the demand shock (defined above) and an indicator for whether firms had above-median levels of pre-pandemic financial flexibility. As predicted, we find that the propensity to reduce the firm's

[3] For example, Discover's CEO Roger Hochschild stated on March 12 that the company "has the financial resources to not only make it through this challenge but to continue providing a brighter future…My commitment to you is to put the people of Discover first" (Discover, 2020). Newmont said in a March 23 announcement that "as of December 31, 2019, the Company had $2.2 billion in consolidated cash and more than $5 billion dollars of liquidity, providing significant resources to manage through this global pandemic," and in an April 23 blog post that its "financial strength provides us with the flexibility to continue supporting our more than 15,000 employees in this way through the end of June" (Newmont, 2020).

[4] For example, Aon's CEO stated on April 27, "As we assess the economic risks on the horizon, we do not believe that these actions [suspending stock repurchases and discretionary spending] alone are enough to provide the operational flexibility we may require. That's why we are also asking colleagues across the firm to support us during this time with temporary compensation reductions" (Aon, 2020). When announcing furloughs on April 20, Coca-Cola stated that it chose "to implement certain cost-saving measures in the interest of our stockholders and to help support our financial position during this time of uncertainty" (Coca-Cola, 2020). Online Appendix Table 2 provides additional examples.

workforce varies with financial flexibility. Firms with low financial flexibility were 36.5 percentage points more likely to announce furloughs or layoffs relative to positively shocked firms, but this effect declines by 15.9 percentage points for firms with greater financial flexibility. However, we find little evidence that financial flexibility plays a role in determining pay increases across the sample.

We next examine cross-sectional variation in the moderating role of financial flexibility. First, we consider whether the use of a firm's cash to retain and pay employees during the pandemic is aligned with shareholders' interests or if the results imply a misuse of available cash by poorly governed companies (Jensen 1986; Bates, Kahle, and Stulz 2009; Fahlenbrach et al., 2020; Ding et al., 2020; Eldar and Wittry, 2020). For example, managers may use cash to maintain excess labor capacity during the pandemic to avoid the personal disutility of negative attention associated with workforce reductions (Bertrand and Mullainathan 2003). We find that financial flexibility plays a substantial role in the workforce reduction decision among the subsample of better-governed firms. In this subsample, the likelihood of reducing the workforce declines to 11.3 percentage points among firms with high financial flexibility.

Second, we consider whether the role of financial flexibility varies based on the asymmetry, or "stickiness," of a firm's cost structure. While a firm's costs may naturally increase as sales increase, firms with asymmetric or sticky costs do not cut the corresponding amount of costs when sales decline (Anderson, Banker, and Janakiraman 2003). This asymmetry occurs because the cost of restoring operations in some firms is greater than the cost of maintaining operations, such as in the case of companies that employ high skilled workers. We test whether the likelihood of employment actions varies as a function of both financial flexibility and sticky costs because the decision to maintain excess labor capacity is contingent on the firm having adequate financial

flexibility to pay employees. As predicted, we find that the attenuating role of financial flexibility occurs among firms with more asymmetric costs, which means that firms are less likely to announce workforce reductions (more likely to announce pay increases) if such decisions are less costly than having to find and train workers in the future. Specifically, the propensity to announce workforce reductions (pay increases) within this sample declines to 10.9 (increases to 6.3 percentage points) based on high and low financial flexibility, respectively. In contrast, firms with more symmetric costs report no variation in the likelihood of either policy based on financial flexibility.

Lastly, we study whether a firm's implicit commitments to workers affects the use of cash during the pandemic. This analysis is motivated by a nascent corporate financial literature that shows higher productivity and greater firm performance among firms with more favorable employment practices (Edmans 2011; Konings and Vanormelignen 2015; Gubler, Larkin, and Pierce, 2018; Rouen 2020). Furthermore, the pandemic has disproportionately affected minority groups and working mothers (Albanesi and Kim, 2021; Alon et al., 2021; Blau, Koebe, and Meyerhofer, 2021; Chetty et al., 2020), and understanding the extent to which firms have traditionally considered gender and diversity issues may help explain their pandemic response. Among the subsample of financially flexible firms with relatively stronger implicit commitments to workers, we observe a 7.1 percentage point likelihood of workforce reductions — an effect that is one-quarter of the average effect in the full sample and the lowest across all subsamples we examine. As financial flexibility declines, this propensity increases to 24.5 percentage points, but overall is still less than the 42.4 percentage point effect among firms with weaker commitments to workers. We also similarly observe similar contrasting effects when studying a firm's propensity to increase pay for frontline workers.

Across differing specifications and measures, the principal finding is that financial flexibility attenuates the negative effects of the pandemic. We observe economically and statistically different actions related to both workforce reductions and pay increases among a sample of similarly-sized large, public employers. These differences appear in part attributable to a firm's governance features, cost structure, and its historical treatment of workers.

The results are subject to two important caveats. First, the policies we measure are a function of those that are observed via corporate disclosures and media coverage, and thus we may not capture all labor-related decisions that occurred in our sample firms during this time period. While the primary source for these announcements are corporate disclosures, we note that many furloughs and layoffs are identified from national or local press articles, or from industry news coverage, mitigating concerns that the data suffer from significant bias or underreporting. Second, we focus on labor announcements in the first 90 days of the pandemic. We select this timeframe primarily because it captures immediate responses to the exogenous shock and thus can be more cleanly attributed to the pandemic. However, we acknowledge that many companies announced additional or updated policies after June 2020, and thus our results do not speak to the prolonged effects of the pandemic on workforce practices.

A new and substantial literature has emerged documenting the effects of the pandemic on corporate America. Much of this literature examines capital market responses to national events due to the salience of such events and readily available market data.[5] Other work studies aggregate effects (Chetty et al., 2020), uses survey data to study small business responses (Alekseev et al.,

[5] These studies include Acharya and Steffen, 2020; Albuquerque, Koskinen, Yang, and Zhang, 2020; Alfaro, Chari, Greenland, and Schott, 2020; Cheema-Fox, LaPerla, Serafeim, and Wang, 2020; Davis, Hansen, and Seminario-Amez, 2020; Ding et al., 2021; Fahlenbrach et al., 2020; Favilukis, Lin, Sharifkhani, and Zhao, 2020; Hassan, Hollander, van Lent, and Tahoun, 2020; Landier and Thesmar, 2020; Pagano, Wagner, and Zechner, 2020; Papanikolaou and Schmidt, 2020; and Ramelli and Wagner, 2020.

2020; Bartik et al., 2020; Bloom, Fletcher, and Yeh, 2020), and examines the effectiveness of Paycheck Protection Program (PPP) loans (Balyuk, Prabhala, and Puri, 2020; Granja et al., 2020). However, beyond Barry et al. (2021), there is scant evidence about large U.S. companies and the actions taken in early 2020. Given the substantial role that these firms play in the economy, additional empirical evidence beyond Barry et al. (2021) is needed to understand how these companies responded and in what way. Not only do we study a prominent sample of U.S. employers, but examining furloughs, layoffs, pay increases, and hiring adds to the concurrent literature that has primarily focused on an employee's ability to work from home (Brynjolfsson et al., 2020; Bick et al., 2020; Dingel and Neiman, 2020; Favilukis et al., 2020).

We also add to the prior literature examining the relation between financial flexibility and employment decisions (Chodorow-Reich, 2014; Caggese, Cunat, and Metzer, 2019). We use the recent exogenous shock to better identify the relation between a firm's net cash and its workforce. Our work relates to two recent papers, Fahlenbrach et al., 2020, which examines how a firm's financial flexibility affects its stock price reaction to the COVID-19 shock, and Barry et al. (2021). A central finding of Barry et al. (2021) is that workplace flexibility is a key concern to managers. Not only do we examine discrete employment actions to further offer evidence about a firm's workforce, but we consider how other firm characteristics (i.e., governance quality, cost asymmetry, and *ex ante* stakeholder commitments) influence the use of financial flexibility during negative demand shocks. To our knowledge, these interrelated factors have not been comprehensively documented in prior studies, thereby adding to the growing corporate finance literature on firm stakeholders (Agrawal and Matsa 2013; Kim 2020; Edmans 2011; Konings and Vanormelignen 2015; Gubler et al. 2018; Li, Lourie, Nekrasov, and Shevlin 2020; Rouen 2020; Welch and Yoon 2020).

Lastly, the evidence in this paper is informative for corporate managers evaluating and considering additional changes to their corporate labor practices, especially as both the public health and economic uncertainty of the pandemic continue in 2021. We provide detailed data and empirical evidence that permit managers to compare their selected pandemic labor policies to those of other large firms. We look forward to future research that incorporates additional data about corporate responses to the pandemic and further examines how such actions affected both employee and shareholder welfare.

2. Research Design, Sample Construction, and Descriptive Statistics

2.1 Descriptive tests

We first study how the pandemic-induced negative demand shock affected the likelihood that firms would take a specific labor action in March through May of 2020. We provide descriptive evidence of these decisions by estimating the following linear probability model:

$$\begin{aligned} EMPLOYMENT\ ACTION_i &= \beta_0 + \beta_1 DECREASED\ SALES_i + \beta_2 EMPLOYMENT_i \\ &+ \beta_3 PROFITABILITY_i + \beta_4 TANGIBILITY_i + \beta_5 INVENTORY_i \\ &+ \beta_6 SALES\ GROWTH_i + \beta_7 INVESTMENT\ GRADE\ IND_i + \varepsilon_{ip} \end{aligned} \quad (1)$$

The dependent variable *EMPLOYMENT ACTION*$_i$ is an indicator variable equal to one if firm *i* announced an employment action for its U.S. workers any time during the period from March 1 through May 31, 2020, and zero otherwise. We study two specific types of actions, *WORKFORCE REDUCTION*$_i$ and *PAY INCREASE*$_i$. *WORKFORCE REDUCTION*$_i$ is equal to one if a firm announced either a temporary furlough of workers or a permanent layoff of employees during this window, and zero otherwise. *PAY INCREASE*$_i$ is equal to one if a firm announced any increased compensation for frontline workers, such as hourly wage increases, salary increases, or bonus payments, or if a firm announced that it was hiring workers, and zero otherwise. Thus, both

measures reflect a range of employment actions that either increase (raises and hiring) or decrease (furloughs and layoffs) total compensation. These data were collected in spring 2020 (see Section 2.3 for a detailed description). Online Appendix Table 3 provides examples of company excerpts related to each policy.

While all firms in the sample were affected by the exogenous pandemic shock, the manner in which the pandemic affected companies varied widely. To separate firms that were either adversely or favorably shocked, we include *DECREASED SALES*$_i$, an indicator equal to one if a firm reported a reduction in sales from the second quarter of 2019 to the second quarter of 2020 (Compustat SALE), and zero otherwise. We include this variable because we expect that the likelihood that a firm takes a particular employment action will, in part, be a function of how the pandemic affected the firm's operations. For example, demand for some firm's products and services, such as air travel and hotels, vanished within a few days, resulting in firms furloughing or laying off workers. Other firms, including financial institutions and consumer goods businesses, experienced a smaller decline in demand and due to the nature of their business, continued to require employees to work on-site. This group of negatively shocked firms likely did not announce workforce reductions and may have instead provided compensatory incentives to retain their frontline workers. In comparison to both of these groups, a third set of firms, including Amazon, Home Depot, and Target, experienced substantial spikes in sales, necessitating compensatory increases and possibly firm hiring. Our sample reflects all such companies.

Inclusion of *DECREASED SALES* in Eq. (1) means that the specification compares the likelihood of *WORKFORCE REDUCTION* or *PAY INCREASE* for firms with a negative demand shock (β_1) to those that were positively shocked. Ideally, we would compare the likelihood of these employment actions to a control sample of firms that are similar across a number of firm

characteristics but that were unaffected by the pandemic. However, the pandemic affected all firms in the sample, and thus there is no available control sample. Instead, the empirical tests exploit the shock to compare employment actions by firms that were exogenously negatively shocked to a comparison group of firms that were positively shocked. Section 2.4 provides descriptive statistics about these two subsamples, demonstrating that these firms are similar along a number of dimensions based on pre-pandemic firm characteristics. The similar characteristics, coupled with the inclusion of control variables in Eq. (1), mitigate the concern that factors other than the exogenous pandemic shock are responsible for the employment outcomes we study.[6] We expect that firms with a negative demand shock will be more likely to announce *WORKFORCE REDUCTION*$_i$ as compared to those firms that were positively shocked ($\beta_1>0$). Conversely, compared to firms that experienced a positive shock, these negatively shocked firms should be less likely to announce *PAY INCREASE*$_i$ ($\beta_1<0$).

We control for firm characteristics related to firm labor decisions following prior literature (Bae, Kang, and Wang 2011; Agrawal and Matsa 2013; Williams 2018; Lester 2019; Rouen 2020). All control variables are calculated using data from Compustat and measured at the end of 2019 to avoid the influence of the pandemic on a firm's pre-pandemic characteristics. *EMPLOYMENT*$_i$ is equal to the natural logarithm of the firms' total worldwide employment (EMP) and controls for both a firm's size, as well as differing demands for employment policies. *PROFITABILITY*$_i$ controls for the pre-pandemic performance of the firm, which may influence the firm's propensity to use corporate liquidity for pandemic labor actions. It is measured as earnings before

[6] Several papers assert that the pandemic can be treated as an exogenous shock. For example, Albuquerque et al. (2020) state, "we argue that the COVID-19 pandemic presents an unparalleled shock. First, the COVID-19 crisis and the subsequent economic lockdown is an unexpected shock to global markets. Second, it is an exogenous shock that originated out of public health concerns, not because of economic conditions. Third, the pandemic resulted in a stock market crash… creating the opportunity for event study" (pg 1). Furthermore, Fahlenbrach et al. (2020) state, "there is no reason to believe that the balance sheets and income statements of firms at the end of the fiscal year 2019 were in any way affected by anticipations of a risk of a COVID-19 crisis" (page 6).

extraordinary itemse scaled by total assets. We also control for *TANGIBILITY*$_i$ and *INVENTORY*$_i$, as businesses with greater fixed assets or goods for sale may be more labor intensive. These variables are measured as the proportion of total assets that are fixed assets (PPENT) or inventory (INVT), respectively. We control for a firm's growth opportunities with *SALES GROWTH*$_i$, which is equal to the percent change in total sales from 2018 to 2019.[7] Finally, we control for a firm's credit rating as a measure of the firm's ability to access external financing. *INVESTMENT GRADE IND* is an indicator equal to one if a firm has an investment grade rating of BBB- (using S&P ratings obtained from Capital IQ), or zero otherwise. We construct the measure based on the BBB- rating because concurrent work documents that those firms had the greatest change in their borrowing practices during the pandemic (Acharya and Steffen, 2020). Controlling for external financing better isolates the role of internal cash holdings for our subsequent tests on financial flexibility. Appendix A defines all variables. We estimate Eq. (1) at the firm level (n=354).

2.2 Financial Flexibility and COVID Employment Actions

Our primary research question is whether a firm's pre-pandemic financial flexibility altered the impact of the pandemic-induced demand shock on a firm's workforce. To test this question, we augment Eq. (1) and estimate the following linear probability model specification:

$$\begin{aligned} EMPLOYMENT\ ACTION_{i,t} &= \beta_0 + \beta_1 DECREASED\ SALES_i + \beta_2 HIGH\ NET\ CASH_i \\ &+ \beta_3 DECREASED\ SALES_i * HIGH\ NET\ CASH_i + \beta_4 EMPLOYMENT_i \\ &+ \beta_5 PROFITABILITY_i + \beta_6 TANGIBILITY_i + \beta_7 INVENTORY_i \\ &+ \beta_8 SALES\ GROWTH_i + \beta_9 INVESTMENT\ GRADE\ IND_i + \varepsilon_{ip} \end{aligned} \quad (1)$$

EMPLOYMENT ACTION$_{i,t}$, *DECREASED SALES*$_i$, and control variables are as described previously. *HIGH NET CASH* is the primary measure of financial flexibility and is an indicator

[7] We control for *SALES GROWTH*$_i$ in lieu of the ratio of the market value of equity to the book value of equity (*MTB*$_i$), so as to retain several firms in the relatively small sample that have negative book value of equity due to historical financial statement losses.

equal to one if a firm has above-median pre-pandemic levels of cash and short-term investments net of short-term obligations (CHE less DLC, scaled by total assets AT).[8] Given prior work on financial flexibility, we do not make predictions for β_2 (the effect of financial flexibility among positively-shocked firms) but instead focus on the interaction of financial flexibility and the negative demand shock (β_3). Prior literature supports the prediction that firms with greater financial flexibility will be able to sustain their human capital investments, particularly in times of financial distress (Duchin et al. 2010; Caggese et al. 2019). Consequently, while we expect an increased likelihood that negatively-shocked firms will announce *WORKFORCE REDUCTION*$_i$ ($\beta_1>0$) as discussed above, we predict that this effect will be attenuated among firms with greater financial flexibility ($\beta_3<0$). Conversely, while we expect a decreased likelihood that negatively shocked firms will announce *PAY INCREASE*$_i$ ($\beta_1<0$) for their frontline workers, we predict an attenuated effect among financially flexible firms ($\beta_3>0$).

2.3 Sample construction

We obtain data about firms' pandemic responses from JUST Capital, a not-for-profit organization that "measures and ranks companies on the issues Americans care about" (JUST Capital, 2020). JUST's flagship program is an annual ranking of firms in the Russell 1,000. Using hundreds of data points from firm disclosures, data providers, local and national governments, and its own data collection processes, JUST ranks firms on their treatment of employees, the environment, the local community, their customers, and their shareholders.[9] We use a subset of these rankings in later analysis (see Section 4.3).

[8] Online Appendix Table 4 shows that results are qualitatively unchanged when alternatively using an indicator based on total cash, as well as using a continuous measures of net cash. The use of net cash as our primary measure reflects that financially flexible firms "have more cash, less short-term debt, and less long-term debt at the end of 2019" (Fahlenbrach et al., 2020, page 1).

[9] The ranking of "The Most Just Companies in America" is featured each year in Forbes, and many companies prominently display their high ranking on their corporate website and in marketing materials. In response to demand for Environment, Social, and Governance (ESG) investment vehicles, Goldman Sachs Asset Management in 2018

In March 2020, JUST Capital began collecting data about pandemic responses by the country's largest domestic employers, with the goal of providing real-time information to corporate managers, employees, and the public. The original JUST Capital COVID-19 Corporate Response Tracker reported the pandemic-related actions of the 100 largest U.S. employers on March 23rd. Actions included in the Tracker were obtained by searching company filings and major news sources and relate to the steps taken by these companies for its domestic workforce.[10] After the initial release, the Tracker was updated for these same 100 firms on March 31, April 19, April 29, and May 7, replacing original actions on the JUST Capital website to reflect updates or new firm announcements. During May, JUST expanded the Tracker to include an additional 200 companies and posted actions for all 300 firms on its website on June 1, 2020.

Our initial conversation with JUST occurred on April 7, 2020. Subsequently, researchers at JUST trained the authors and a team of research assistants on the data collection methodology. Applying this methodology, we augmented the JUST data collection in three ways. First, to ensure that our data reflected a precise history of events for the additional companies added to the Tracker, we used JUST's historical snapshots and the Internet Archive to identify policies announced in early March that had since been removed from corporate websites and/or superseded on the JUST

launched an exchange traded fund (ETF) composed of the top-ranked JUST firms. On its first day of trading, the fund attracted more than $250 million in assets, making it the most successful ESG ETF launch to date. For more discussion of JUST Capital, see Rouen and Wang (2019).

[10] JUST Capital's Corporate Response Tracker collects data on a number of actions in addition to the employee-related ones that we examine here. For example, they also collect data on customer policies (adjusted hours of operation), community relief efforts (funds, services, and corporate product/distribution/logistical support), and supply chain impacts. Additionally, the Tracker covers additional worker categories not studied here, including work-from-home policies, health and safety of workers, accommodations, paid sick leave, caregiving accommodations, and executive pay cuts. Because almost all firms report a work-from-home policy and disclose health and safety precautions for workers, and because these policies were often required under local city, county, and state restrictions, we do not study these in the empirical analysis. We also exclude executive pay cuts given that executive pay structure is vastly different than the pay structure for most employees who are the focus of this paper. See the online tracker posted on JUST's website for more discussion of these practices (https://justcapital.com/reports/the-covid-19-corporate-response-tracker-how-americas-largest-employers-are-treating-stakeholders-amid-the-coronavirus-crisis/#the-covid-19-response-tracker).

COVID Tracker.[11] Second, we expanded the sample, adding an additional 65 large publicly-traded domestic companies identified using similar criteria. Third, we conducted additional searches to verify and augment the data provided by JUST. These steps yielded our final sample of 354 firms with requisite data for the empirical tests.[12]

2.4 Descriptive Statistics

Figure 1 presents descriptive statistics about the companies included in the sample. 32.8% of sample firms are in the Manufacturing industry, with relatively equal distribution of companies in Wholesale and retail trade (16.1%), Finance and insurance (16.4%), Transportation/Communication (15.3%), and Services (15.8%). Over half of the sample report between 10,000 and 50,000 total worldwide employees.[13] 47.2% (16.7%) of the firms have $10-$50B of assets ($100B-$500B of assets). Table 1 tabulates the proportion of sample employment and assets by industry. While manufacturing firms are the predominant industry, they compose only 17.2% of the sample firms' total assets as seen in Column (4). In contrast, financial firms account for approximately 60% of the sample firms' total assets. Online Appendix Table 1 lists the 354 firms, and Figure 2 shows that the sample firms' headquarters are spread across the United States. While the descriptive statistics demonstrate the extent to which the sample is comprised of large firms, measured with both total assets and workforce size, they also reveal important operating and geographic heterogeneity. These statistics mitigate concerns that the results are

[11] We assign a date based on the day of the disclosure or press article. To the extent that a date is not listed, we assign either the earliest date that the webpage appears on the Internet Archive around March 23rd and March 31st (the dates that correspond with the first two COVID-19 tracker releases), or if otherwise unavailable, the date when the article was found by the research team.

[12] In total, data were collected on 365 firms identified based on a combination of estimated or disclosed employment and some limited financial characteristics. We drop ten firms due to mergers or acquisitions that occurred immediately preceding or during the sample period (Allergan, Arconic, Caesars, Carrier Global, FOX, Howmet Aerospace, Otis Worldwide, Raytheon, Sprint, and United Technologies Corp), and one firm due to a non-corporate entity type (Icahn Enterprises).

[13] Because the domestic workforce amounts are estimated by JUST given that they are generally not disclosed, we tabulate descriptive statistics on worldwide employment using mandated disclosures in firm financial statements.

driven by disproportionate representation of a particular industry or geographic region with a lax (or stringent) response to the pandemic.

Table 2 reports additional descriptive statistics. Panel A shows that, of the 354 firms in the sample, 69.5% had *DECREASED SALES*$_i$. The average firm had *CASH*$_i$ and *NET CASH*$_i$ equal to 9.3% and 5.2% of total assets, respectively. More than a quarter of the sample had negative net cash as of the fiscal year-end preceding the pandemic, meaning that these firms' short-term obligations (debt obligations due within one year) exceeded their total cash balances. The main analysis uses the indicator, *HIGH NET CASH*$_i$, which is equal to one for firms with *NET CASH*$_i$ greater than 2.5% of total assets (the median value), and zero otherwise.

Table 2, Panel A also displays the proportion of the sample announcing the two types of employment actions studied. Figure 3, Panel A depicts these statistics by graphing the number of first-time actions by the sample firms on a weekly basis, where the lighter (darker) colors correspond to a relatively lower (higher) proportion of actions within that two-week period. 28.0% of firms had *WORKFORCE REDUCTION*, either through furloughs or layoffs. One quarter of the sample announced *PAY INCREASE*$_i$. Figure 3, Panel B presents a similar weekly analysis but uses the total number of actions by sample firms. The shading demonstrates that these actions were clustered in the last two weeks of March and first two weeks of April. Figure 2, Panels B through D, maps the number of policies by firm-month, where the size of each dot captures the number of policies announced at a particular firm headquarters location. This "policy intensity" is mapped against the number of reported COVID-19 cases at the county-level, with lighter colors (darker colors) reflecting fewer (more) cases.

Table 2, Panel A also provides descriptive information for the control variables included in Eq. (1). The median (average) firm had 40,000 (76,913) worldwide employees. The firms are

profitable, reporting an average 5.3% return on assets. 27.6% (7.1%) of firms' assets are in tangible fixed assets (inventory), and firms on average report sales growth of 5.9% in the year preceding the pandemic. Approximately 63% of firms in the sample have investment grade rated debt.

Table 2, Panels B and C provide descriptive statistics about the subset of firms with *DECREASED SALES* (n=246) and the comparison group of firms with *INCREASED SALES* (n=108). As discussed above, one potential concern is that these groups are inherently different due to underlying firm characteristics, and these differences drive the observed employment actions rather than the pandemic shock. This explanation seems unlikely, particularly given the exogenous nature of the pandemic shock (Fahlenbrach et al., 2020). However, a related and plausible concern is that pre-pandemic financial flexibility is endogenous to the firm and thus any variation in pandemic response we study may be attributable to factors that are correlated with the nature of the pandemic shock (measured with *DECREASED SALES*) or a firm's cash holdings, but are not separately controlled for in Eq. (2).

We address these endogeneity concerns in two ways. First, to assess differences across these subsamples, we compare the 246 firms with a *SALES DECREASE* to the 108 firms with a *SALES INCREASE*. Table 2, Panel B shows that these two groups exhibit a very similar industry distribution, with a slightly higher (lower) proportion of the *SALES DECREASE* firms in manufacturing (wholesale and retail trade). Table 2, Panel C shows that the samples are not statistically different among five of seven financial measures, including $EMPLOYMENT_i$, $ASSETS_i$ (the natural logarithm of total assets), $TANGIBILITY_i$, $INVENTORY_i$, and $INVESTMENT\ GRADE_i$. While the first two are largely attributable to sample construction, the lack of differences on other characteristics confirms that the samples are composed of companies with similar capital intensity

and access to external financing. We do, however, observe that these firms differ in pre-pandemic *PROFITABILITY* (1.5 percentage points) and *SALES GROWTH* (6.5 percentage points). Therefore, we include all of these variables as controls when estimating Eq. (1) and (2) as a second way to mitigate concerns that these effects drive the results we observe.[14] These steps, in tandem with our research design that leverages the exogenous pandemic shock for identification, permit an assessment of the extent to which financial flexibility affected firm's employment actions during the pandemic.

3. Results

3.1 Descriptive evidence: Pandemic-induced demand shock and employment actions

Table 3, Panel A presents results from estimation of Equation (1). Column (1) presents results for *WORKFORCE REDUCTION*, and Column (2) presents results for *PAY INCREASE*. Recall that the β_1 coefficient captures whether the likelihood of a specific employment action differs for firms with *DECREASED SALES*, as compared to those firms with a positive pandemic-induced shock. In Column (1), we observe that *DECREASED SALES* is positively and significantly associated with *WORKFORCE REDUCTION*. The coefficient of 0.288 means that a firm with a pandemic-induced negative demand shock is 28.8 percentage points more likely to announce furloughs and layoffs than a firm that did not experience a negative shock. This magnitude appears reasonable based on survey evidence from smaller businesses that are likely more susceptible to negative effects of the pandemic.[15] While the effect we observe appears lower than that for small

[14] Ideally, we would also examine whether the two subsamples exhibited similar trends in the employment actions we study in the pre-pandemic period. However, due to the fact that firms were much less likely to publicly disclose routine compensation changes and workforce reductions that occurred in the natural course of pre-pandemic operations, as well as the extremely time-intensive process necessary to hand-collect data, we do not have historical microdata on firms' labor policies in the pre-pandemic period and thus are unable to formally assess the parallel trends with respect to firms' pay, hiring, furlough, and layoff practices over the preceding years.

[15] For example, Alekseev et al. (2020) show that 44.5% of small businesses reduced the number of active employees via both furloughs and layoffs, and Bartik et al. (2020) find a 40% reduction in employee counts in their sample.

businesses, related data suggest that the effect is still extremely large. For example (and recognizing that it is challenging to compare the likelihood of layoffs during the pandemic to the likelihood prior to March 2020), according to the Bureau of Labor Statistics (BLS), the average rate of layoffs to total employment from 2015 to 2019 was 1.4%.[16]

The results show that control variables are also important in these workforce reduction decisions. For example, firms with greater levels of pre-pandemic inventory were more likely to furlough or lay off workers: a one-standard-deviation change in inventory levels (equivalent to 9.8 percentage point increase in ratio of inventory to total assets, based on Table 2) is associated with a 10.2 percentage point increase in the likelihood of *WORKFORCE REDUCTION*. The coefficients for *EMPLOYMENT* and *TANGIBILITY* approach statistical significance, suggestive that larger and more capital-intensive firms engage in these reductions. Firms with investment grade debt are 12.6 percentage points less likely to announce furlough and layoffs.

Column (2) reports results from studying the relation between *DECREASED SALES* and *PAY INCREASE*. The coefficient of -0.173 means that a negative pandemic-induced demand shock is associated with a 17.3 percentage point lower likelihood of providing compensatory increases, as compared to firms that are positively shocked. Again, this effect is notable for its size, especially considering that overall average private sector wages increased during this period, according to the St. Louis Federal Reserve.[17] Column (2) shows that the only other significant determinant of this employment action is workforce size, conditional on the sample already including the largest U.S. companies.

[16] These data were obtained from the BLS Job Openings, Layoffs, Turnover, and Separations dataset. The unit of measurement is at the employee level - not the firm level as in our sample – and thus is not directly comparable. However, in the absence of other publicly available firm data on firm furloughs and layoffs, this amount provides some relative sense of the large magnitude documented in Table 3.

[17] Wage data were obtained from https://fred.stlouisfed.org/series/CES0500000003.

In addition to estimating Eq. (1) using OLS, we also use the daily company policy announcements to formally test the timing of policy implementation. We not only expect that negatively shocked firms will be more (less) likely to announce *WORKFORCE REDUCTION*$_i$ (*PAY INCREASE*$_i$), but also that these firms will announce these actions sooner (later) than positively shocked firms. Thus, we estimate hazard models for each policy, where the dependent variable is defined as the "time to event" and measures the number of days since March 1st (the start of our sample period) that the action was announced by firm *i*.

Figure 3 presents graphs from the hazard models that use daily data to plot *WORKFORCE REDUCTION* (Panel A) and *PAY INCREASE* (Panel B). The lines plot, on a daily basis, the proportion of firms with a specific workforce action. The dashed line in both figures represents firms with *DECREASED SALES*, and the solid line reflects those firms with *INCREASED SALES*. Consistent with the regression results, Panel A graphically shows that the likelihood of *DECREASED SALES* firms announcing furlough and layoff actions is much higher than that of *INCREASED SALES* firms, with a divergence occurring around March 17th. A log-rank test for equality of the survivor functions in Table 3, Panel B confirms statistically different hazard functions (p-value = 0.0000), providing additional support for the OLS results.

Figure 3, Panel B shows the hazard figure for *PAY INCREASE*. The figure demonstrates that firms with *SALES DECREASE* were less likely and slower to implement these compensatory actions. Tests of equality of survivor functions tabulated in Table 3, Panel B again confirm statistically different hazard functions (p-value = 0.0005). That said, the figure also shows that a nontrivial proportion of *DECREASED SALES* companies announced *PAY INCREASE*, presumably due to the employment of essential front-line workers. Across the two panels, we thus observe differing employment actions within the set of *DECREASED SALES* firms, implying heterogeneity

in workforce composition and pandemic responses within this subsample. We further explore these effects in Section 3.2.

The evidence from Table 3 shows that, despite exhibiting similar firm characteristics in the pre-pandemic period, the pandemic had economically and statistically different effects on sample firms' employment actions. The results demonstrate the following two findings. First, firms with a pandemic-induced negative demand shock were 28.8 percentage points more likely to furlough and lay off workers as compared to those firms positively shocked by the pandemic, and these firms did so relatively quickly in March 2020. Second, negatively-shocked firms employing essential workers were 17.3 percentage points less likely to provide pay increases relative to positively shocked firms with similar workforce demands and, when they did so, announced these actions more slowly. The results provide the basis on which to next assess whether and to what extent financial flexibility altered these effects.

3.2 The role of financial flexibility in the relation between the pandemic-induced demand shock and employment actions

Table 4 reports results from estimating Eq. (2) to test our primary research question. Specifically, Column (1) tests whether the increased likelihood of *WORKFORCE REDUCTION*$_i$ among the negatively shocked firms varies based on a firm's financial flexibility. Column (2) tests the role of financial flexibility for *PAY INCREASE*. By measuring the pandemic-induced demand shock based on whether the firm had *DECREASED SALES* and including the interaction with *HIGH NET CASH* (defined based on the median value), the tests effectively examine the likelihood of labor announcements within four subsamples of firms: i) negatively shocked firms with below-median levels of net cash; (ii) negatively-shocked firms with above-median levels of net cash; iii) positively shocked firms with below-median levels of net cash; and (iv) positively shocked firms

with above-median levels of net cash. The main effect of *DECREASED SALES* (β_1) in Columns (1) and (2) captures whether the likelihood of an employee action for those negatively-shocked firms with below-median levels of net cash is different than positively-shocked firms that also have below-median levels of net cash. That is, β_1 measures the effect of the pandemic-induced demand shock among firms with similarly low levels of pre-pandemic internal capital by comparing group (i) to group (iii). The coefficient on the interaction term *DECREASED SALES*HIGH NET CASH* (β_3) is the coefficient of interest and demonstrates whether — after considering the average effect of the pandemic on negatively shocked firms as captured with β_1 — corporate responses to the pandemic differ among firms with relatively higher levels of pre-pandemic financial flexibility. Specifically, this coefficient captures any incremental (and potentially attenuating) effect of a firm's net cash by comparing if the difference in groups (ii) and (iv) (firms with above-median financial flexibility) is greater than the difference in groups (i) and (iii) (firms with below-median financial flexibility).

Across both columns, the β_1 coefficients are of similar sign and significance, but appear larger in magnitude, as those in Table 3. For example, the coefficient of 0.365 on *DECREASED SALES* in Column (1) means that negatively shocked firms with relatively low levels of pre-pandemic net cash were 36.5 percentage points more likely to announce furloughs and layoffs as compared to positively shocked firms with similarly low levels of cash. In Column (2), the coefficient of -0.231 on the main effect of *DECREASED SALES* means that negatively shocked firms with relatively low levels of pre-pandemic net cash were 23.1 percentage points less likely to announce *PAY INCREASE* as compared to positively shocked firms with similarly low levels of cash.

We then assess whether financial flexibility attenuates these effects. To do so, we compare the effect of the pandemic-induced demand shock on firms with relatively high financial flexibility. In Column (1), we observe a negative coefficient of -0.159 on the interaction term, which means that the likelihood of furloughs and layoffs among the negatively shocked firms with higher financial flexibility was 15.9 percentage points lower than firms that experienced a similar negative shock but had less pre-pandemic internal capital. The results confirm the prediction that financial flexibility attenuates the propensity of a firm to announce workforce reductions in response to the pandemic-induced demand shocks. However, we observe no statistically significant effect in Column (2) when testing pay increases, suggesting little effect on average in the sample for this employment action.

In summary, Table 4 shows that financial flexibility attenuates the effect of the pandemic-induced negative demand shock on the likelihood of workforce reductions. This result is consistent with the prediction that financially flexible firms are more likely to sustain their workforces at pre-pandemic levels. However, we find little evidence that financial flexibility is associated with the propensity to provide pay increases for front-line workers. We next examine whether other firm characteristics for financially flexible firms explain a firm's propensity to take these two employment actions.

4. Heterogeneity in the role of financial flexibility

4.1 Source of Financial Flexibility: Precautionary Savings or Agency-induced Cash Holdings

A natural question is whether the attenuating effect of financial flexibility on *WORKFORCE REDUCTION*, and to a lesser extent on *PAY INCREASE*, reflects an appropriate use of a firm's internal capital or if the results instead imply a misuse of available cash by poorly-governed firms. We test this question by further partitioning the sample based on a firm's pre-

pandemic governance quality, where we identify "low governance" firms as those with a below median Institutional Shareholder Services (ISS) Governance "QualityScore." We select this measure because it uses a rigorous methodology and encompasses a large and broad number of governance-related factors identified by the highly-regarded ISS.[18] Table 2, Panel A shows that the average firm reports a score of 4.81; the median value used to partition firms is 4.41, where a higher score represents worse governance. We report results from this analysis in Table 5.

We observe that the attenuating effect of financial flexibility on the likelihood of *WORKFORCE REDUCTION* occurs primarily in firms with relatively higher levels of governance, as seen in Column (1). The coefficient on β_1 of 0.526 means that well-governed firms were 52.6 percentage points more likely to engage in workforce reductions, compared to positively shocked firms with similarly low levels of financial flexibility. However, the coefficient on the interaction term, -0.413, means that this likelihood is attenuated by financial flexibility and significantly declines by 41.3 percentage points to 11.3 percentage points. That is, among those sample firms that are better-governed, the decision of whether to furlough or layoff workers during the first months of the pandemic hinges on a company's available cash reserves.

In contrast, we observe that firms with relatively weaker governance report a 20.1 percentage point higher likelihood of workforce reductions, and this effect is not attenuated as financial flexibility increases. Tests of the interaction term across the two columns confirm that the difference in the interaction *SALES DECREASE*HIGH NET CASH* is statistically significant (p=0.008). These results are notable for two reasons. First, they imply that the propensity to use financial flexibility on one's workforce in the face of a negative shock varies based on the quality of corporate governance. Second, these results highlight that not all corporate labor decisions are

[18] For a full description of the QualityScore and its methodology, see https://www.issgovernance.com/ esg/ratings /governance-qualityscore/.

merely a tradeoff between shareholders and employees' preferences. Our results suggest that well governed firms use their financial flexibility to help employees. In short, our results fit with prior literature in confirming that cash holdings are viewed and used differently in firms that may exhibit agency problems (Harford, 1999; Bates et al., 2009; Duchin et al., 2017).

We also test *PAY INCREASE* across the two partitioned subsamples. Better governed firms experiencing a negative shock exhibit no differing propensity to increase pay as compared to better governed firms that were positively shocked, based on the lack of statistically significant coefficients in Column (3). That is, regardless of whether firms were negatively or positively shocked or the level of financial flexibility within the firm, better governed firms compensate their front-line workers when those workers were exposed to greater health risk. In contrast, we find that the lower likelihood of announcing compensatory increases observed in Tables 3 and 4 is concentrated in firms with relatively weaker governance. Observing no variation based on the statistically insignificant interaction term in Column (4) means that even those firms with a greater ability to fund pay increases did not do so.

In summary, the results in Table 5 show that financial flexibility played an important role in better governed firms' workforce reduction practices, attenuating these firms' overall higher propensity to furlough or lay off workers. We also observe that these better-governed firms appear to make similar *PAY INCREASE* decisions as their positively-shocked peers, meaning that employment and operational concerns were more important than financial flexibility in determining this type of employment action. In contrast, the worse-governed firms' decisions appear primarily informed by the nature of the pandemic shock and exhibit no variation based on the level of available internal capital. Collectively, the results a firm's governance structure is associated with these workforce decisions.

4.2 Financial Flexibility for Firms with "Sticky" Cost Structure

We next examine whether a firm's cost structure affects firms' pandemic employment actions. Prior research demonstrates that a firm's cost structure affects corporate responses to fiscal distress (e.g., Anderson et al. 2003; Cannon 2014). For example, Cannon (2014) shows that, when demand falls, a firm's cost structure directly affects the extent of price reductions. In particular, we focus on whether or not a firm has asymmetric, or "sticky" costs, which means that a firm's variable costs do not move commensurately with sales, particularly in the case of a negative shock to revenues. While a firm's variable costs may naturally increase as sales increase, firms with asymmetric or sticky costs cannot cut the corresponding amount of costs when sales decline. One possible reason is that a firm's workforce is relatively skilled or highly-educated, meaning that furloughing or reducing workers in the short-run introduces much higher search, training, and other transaction costs in subsequent periods when the workforce level is restored.

We expect that the cost structure of the firm (i.e., whether it is historically asymmetric) will impact the propensity of a firm to announce *WORKFORCE REDUCTION*. Specifically, we expect that firms with stickier costs will be less likely to furlough and lay off workers because it will be more difficult and more costly to replace these workers in future periods. We identify firms with an asymmetric cost structure following Jang, Yehuda, and Radhakrishnan (2017) by using up to 10 years of quarterly data to estimate firm-specific regressions that capture differences in the association between cost changes and sales changes when sales increase and decrease; see Appendix A. Table 2, Panel A shows reports mean (median) *COST STICKINESS* of 0.128 (0.017), which is equal to the ratio of a firm's cost sensitivity to a decrease in sales divided by the cost sensitivity to an increase in sales.

Table 6, Columns (1) and (2) report results of the relation among *WORKFORCE REDUCTION, SALES DECREASE,* and *HIGH NET CASH* after partitioning firms based on whether they have an asymmetric cost structure. The coefficient of 0.489 in Column (1) means that within low-net-cash firms, those facing a negative demand shock were 48.9 percentage points more likely than positively shocked firms to furlough or lay off workers. However, among firms that had higher net cash, the propensity of negatively shocked firms to reduce their workforce declines by 38.0 percentage points based on the negative coefficient on the interaction term. That is, the likelihood of a workforce reduction for negatively shocked firms with an asymmetric cost structure is only 10.9 percentage point higher than the likelihood for positively shocked firms with similar levels of high financial flexibility and asymmetric costs.

As with the governance results, these results imply that whether the predicted asymmetric cost theory applies in this setting hinges on the firm's financial flexibility: Firms with "sticky" costs use their financial flexibility to keep workers employed because these firms may otherwise face larger transaction costs in future years. However, if these firms do not have sufficient internal capital, the firm announces workforce reductions. In contrast, less financially flexible firms with more symmetric costs have a 24.9 percentage point higher likelihood of announcing *WORKFORCE REDUCTION* as compared to those positively shocked firms with similarly low levels of financial flexibility, and this result does not vary based on whether the firm has *HIGH NET CASH*. Tests of the interaction terms across the columns confirms that the difference of 0.403 is statistically significant. That is, firms with a symmetric cost structure seem no more or less likely to use their financial flexibility to retain workers, possibly because it may be relatively easier or less costly to replace these workers in the future.

Sticky cost theories do not have clear predictions for *PAY INCREASE*, but for completeness, we examine variation in firms announcing this employment action in Columns (3) and (4). Across both columns, we observe β_1 coefficients of similar size and significance, meaning that the propensity of negatively shocked firms with low financial flexibility to increase worker compensation does not vary based on a firm's cost structure. However, we observe that this effect is completely attenuated among firms with high financial flexibility in Column (1). That is, the coefficient on the interaction term of 0.294 means that those firms with stickier costs appear 6.3 percentage points *more* willing to use their financial flexibility to provide workers with pay increases as compared to positively shocked firms with similar levels of pre-pandemic capital. This suggests that firms with asymmetric costs use their financial flexibility to compensate or hire workers, thereby providing an incentive for employees to remain at the firm. In contrast, we observe no attenuation in Column (4) — similar to the pattern of results in Column (2) — and tests across the columns confirm that the interaction terms are statistically different (p=0.051). In summary, across both actions studied, we see that the role of financial flexibility in a firm's pandemic employment response varies based on a firm's cost structure.

4.3 Financial Flexibility and Pre-pandemic workforce policies

Finally, we test whether we observe variation in the likelihood of the two employee actions based on implicit commitments made to their employees. We proxy for these implicit commitments using measures of a firm's historical treatment of their workers. We examine implicit commitments to employees for two reasons. First, in recent years, corporate managers, investors, academics, and the broader public have demonstrated an increasing interest in stakeholder concerns. For example, in August 2019, corporate managers from 207 companies, reflecting 33% of our sample (108 of the firms in our sample), announced an explicit interest in

considering stakeholder matters, such as issues related to employees and the broader community (Business Roundtable, 2019). Reflecting this shift in corporate behavior, the academic corporate finance literature includes an increasing number of studies focused on employee and stakeholder concerns (e.g., Edmans 2011; Konings and Vanormelignen 2015; Gubler et al. 2018; Li, Lourie, Nekrasov, and Shevlin 2020; Rouen 2020; Welch and Yoon 2020). In addition, a nascent body of literature suggests that firms with policies that are favorable to employees have higher productivity and greater firm performance (Edmans 2011; Konings and Vanormelignen 2015; Gubler et al. 2018; Rouen 2020). This relation between employee policies and firm performance is due, in part, to investment in employees that increase the value of human capital (Regier and Rouen 2021). Firms with policies favorable toward employees are therefore more likely to have invested in developing human capital, making them more reluctant to reduce their workforces.

Second, and specific to this setting, employee concerns were extremely salient during the first months of the pandemic, evident in the magnitude of the employment-focused provisions in the CARES Act, the substantial press coverage of such matters, and the rise of employee crowd-sourced sites such as Talent Airport and Layoffs.fyi.

Therefore, we examine whether a firm's pre-pandemic commitment to workers played a role in a company's propensity to announce *WORKFORCE REDUCTION* or *PAY INCREASE.* When faced with high uncertainty, some financially flexible firms may choose to reduce their labor bill to further increase their savings, or to use internal capital for firm operations, investment commitments, or shareholder payouts (Flitter and Eavis, 2020; Fung, 2020; Long, 2020). A firm's decisions on what to fund or cut when under distress will reflect business demands, as well as the firm's underlying prioritization of shareholders relative to other stakeholders.

We partition our sample based on whether the firm has an above median score on JUST Capital's annual firm-specific, pre-pandemic workforce index (*EMPLOYMENT SCORE*). This ranking is based on wages, benefits, training opportunities, and safety measures offered to employees.[19] A higher score means that the firm's policies are generally more favorable to workers. Firms that have an *ex ante* commitments to providing their workers with superior wages, benefits, training, and safety protocols should be less (more) likely to reduce their workforce (retain workers and increase compensation) and more likely to use financial flexibility for employees during a negative pandemic demand shock. Therefore, we expect that, among firms with lower financial flexibility facing a negative demand shock, those with higher *EMPLOYMENT SCORE* are less likely to reduce their workforces and more likely to increase pay for frontline workers.

Table 2 includes descriptive statistics for *EMPLOYMENT SCORE*. That both the mean and median of *EMPLOYMENT SCORE* are close to 50 provides confidence that our sample's workforce policies are similar to those of the full sample of firms covered by the JUST Capital, given the score is on a scale of -25 to 125, with 50 being the average. The indicator *HIGH EMP SCORE* is equal to one for firms with values equal to or above the median value of 51.897.

Table 7 reports the results of examining the role of pre-pandemic worker policies in the relation between financial flexibility and the two employment actions. Across both Columns (1) and (2), we observe positive coefficients on the main effect of *SALES DECREASE*, meaning that negatively shocked firms are more likely to reduce their workforce as compared to positively shocked firms with similarly low levels of financial flexibility. However, we observe that the

[19] This is the annual employee score described in Section 2.3, which is used as an input into JUST's annual overall corporate rankings. Some version of this score has been calculated since 2016 as part of the JUST ranking project, which is distinct from the COVID Tracker project. Conversations with an ESG-focused investor and an ESG-focused think tank further confirmed the appropriateness of JUST's measures for this analysis.

coefficient of 0.245 in Column (1) for the sample of firms with relatively higher workforce scores appears smaller than that of 0.424 in Column (2). Furthermore, we observe that, within the group of firms with relatively higher worker scores, the propensity to announce *WORKFORCE REDUCTION* declines with higher financial flexibility. The coefficient on the interaction term in Column (1) of -0.174 means that these high-worker-score firms are 17.4 percentage points less likely to lay off workers. In total, these firms exhibit only a 7.1 percentage point higher likelihood (0.245-0.174) as compared to firms with similar flexibility but that were positively shocked by the pandemic. In contrast, the low-worker-score firms in Column (2) exhibit no significant variation based on flexibility, meaning that these firms do not appear to use their pre-pandemic cash holdings for worker retention purposes. However, we note that tests of the differences in the interaction terms do not show that these coefficients are statistically different. Thus, the results in Table 7 provide weak evidence that pre-pandemic worker ratings are correlated with firm's employment actions when faced with distress.

Columns (3) and (4) present results from studying *PAY INCREASE*. We observe results similar to that for governance: The lack of statistically significant effects in Column (3) means that negatively shocked firms are no different in their propensity to increase pay as compared to firms that experienced a positive shock. Said differently, the propensity of higher worker-score firms to provide compensation to front-line workers does not vary, even if the firm was negatively affected by the pandemic. In contrast, in Column (4), we observe that low worker-score firms are much less likely to offer pay increases, and the lack of statistical significance on the interaction term signals that a firm's financial flexibility does not alter these decisions. However, again we note that the interaction term is not statistically significant across the two columns, implying only weak evidence of these effects.

4.4 Discussion

The analyses presented in Tables 5, 6, and 7 evaluate if the attenuating role of financial flexibility varies by governance, asymmetric cost structure, and implicit employee commitments, respectively. Collectively, these analyses demonstrate clear patterns of results with three key findings.

First, as predicted based on prior literature, we observe heterogeneous results across all three of these analyses. That is, we observe that the propensity to announce *WORKFORCE REDUCTION* and *PAY INCREASE* varies based on financial characteristics such as a firm's cost structure, as well as non-financial characteristics including firm governance and worker treatment. When viewed together, one interpretation is that the better governed firms respond differently because these employment decisions are more cost efficient in the long run (given their cost structure) and reflect both shareholder and stakeholder concerns. The latter result is consistent with the fact that firms were particularly scrutinized for their worker treatment during this period, and actions that were unfavorable to workers could have imposed costs on these companies.

Second, we find that many of the theoretically predicted relations hinge on the role of financial flexibility. That is, within the three subsamples of low financial flexibility firms that have i) higher governance scores, ii) stickier costs, and iii) better worker treatment, the propensity to announce *WORKFORCE REDUCTION* is 52.6, 48.9, and 24.5 percentage points higher, respectively, as compared to positively shocked firms with similarly low internal capital. However, these effects significantly diminish as financial flexibility increases: the effects for these same three groups decline to 11.3, 38.0, and 7.1 percentage points, respectively. Hence, these characteristics and a firm's net cash jointly determine a company's pandemic response.

Third, we find that financial flexibility plays no role in employment decisions among the other three subsamples of firms that have i) lower governance scores, ii) symmetric costs, and iii) worse worker treatment. Across all three subsamples, we consistently observe no variation in either employment action based on financial flexibility. This implies that the decision to engage in these employment actions is independent of these firms' internal capital. Rather, the impact of the pandemic shock — negative or positive — is the predominant factor driving the company's response.

5. Conclusion

We study how financial flexibility affects the labor decisions of 354 of the largest public U.S. employers during the initial months of the pandemic. We first provide descriptive evidence about how the magnitude of the shock affected firm's employment decisions, quantifying that negatively shocked firms were 28.8 percentage points more likely to reduce their workforce and 17.3 percentage points less likely to provide pay increases to frontline workers, as compared to firms that were positively shocked.

We then studied whether a firm's pre-pandemic level of internal capital attenuates these effects. Prior literature documents an important role for financial flexibility during times of economic hardship (e.g., Duchin et al. 2010), and we find that this financial characteristic did indeed play a significant role. Relative to the average propensities provided above, the analysis shows a 20.6-36.5 percentage point likelihood of *WORKFORCE REDUCTION* based on the firm's financial flexibility. Generally, however, we find little on average effect of financial flexibility on hiring additional workers or offering increased pay.

We also extend the prior literature by quantifying the role of other firm characteristics in labor decisions during periods of uncertainty. Specifically, we find that a financially flexible firm's

pre-pandemic governance and costs structure, as well as a firm's implicit commitment to workers, impacts these decisions. Among better governed firms, firms with asymmetric costs, and firms that historically treat workers better, financial flexibility attenuates the likelihood of *WORKFORCE REDUCTION* by 41.3, 38.0, and 17.4 percentage points, respectively. In contrast, we observe no attenuating effect of financial flexibility in firms with relatively lower governance scores, more symmetric costs, or worse worker treatment.

The paper builds on the literature on financial flexibility and economic uncertainty by testing a prominent financial theory following the recent exogenous shock of the pandemic. We revisit the role of governance and cost structure as predicted by the prior literature, demonstrating that these predictions hold only among the most financially flexible subsamples, and we extend the literature by showing that firms' policies related to stakeholders (i.e., employees) impacts these decisions. These moderating factors suggests that financial flexibility alone is insufficient in understanding firms' responses to negative economic shocks, and suggests that non-financial policies in particular can help predict how firms react to uncertainty.

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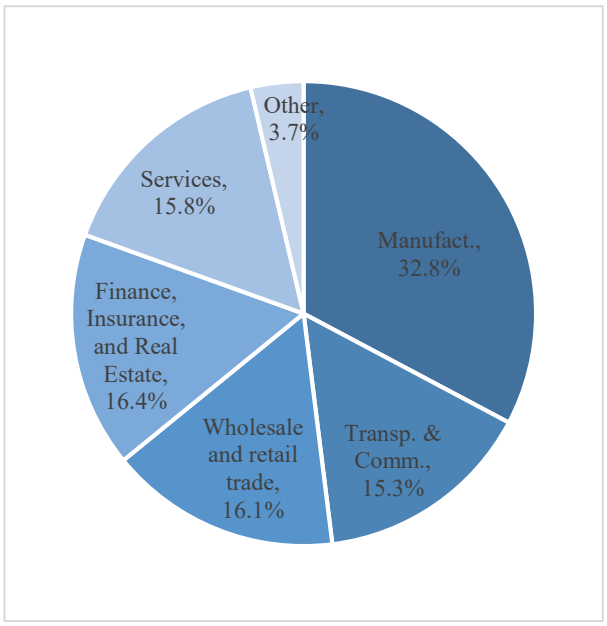
Appendix A
Variable Definitions

Variable	Definition and Source
CASH	Cash and short-term investments divided by total assets, measured as of the firm's year-end preceding the onset of the pandemic (2019). (Compustat variables: CHE, AT)
EMPLOYMENT	The natural logarithm of worldwide employment measured as of the firm's preceding year end (Compustat variables: EMP).
HIGH ASYMMETRIC COSTS	An indicator equal to one if firms have above-median levels of asymmetric costs, and zero otherwise. Asymmetric costs are estimated at the firm-level, following Jang, Yehuda, and Radhakrishnan (2017), by estimating the following equation. $$\log\left[\frac{COST_t}{COST_{t-4}}\right] = \beta_{i,0} + \beta_{i,1}\log\left[\frac{REV_t}{REV_{t-4}}\right] + \beta_{i,2}DEC_t * \log\left[\frac{REV_t}{REV_{t-4}}\right] + \varepsilon_{i,t}$$ The equation above is estimated using all quarterly data available from 2010-2019. *REV* is calculated using Compustat SALEQ; *COST* is equal to the the difference between sales and operating income (SALEQ – OIADPQ). *DEC* is an indicator equal to one when sales decline relative to the prior quarter. The firm-specific measure of asymmetric costs is equal to the ratio of β_2/β_1, where firms with asymmetric costs are identified based on having negative and smaller values of β_2. The above ratio is multiplied by -1 so that higher values correspond to more asymmetric cost structures.
HIGH EMPLOYMENT SCORE	An indicator equal to one for firms with above median *EMPLOYMENT SCORE* based on the employee component of the 2019 JUST Capital index, and zero otherwise. The employee component scores companies based on employee wages, benefits, training opportunities, and safety measures.
HIGH GOVERNANCE	An indicator equal to one if firms have above-median governance quality, and zero otherwise, where the measure is obtained from the Institutional Shareholder Services (ISS) Governance "QualityScore."

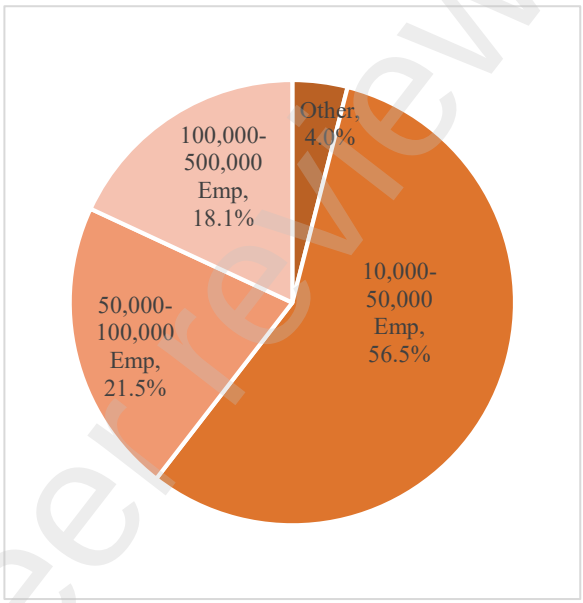
HIGH NET CASH	An indicator equal to one if firms have above-median levels of *NET CASH*, and zero otherwise.
INVENTORY	Inventory divided by total assets measured as of the preceding year-end (2019). Missing values of inventory are set equal to zero. (Compustat variables: INVT, AT)
INVESTMENT GRADE IND	An indicator equal to one if a firm has an investment grade rating, and zero otherwise. Ratings are obtained from Capital IQ as of March 30, 2020 and are identified as investment grade if scored at BBB- or better.
NET CASH	Cash and short-term investments minus short-term debt obligations, divided by total assets, measured as of the preceding year-end (2019). (Compustat variables: CHE, DLC, AT)
PAY INCREASE	An indicator equal to one for firms with wage increases, bonuses, expanded overtime pay, or hiring, and zero otherwise. Data obtained from JUST Capital's COVID-19 Corporate Response Tracker and augmented by authors' hand-collection.
PROFITABILITY	Income before extraordinary items divided by total assets measured as of the preceding year-end (2019). (Compustat variables: IB, AT)
SALES GROWTH	Revenue minus lagged revenue, divided by lagged revenue measured as of the preceding year-end (2019). (Compustat variable: REVT)
TANGIBILITY	Net property, plant, and equipment divided by total assets measured as of the preceding year-end (2019). (Compustat variables: PPENT, AT)
WORLDWIDE EMPLOYMENT	Total number of individuals employed worldwide at a firm. (Compustat variables: EMP)
WORKFORCE REDUCTION	An indicator equal to one for firms that furloughed or fired employees, and zero otherwise. Data obtained from JUST Capital's COVID-19 Corporate Response Tracker and augmented by authors' hand-collection.

Figure 1
Sample Descriptive Statistics

Panel A: Industry Affiliation



Panel B: Worldwide Employment



Panel C: Total Assets

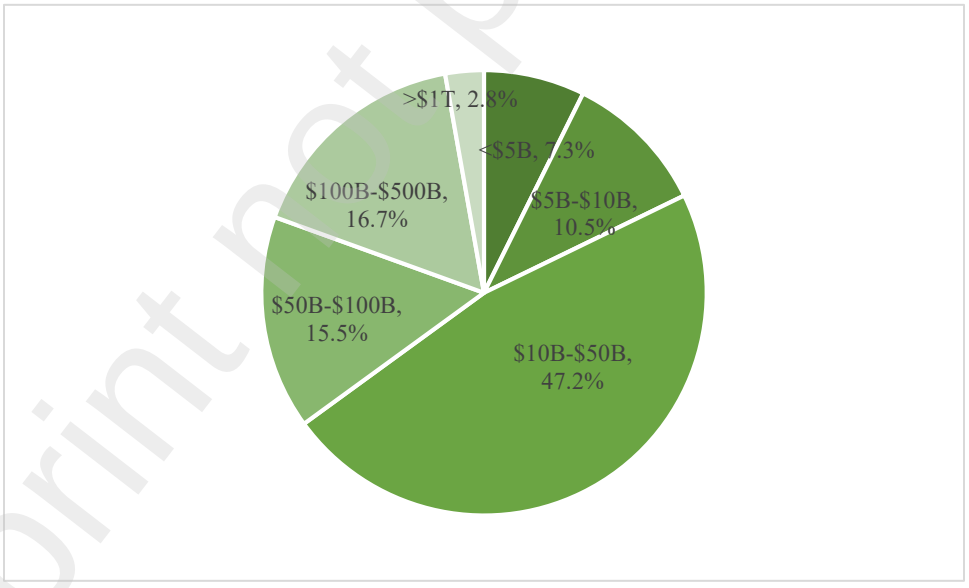
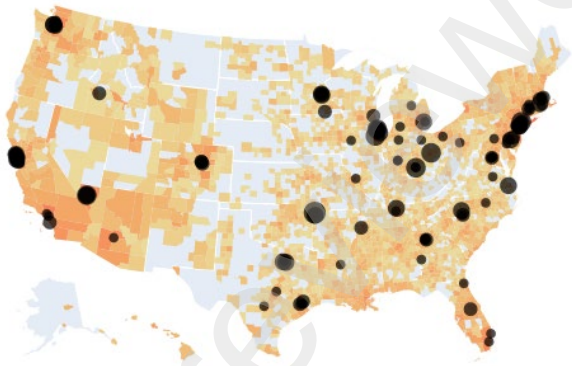


Figure 1 presents graphs of descriptive statistics about the 354 sample firms. Panel A shows the proportion of firms by SIC industry code; Panel B shows the proportion of firms based on worldwide employment data as disclosed in firms' financial statements; and Panel C shows the proportion of firms based on total firm assets measured as of the end of 2019 (prior to the pandemic). Online Appendix Table 1 lists the sample companies; Table 1 presents additional descriptive information about the sample.

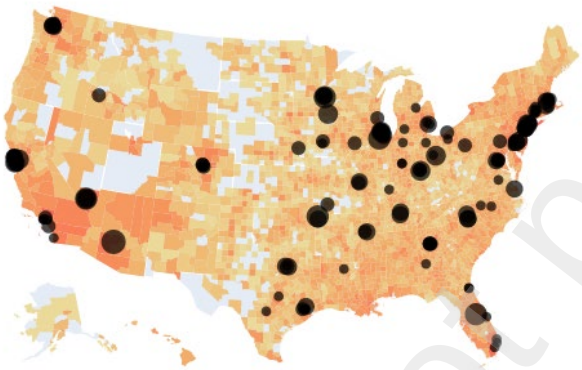
Figure 2
Companies and Employment Actions by Time As Compared to Covid-19 Outbreak

Panel A: March 1, 2020

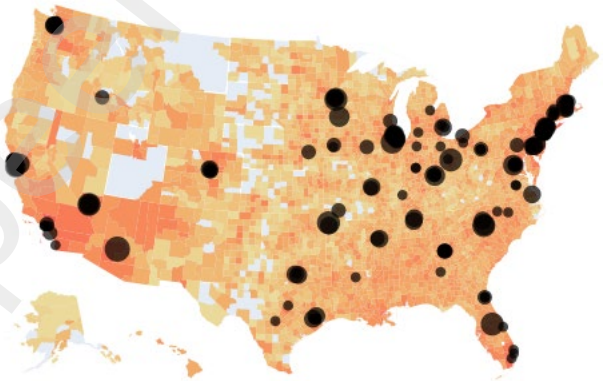
Panel B: March 31, 2020



Panel C: April 30, 2020



Panel D: May 31, 2020



Panel A depicts the headquarters locations of the 350 companies in our sample. Panels B, C, and D plot the number of employment actions at the end of March, April, and May, respectively, where the size of each black dot relates to the number of actions by each firm. The headquarters location and policy intensity are mapped against the number of Covid-19 cases as measured at the county level, where lighter colors such as yellow (darker colors such as orange) imply fewer (more) cases.

Figure 3
Frequency of Employment Actions from March 1 to May 31, 2020

Panel A: Incidence of actions per bi-weekly period

Employment Action	Total # Firms	% of Sample	*Month Action Taken*											
			March				April				May			
INCREASE PAY	88	25.1%	1	2	14	21	10	4	13	7	8	7	1	0
WORKFORCE REDUCTION	101	28.9%	0	4	5	23	18	11	14	12	9	2	2	1

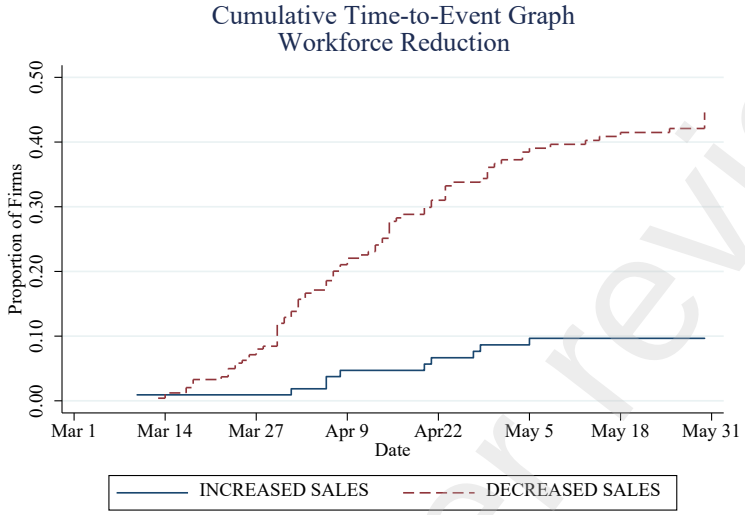
Panel B: Number of actions per bi-weekly period

Employment Action	Total # Actions	% of All Actions	*Month Action Taken*											
			March				April				May			
INCREASE PAY	126	20.2%	1	2	24	34	13	8	16	8	11	8	1	0
WORKFORCE REDUCTION	127	20.4%	0	5	6	32	21	14	14	14	14	3	3	1

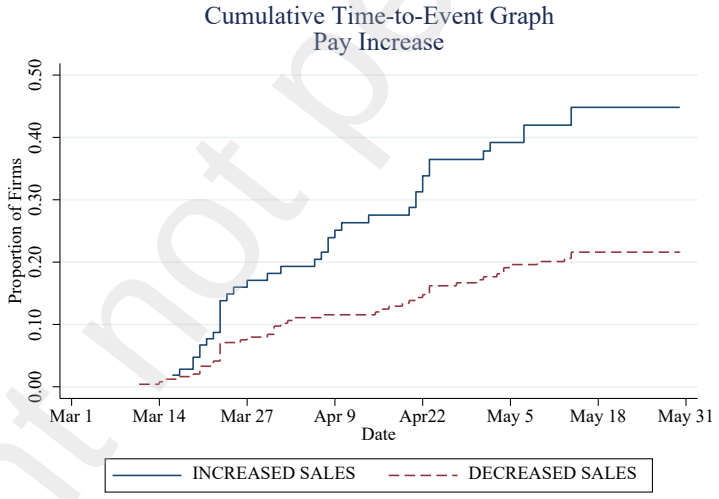
Figure 2 shows the incidence and number of actions taken over time. Panel A reports the frequency of first actions taken by each firm within each of the five categories over time, where the light (darker) colors correspond to a relatively lower (higher) proportion of the actions within a given bi-weekly period. Panel B plots the total number actions taken by each firm within each of the five categories over time, where the light (darker) colors correspond to a relatively lower (higher) proportion of the actions within a given bi-weekly period. The actions are identified from either corporate disclosures or media coverage; data are based on information reported in the JUST Capital COVID-19 Corporate Response Tracker and augmented by the authors. *ACCOMMODATIONS* includes employee benefits, such as back-up dependent care and paid sick leave. *CONTINUED PAY* reflects those firms that announced continued payment of workers' full wages, even if facilities or offices are closed. *CUT PAY* reflects those firms that announced reductions in non-executive employee wages. *PAY INCREASE* reflects those firms announcing hiring of new employees or increased wages, such as through changes in hourly wages or bonuses. *WORKFORCE REDUCTION* includes firms that announced layoffs or furloughs. Because almost all firms announced work-from-home and health/safety policies, at times in response to state and local requirements, we exclude these from the categories above; we also exclude executive pay cuts from this study. See discussion in Section 2 of the manuscript. Policies are further defined in Appendix A.

Figure 3
Timing of Employment Action by COVID-19 Demand Shock Sign

Panel A: Cumulative Time-to-Event for Workforce Reductions



Panel B: Cumulative Time-to-Event for Pay Increases



This figure plots the timing of firm labor actions by day during the period March 1 through May 31, 2020. Panel A shows the proportion of firms that announce a layoff or furlough (*WORKFORCE REDUCTION*) on a daily basis during this three-month period. Panel B shows the proportion of firms that announce hiring of new employees or increased wages, such as through changes in hourly wages or bonuses (*PAY INCREASE*). Each figure shows the daily proportion of firms for those with either *INCREASED SALES* or *DECREASED SALES*, which reflects whether the firm a negative or positive change in sales during the second calendar quarter of 2020 as compared to the same quarter in 2019. Table 3, Panel B presents statistical tests of the differences between these four lines.

Table 1
Sample Composition

SIC	Industry Description	# Firms (1)	% of Sample (2)	% of Worldwide Employment (3)	% of Total Assets (4)
10-19	Mining and construction	11	3.11%	1.66%	1.31%
20-39	Manufacturing	116	32.77%	23.74%	17.21%
40-49	Transportation and communication	54	15.25%	11.87%	11.11%
50-59	Wholesale and retail trade	57	16.10%	34.16%	5.07%
60-69	Finance, insurance, and real estate	58	16.38%	11.30%	58.43%
70-89	Services	56	15.82%	16.12%	5.90%
90-99	Public administration and other	2	0.56%	1.15%	0.96%
	Total Firms	354	100.00%	100.00%	100.00%

Table 1 reports descriptive statistics about the composition of our sample. Firms are grouped by industry code. The sample includes firms across all industries, with the greatest concentration in manufacturing. We calculate each group's proportion of the total sample's employment and assets in Columns (3) and (4) using worldwide employment disclosed in firms' financial statements. All variables are defined in the appendix.

Table 2
Descriptive Statistics

Panel A: Descriptive statistics on all variables

	N	Mean	Std. Dev.	P25	P50	P75
Financial flexibility and other key variables						
DECREASED SALES (0/1)	354	0.695	0.461	0.000	1.000	1.000
$CASH_i$	354	0.093	0.101	0.022	0.061	0.131
$NET\ CASH_i$	354	0.052	0.110	-0.009	0.025	0.085
Employment actions						
$WORKFORCE\ REDUCTION_i$	354	0.280	0.449	0.000	0.000	1.000
$PAY\ INCREASE_i$	354	0.249	0.433	0.000	0.000	0.000
Control and other variables						
$WORLDWIDE\ \#EMPLOYEES_i$	354	76.913	145.449	19.700	40.000	79.886
$EMPLOYMENT_i$	354	3.766	0.978	2.981	3.689	4.381
$PROFITABILITY_i$	354	0.053	0.068	0.024	0.045	0.082
$TANGIBILITY_i$	354	0.276	0.245	0.074	0.193	0.460
$INVENTORY_i$	354	0.071	0.098	0.003	0.025	0.104
$SALES\ GROWTH_i$	354	0.059	0.180	-0.004	0.039	0.088
$INVESTMENT\ GRADE\ INDICATOR_i$	354	0.619	0.486	0.000	1.000	1.000
INDUSTRY CASH FLOW VOLATILITY	354	0.626	0.640	0.113	0.517	1.026
GOVERNANCE	354	4.819	2.911	2.000	4.413	7.000
COST STICKINESS	354	0.128	7.135	-0.098	0.017	0.307
$EMPLOYMENT\ SCORE - JUST\ CAPITAL_i$	354	50.231	15.457	39.428	51.897	61.767

Table 2, Panel A reports descriptive statistics for the variables used in the empirical tests. All variables are defined in Appendix A.

Table 2 (cont'd.)
Descriptive Statistics

Panel B: Industry Composition

	SALES DECREASE		*SALES INCREASE*	
	N	%	N	%
1: Mining and Construction	9	3.7%	2	1.9%
2-3: Manufacturing	86	35.0%	30	27.8%
4: Transportation, Communications, Utilities	42	17.1%	12	11.1%
5: Wholesale and Retail Trade	32	13.0%	25	23.2%
6: Finance, Insurance, and Real Estate	39	15.6%	19	17.6%
7-8: Services	36	14.6%	20	18.5%
9: Public Administration	2	0.8%	0	0.0%
Total	246	100.0%	108	100.0%

Panel C: Comparing firms based on positive or negative demand shock

	DECREASED SALES		*INCREASED SALES*			
	N	Mean	N	Mean	Diff.	
EMPLOYMENT	246	3.796	108	3.699	0.096	
ASSETS	246	10.399	108	10.346	0.053	
PROFITABILITY	246	0.049	108	0.064	-0.015	*
TANGIBILITY	246	0.283	108	0.262	0.021	
INVENTORY	246	0.068	108	0.079	-0.011	
SALES GROWTH	246	0.039	108	0.105	-0.065	***
INVESTMENT GRADE	246	0.630	108	0.593	0.037	

Table 2, Panels B and C provide details comparing firms with *SALES DECREASE* during the pandemic to those with a *SALES INCREASE*. Panel B provides the industry distribution. Panel C reports results comparing pre-pandemic firm characteristics measured at the end of 2019. All variables are defined in Appendix A. *, **, and *** in Panel B represent statistical significance at the 10%, 5%, and 1% level, respectively.

Table 3
Corporate Employment Actions in Response to Pandemic Demand Shock

Panel A: Linear probability model to measure likelihood of employment action

	WORKFORCE REDUCTION	*PAY INCREASE*
	(1)	(2)
DECREASED SALES (0/1)	**0.288*** **	**-0.173*** **
	(6.85)	**(-3.30)**
EMPLOYMENT	0.036	0.082***
	(1.61)	(3.44)
PROFITABILITY	0.085	0.152
	(0.30)	(0.45)
TANGIBILITY	0.134	-0.008
	(1.55)	(-0.09)
INVENTORY	1.040***	0.041
	(3.41)	(0.15)
SALES GROWTH	0.114	0.115
	(0.99)	(1.03)
INVESTMENT GRADE IND	-0.126***	-0.004
	(-2.71)	(-0.08)
INTERCEPT	-0.099	0.045
	(-1.09)	(0.43)
OBSERVATIONS	354	354
R-SQUARED	0.164	0.073

Panel B: Measures of statistical differences from hazard model for timing of employment actions

	Equality of survivor functions	
	chi(2)	*p-value*
Firm employment actions	(1)	(2)
WORKFORCE REDUCTION	25.63	0.0000
PAY INCREASE	12.17	0.0005

Table 3, Panel A reports results from estimating Eq. (1), which measures the effect of a negative COVID-19 demand shock, *DECREASED SALES*, on the likelihood a firm announces furloughs or layoffs (*WORKFORCE REDUCTION*) or compensation increases and hirings (*PAY INCREASE*) between March 1 and May 31, 2020. Table 3, Panel B presents statistical tests of the differences in the timing of firms' actions that correspond to the hazard models depicted in Figure 3. Policies and variables are defined in Appendix A. We present t-statistics in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Table 4
Financial Flexibility and Corporate Employment Actions

	WORKFORCE REDUCTION	*PAY INCREASE*
	(1)	(2)
DECREASED SALES (0/1)	**0.365*** **	**-0.231*** **
	(6.54)	**(-3.19)**
HIGH NET CASH	**0.146** **	**-0.130**
	(2.42)	**(-1.40)**
DECREASED SALES * HIGH NET CASH	**-0.159***	**0.121**
	(-1.93)	**(1.16)**
EMPLOYMENT	0.034	0.083***
	(1.54)	(3.51)
PROFITABILITY	0.042	0.199
	(0.14)	(0.56)
TANGIBILITY	0.158*	-0.033
	(1.77)	(-0.36)
INVENTORY	1.096***	-0.003
	(3.55)	(-0.01)
SALES GROWTH	0.135	0.095
	(1.18)	(0.87)
INVESTMENT GRADE IND	-0.124***	-0.006
	(-2.66)	(-0.14)
INTERCEPT	-0.176*	0.114
	(-1.83)	(0.98)
OBSERVATIONS	354	354
R-SQUARED	0.172	0.080

Table 4 reports results of using a linear probability model to test the role of a firm's financial flexibility (*HIGH NET CASH*) in the relation between a negative COVID-19 demand shock, *DECREASED SALES*, and the likelihood a firm announces furloughs or layoffs (*WORKFORCE REDUCTION*) or compensation increases and hirings (*PAY INCREASE*) between March 1 and May 31, 2020. Policies and variables are defined in Appendix A. We present t-statistics in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Table 5
Financial Flexibility and Corporate Employment Actions: Firm Governance

	WORKFORCE REDUCTION		*PAY INCREASE*	
	High Governance	Low Governance	High Governance	Low Governance
	(1)	(2)	(3)	(4)
SALES DECREASE (0/1)	**0.526*** **	**0.201** **	**-0.120**	**-0.331*** **
	(7.01)	**(2.40)**	**(-1.28)**	**(-2.95)**
HIGH NET CASH	**0.242*** **	**0.017**	**-0.189***	**-0.021**
	(3.05)	**(0.18)**	**(-1.79)**	**(-0.14)**
SALES DECREASE * HIGH NET CASH	**-0.413*** **	**0.124**	**0.149**	**0.006**
	(-3.87)	**(0.98)**	**(1.15)**	**(0.04)**
EMPLOYMENT	0.045	0.033	0.114***	0.056*
	(1.51)	(1.01)	(3.15)	(1.75)
PROFITABILITY	-0.090	0.287	0.681	-0.009
	(-0.21)	(0.77)	(1.03)	(-0.02)
TANGIBILITY	0.221*	0.046	-0.022	-0.022
	(1.82)	(0.33)	(-0.19)	(-0.14)
INVENTORY	1.546***	0.595	-0.324	0.260
	(4.67)	(1.34)	(-1.25)	(0.63)
SALES GROWTH	0.164*	0.280	0.181	-0.043
	(1.95)	(1.20)	(1.64)	(-0.27)
INVESTMENT GRADE IND	-0.132**	-0.125*	-0.045	0.031
	(-2.17)	(-1.79)	(-0.70)	(0.48)
INTERCEPT	-0.316**	-0.050	-0.069	0.286*
	(-2.47)	(-0.35)	(-0.44)	(1.75)
|Difference|	0.537		0.143	
p-value	0.008		0.489	
OBSERVATIONS	177	177	177	177
R-SQUARED	0.305	0.121	0.110	0.121

Table 5 reports results from testing whether a firm's financial flexibility (*HIGH NET CASH*) affects the likelihood of firm employment actions between March 1 and May 31, 2020 after partitioning based on the median value of firms pre-pandemic ISS scores (*GOVERNANCE)*, where lower scores reflect better governed firms. Columns (1) and (2) report results for furloughs or layoffs (*WORKFORCE REDUCTION*); Columns (3) and (4) report results for compensation increases and hirings (*PAY INCREASE*). Policies and variables are defined in Appendix A. We present t-statistics in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Table 6
Financial Flexibility and Corporate Employment Actions: Asymmetric Cost Structure

	WORKFORCE REDUCTION		*PAY INCREASE*	
	Asymmetric Costs	Symmetric Costs	Asymmetric Costs	Symmetric Costs
	(1)	(2)	(3)	(4)
SALES DECREASE (0/1)	**0.489*** **	**0.249*** **	**-0.231** **	**-0.211** **
	(6.41)	**(3.09)**	**(-2.19)**	**(-2.11)**
HIGH NET CASH	**0.325*** **	**0.008**	**-0.276** **	**0.010**
	(3.43)	**(0.10)**	**(-2.25)**	**(0.08)**
SALES DECREASE * HIGH NET CASH	**-0.380*** **	**0.023**	**0.294** **	**-0.085**
	(-3.08)	**(0.20)**	**(2.06)**	**(-0.61)**
EMPLOYMENT	0.034	0.034	0.098***	0.075**
	(0.98)	(1.13)	(2.79)	(2.28)
PROFITABILITY	-0.118	0.285	0.686*	-0.392
	(-0.26)	(0.73)	(1.75)	(-0.69)
TANGIBILITY	0.260*	0.063	-0.068	-0.026
	(1.89)	(0.55)	(-0.55)	(-0.19)
INVENTORY	1.471***	0.815**	-0.427	0.371
	(4.08)	(2.05)	(-1.35)	(1.05)
SALES GROWTH	0.239*	0.042	0.064	-0.038
	(1.78)	(0.12)	(0.52)	(-0.20)
INVESTMENT GRADE IND	-0.129*	-0.114*	0.057	-0.072
	(-1.87)	(-1.70)	(0.87)	(-1.07)
INTERCEPT	-0.285**	-0.087	0.065	0.160
	(-2.08)	(-0.63)	(0.39)	(1.00)
|Difference|	0.403		0.379	
p-value	0.014		0.051	
OBSERVATIONS	177	177	177	177
R-SQUARED	0.222	0.150	0.108	0.123

Table 6 reports results from testing whether a firm's financial flexibility (*HIGH NET CASH*) affects the likelihood of firm employment actions between March 1 and May 31, 2020 after partitioning based on the median value of firms pre-pandemic level of sticky costs (*ASYMMETRIC COSTS)*. Columns (1) and (2) report results for furloughs or layoffs (*WORKFORCE REDUCTION*); Columns (3) and (4) report results for compensation increases and hirings (*PAY INCREASE*). Policies and variables are defined in Appendix A. We present t-statistics in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Table 7
Financial Flexibility and Corporate Employment Actions: Worker Treatment

	WORKFORCE REDUCTION		*PAY INCREASE*	
	High Worker Score	Low Worker Score	High Worker Score	Low Worker Score
	(1)	(2)	(3)	(4)
SALES DECREASE (0/1)	**0.245*** **	**0.424*** **	**-0.040**	**-0.380*** **
	(4.32)	**(4.79)**	**(-0.40)**	**(-3.81)**
HIGH NET CASH	**0.055**	**0.201***	**0.049**	**-0.264***
	(0.88)	**(1.91)**	**(0.38)**	**(-1.91)**
SALES DECREASE * HIGH NET CASH	**-0.174***	**-0.118**	**-0.016**	**0.223**
	(-1.90)	**(-0.87)**	**(-0.11)**	**(1.45)**
EMPLOYMENT	0.105***	-0.015	0.047	0.090**
	(3.89)	(-0.43)	(1.28)	(2.60)
PROFITABILITY	-0.076	0.267	-0.013	0.264
	(-0.16)	(0.67)	(-0.02)	(0.56)
TANGIBILITY	0.162	0.107	-0.109	0.078
	(1.42)	(0.71)	(-0.82)	(0.55)
INVENTORY	0.590*	1.370***	0.252	-0.314
	(1.72)	(3.68)	(0.57)	(-0.94)
SALES GROWTH	-0.161	0.443***	0.149	0.069
	(-1.31)	(2.74)	(0.93)	(0.46)
INVESTMENT GRADE IND	-0.032	-0.179**	0.012	0.001
	(-0.51)	(-2.59)	(0.15)	(0.02)
INTERCEPT	-0.379***	-0.034	0.084	0.212
	(-3.70)	(-0.20)	(0.50)	(1.20)
|Difference|	0.056		0.207	
p-value	0.727		0.246	
OBSERVATIONS	177	177	177	177
R-SQUARED	0.179	0.216	0.034	0.186

Table 7 reports results from testing whether a firm's financial flexibility (*HIGH NET CASH*) affects the likelihood of firm employment actions between March 1 and May 31, 2020 after partitioning based on the median value of firms pre-pandemic *EMPLOYMENT SCORE*. Columns (1) and (2) report results for furloughs or layoffs (*WORKFORCE REDUCTION*); Columns (3) and (4) report results for compensation increases and hirings (*PAY INCREASE*). Policies and variables are defined in Appendix A. We present t-statistics in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Online Appendix

Not intended for print publication

Online Appendix Table 1
List of Companies included in the Sample

3M	BNY Mellon	DaVita	Goldman Sachs
Abbott	Boeing	Deere	Graphic Packaging
AbbVie	Booking Holdings Inc	Dell Technologies	Halliburton
Acadia	Booz Allen	Delta	Harris
Accenture	Boston Scientific	Dick's	Hartford Financial
Activision Blizzard	Bristol-Myers Squibb	Discover Financial Services	HCA Holdings
Archer-Daniels-Midland	Broadcom	DISH Network	Hershey Company
Adobe Inc.	Brunswick	Disney	Hilton
ADP	Burlington Stores	Dollar General	Home Depot
ADT	CACI International	Dollar Tree	Honeywell
Advance	Campbell	Dominion Energy	Hormel
AECOM	Capital One	Domino's	HP
AEP	Cardinal Health	Dow	HPE
AES Corp	CarMax	Duke Energy	Humana
Aflac	Carnival	DuPont	Huntington
AIG	Carter's	DXC	Huntington Ingalls
Alaska Air	Casey's General Stores	Eaton	Hyatt
Alleghany Corp	Caterpillar	Ecolab	IBM
Allstate	CBRE	Edison International	Illinois Tool Works
Ally Financial	Centene	Eli Lilly	Intel
Alphabet	CenterPoint	Emerson	Interncontinental Exchange
Altice USA Inc	CenturyLink	Entergy	International Paper
Altria Group	Ceridian	Estee Lauder	Interpublic
Amazon	Cerner	Eversource Energy	IQVIA
Amedysis	CH Robinson	Exelon	Jabil
AMERCO	Charter	Expedia Group Inc	Jacobs
Ameren Corp	Chemed	ExxonMobil	JB Hunt
American Airlines	Chevron	Facebook	JetBlue
American Express	Chipotle	Fastenal	Jones Lang LaSalle
American Tower	Chubb	FedEx	Johnson & Johnson
Ameriprise	Cigna	Fideltiy National Financial	Johnson Controls
AmerisourceBergen	Cintas	Fidelity National Info Svs	JPMorgan Chase
Amgen	Cisco	Fifth Third	Kellogg
Amphenol	Citi	First American	Keurig Dr Pepper
Anthem	Citizens	First Energy Corp	KeyCorp
Aon	Clean Harbors	Fiserv	Kimberly-Clark Corp
Apple	Coca-Cola Company	Five Below	Kinder Morgan Inc.
Aramark	Cognizant	Fluor	Knight-Swift
Assurant	Colgate-Palmolive	Foot Locker	Kohl's
AT&T	Comcast	Ford	Kraft Heinz
AutoNation	Conagra Brands	Fortive	Kroger
AutoZone	Connoco Phillips	Freeport-McMoran Inc	L Brands
Baker Hughes	Consolidated Edison	Gallagher	LabCorp
Ball Corp	Corning	Gap	Las Vegas Sands
Bank of America	Costco Wholesale Corp	GD	LEAR Corp
Baxter	Crown Holdings	GE	Leidos
Becton, Dickinson, and Co	CSX Corp	General Mills	LHC Group
Berry	Cummins	Genuine Pars	Linde
Best Buy	CVS	Gilead Sciences Inc	LKQ Corporation
Biogen	Danaher	Global Payments Inc.	Lockheed Martin
Blackrock	Darden	GM	Loews

Online Appendix Table 1
List of Companies included in the Sample (cont'd.)

Lowe's
M&T
Macy's
Marathon Petroleum
Markel
Marriott
Marsh & McLennan
McDonald's
McKesson
MDU Resources
Medtronic
Merck
MetLife
MGM Resorts
Micron Technoplogy Inc.
Microsoft
Mohawk
Molson Coors Beverage Inc
Mondelez International Inc.
Morgan Stanley
Motorola Solutions Inc
Netflix Inc
Newell Brands
Newmont Corp
NextEra
Nike
Nordstrom
Norfolk Southern
Northern Trust
Northrop Grumman
NOV Inc.
NUCOR Corp.
NVIDIA
Occidental Petroleum Corp
Old Dominion
Omnicom
Oracle
O'Reilly
Oshkosh
Procter & Gamble
PACCAR
Parker Hannifin
Paychex
Packaging Corporation of Ame
Penske
PepsiCo
Pfizer
Pacific Gas & Electric
Phillips 66
Pilgrim's Pride
PNC Financial Services
PPG Industries
Principal
Progressive
Prudential
Public Service Enterprise Gp
PVH Corp.
Qualcomm
Quanta
Quest Diagnostics
Qurate Retail
Ralph Lauren
Raymond James
Regions
Reliance
Republic Services
Rollins
Roper Technologies Inc.
Ross Stores
Ryder
S&P Global
Salesforce
Schlumberger
Schneider
Schwab
Service Corporation Int'l
Science Applications
Sempra Energy
Sherwin-Williams
Sonoco
Southern Company
Southern Copper Corp.
Southwest
Spirit AeroSystems
Sprouts Farmers Market
SS&C Technologies
Stanley Black & Decker
Starbucks
State Street
Stericycle
Stryker
Synchrony Financial
SYNNEX
Sysco
Target
Tenet Heathcare Corp
Tesla
Tetra Tech
Texas Instruements Inc.
Textron
Thermo Fisher
Thor Industries
Timken
TJX
T-Mobile
Tractor Supply
TransDigm
Travelers
Truist Financial
Tyson
Uber Technologies Inc.
UHS
Ulta Beauty
Under Armour
Union Pacific
United
United Rentals
UnitedHealth
UPS
Urban Outfitters
US Bancorp
US Foods
Valero Energy Corp.
Verizon
VF Corp
ViacomCBS
Visa
VMWARE Inc
WABTEC Corp
Walgreens Boots Alliance
Walmart
Waste Management
Wayfair
WD
WEC Energy Group
Wells Fargo
Wendy's
WestRock
Whirlpool
Williams-Sonoma
Willis Towers Watson
Wyndham Destinations
Wyndham Hotels
Wynn Resorts
XCEL Energy
Xerox
XPO
YUM!
Zimmer Biomet
Zoetis

Online Appendix Table 2
Sample of Corporate Pandemic Disclosures Related to Financial Flexibility

The table below provides excerpts from firm disclosures during the period from March through May 2020 related to financial flexibility.

Company	Excerpt
American Airlines	"Are we going to be okay? I am happy to report the answer to that question is yes…. I am confident that those funds, along with our relatively high available cash position will allow us to ride through even the worst of potential future scenarios." CEO Doug Park, March 27, 2020. Accessed at: https://onemileatatime.com/american-airlines-ceo-government-aid
Arconic	"Arconic was launched with a strong balance sheet and capital structure. Additionally, we have built tremendous momentum through 2019 and into this year by driving improved operational and financial performance. However, as COVID-19 continues to escalate throughout the world, we are taking aggressive actions to increase the safety of our employees, respond to decreasing demand, and preserve the financial strength of our business." CEO Tim Myers said, April 8, 2020. Accessed at: https://www.arconic.com/press-release/2020-04-08/arconic-announces-200-million-of-actions-to-mitigate-covid-19-impact/
Casey's General Stores	"Casey's started the fourth fiscal quarter with strong momentum, with many of our strategic initiatives maturing and accelerating business performance. However, the impact of the Covid-19 pandemic has caused a decline in store traffic and consumer demand across our business, and we believe it is prudent to withdraw our financial guidance for fiscal 2020. Casey's maintains a strong balance sheet and ample liquidity to weather the near-term impacts and expects to emerge from the crisis in a position of strength." President and CEO Darren Rebelz, April 2, 2020. Accessed at: https://investor.caseys.com/press-releases/press-release-details/2020/Caseys-General-Stores-Provides-Business-Update/default.aspx
Chevron	"With an industry leading balance sheet and a flexible capital program, we believe Chevron is resilient and positioned to withstand this challenging environment," said Chevron Chairman and CEO Michael Wirth. "Given the decline in commodity prices, we are taking actions expected to preserve cash, support our balance sheet strength, lower short-term production and preserve long-term value." Chairman and CEO Michael Wirth, March 24, 2020. Accessed at: https://www.chevron.com/stories/chevron-announces-actions-in-response-to-market-conditions
Emerson	"You're going to set cutbacks, you're going to see furloughs. There's a lot of things that are going to be happening here. We've pushed out all salary increases for 12 months," David Farr, Chairman and CEO, told analysts. Despite the downturn, Emerson said it has a balance sheet built to navigate the challenging economy. As of March 31, the company had $2.6 billion in cash, with more than half available on same day or next day notice, the company said. Emerson also highlighted a $3.5 billion undrawn revolver committed through at least April 2023, and said it is evaluating the issuance of $1 billion to $2 billion of term debt. "We believe we're in a very, very strong position as we enter the downturn here. We have the capacity to fund all of our internal needs and our dividend, despite the fact that we are expected to reduce operating cash flow over the next several quarters," said Senior Executive Vice President and Chief Financial Officer Frank Dellaquila. April 21, 2020. Accessed at: https://www.bizjournals.com/stlouis/news/2020/04/21/emerson-accelerates-cost-cutting-plan-as-sales.html

Expedia	"We have one mandate – to conserve cash, survive, and use this time to reconstruct a stronger enterprise to serve the future of travel. We are unable to make any predictions as to when travel will rebound but we emphatically believe that it will, for....'if there's life, there's travel.'" Chairman and Senior Executive Barry Diller, April 23, 2020. Accessed at: https://www.prnewswire.com/news-releases/statement-from-expedia-group-chairman-barry-diller-301046108.html
Goldman Sachs	"I think there's no question, if you're running a company, and in my discussions with CEOs running companies, one of the risk management perspectives at every company, every business, even small businesses, has to focus on is do I have enough liquidity to weather the economic environment we're faced with." CEO David Solomon, April 2, 2020. Accessed at: https://www.cnbc.com/2020/04/02/cnbc-transcript-goldman-sachs-ceo-david-solomon-speaks-with-cnbcs-squawk-on-the-street-today.html
Hershey	"Given the current demands on our supply chain team as well as the desire for cash flow flexibility, we've also altered the pacing on our recently announced supply chain project…Given our strong cash flow and balance sheet, we are confident we will be able to manage through the current crisis, including maintaining strong liquidity. We believe we have adequate liquidity to meet our operating, investing and financing needs through operating cash flow, further supported by access to bank lines and commercial paper. At the end of the first quarter, we had approximately $1.1 billion in cash and cash equivalents on our balance sheet, with $261 million in operating cash flow from the first quarter. We will continue to evaluate the situation moving forward and plan to prioritize cash utilization to meet our liquidity needs. Our strong free cash flow and healthy balance sheet continue to remain a core strength and competitive advantage in these uncertain times." – Chairman, President, and CFO Michele Buck, April 23, 2020. Earnings call (transcript accessed at: https://www.fool.com/earnings/call-transcripts/2020/04/23/hershey-cothe-hsy-q1-2020-earnings-call-transcript.aspx)
United	"And, based on how doctors expect the virus to spread and how economists expect the global economy to react, we expect demand to remain suppressed for months after that, possibly into next year. We will continue to plan for the worst and hope for a faster recovery but no matter what happens, taking care of each of our people will remain our number one priority. That means being honest, fair and upfront with you: if the recovery is as slow as we fear, it means our airline and our workforce will have to be smaller than it is today." CEO Oscar Munoz; President Scott Kirby, March 27, 2020. Accessed at: https://onemileatatime.com/united-airlines-layoffs/

Online Appendix Table 3
Examples of Disclosures Related to Employment Actions

Panel A: Workforce Reductions

Company	Excerpt
AutoNation	"The COVID-19 pandemic has adversely impacted, and is expected to continue to adversely impact, AutoNation's operations. Markets from which we derive approximately 95% of our total revenue are currently under extensive "shelter in place" or "stay at home" orders from federal, state, and local governments, which significantly restrict our business operations, in particular our sales activities. As a result of these and other less restrictive orders, we have seen significant declines in new and used vehicle unit sales, including a year-over-year decline of approximately 50% during the last two weeks of March 2020, and our parts and service business is currently operating below full capacity, despite auto retailers having been deemed essential services in most of the markets in which we operate. Government officials and health professionals on the White House Coronavirus Task Force have recently extended social distancing guidelines until at least April 30, 2020, to preserve the safety of Americans. As a result of these developments, AutoNation has taken various actions in an attempt to mitigate the financial impact of COVID-19. We have placed approximately 7,000 employees on unpaid leave, implemented temporary base pay reductions for our associates, and frozen all new hiring." Quarterly SEC Filing, April 3, 2020. Accessed at: https://www.cnbc.com/2020/04/03/autonation-furloughs-thousands-of-workers-due-to-coronavirus.html
Dick's Sporting Goods	Dick's Sporting Goods is finding it impossible to function without any sports. The big box retailer saidit is furloughing most of its 40,000 employees. Dick's said in a regulatory filing that its 800 stores won't reopen anytime soon. The closure of gyms, schools and social distancing rules have zapped demand for Dick's Sports gear. The athletic goods retailer is still filling online orders and offering curbside pick-up. The furloughs are effective Sunday, however workers will continue to receive their benefits. April 8, 2020. Accessed at: https://www.wfla.com/community/health/coronavirus/dicks-sporting-goods-furloughs-most-of-40k-employees/
General Electric	"GE Aviation is planning to reduce approximately 10% of its total U.S. workforce. There will be a temporary lack of work impacting approximately 50% of its U.S. maintenance, repair and overhaul employees for 90 days. These actions build on those the business already has taken, including a hiring freeze, the cancellation of the salaried merit increase, a dramatic reduction of all non-essential spending, and a significant decrease in its contingent workforce. Starting April 1, David Joyce, vice chairman of GE and president and CEO of GE Aviation, will forgo half of his salary. Taken together, we expect these cost and cash actions will preserve $500 million to $1 billion in 2020." Chairman and CEO Lawrence Culp, March 23, 2020. Accessed at: https://www.genewsroom.com/press-releases/update-challenge-covid-19
Halliburton	Oilfield services firms have this week been the first companies to feel the hit from the sharp drop in the price of petroleum. While the producers have announced spending cutbacks from 30 to 50 percent for the rest of this year, the outfits that do the actual work in the field are cutting hours, cutting pay and laying off workers. Peggy McDonald Mauldin, 56, was laid off from Halliburton Wednesday, by way of a phone call she got as she worked from home because of the coronavirus. She worked in supply chain operations at the company's North Belt campus in Houston and had been with the company 20 years as of March 1. Just the day before, she had been among the 3,500 North Belt employees who had been notified that Halliburton was instituting a one-week-on, one-week-off furlough program, to begin March 23. Employees will not be paid for the weeks they do not work, but benefits will continue, said Erin Fuchs, the company's supervisor of external affairs. The cutbacks at Halliburton — including the

	furloughs, which are scheduled to last at least 60 days — are striking in a company that has been so prominent. March 20, 2020. Accessed at: https://www.washingtonpost.com/business/2020/03/20/us-oil-workers-paying-price-saudi-russian-oil-war/
LKQ	LKQ last month said it cut the equivalent of more than 16,750 employees worth of personnel expenses to weather the economic collapse from the global COVID-19 response. As soon as revenue began to fall, "we started to aggressively attack our cost structure," CEO Nick Zarcone said on an April 30 earnings call. The company's "headcount actions" included cutting all overtime, decreasing hours for many employees, ending all temp positions, "extensive employee furloughs" and permanent layoffs, Zarcone said. It also included certain social programs European countries offered employees. (LKQ has a significant presence on that continent too.) As of April 17, LKQ had effectively shed the cost of more than 16,750 workers, Zarcone said. It could be thought to have lost nearly about a third of its global workforce, he said. May 15, 2020. Accessed at: https://www.repairerdrivennews.com/2020/05/15/lkq-covid-19-response-staggering-and-incredibly-painful-some-cuts-consolidation-likely-to-stay/
Marriott	"According to a report in the Wall Street Journal, Marriott International is starting to furlough what could amount to "tens of thousands of employees," from general managers to housekeepers. A Marriott spokesperson told the paper the company had started closing some managed properties last week, sending the workers at these hotels home. While the hotels are closed, the employees will not receive paychecks but will continue to receive healthcare benefits—paid for by the hotel owner, the spokesperson said. A Marriott spokesperson confirmed to Hotel Management that the WSJ story was accurate, and offered the following statement: "As travel restrictions and social distancing efforts around the world become more widespread, we are experiencing significant drops in demand at properties globally with an uncertain duration. We are adjusting global operations accordingly which has meant either reduction in hours or a temporary leave for many of our associates at our properties. Our associates will keep their health benefits during this difficult period and continue to be eligible for company-paid free short-term disability that provides income protection should they get sick. We are working quickly to mitigate the impact to our business while also focusing on assisting our associates, our guests and our owners. While the ultimate impact is difficult to predict at this time given the fluidity of the situation, we remain confident in our long-term prospects." March 17, 2020. Accessed at: https://www.wsj.com/articles/marriott-starting-to-furlough-tens-of-thousands-of-employees-11584459417
Tesla	Tesla Inc.'s Nevada gigafactory is reducing on-site staff by 75% in the coming days to help slow the spread of the coronavirus, according to the county where the plant is located. March 27, 2020. Accessed at: https://www.bloomberg.com/news/articles/2020-03-27/tesla-s-nevada-gigafactory-to-reduce-on-site-staff-by-75
Ulta Beauty	"In these uncertain times, we continue to keep you and our associates at the heart of every decision we make. We are closely evaluating this fluid situation and following guidance from public health officials and government agencies to inform difficult but important decisions. To that end, I'd like to share an update on how we are continuing to adapt in order to protect your health & safety. Our stores will remain temporarily closed until the time when we can safely reopen. As this situation is ever-changing, it's difficult to predict when that day will be. Because of this, with thoughtful consideration, we have decided to transition many of our store and salon associates to temporary furlough beginning April 19. We know this action has great impact on our talented, dedicated associates who are the heart of our company. Furloughed associates are eligible to apply for unemployment benefits, which were recently increased with the passing of the federal CARES Act." – CEO Mary Dillon, April 30, 2020. Accessed at: https://www.ulta.com/updates/.

Panel B: Pay Increase (Hourly Wage Increases, Bonuses, and Hiring)

Company	Excerpt
Amazon	"We're hiring 100,000 new full and part-time employees across the U.S. in our fulfillment centers and delivery network to meet the surge in demand from people relying on Amazon's services during this stressful time. We encourage people across the hospitality, restaurant, and travel industries who have been impacted by the COVID-19 crisis to work with us until their previous employer can hire them back. Our employees in fulfillment centers, transportation operations, stores or those making deliveries are playing an essential role for customers during this crisis. We are recognizing this amazing work with pay increases. Qualifying employees will receive an additional $2 USD per hour in the U.S., C$2 per hour in Canada, £2 per hour in the UK, and approximately €2 per hour in many EU countries. Update April 24: We've extended the increased hourly pay outlined below through May 16. We are also extending double overtime pay in the U.S. and Canada. These extensions increase our total investment in pay during COVID-19 to nearly $700 million for our hourly employees and partners. In addition, we are providing flexibility with leave of absence options, including expanding the policy to cover COVID-19 circumstances, such as high-risk individuals or school closures. We continue to see heavy demand during this difficult time and the team is doing incredible work for our customers and the community." – March 16, 2020. Accessed at: https://blog.aboutamazon.com/company-news/amazons-actions-to-help-employees-communities-and-customers-affected-by-covid-19
Bank of America	"Bank of America plans to give all branch workers a $200 bonus every two weeks as it reduces branch hours at its 4,300 locations nationwide, according to a company memo the Charlotte Observer obtained Friday. Workers will still be paid for their regular, full schedule, even if hours are reduced…. While not receiving the biweekly bonuses, employees in Bank of America call and operations centers in the U.S. will have their overtime pay raised to double their standard hourly rate, according to the memo. Bank of America said it added 1,000 new people to its consumer and small business banking group in March to help customers. The bank has hired 1,700 new employees this month, according to the memo." March 20, 2020. Accessed at: https://www.charlotteobserver.com/news/coronavirus/article241377216.html
Duke Energy	Duke Energy and its subsidiary Piedmont Natural Gas on Friday announced that its employees will received $1,500 stipend to help with unplanned expenses resulting from COVID-19 pandemic. "This is an unprecedented crisis that requires an unprecedented response," said Lynn Good, Duke Energy's chairman, president and CEO. "We hope the customers and communities we are privileged to serve - and the outstanding employees who serve them - will take some comfort from these actions." March 20, 2020. Accessed at: https://markets.businessinsider.com/news/stocks/duke-energy-to-give-employees-1-500-stipend-to-cope-with-covid-19-1029017895#
Keurig Dt Pepper	And while the pandemic has spurred downturns for thousands of companies nationwide, the Fortune 500 company is looking for new employees. A company spokeswoman said Keurig is hiring for 1,100 positions across the country. There are 35 open positions at the company's headquarters in Burlington, which employs 1,200 people. The company's approximately 26,000 employees are still getting paid during the pandemic, according to Keurig. April 18, 2020. Accessed at: https://www.bizjournals.com/bizwomen/news/latest-news/2020/04/keurig-dr-pepper-is-donating-brewers-to-hospitals.html?page=all
Kroger	"The grocer company will also "provide a one-time bonus to every hourly frontline" employee, amounting to $300 for every full-time and $150 for every part-time associate, according to a Kroger press release." March 21, 2020. Accessed at: https://www.cnn.com/world/live-news/coronavirus-outbreak-03-21-20-intl-hnk/h_a2f994b65ad336febe32e708fa735967

Medtronic	"Medtronic implemented reward and recognition programs, which include monetary awards, for business-critical employees who must report to a Medtronic facility to continue manufacturing and distributing products to the healthcare systems and patients who need them." April 21, 2020. Accessed at: http://newsroom.medtronic.com/news-releases/news-release-details/medtronic-provides-update-covid-19-pandemic-response-and-impact
Newell Brands	"We have developed three key priorities to position Newell for success as we manage through these turbulent and uncertain times. The first is, unequivocally, a focus on the safety and well-being of our employees. Our people are being asked to work differently, and they're rising to occasion. We have implemented a mandatory work-from-home policy for professional, clinical and administrative employees. All noncritical business travel is prohibited. And we've temporarily closed all our Yankee Candle retail stores. To support our frontline workers, we have implemented a temporary hourly pay increase, a weekly bonus program for supervisors and additional emergency pay checks in the U.S. and certain geographies." President and CEO Ravi Saligram, Quarterly Earnings Call on May 1, 2020. Accessed at: https://www.fool.com/earnings/call-transcripts/2020/05/01/newell-brands-inc-nwl-q1-2020-earnings-call-transc.aspx
Tyson Foods	"Tyson Foods, Inc. (NYSE: TSN) today announced it will pay approximately $60 million in "thank you" bonuses to 116,000 frontline workers and Tyson truckers in the U.S. who support the company's operations every day to provide food during the COVID-19 pandemic. Eligible team members will receive a $500 bonus, payable during the first week of July. The bonuses are in addition to other company-announced efforts to support workers, plant communities and livestock producers during the global pandemic. 'We're proud of how our team members have stepped up during this challenging time to make sure we continue fulfilling our critical mission of feeding people across America,' said Tyson Foods CEO Noel White." March 31, 2020. Accessed at: https://www.tysonfoods.com/news/news-releases/2020/3/tyson-foods-provide-approximately-60-million-bonuses-frontline-workers
Wayfair	"Here are some of the steps we are taking to protect everyone in this ever-evolving situation. We are working tirelessly to make sure that the products you love are available when you want them, delivered in the safest way possible. We are diligently following guidance and best practices from the Centers for Disease Control and Prevention (CDC). Across all of our facilities and delivery operations, we have increased our daily cleaning routines, including more frequent handwashing, use of sanitizer, and cleaning of equipment. Our customer service team is available to answer any questions about your experience, work with you on the best delivery option, and provide more information on the many precautions we're taking to protect your health and safety. We are equally committed to taking care of our employees. We are increasing pay for hourly employees in our fulfillment centers and home-delivery operations by $4 per hour for their hard work and dedication in these unprecedented times. This pay premium will be applied to hours worked through June 20, 2020." Founders, March 15, 2020. Accessed at: https://www.wayfair.com/help/article/wayfairs_response_to_covid-19/B183F60F-197B-43E2-A1D3-764C28A8C4F5
YUM!	As recognition for the vital role that our Restaurant General Mangers (RGMs) play in inspiring and leading successful restaurant teams, Yum! Brands has announced a one-time $1,000 bonus for nearly 1,200 RGMs at company-owned KFC, Pizza Hut, Taco Bell and The Habit Burger Grill restaurants around the world. March 30, 2020. Accessed at: https://www.yum.com/wps/portal/yumbrands/Yumbrands/covid-19/

Online Appendix Table 4
Robustness to Alternative Measurement of Financial Flexibility

The table below replicates the collective analysis in Tables 4-7, but groups the analysis by outcome and each respective alterative proxy for financial flexibility. Panels A and B use an indicator for *HIGH CASH* (i.e., above the median), rather than *HIGH NET CASH* as in the main paper. Panels C and D use a continuous measure of *NET CASH* in place of the indicator.

Panel A: Measurement based on HIGH CASH INDICATOR (WORKFORCE REDUCTIONS)

SAMPLE	*FULL SAMPLE*	*HIGH GOVERNANCE*	*LOW GOVERNANCE*	*HIGH COST STICKINESS*	*LOW COST STICKINESS*	*HIGH WORKER*	*LOW WORKER*
DEPENDENT VARIABLE			*WORKFORCE REDUCTIONS*				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SALES DECREASE	0.320***	0.439***	0.194**	0.416***	0.221***	0.204***	0.373***
	(5.70)	(5.48)	(2.41)	(5.19)	(2.85)	(3.71)	(4.25)
HIGH CASH	0.087	0.177**	-0.017	0.196*	-0.002	0.003	0.126
	(1.46)	(2.18)	(-0.18)	(1.91)	(-0.03)	(0.05)	(1.16)
*SALES DECREASE*HIGH CASH*	-0.073	-0.260**	0.140	-0.246*	0.083	-0.093	-0.003
	(-0.89)	(-2.35)	(1.08)	(-1.89)	(0.72)	(-0.99)	(-0.02)
EMPLOYMENT	0.035	0.051*	0.033	0.033	0.030	0.112***	-0.011
	(1.58)	(1.69)	(0.99)	(0.95)	(1.00)	(3.96)	(-0.31)
PROFITABILITY	0.036	-0.173	0.250	-0.099	0.263	-0.055	0.255
	(0.12)	(-0.38)	(0.67)	(-0.21)	(0.66)	(-0.11)	(0.63)
TANGIBILITY	0.153*	0.227*	0.046	0.222	0.075	0.153	0.090
	(1.71)	(1.86)	(0.33)	(1.61)	(0.65)	(1.38)	(0.61)
INVENTORY	1.042***	1.473***	0.591	1.419***	0.793**	0.584	1.329***
	(3.39)	(4.14)	(1.35)	(3.77)	(2.03)	(1.60)	(3.57)
SALES GROWTH	0.125	0.133*	0.316	0.195	0.064	-0.168	0.454***
	(1.10)	(1.68)	(1.27)	(1.53)	(0.19)	(-1.43)	(2.72)
INVESTMENT GRADE	-0.126***	-0.140**	-0.119*	-0.133*	-0.108	-0.035	-0.182***
	(-2.69)	(-2.23)	(-1.71)	(-1.89)	(-1.63)	(-0.55)	(-2.66)
CONSTANT	-0.141	-0.285**	-0.037	-0.193	-0.075	-0.370***	-0.004
	(-1.50)	(-2.21)	(-0.26)	(-1.44)	(-0.55)	(-3.66)	(-0.03)
OBSERVATIONS	354	177	177	177	177	177	177
R-SQUARED	0.167	0.275	0.116	0.203	0.154	0.170	0.214

Panel B: Measurement based on HIGH CASH INDICATOR (PAY INCREASE)

SAMPLE	*FULL SAMPLE*	*HIGH GOVERNANCE*	*LOW GOVERNANCE*	*HIGH COST STICKINESS*	*LOW COST STICKINESS*	*HIGH WORKER*	*LOW WORKER*
DEPENDENT VARIABLE				*PAY INCREASE*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SALES DECREASE	-0.221***	-0.152*	-0.271**	-0.187*	-0.228**	-0.026	-0.367***
	(-3.12)	(-1.68)	(-2.41)	(-1.80)	(-2.34)	(-0.26)	(-3.74)
HIGH CASH	-0.141	-0.227**	0.020	-0.218*	-0.058	0.016	-0.262*
	(-1.53)	(-2.17)	(0.13)	(-1.77)	(-0.46)	(0.13)	(-1.83)
*SALES DECREASE*HIGH CASH*	0.109	0.215*	-0.117	0.224	-0.050	-0.044	0.215
	(1.06)	(1.70)	(-0.68)	(1.56)	(-0.36)	(-0.31)	(1.38)
EMPLOYMENT	0.083***	0.112***	0.053	0.098***	0.082**	0.048	0.083**
	(3.53)	(3.21)	(1.64)	(2.77)	(2.48)	(1.32)	(2.39)
PROFITABILITY	0.238	0.665	-0.002	0.703*	-0.336	0.095	0.282
	(0.66)	(1.01)	(-0.00)	(1.81)	(-0.57)	(0.16)	(0.59)
TANGIBILITY	-0.041	-0.036	-0.030	-0.047	-0.051	-0.139	0.092
	(-0.45)	(-0.32)	(-0.19)	(-0.37)	(-0.38)	(-1.01)	(0.63)
INVENTORY	0.041	-0.300	0.303	-0.364	0.364	0.255	-0.273
	(0.15)	(-1.20)	(0.72)	(-1.13)	(1.03)	(0.56)	(-0.82)
SALES GROWTH	0.095	0.167	-0.106	0.086	-0.033	0.134	0.077
	(0.87)	(1.52)	(-0.63)	(0.69)	(-0.17)	(0.82)	(0.49)
INVESTMENT GRADE	-0.005	-0.037	0.026	0.060	-0.075	0.004	0.007
	(-0.10)	(-0.58)	(0.40)	(0.91)	(-1.11)	(0.05)	(0.12)
CONSTANT	0.113	-0.048	0.285*	0.013	0.174	0.102	0.211
	(1.00)	(-0.31)	(1.78)	(0.08)	(1.09)	(0.65)	(1.19)
OBSERVATIONS	354	177	177	177	177	177	177
R-SQUARED	0.082	0.116	0.129	0.099	0.129	0.033	0.184

Panel C: Measurement based on continuous measure of NET CASH (WORKFORCE REDUCTIONS)

SAMPLE	*FULL SAMPLE*	*HIGH GOVERNANCE*	*LOW GOVERNANCE*	*HIGH COST STICKINESS*	*LOW COST STICKINESS*	*HIGH WORKER*	*LOW WORKER*
DEPENDENT VARIABLE			*WORKFORCE REDUCTIONS*				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SALES DECREASE	0.326***	0.379***	0.274***	0.364***	0.277***	0.199***	0.403***
	(7.15)	(6.22)	(3.96)	(5.40)	(4.45)	(3.90)	(5.57)
NET CASH	0.156	0.639**	-0.132	0.487	-0.051	-0.099	0.421
	(1.21)	(2.20)	(-0.86)	(1.65)	(-0.25)	(-0.78)	(1.06)
*SALES DECREASE*NET CASH*	-0.743***	-1.382***	-0.255	-1.109***	-0.489	-0.658**	-0.361
	(-3.24)	(-3.52)	(-0.81)	(-2.86)	(-1.40)	(-2.47)	(-0.61)
EMPLOYMENT	0.035	0.046	0.026	0.028	0.037	0.098***	-0.017
	(1.59)	(1.54)	(0.80)	(0.79)	(1.24)	(3.77)	(-0.48)
PROFITABILITY	0.142	-0.078	0.276	-0.002	0.319	0.115	0.273
	(0.52)	(-0.17)	(0.81)	(-0.01)	(0.86)	(0.22)	(0.72)
TANGIBILITY	0.107	0.186	0.016	0.192	0.024	0.106	0.105
	(1.19)	(1.53)	(0.12)	(1.38)	(0.21)	(0.95)	(0.69)
INVENTORY	1.029***	1.455***	0.622	1.392***	0.817**	0.499	1.382***
	(3.43)	(4.11)	(1.49)	(3.68)	(2.16)	(1.50)	(3.61)
SALES GROWTH	0.111	0.107	0.224	0.175	0.037	-0.170	0.417**
	(0.96)	(1.35)	(0.90)	(1.33)	(0.11)	(-1.46)	(2.52)
INVESTMENT GRADE	-0.132***	-0.141**	-0.126*	-0.137**	-0.120*	-0.038	-0.175**
	(-2.83)	(-2.23)	(-1.81)	(-1.98)	(-1.81)	(-0.62)	(-2.52)
CONSTANT	-0.097	-0.208*	0.007	-0.107	-0.077	-0.308***	0.034
	(-1.06)	(-1.66)	(0.05)	(-0.78)	(-0.57)	(-2.97)	(0.21)
OBSERVATIONS	354	177	177	177	177	177	177
R-SQUARED	0.176	0.281	0.109	0.207	0.158	0.191	0.201

Panel D: Measurement based on continuous measure of NET CASH (PAY INCREASE)

SAMPLE	*FULL SAMPLE*	*HIGH GOVERNANCE*	*LOW GOVERNANCE*	*HIGH COST STICKINESS*	*LOW COST STICKINESS*	*HIGH WORKER*	*LOW WORKER*
DEPENDENT VARIABLE				*PAY INCREASE*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SALES DECREASE	-0.142**	-0.090	-0.244***	-0.083	-0.187**	0.034	-0.299***
	(-2.41)	(-1.24)	(-2.61)	(-0.98)	(-2.29)	(0.40)	(-3.54)
NET CASH	0.328	-1.169***	1.102***	-0.048	0.663	0.709	-0.273
	(0.82)	(-2.85)	(3.74)	(-0.06)	(1.39)	(1.63)	(-0.32)
*SALES DECREASE*NET CASH*	-0.518	0.564	-1.208***	-0.124	-1.036*	-1.037**	0.019
	(-1.17)	(1.02)	(-3.27)	(-0.15)	(-1.79)	(-2.10)	(0.02)
EMPLOYMENT	0.082***	0.115***	0.055*	0.101***	0.073**	0.038	0.092**
	(3.39)	(3.21)	(1.75)	(2.73)	(2.20)	(1.05)	(2.59)
PROFITABILITY	0.139	0.925	-0.055	0.664*	-0.467	-0.007	0.243
	(0.42)	(1.40)	(-0.17)	(1.79)	(-0.91)	(-0.01)	(0.56)
TANGIBILITY	-0.005	-0.077	0.009	-0.040	0.007	-0.132	0.089
	(-0.05)	(-0.69)	(0.06)	(-0.31)	(0.05)	(-1.01)	(0.62)
INVENTORY	0.068	-0.452*	0.357	-0.395	0.409	0.302	-0.307
	(0.24)	(-1.76)	(0.90)	(-1.22)	(1.17)	(0.68)	(-0.89)
SALES GROWTH	0.119	0.173	-0.080	0.123	-0.062	0.154	0.105
	(1.03)	(1.46)	(-0.53)	(0.93)	(-0.35)	(0.92)	(0.67)
INVESTMENT GRADE	-0.005	-0.046	0.021	0.061	-0.076	0.003	-0.000
	(-0.12)	(-0.72)	(0.32)	(0.93)	(-1.13)	(0.04)	(-0.00)
CONSTANT	0.024	-0.087	0.196	-0.091	0.118	0.085	0.105
	(0.22)	(-0.60)	(1.25)	(-0.58)	(0.77)	(0.54)	(0.63)
OBSERVATIONS	354	177	177	177	177	177	177
R-SQUARED	0.077	0.126	0.157	0.084	0.137	0.057	0.161