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Sizing Up Corporate Restructuring in the COVID-19 Crisis

ABSTRACT In the wake of the COVID-19 pandemic, the financial and legal system will need to deal with a surge of financial distress in the business sector. Some firms will be able to survive, while others will face bankruptcy and thus need to be liquidated or reorganized. Many surviving firms will need to be downsized or acquired. In normal times, this triage is supported by the court system, banks, and financial markets. The goal of this paper is to size up the coming surge of financial distress, list the challenges it presents in the current environment, and offer potential policy solutions. Overall, our analysis suggests that the two key issues will be court congestion and excess liquidation and failure of small firms.

The 2020 coronavirus pandemic is an economic shock of unprecedented magnitude. In the first two quarters of 2020, US GDP contracted by 9.5 percent, with many forecasters anticipating at best a slow recovery and persistent output gap for years to come.¹ Even if the most acute effects of the shock turn out to be temporary, the consequences for many businesses

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1. While, as of February 14, 2020, economic forecasters polled by the Survey of Professional Forecasters anticipated cumulative growth over 2020–2022 of 5.8 percent, as of August 14, they expect growth over 2020–2023 to be 3.5 percent. Thus, even though they expect a clear rebound in 2021, professional forecasters anticipate an output gap (compared to earlier forecasts) lasting well into 2023.

will be severe. Many have failed already, others will have to undergo major changes in order to survive. Failure may mean acquisition by a rival, voluntary exit, or liquidation. Even surviving firms may have to renegotiate debt, raise fresh funds, or downsize.

In normal times, the triage between dying and surviving firms is implemented by bankruptcy courts and financial markets. This architecture is generally suited to the job but gets stretched during recessions. This time around, the size of the task appears daunting.

The goal of this paper is to estimate how many firms will fail, evaluate how effective the triage will be, and what, if anything, should be done to help it occur efficiently. We size up the coming surge of financial distress, list the challenges it presents to the legal and financial architecture in the current environment, and close by describing potential policy solutions.

To set the stage, we estimate the upcoming increase in financial distress. To do so, we first show that the impact on firm profits and revenues so far is comparable to the worst quarter of the 2008–2009 financial crisis. But analyst forecasts beyond 2021 suggest the intermediate-term consequences will be milder. We then turn to forecasting the impact on corporate leverage, which will rise as a function of the severity and length of the recession. Using a methodology similar to Crouzet and Gourio (2020), but using data on smaller firms, we forecast the impact of reduced revenues and profits on corporate balance sheets.² Unsurprisingly, the effects will be particularly acute for the smallest firms in the economy because they have weaker initial balance sheets and, to a lesser extent, larger fixed costs. Then, relying on analysis by Ma (2020) and Altman (2020), we forecast bond ratings downgrades and defaults. The number of defaults can be expected to increase substantially in the coming year. We perform a similar analysis to forecast business bankruptcy filings based on unemployment rates. Based on the unemployment rate at the time of writing, we expect overall bankruptcies to increase by as much as 140 percent in the current year.³ By all metrics, corporate financial distress is set to increase.

In section II, we discuss the challenges posed by this surge to the legal and financial infrastructure that deals with corporate distress. This

2. See also Gourinchas and others (2020) for a related analysis.

3. Despite the economic headwinds, the pace of business bankruptcy filings in 2020 has been modest, with a strong uptick among the very largest US companies but little change among small businesses. Among the largest US public companies, bankruptcy filings have been concentrated in industries and companies in distress well before the pandemic (retail, energy). See Wang and others (2020) for details on bankruptcy filing trends during the pandemic.

infrastructure usually triages among financially distressed firms, filtering those that will disappear (liquidate) from those that will reemerge (restructure). This time, because of the unprecedented amount of distress as well as the uncertainty created by the pandemic, this triage may be difficult to implement, leaving some firms wrongly liquidated, while other firms remain artificially alive.

First, we investigate the oft-cited claim that the COVID-19-led recession will require a large amount of cross-industry or cross-regional reallocation of capital, reducing the need for the bankruptcy system to cull those firms worthy of restructuring. To be sure, the short-run impact of COVID-19 has had a significant industry component: airlines and hospitality, among other industries, have been hard hit. But reallocation depends on longer-term prospects of these industries. To test this, we calculate the dispersion of equity analyst forecasts of firms' future earnings at various horizons. Such expected dispersion is in general a reliable indicator of *ex post* realized dispersion. Since the crisis, it has, if anything, decreased. Second, we quantify court capacity constraints. We predict that the coming surge of bankruptcies could increase the judge caseload by 158 percent from 2019 levels, well beyond the caseloads seen in 2009–2010. Third, we contrast the fates of small and large firms. Looking at the data, we show that small firms restructure very rarely. This is especially worrisome as the balance sheets of small firms are hit the hardest by the current recession. Fourth, we discuss the availability of financing for firms undergoing restructuring. When in the process of redrafting their capital structures, firms typically need to rely on debtor-in-possession (DIP) financing (DeMarzo, Krishnamurthy, and Rauh 2020). Relying on analysis by the Bankruptcy and COVID-19 Working Group (2020), we appraise the amount of such financing needed to handle the coming wave of restructuring. We find the required amount to be very small relative to the size of the corporate debt market. Fifth and last, we note that to handle default, banks must be able to absorb large losses on their corporate loan portfolios. Our estimates suggest that, for the moment, US banks have sufficient capacity to absorb losses on commercial loans. Overall, our analysis suggests that the two key issues will be court congestion and excess liquidation of small firms.

Building on the growing list of proposals that have circulated in the wake of the crisis, section III discusses policy options that could make the triage of distressed firms more efficient. We focus on two key issues: alleviating court congestion and targeting smaller firms. A first form of solution consists of encouraging out-of-court restructuring for smaller firms. We discuss moratoria and payment deferral schemes, which essentially

freeze debt repayment for a limited amount of time. Such moratoria have been implemented in many countries around the world and could be implemented in the United States. Another approach has been suggested by Greenwood and Thesmar (2020), who propose a tax credit for lenders and landlords who accept a haircut on existing loans to small businesses. Overall, restructuring subsidies and payment deferrals are options that target the frictions associated with the liquidation of small businesses. At the same time, even in ordinary times, just over half a million establishments per year close, suggesting that these programs must be tailored to avoid subsidizing too many inefficient firms.

A second set of policy options consists of changing the bankruptcy process itself. Iverson, Ellias, and Roe (2020) focus on court staffing. They estimate that, by recalling between 50 and 250 judges, the US court system would ensure that caseload by bankruptcy judge stays at the level of the 2009 crisis. Other policies are related to bankruptcy law. We discuss a recent provision enacted right before the pandemic, Subchapter V of the bankruptcy code, which offers an off-the-shelf streamlined process for small businesses to access restructuring. In recent months, Subchapter V filings have been increasing, but take-up is still limited with only 506 total Subchapter V filings as of June 2020 (Epiq 2020). We also discuss recent proposals by Stiglitz (Coy 2020), who suggests a large-scale, administrative procedure to substitute debt for government-sponsored equity, and by Blanchard, Philippon, and Pisani-Ferry (2020), who propose that the government accept larger haircuts than other creditors, conditional on the firm reemerging from bankruptcy.

Our paper complements a growing number of studies on the impact of the COVID-19 crisis on firms. Gourinchas and others (2020) calibrate a model in order to forecast the number of bankruptcies among small to medium enterprises (SMEs) in Europe; our forecasting approach is based purely on the statistical correlation between unemployment and failures. Brunnermeier and Krishnamurthy (2020) discuss the notion of excess leverage and the effect of the Federal Reserve policies on debt overhang. Hanson and others (2020) and Saez and Zucman (2020) emphasize direct government support to firms via grants. Compared to these papers, our focus is on how to deal with firms once they are in extreme distress or have already failed. To be sure, if the crisis is short and the landscape of economic activity looks similar post-pandemic, it may well make sense to keep as many firms as possible alive, with the government subsidizing firms to avoid macroeconomic scarring. But the longer the crisis, the more the burden should be shared between the government and private creditors and equity holders.

I. The Impact of the COVID-19 Shock on US Businesses

As of September 2020, the ultimate length of the economic crisis is still highly uncertain. However, it seems clear that the most acute effects of the crisis on US firms occurred in the second quarter of 2020, when some industries—including airlines, restaurants, and hotels—came to a virtual standstill. This section seeks to estimate the impact of the pandemic on creating distress and restructuring among US businesses, large and small.

I.A. Revenues and Earnings for Small and Large Firms

Early in the pandemic, the US Census administered weekly surveys to small and medium-sized enterprises on the impact that COVID-19 had had on their business. Panel A of figure 1 plots data from the most recent of these surveys, administered in late July 2020. We show the percentage of small firms, by NAICS sector, that report the pandemic having a large negative effect on their business. The figure reveals the well-known pattern that entertainment, restaurants, and hotels were the most severely affected sectors. In the next group, more than 40 percent of firms in the mining, oil and gas, transportation, and health care sectors reported severe adverse impact on their business. Overall, with the exceptions of utilities, construction, and finance and insurance, all sectors have a significant share of firms that have experienced negative effects of the pandemic.

More detailed measures of firm impact can be constructed for public firms, which report quarterly revenues. Panel B of figure 1 presents the percentage change in revenue between the second quarter of 2019 and the second quarter of 2020, weighted by 2019 revenues, for the same two-digit NAICS sectors shown in panel A based on data from Compustat. To preserve comparability across firms and sectors reporting at the same time, we limit the sample to firms with US headquarters and fiscal years that end in December, March, June, or September. As can be seen, the sectors experiencing the greatest impact for smaller firms are also hit among larger companies: entertainment, restaurants, and hotels. But there are differences: smaller firms are hit more severely than the typical Compustat firm.

Panel C of figure 1 shows the distribution of revenue changes for the full universe of public firms. For larger firms, the shock is big, but so far, its magnitude is similar to the Great Recession of 2009. Revenues for the median firm dropped by 9.4 percent between 2019:Q2 and 2020:Q2, while median growth between 2008:Q1 and 2009:Q1 (the trough of the 2009 crisis) was -8.1 percent, based on our calculations on the universe of public firms.

Figure 1. Impact of the Pandemic on US Businesses

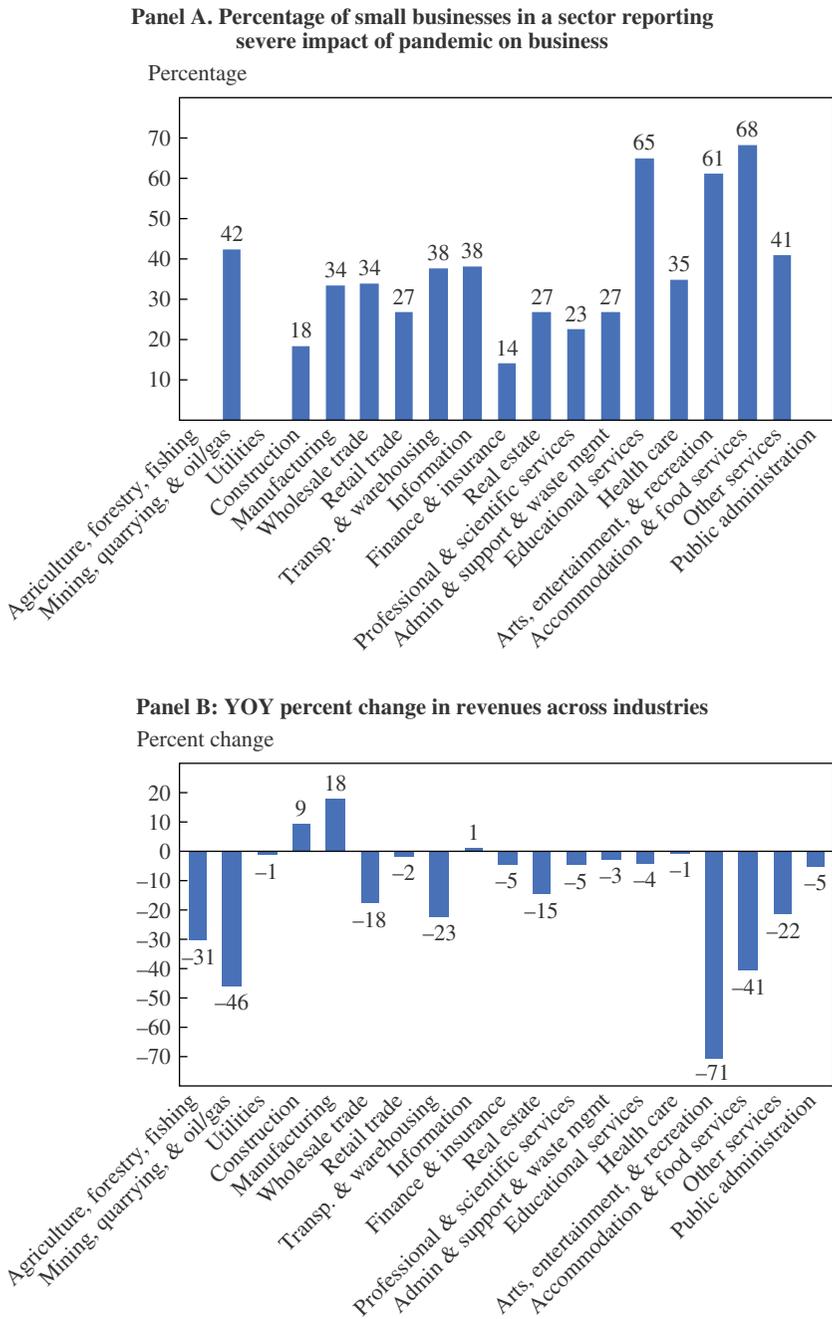
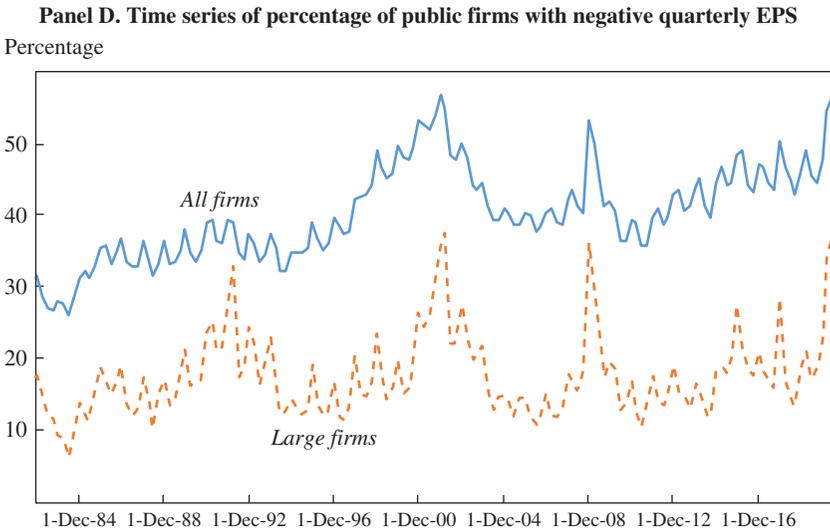
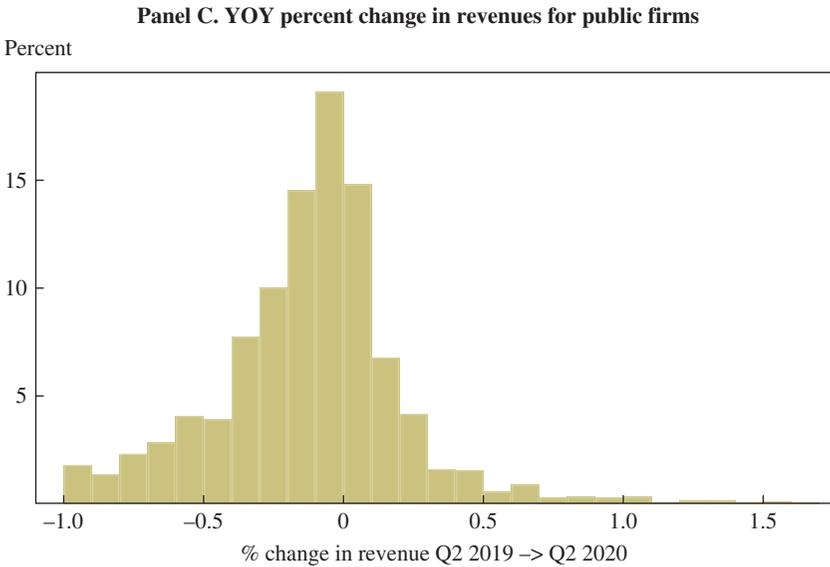


Figure 1. Impact of the Pandemic on US Businesses (Continued)



Sources: June 2020 Census Bureau Small Business Pulse Survey; Compustat.

Note: This figure displays various measures of how the pandemic has affected revenues and earnings of US businesses. Panel A displays the share of small businesses who report a severe negative impact of the pandemic on their business. Panel B shows the average percentage change in revenues from 2019:Q2 to 2020:Q2 by two-digit NAICS industry, weighted by 2019 revenues, from Compustat. Panel C displays a histogram of these same year-over-year percent changes in revenues across all firms in Compustat. Panel D shows the percentage of public firms with negative earnings per share in that quarter. For panels C and D, we exclude financials.

Compared to the Great Recession, the effect of the COVID-19 crisis on sales is more left-skewed than the financial crisis. As can be seen from panel C, more than 10 percent of firms lost over half their revenues in 2020:Q2, while only about 5 percent of firms lost half their revenues at the trough of the 2009 crisis. Suspecting that this strong left tail could have been magnified by (operating and financial) leverage effects, we zoom in on the share of firms reporting negative earnings, shown in panel D of figure 1. Among the largest firms, 37 percent report negative earnings in 2020:Q2, a number strikingly similar to the first quarter of 2009 and the first quarter of 2001. While the shock on sales is more left-tailed compared to the financial crisis, the share of firms with negative earnings is not larger (so far). This suggests that the most severely hit firms had more flexible cost structures. The length of the crisis is still unknown, however, limiting the value of this comparison.

To help make the comparison between 2020 (which is ongoing) and 2009 (which is completed), we turn to analyst forecasts, which allow us to go further into the future. We use the same data as Landier and Thesmar (2020), which contain, for the largest 1,000 firms, analyst forecasts of earnings for years 2020, 2021, and 2022 from data provider Refinitiv.⁴ Table 1 summarizes the revision of earnings forecasts for different sectors since mid-February. For each industry, we compute the unweighted average of the growth in earnings forecasts between February 2020 and May 2020. We exclude firms for which the beginning-of-period forecast of earnings is negative. We compare these estimated growth rates to the beginning of the Great Recession. Specifically, for the earlier period we compute the percentage revision between June 2008 and March 2009. The table shows that, from the point of view of large public firms, equity analysts do not believe that either the short- or long-term effects will be even half of what they believed would happen at the beginning of the Great Recession. Second, the short-term dispersion of revision is modest compared to 2009, at both short and longer horizons. This is consistent with the idea that the COVID-19 shock is expected to have a relatively

4. For these larger firms, we show in online appendix table B.1 that these forecasts have been reliable (i.e., unbiased) at a one-year horizon, while slightly optimistic at longer horizons. It is well known that analyst forecasts at a one-year horizon used to be biased toward optimism in the 1990s on the universe of Institutional Brokers' Estimate System (IBES) firms. But even on this sample, short-term optimism has essentially disappeared since the late 1990s (Kothari 2001).

Table 1. Impact of COVID-19 on Earnings of Public Firms

<i>Forecast horizon</i>	<i>Growth in Expected Earnings between Jun 2008 and Mar 2009 (%)</i>		<i>Growth in Expected Earnings between Feb 2020 and May 2020 (%)</i>	
	<i>FY 2009</i>	<i>FY 2011</i>	<i>FY 2020</i>	<i>FY 2022</i>
<i>Revision of industry forecasts</i>				
Communication	-50	-35	-19	-13
Consumer discretionary	-75	-47	-25	-17
Consumer staples	-13	-15	-10	-7
Energy	-40	-24	-19	-20
Financials	-16	-21	-25	-13
Health care	-18	-31	-15	-5
Industrials	-37	-32	-24	-15
IT	-44	-19	-12	-9
Materials	-47	-28	-19	-9
Real estate	-71	-32	-33	-7
Utilities	-17	-13	-3	0
<i>Aggregate statistics</i>				
Mean	-39	-27	-19	-10
Cross-sectional dispersion	22	10	8	6

Source: IBES.

Note: Industry forecasts of the impact of COVID-19 on earnings, contrasted with the Great Recession. For each industry, we compute the unweighted average of the growth in earnings forecasts between the beginning and the end of the period. We exclude firms for which the beginning of period forecast of earnings is negative.

homogeneous impact across these large firms. In section II, we will use a version of this dispersion to appraise the extent of future expected reallocation.

To sum up, based on looking at current and expected earnings and revenues, large public firms have experienced less impact than is commonly supposed, both in terms of realized and expected earnings. For these large firms, the effect of the recession can be expected to be relatively homogeneous. Meanwhile, for smaller firms, the Census Bureau Small Business Pulse Survey suggests that the shock seems to be stronger. We explore this further below.

1.B. Is the COVID-19 Crisis Biased toward Industries with Predominantly Smaller Firms?

We lack timely and granular data on the financial position of small firms, but we can study indirect measures of small firm exposure by asking

whether industries and sectors that are disproportionately populated by small firms (agriculture, construction, restaurants) are also those industries and sectors that are having the most impact by the COVID-19 shock. Panel A of figure 2 provides a simple depiction of this by plotting the sector-level unemployment rate in July 2020 against the share of total employment in that sector represented by small businesses. As can be seen, leisure and hospitality suffered the largest increase in unemployment, but overall this industry falls in the middle of the distribution in the mix of small and large firms (restaurants are mainly small firms, but hotels include many large firms, for example). Overall, there is no discernible correlation between sector-level unemployment and the small business employment share.

Panel B of figure 2 shows a related analysis. The solid line shows the national unemployment rate. The dashed line shows the unemployment rate based on the sum of sector-level unemployment rates in every month, weighted by small business employment. As can be seen, these two series track each other closely, including in the most recent period.

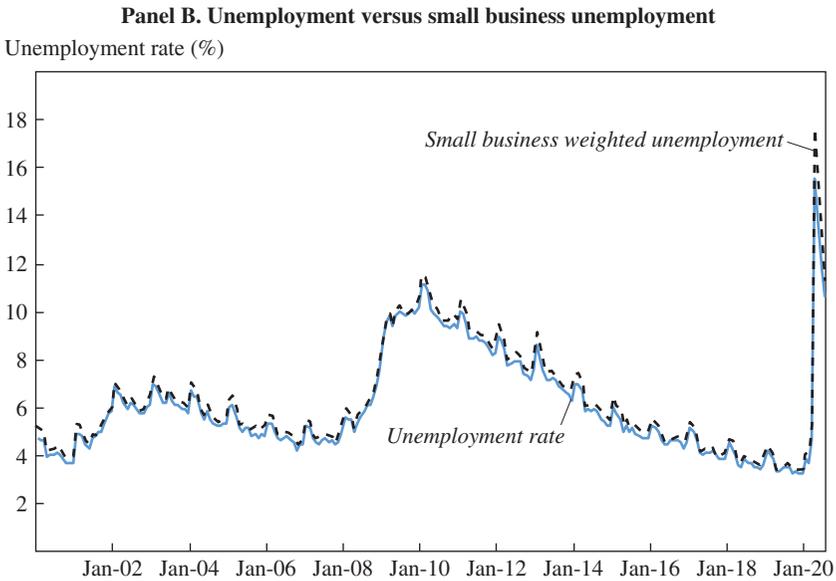
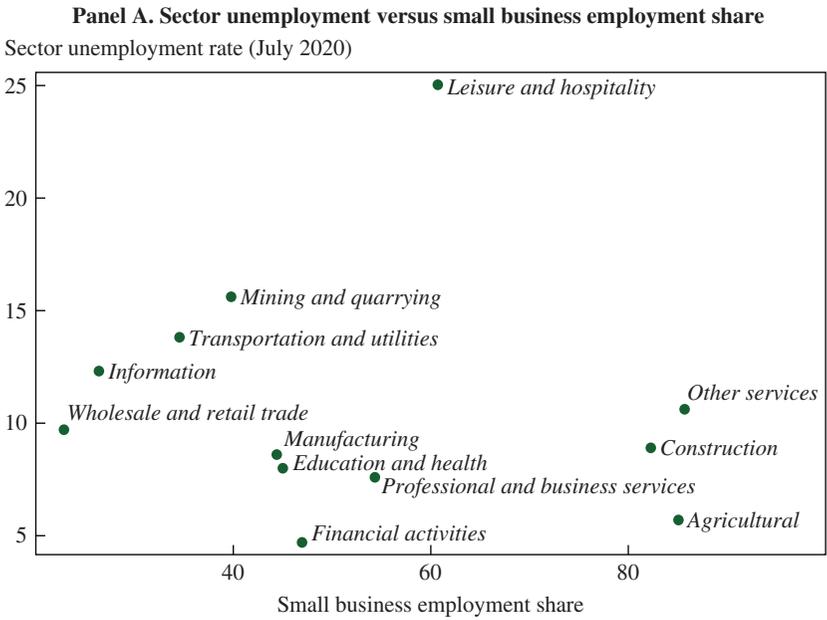
1.C. Impact on Leverage Ratios

Crouzet and Gourio (2020), in a series of Federal Reserve blog posts, explore the financial position of US public firms as they enter the pandemic and make forecasts of their leverage in the coming year. Many nonfinancial publicly traded companies entered 2020 with elevated leverage compared to the historical average, but only slightly. However, they suggest that the fragility is tempered by their low level of interest expense and high cash positions.

Crouzet and Gourio (2020) forecast the future liquidity position of public firms using assumptions about the impact of COVID-19 on operating cash flows and holding fixed payouts and investment. Although they forecast 30 percent of firms exhausting their cash buffers by the third quarter of 2020, the implications are softened by the heightened availability of credit for public firms.

There is much less information available on the financial structure of smaller, unlisted businesses. However, for selected years the IRS publishes aggregate income statement and balance sheet data by size class through the Statistics of Income (SOI) data set. Table 2 summarizes statistics from these data for the most recent year available, which is 2013. Shareholders' equity is the sum of capital stock, paid in capital, and retained earnings. Leverage is one minus the ratio of shareholder equity to assets. Smaller

Figure 2. Where Does the Burden of the Covid-19 Shock Fall?



Sources: US Small Business Administration 2018 Small Business Profile; Bureau of Labor Statistics.
Note: Panel A plots sector-level unemployment in July 2020 against the small business share of employment. Panel B plots the national unemployment rate (solid) alongside the unemployment rate weighted by the small business share of employment in that sector (dashed).

Table 2. Forecasting the Impact of COVID-19 on Balance Sheet Health

	<i>Firm assets</i>					
	<i>0.5–\$1 million</i>	<i>< \$5 million</i>	<i>< \$10 million</i>	<i>< \$25 million</i>	<i>< \$50 million</i>	<i>< \$100 million</i>
Equity (\$ billions)	264	881	497	755	667	828
Assets (\$ billions)	78	305	183	304	250	366
Equity/assets (%)	30	35	37	40	37	44
Revenues/assets (%)	252	208	194	181	140	106
Cost of goods sold/revenues (%)	51	59	66	70	69	67
Other expenses/revenues (%)	45	37	31	27	28	30
Debt/assets (%)	70	65	63	60	63	56
Forecasts after 30 percent revenue drop						
Debt/assets (after) (%)	97	84	77	71	72	63
Δ Debt/assets (after – before) (%)	+27	+19	+14	+11	+9	+7

Sources: Authors' computation using the Internal Revenue Service 2013 Statistics of Income Data; 2019 Compustat.

Note: The last line shows the simulated debt-to-assets ratio if firms in the group were in aggregate to experience a 30 percent revenue drop but hold their fixed (non-COGS) expenses fixed over the same interval. We exclude businesses with under \$500,000 of total assets. "Other expenses" equals total expenses minus cost of goods sold. The last column shows the same exercise for all public nonfinancial firms with US headquarters listed in Compustat.

businesses have dramatically higher leverage ratios, relying heavily on bank debt and loans from shareholders.⁵

In the spirit of Crouzet and Gourio (2020), we ask what would happen if businesses in each size class experienced a 30 percent decline in revenues with no decline in fixed expenses, except for cost of goods sold, which scales with revenues. For simplicity, in this exercise we assume no investment. Table 2 shows these results. For the smallest businesses (less than \$1 million in revenue), a 30 percent drop in annual revenue with no offsetting change in fixed expenses is enough to effectively wipe out the equity in the business. This comes from two forces: smaller firms have higher leverage to start with but also much larger ratios of fixed expenses to sales and higher asset-to-sales ratios.⁶

1.D. Predicting Credit Downgrades and Defaults

Ma (2020) draws on seventy-two years of historical data from Moody's Default and Recovery Database to forecast default and downgrade rates for firms rated by Moody's. Across rating classes, she finds that increases in the unemployment rate and declines in real GDP growth strongly predict higher probabilities of a rating downgrade. Drawing on recent forecasts of the unemployment rate and real GDP growth for 2020–2022 from professional forecasters, she predicts significant increases in downgrades, rating withdrawals, and default.

Of the 4,476 issuers overseen by Moody's at the start of 2020, 1.4 percent had defaulted and 3.4 percent had had their rating withdrawn by June 2020. Ma forecasts that an additional 4.9 percent will default and an additional 8.8 percent will have their rating withdrawn by the end of 2020. According to her estimates, as of July 2020 the US economy is through only about a fifth of the predicted number of defaults for this year, not to mention the additional defaults in the following years. Using different methodologies, Altman (2020) also forecasts default rates in 2020, using

5. Some caution is warranted in interpreting financial statements for the very smallest firms in the economy, those with total assets under \$0.5 million. These firms have low book assets, typically no external shareholders, and limited retained earnings because they are pass-through corporations. For the slightly larger small firms, these concerns are somewhat alleviated. We focus on the next larger set of firms, those with assets between \$0.5 million and \$1 million.

6. Carletti and others (2020) implement a similar analysis on Italian firms. They estimate that the lockdown will lead about 17 percent of Italian firms to end up with negative book equity. These firms are disproportionately smaller firms. We cannot conduct the same analysis since we do not have details about the distribution of small firms' balance sheets.

data at the bond and issuer level. His conclusions are similar, forecasting an aggregate bond default rate of 5.75 percent.

I.E. Predicting the Rate of Bankruptcy

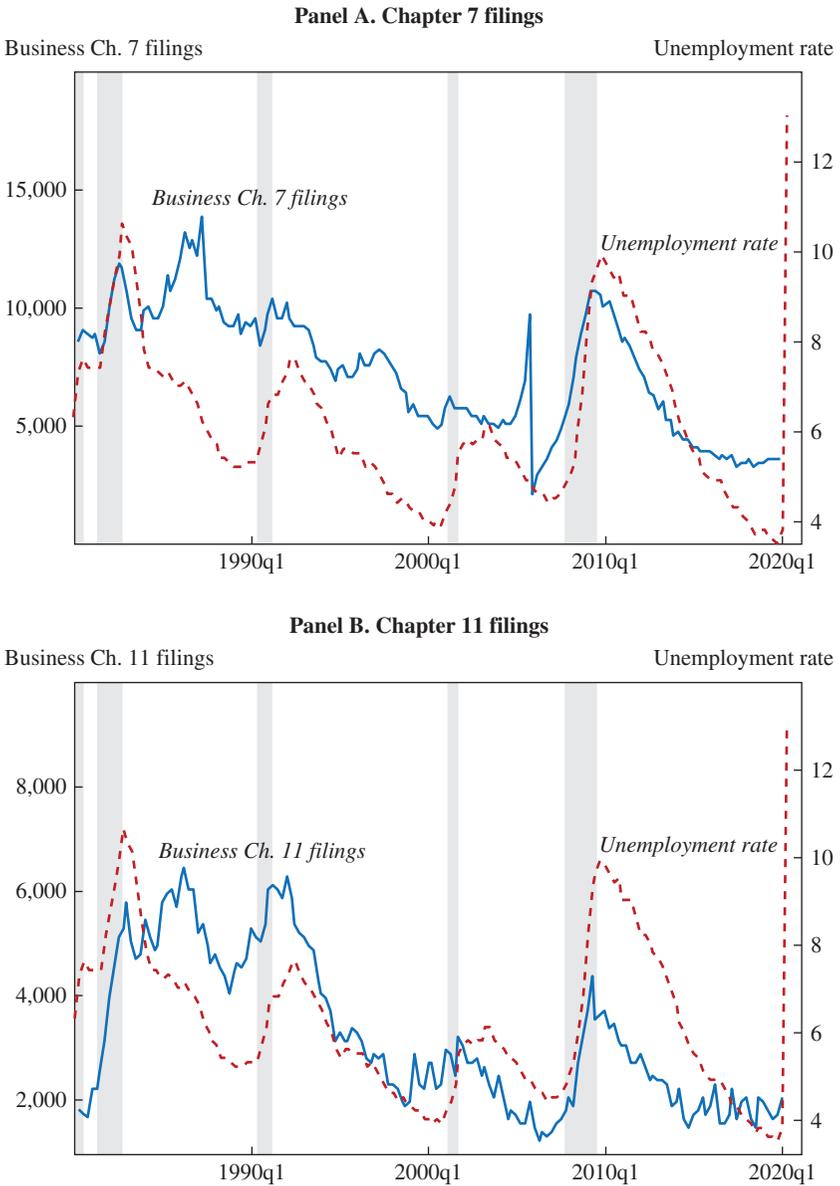
The most severe form of financial distress is firm failure or bankruptcy. Despite the economic headwinds, the pace of business bankruptcy filings in 2020 has been modest, with large increases among the largest US companies but little change among small businesses (under one hundred employees). Through August 2020, overall business bankruptcies are actually 1 percent *lower* than the same time frame in 2019. However, larger firms have been entering bankruptcy at higher rates, with overall Chapter 11 bankruptcies up 35 percent relative to 2019 and bankruptcies of firms with more than \$50 million in assets rising by 194 percent (Wang and others 2020). But bankruptcy filings by the largest US public companies have been concentrated in industries and companies that were experiencing distress well before the pandemic or lockdown period. Among the largest twenty firms by assets filing for bankruptcy in the first two quarters of 2020, five were in retail and apparel sectors and seven were in oil and gas and mining (Shen 2020).

There is a strong and intuitive historical relationship between unemployment rate—as a high-frequency measure of economic conditions—and the frequency of business bankruptcy. Figure 3 shows the close historical relationship between business bankruptcy filings nationally and the national unemployment rate, based on official filing statistics from the Administrative Office of the US Courts. Panel A plots the relationship for business Chapter 7 (liquidation) filings, which are dominated by small businesses. Firms that file for Chapter 11 (reorganization), shown in panel B, are generally larger than those that enter Chapter 7, but still contain many small firms as well. If historical trends are repeated, an unprecedented number of bankruptcies is on the horizon.

Following Iverson, Ellias, and Roe (2020), we forecast business bankruptcies based on an expected unemployment rate from 2020:Q3 to 2020:Q4 of 9.2 percent from the Survey of Professional Forecasters.⁷ Based on the historical relationship between bankruptcies and unemployment, a 9.2 percent unemployment rate predicts that the pace of business bankruptcy filings can be expected to increase by 140 percent relative to its

7. Federal Reserve Bank of Philadelphia, “Survey of Professional Forecasters,” <https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters>.

Figure 3. Business Bankruptcy Filings as a Function of Economic Conditions



Sources: Bureau of Labor Statistics (unemployment rate); Administrative Office of the US Courts (Chapter 7 and Chapter 11 filings).

Note: This figure displays time series plots of the US unemployment rate (both panels) against total business Chapter 7 filings (panel A) and Chapter 11 filings (panel B).

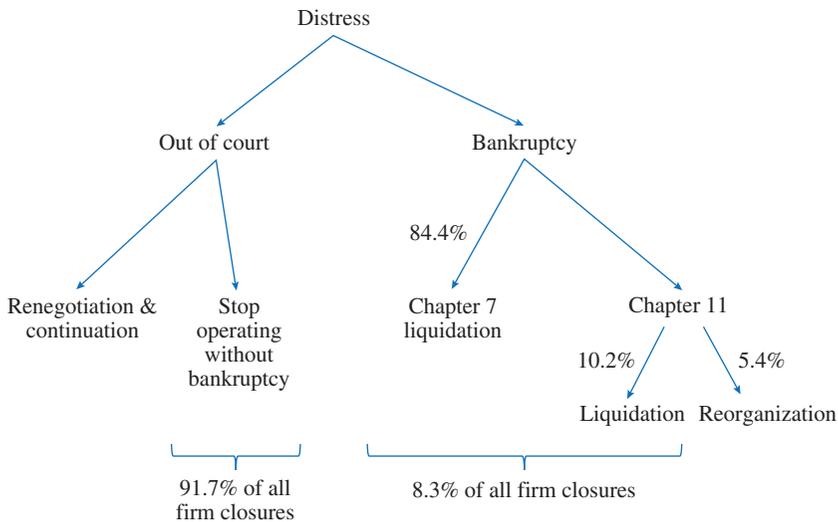
2019 level. Importantly, this forecast uses unemployment rate forecasts while ignoring the recent path of unemployment rates of 14.7 percent, 13.3 percent, 11.1 percent, and 10.2 percent in April, May, June, and July 2020. Even though much of this spike reflects temporary shutdowns, it is likely that the stresses of the initial lockdown period will lead to bankruptcy for some firms.⁸

These forecasts raise the question of why current business bankruptcy filings are so low. One reason could be policy, including the Coronavirus Aid, Relief and Economic Security (CARES) Act, Paycheck Protection Program (PPP), Main Street Lending Program, and the extension of unemployment insurance. Second, many of the triggers that force restructuring and bankruptcy have been relaxed. In the lead-up to the pandemic, loan covenants for public firms were notably light, resulting in fewer technical defaults and hence fewer renegotiations (Chappatta 2020). And, when firms have defaulted, lenders and landlords have been relatively lenient in allowing excess time to cure missed payments. Evidence suggests that missed payments have been quite common. For example, the Census Bureau Small Business Pulse Survey shows that 11.5 percent of all small businesses had missed a loan payment by the first week of May, and 23.6 percent had missed other payments such as rent. If lenders have been willing to be lenient thus far, many firms that have missed payments may avoid bankruptcy, at least in the short run. If these factors are only temporary, low bankruptcy numbers seen so far are a period of calm before the storm. On the other hand, if these factors actually prevent financial distress for many firms, our forecasted number of bankruptcies could be too high.

II. Triage of Distressed Firms in the Recession

In this section, we first describe the triage-type process by which distressed firms shut down, liquidate, or get reorganized. Within this framework, we lay out several frictions that could prevent efficient liquidation or restructuring from occurring. Our overriding goal is to identify the specific restructuring frictions that COVID-19 could exacerbate as well as those which might not be as concerning.

8. Iverson, Elias, and Roe (2020) explicitly adjust bankruptcy forecasts for temporary unemployment. Even with this adjustment, their methodology results in forecasted bankruptcy increases of close to 100 percent. Further, forecasts of the unemployment rate arguably already account for the temporary nature of the unemployment seen in the second quarter of 2020.

Figure 4. The Triage Process of Bankruptcy

Sources: Federal Judicial Center Bankruptcy Petition Database; 2000–2016 Census Bureau Business Dynamics Statistics.

Note: This figure displays a schematic of how firms deal with financial distress. Percentages listed under the bankruptcy branch represent the number of firms that go through each process. We classify as liquidated all firms that enter Chapter 11 and are either converted to Chapter 7 or dismissed from court. Percentages listed at the bottom of the diagram are estimates of the share of firm closures that occur in and out of court. We compute these figures using the total number of firm exits and comparing this number in each year to the number of firms that liquidate in bankruptcy.

II.A. Triaging Distressed Firms in a Wave of Corporate Distress

How does the bankruptcy process triage distressed firms? To fix ideas, consider a firm with continuation value V , liquidation value L , and debt repayment D . The firm is financially distressed: V is close to D . It has barely enough future cash flow to pay back its debt. The flow chart in figure 4 describes the different outcomes of financial distress and the empirical probabilities associated with each branch of the tree.

CONTINUATION If $V > D$ and $V > L$, the firm has enough resources to pay back its debt. It can and seeks to continue to operate. But because V is close to D , it may underinvest. This is the classic problem of debt overhang: debt holders absorb a disproportionate share of the value created by new projects, so that junior investors—especially shareholders—are reluctant to fund them.⁹ The solution in this case would be an informal, out-of-court restructuring to reduce D , though this rarely happens in practice.

9. See Brunnermeier and Krishnamurthy (2020) for a recent presentation.

EXIT If $L > D$ but $V < L$, the firm simply stops operating without filing for bankruptcy. The entrepreneur liquidates the firm, pays lenders, and pockets the residual. This often occurs for small businesses such as restaurants. For small businesses, such voluntary exit also happens when $D > L$, that is, liquidation proceeds do not cover existing obligations. Technically, the firm should file for bankruptcy, but for small firms the fixed cost of doing so often outweighs the potential benefits for claimants such as landlords or lessors.

Exiting out of court is incredibly common. Statistics from the Census Bureau's Business Dynamics Statistics database show that, in the past twenty years, 91.7 percent of firms that exit do so outside of bankruptcy.

BANKRUPTCY WITH STRAIGHT-OUT LIQUIDATION When $V < D$ and $L > V$, the firm defaults on payments, places itself under the authority of a court of justice, and is liquidated. In some instances, the entire firm is sold off. In others, assets are sold separately (piecemeal liquidation). This is the most common path for bankrupt firms, particularly for smaller businesses. US Courts bankruptcy filing statistics show that, among firms going through a formal bankruptcy process, 84.4 percent of the firms go through this process as opposed to the Chapter 11 filing that we describe below.¹⁰

CHAPTER 11 FILING When $V < D$, but the relationship between V and L is unknown, that is, when there is uncertainty about the continuation value of the firm, the business may file for protection from creditors under Chapter 11 of the bankruptcy code. This occurs in 15.6 percent of bankruptcy filings. The court seeks to estimate the continuation value of the firm. If the court estimates that $L > V$, it sends the firm to liquidation, either by converting the case to Chapter 7 or dismissing it outright (leaving the firm to liquidate out of court). Alternatively, if the business is estimated to be viable ($V > L$), it is reorganized. In a reorganization, equity holders and some junior creditor claims are usually wiped out, with senior debt holders becoming owners of the new firm.¹¹

10. For ease of explanation, we assume that all firms for which $V < D$ and $L > V$ choose liquidation in bankruptcy. In practice, firms of this type could also liquidate outside of court as long as creditors agree to take a loss without need for court intervention.

11. Increasingly, mergers and acquisitions (M&A) in bankruptcy is blurring the lines between continuation and liquidation. Sales in Chapter 11 could be an efficient way to quickly redeploy assets in bankruptcy. However, existing evidence on the rise of M&A in bankruptcy, such as shown by Gilson, Hotchkiss, and Osborn (2016), focuses on the largest firms in Chapter 11. M&A for the smallest firms is likely quite rare.

Conditional on Chapter 11 filing, the majority of firms are liquidated. Based on case outcomes reported by the Federal Judicial Center we estimate that, among the 15.6 percent of bankruptcy filings that happen under Chapter 11, 10.2 percent end up liquidated, and 5.6 percent reemerge. As we discuss below, the vast majority of the reemerging firms are large.

II.B. Frictions to Efficient Triage in the Pandemic

The triage described above does not occur in a vacuum; it is organized by a financial and legal architecture. It requires support from courts, including bankruptcy judges and trustees, and lawyers who sometimes intervene ahead of the formal filing by drafting out-of-court restructuring proposals, which take place under the shadow of the law, or prepackaged bankruptcy proposals to speed up the process after filing.

On the financing side, different types of investors play important roles. First, firms may need funding during the negotiation itself (debtor-in-possession, or DIP financing), which is often provided by senior lenders. Second, firms may need funding to emerge from bankruptcy. Such funding can be provided by current claimants as well as external investors. Last, investors may assist firms out of court in various capacities: providing risky funds (distressed investors), financing the takeover of the firm by an acquirer, or accepting out-of-court renegotiation of their claims (usually in exchange for a share of the upside of the company).

The triage implemented by the financial and legal infrastructure is likely to become less efficient in times of acute crisis. In theory, to be efficient, sorting should lead to continuation whenever $V > L$ and to exit whenever $L > V$. In the COVID-19 crisis, however, the accumulation of corporate distress will impose stress on the legal and financial infrastructure, potentially reducing the quality of the triage. We have in mind four mechanisms.

UNCERTAINTY ABOUT WHETHER THE COVID-19 CRISIS IS TEMPORARY OR STRUCTURAL If it is temporary, this corresponds to an increase in D (obligations that arose due to the temporary shock to revenue). V does not change as cumulative future cash flows are virtually unchanged. In this case, continuation is best when the firm was viable before (i.e., $V > L$). Alternatively, if COVID-19 leads to permanent reallocation across US regions or industries, this corresponds to a reduction of V (as the firm's prospects are diminished) and an increase in L (as the firm's assets should be deployed elsewhere).

CONGESTION: JUDGES AND LAWYERS ARE OVERWHELMED BY THE LARGE WAVE OF FINANCIAL DISTRESS As a result, their estimates of V and L are noisier, and wrong decisions happen more often. Also, the duration of the process

is longer and part of V is destroyed in the process, making it more likely that $L > V$ due to restructuring costs.

THE COVID-19 CRISIS HAS A DISPROPORTIONATE IMPACT ON SMALLER FIRMS, WHICH ARE HARDER TO CONTINUE For smaller firms, the estimate of V is noisier. Further, for small businesses a larger part of the continuation value V is not pledgeable to outside investors (for example, the entrepreneur's know-how). Suppose that only value $V' < V$ is pledgeable to investors. Then, investors value the continuation of the firm at V' and will thus choose liquidation whenever $V' < L$. Lastly, the fixed costs for restructuring small firms may be quite large relative to their size, forcing V down and resulting in $L > V$ for these firms, even though V would be larger if restructuring were not needed.

CRITICAL OUTSIDE FUNDING MAY BE LACKING IN A CRISIS Firms typically need funding during the process and after emergence. The funding need is greatest among firms with large working capital balances, such as restaurants and retail, which are highly distressed due to the pandemic. As above, this may create a wedge between the actual continuation value of the firm V and what outside investors are able to fund. This can tilt the process toward excess liquidation.

II.C. Costs of Financial Distress in the COVID-19 Recession

Before discussing the extent to which these frictions are exacerbated by the COVID-19 crisis, we perform a back-of-the-envelope estimate of the aggregate costs of financial distress that could occur during the pandemic. Even in regular times, bankruptcy and other milder forms of financial distress can be costly. For example, Andrade and Kaplan (1998) estimate that the costs of financial distress are between 10 and 23 percent of enterprise value.

Data from the Federal Judicial Center's Integrated Database (IDB) give the amount of liabilities owed by bankrupt firms from 2008 to 2017. Over this ten-year period, the average firm in Chapter 7 had \$4.6 million in liabilities at the time of filing while the average Chapter 11 firm owed \$64.8 million, and these distributions have been very stable over time. The bankruptcy forecasting exercise we discussed earlier suggested an estimated 15,638 Chapter 11 bankruptcies and 37,374 Chapter 7 bankruptcies over the next year. Given the average size of firms that enter bankruptcy, this yields \$1.01 trillion of liabilities will go into Chapter 11 and \$171.9 billion will enter Chapter 7.

How much value could be lost from these bankruptcies? Financial distress costs are notoriously hard to estimate. We base our estimates on the

midpoint of Andrade and Kaplan's (1998) estimates but also recognize that there are many distress costs which occur well before a firm enters bankruptcy (Elkamhi, Ericsson, and Parsons 2012), which are not included in our calculations. Assuming that 16.5 percent of firm value is lost due to financial distress, we estimate that frictions to restructuring could result in a loss of \$195.5 billion, equal to 0.9 percent of US GDP.

An alternative, more finely tuned calibration is obtained by predicting the number of bankruptcies for different size ranges of firms using the IDB. We estimate:

$$Bankruptcies_{st} = \alpha + \beta Unemp_t + \gamma_m + \varepsilon_{st},$$

where $Bankruptcies_{st}$ is the number of bankruptcies in size bucket s in month t , $Unemp_t$ is the national unemployment rate, and γ_m are calendar month fixed effects to soak up seasonality. We run this regression separately for each size bucket s using data for 2008–2017.¹² Based on these estimates, we can forecast the number of bankruptcies in each size range if the unemployment rate were 9.2 percent, as expected in the Survey of Professional Forecasters. This exercise yields an expected 91,254 business bankruptcies over the next year (online appendix table B.1), substantially higher than we forecast when using the longer time series from 1980 to 2019. From this projection, we estimate aggregate costs of financial distress of \$282 billion (1.3 percent of US GDP). Of these losses, roughly 20 percent are estimated to come from firms with less than \$100 million in liabilities (Andrade and Kaplan 1998).

The exercises above assume that all firms experience a 16.5 percent loss of value due to financial distress, but this estimate is based on large public companies. There is evidence that suggests that smaller firms may experience substantially higher losses. Bris, Welch, and Zhu (2006) estimate that direct fees alone could be as high as 30 percent of firm value for small businesses. In addition, smaller firms are much more likely to be liquidated, and Bris, Welch, and Zhu (2006) estimate that liquidation in Chapter 7 destroys significantly more value than Chapter 11, even after accounting for selection of firms into each chapter.

In addition to the firm value losses we just estimated, we can also estimate the costs of employee separations and reduced wages. To do so, we start from Bernstein, Colonnelli, and Iverson (2019), who show that the

12. The results of this estimation are in online appendix table B.1, and we find essentially identical results if we use year-over-year differences instead of levels in the regression.

random assignment of a bankruptcy judge can exogenously move a firm from Chapter 11 to Chapter 7, resulting in a 34 percent drop in the number of employees at the establishments owned by the bankrupt firm. They also show that a surprisingly large fraction of firms—58 percent—are sensitive to the assignment of the judge, meaning that a large fraction of firms could easily be shifted across bankruptcy procedures. Based on average employment per establishment of thirty-six, this suggests that assigning the most lenient judge to the average bankrupt firm could save seven jobs: 58 percent times 34 percent times 36. Multiplying this figure with our bankruptcy forecasting exercises above would lead to some excess destruction of 220,000 to 480,000 jobs, or about 0.15 percent of the US workforce.¹³

II.D. Evaluating Frictions in the COVID-19 Crisis

In this section, we evaluate the frictions listed above and provide evidence on whether the pandemic has made them more severe.

IS THE COVID-19 CRISIS TEMPORARY OR STRUCTURAL? How much reallocation should we expect in the current crisis? If the crisis leaves the economy essentially unchanged except for a temporary, albeit very large shock, business fundamentals are unchanged and few firms should be liquidated. If, however, the crisis is going to deeply affect the productive structure of the economy, liquidation should become the norm so that capital and labor can be reallocated.

It is obviously very hard to gauge the expected allocative effect of the current crisis. Jaimovich and Siu (2020) document how recent business cycles have led to permanent shifts in capital-labor substitution, indicating durable changes in the structure of the economy, but the current crisis is different in nature. Barrero, Bloom, and Davis (2020) use firm-level one-year-ahead forecasts of employment to derive a measure of expected reallocation and find it to be quite large. This, in addition to other evidence, notably on stock returns dispersion and working from home, points to durable labor reallocation in the economy, consistent with the view that the crisis will permanently destroy some jobs.

We complement these analyses with an additional analysis based on equity analyst forecasts. We analyze the dispersion of equity analysts' earnings

13. While many of these workers will be reallocated to new firms, there is extensive evidence that job losses lead to permanent reduction in earnings. Looking at all mass layoffs in recessions, Davis and von Wachter (2011) find that workers experience a 20 percent reduction in long-term wages. Focusing on bankruptcy-related layoffs, Graham and others (2019) find similar long-term wage reductions.

forecasts during the spring of 2020 using the same data described in section I. We compute the following reallocation index:

$$R_{t,h} = \sum_i w_i |FG_{i,t,h}|,$$

where w_i is a firm weight and $FG_{i,t,h}$ is the expected earnings growth for firm i , at date t , at horizon $h \in \{2020, 2021, 2022\}$. The reallocation index $R_{t,h}$ captures the cross-sectional dispersion of expected earnings growth.¹⁴ We compute w_i as the earnings share of firm i in 2019 (we restrict ourselves to firms with positive 2019 earnings). Following Landier and Thesmar (2020), forecasted earnings growth of firm i , as of date t , and for horizon h are given by $FG_{i,t,h} = 1/h ((F_t EPS_{i,t} + h/EPS_{i,2019}) - 1)$.

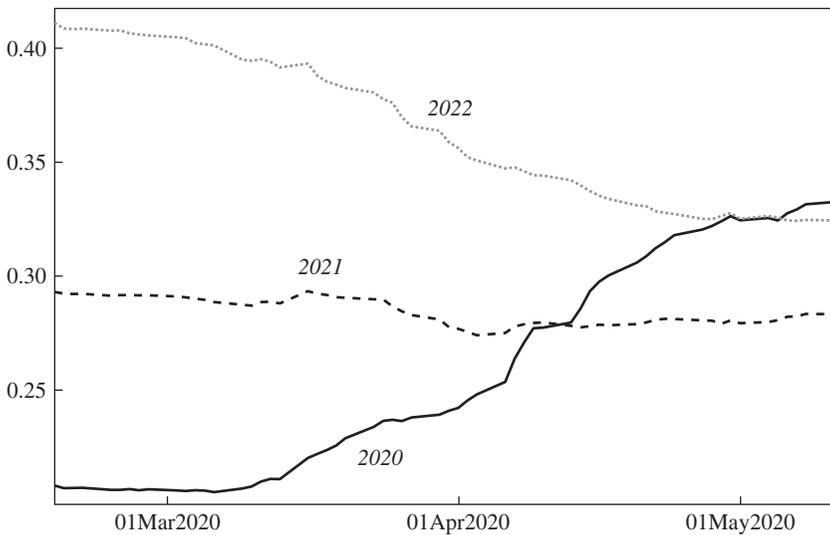
Barrero, Bloom, and Davis (2020) study smaller firms and conclude that the COVID-19 shock will lead to substantial reallocation. Our approach differs from theirs in several ways. Its advantage is that it can leverage analyst forecasts, which are reasonably accurate and available at long horizons (until 2022, and even 2024 for a smaller set of firms). One drawback is that we focus on larger, publicly listed firms. Another limitation of our approach is that it *does not* rely on actual forecasts of decisions, but on expected profits from these decisions.¹⁵

In the online appendix we check how accurately our measure of expected reallocation tracks actual reallocation for the 1990–2018 period. During this period, expected reallocation has tracked ex post realization. The only exception is for forecasts issued in April 2007, that is, *before* the financial crisis, when analysts underestimated the amount of reallocation that would eventually happen. But as soon as the crisis unfolded, their forecasts jumped to more closely match ex post realizations.

In figure 5, we show the evolution of our reallocation measure between February and May 2020, for each of the three horizons 2020, 2021, and 2022. While expected dispersion for 2020 went up dramatically, this is not the case for longer horizon forecasts. Expected dispersion has not increased for 2021 and has actually decreased for 2022. Analyst forecasts have been revised downward very strongly, but all in the same direction, making firms more similar to one another. Another explanation for this somewhat

14. The reallocation index $R_{t,h}$ can also be interpreted more structurally. Online appendix A shows, within a Cobb-Douglas production technology, that $R_{t,h}$ captures the share of capital that will move across firms, provided that investment tracks future profits.

15. Barrero, Bloom, and Davis (2020) look at hiring plans.

Figure 5. Expected Reallocation during the COVID-19 Crisis

Source: Authors' calculations from the Institutional Brokers' Estimate System (IBES).

Note: This figure plots an index of industry reallocation based on the earnings forecasts of the largest 1,000 firms by stock market capitalization as of December 2019. We further require that these firms have positive earnings in 2019 and December fiscal year ends. Every day t , we calculate horizon h expected reallocation as: $R_{t,h} = \sum_i w_i |FG_{i,t,h}|$, with $FG_{i,t,h} = (F_t EPS_{i,h} / EPS_{i,2019}) - 1$. We compute w_i as the firm's share in 2019 earnings. We plot lines for $h = 2020, 2021$, and 2022 .

counterintuitive result is that, while some firms have benefited from the crisis (seeing their forecasted earnings growth, $FG_{i,t,h}$, going up and thereby contributing to increase the index), their weight in aggregate earnings is relatively small. Most firms experienced a reduction in expected 2021 and 2022 earnings, which made firms more similar to one another. Overall, the shock will make firms more different in the short run but less different in the longer run, reducing the need for capital reallocation. In short, industry reallocation is forecast to be lower than is commonly supposed.

CROWDING OF THE BANKRUPTCY COURT SYSTEM Iverson (2018) estimates the effects of court congestion on several bankruptcy outcomes using the 2005 bankruptcy reform as a shock to court caseloads. First, looking at creditor recovery rates, Iverson (2018) estimates that a 5.8 percent increase in caseloads results in a 10 percent increase in bank business loan charge-offs. Extrapolating these estimates to a caseload shock of 30 percent (the typical increase seen in a recession), we might expect recovery rates to drop by 47 percent.

As discussed above, we use a simple forecasting model based on the unemployment rate to forecast business bankruptcies. The same bankruptcy judges who oversee business cases also deal with consumer bankruptcy cases, and consumers constitute about 80 percent of the total workload for an average bankruptcy judge. We can use the same process to forecast consumer bankruptcies outlined in section I.E to estimate how overall bankruptcy court caseloads might react to the COVID-19 recession.¹⁶ If unemployment is 9.2 percent over the next year, caseloads are forecasted to rise by 158 percent, close to five times the rise seen in a typical recession.

The evidence in Iverson (2018) also suggests that as bankruptcy judges become busier, they focus their effort on larger firms, possibly at the expense of smaller firms. As caseloads rise, larger firms are actually more likely to emerge from bankruptcy, although the process takes longer. Meanwhile, smaller firms are more likely to be dismissed from court, leaving many of them to liquidate without court protection.

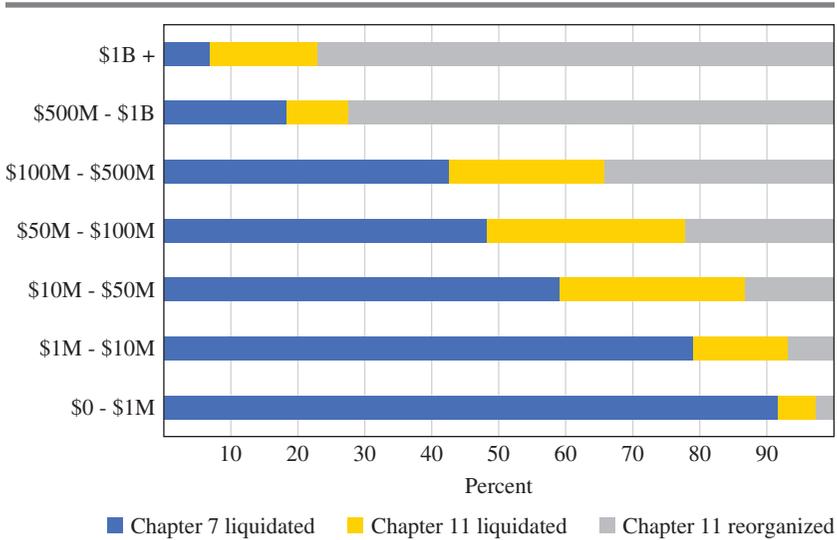
If courts become congested, one possibility is that distressed firms will endogenously respond by taking measures to shorten the workload required of judges. For example, firms may work to create pre-negotiated bankruptcy plans or avoid bankruptcy altogether. In addition, as distressed debt markets have become more liquid and sophisticated, M&A activity in bankruptcy has led to shorter bankruptcy durations (Gilson, Hotchkiss, and Osborn 2016). A combination of these forces has seen the median Chapter 11 bankruptcy duration decline from eighteen months in the early 2000s to ten months in recent years, according to durations calculated from the Federal Judicial Center bankruptcy database. To some extent, asset sales and out-of-court negotiations can compensate for congestion in court, but this creates burdens for firm managers and financial markets.

THE SMALL FIRM PROBLEM Small firms are especially vulnerable to the crisis, not because the pandemic has especially affected industries dominated by small firms (section I.B), but instead because small firms' balance sheets are more vulnerable to losses in revenues (section I.C).

Figure 6 confirms that large firms in need of restructuring have multiple options available, while small firms have no other option but to liquidate. Above \$500 million of liabilities, close to 80 percent of the bankruptcy filings end up as a Chapter 11–backed reorganization. The contrast with small businesses is striking: below \$1 million of liabilities, 90 percent of the filings are straight-out liquidations, while less than 5 percent of bankruptcies

16. A detailed explanation of this forecasting exercise and the calculation of court caseloads is given in Iverson, Ellias, and Roe (2020).

Figure 6. Liquidation versus Reorganization as a Function of Firm Size



Source: Federal Judicial Center Bankruptcy Petition Database.

Note: This figure displays the share of firms that liquidate directly in Chapter 7, liquidate after filing for Chapter 11, or reorganize in Chapter 11, separated by the size of the firm, as measured by reported total liabilities at the time of the bankruptcy filing. We classify as Chapter 11 liquidated all firms that enter Chapter 11 and are either converted to Chapter 7 or dismissed from court.

end up as reemergence from a Chapter 11 filing. For a small firm, failure typically means liquidation.

For larger firms, Chapter 11 is reasonably efficient in normal times. While academics have pointed out large frictions in the Chapter 11 process, in particular with regards to failures to fully rehabilitate distressed firms (Hotchkiss 1995) and long delays in bankruptcy courts (Dou and others 2020), the majority of large firms that enter Chapter 11 successfully emerge, and most estimates of inefficient continuation or liquidation are small (Djankov and others 2008; Dou and others 2020). One exception to these findings is Antill (2020), who estimates that 22 percent of large firms are inefficiently liquidated. We further note that, even if the firm itself is efficiently continued, many contracts within the firm may be inefficiently terminated. For example, Graham and others (2019) show that, on average, employees who work for large corporations that enter Chapter 11 experience a 10 percent decline in wages over the next seven years. Inefficient reallocation of workers plays a role in these losses.

Frictions to restructuring small firms are substantially larger. Even small disruptions to cash flow can trigger restructuring as many of these firms

maintain low cash buffers and lack access to lines of credit (Bartik and others 2020). Based on the June 27 Census Bureau Small Business Pulse Survey, including financial assistance and loans, only 30 percent of small businesses reported having enough cash to maintain operations for another three months. Thus, even when $V > L$, it is possible that forced, inefficient restructuring can occur simply because smaller firms run out of financing to continue to operate. Second, when restructuring does occur, smaller firms have fewer options available. Chapter 11 bankruptcy imposes costs that can be as high as 30 percent of a small business's total value (Bris, Welch, and Zhu 2006), making it close to prohibitive for many small businesses even if they wish to continue. Consistent with this, small firms are more likely to simply shut down: data from the Census Bureau's Business Dynamics Statistics database show that, on average, from 2000 to 2016, 412,209 firms close annually. Meanwhile, only 36,783 businesses file for bankruptcy annually during the same time period, according to the Administrative Office of the US Courts filing statistics. In the end, while only 5.6 percent of all firms going bankrupt survive the process, these firms are predominantly large firms, so in liabilities-weighted terms, about 43 percent of the dollars of claims reemerge.

High liquidation rates among small businesses are not inherently inefficient; it depends on how well labor and capital can be redeployed to new uses. Most evidence suggests that after liquidation, reallocation is difficult. Graham and others (2019) show that workers experience large wage losses after liquidation, especially in thin markets. Capital reallocation appears even harder than labor reallocation. Eisfeldt and Rampini (2006) show that capital reallocation is lower during recessions, indicating stronger search and financing frictions precisely when liquidations tend to happen. Bernstein, Colonnelli, and Iverson (2019) estimate the effects on capital utilization when a small business is forced to Chapter 7: a business establishment that is forced to liquidate is 17 percentage points more likely to be unoccupied five years after the bankruptcy, relative to an identical establishment that remained in Chapter 11.¹⁷

17. This is not because Chapter 11 firms are inefficiently continued. Roughly 75 percent of all business establishments that stay in Chapter 11 are reallocated to other uses (Bernstein, Colonnelli, and Iverson 2019), so even in Chapter 11 there is a large amount of reallocation. But because the liquidation is not forced, it allows for reallocation that leads to higher utilization rates overall. Moreover, these effects are driven entirely by forced liquidation in "thin" asset markets, defined as areas with few other businesses in the same industry or areas with low amounts of small business financing available.

FINANCING RESTRUCTURING To deal with the upcoming large flow of bankruptcies, and in particular to handle debt restructuring, the financial system will be needed at several levels. Brunnermeier and Krishnamurthy (2020) fear that banks will have a propensity to interrupt lending to firms in financial trouble, and they propose policies designed to avoid this. DeMarzo, Krishnamurthy, and Rauh (2020) fear a lack of DIP financing for firms in the process of restructuring (DIP) financing and propose setting a government-sponsored special purpose vehicle to fill that gap.

Corporate Debt Restructuring Will Have a Small Effect on Banks' Balance Sheets We explore here how much banks' balance sheets would be affected by the upcoming wave of defaults and also large-scale debt restructuring. Our main finding is that the effect of a large wave of defaults or debt restructuring would be modest, since small to medium enterprise (SME) loans are only a small fraction of banks' assets.

In the first step of this analysis, we predict corporate loan charge-offs using unemployment data. To do this, we use call reports to compute aggregate charge-off rates; we use charge-off rates on commercial and industrial (C&I) loans and secured loans to corporations, which we aggregate over all banks covered in the call reports. Historically, charge-off rates closely track the unemployment rate. Following Blank and others (2020), we exploit this relationship to build an econometric model linking the innovation of charge-off rates and unemployment rate. We obtain an R^2 of 0.87 for secured loans and 0.55 for C&I loans.

We then use forecasts of unemployment for 2020, 2021, 2022, and 2023 from the Survey of Professional Forecasters, which, combined with our models allow us to make forecasts of charge-off rates until 2023. We expect charge-off rates on C&I loans to be as high as 3 percent and on secured loans to increase to 2 percent. These projections are less dramatic than during the 2009 financial crisis because, as of this writing in August 2020, professional forecasters anticipate that post-pandemic unemployment will return faster to normal than in the aftermath of the 2009 financial crisis.

Do these projections have the power to shock banks' balance sheets in a meaningful way? Current data suggest they do not. In table 3, we report the results of this analysis, separately for all banks, the twenty largest ones by assets, and the rest. The first takeaway is that SME loans are already just a fraction of equity (slightly less than 40 percent for all banks, and a much smaller fraction of about 12 percent for the top twenty, a priori systemically more important, banks). As a result, a 2 percentage point increase in the fraction of charge-offs has only a very small impact on aggregate equity

Table 3. Impact of Firm Failure on Bank Balance Sheets

	<i>Corporate loans/ equity in 2019</i>	<i>Predicted charge-off rate for 2020</i>	<i>Predicted charge-offs/ equity in 2019</i>	<i>Pre-provision revenue/ equity in 2019</i>	<i>Dividends/equity in 2019</i>
<i>All banks</i>					
Total loans	638	2.38	15.15	54.81	26.41
SME secured loans	16.51	2.10	0.35		
SME C&I loans	22.15	2.57	0.57		
Secured business loans	89.42	2.10	1.88		
C&I loans	124.05	2.57	3.19		
<i>Top 20 banks</i>					
Total loans	342	2.58	8.82	39.02	21.44
SME secured loans	2.75	1.55	0.04		
SME C&I loans	9.38	2.34	0.22		
Secured business loans	26.42	1.55	0.41		
C&I loans	95.14	2.34	2.23		
<i>Smaller banks</i>					
Total loans	1,473	2.32	34.22	99.35	40.43
SME secured loans	55.32	2.06	1.14		
SME C&I loans	58.20	2.91	1.69		
Secured business loans	267.14	2.06	5.50		
C&I loans	205.59	2.91	5.98		

Sources: Call reports; Bureau of Labor Statistics; Survey of Professional Forecasters.

Note: This table shows the impact of firm failure on bank balance sheets. Small business secured loans are secured business loans (loans secured by nonfarm nonresidential properties) with original amounts of \$1 million or less. Small business C&I loans are commercial and industrial (C&I) loans with original amounts of \$1 million or less. The charge-off rate of small business secured loans is proxied by the charge-off rate of secured business loans. The charge-off rate of small business C&I loans is proxied by the charge-off rate of C&I loans. Forecasts of charge-off rates are based on historical unemployment rate and unemployment rate forecasts, using the regression: $Rate = \alpha + \beta_1 Rate_{t-1} + \beta_2 Unemployment Rate_t + \epsilon_t$ (see online appendix figure B.3). We calculate the ratios of outstanding balance of loans in 2019, pre-provision revenue in 2019, and dividends in 2019 to total bank equity capital in 2019. Predicted charge-off rate for 2020 and loan balance in 2019 are used to calculate the amount of charge-offs in 2020, and its ratio to total bank equity capital in 2019 is calculated. Smaller banks are those not in the top twenty.

(2 percent times 40 percent), an order of magnitude smaller than 2019 dividend payouts which were 26 percent of book equity (table 3). The overall lesson of this quantification exercise is that SME loan defaults will not meaningfully affect bank balance sheets in aggregate, even if they were as big as, or even twice as large as the global financial crisis.

The main reason for this small effect is that banks—in particular the largest ones—are not lending much to small businesses, as noted by Chen, Hanson, and Stein (2017) and Gopal and Schnabl (2020). This is due to the rise of nonbanks, notably fintech, which have replaced bank lending over the past few years.

DIP Financing: Will There Be Enough DIP Financing? Firms that restructure need financing to operate during the negotiation phase. Such debtor-in-possession (DIP) financing is critical to allow the firm to function and make sure capital structure restructuring happens effectively. DIP financing is typically supplied by senior debt holders. Using various data sources covering bankruptcies of more than \$50 million in constant dollars, the Bankruptcy and COVID-19 Working Group (2020) estimate that, over 1996–2014, about 60 percent of the firms receive DIP financing. Looking at all ninety-nine “large” Chapter 11 filings from January to June 2020, they find that such bankruptcies raised some \$10.8 billion in DIP financing or about 5.9 percent of the \$182 billion of liabilities involved. Smaller bankruptcies are much less likely to receive DIP financing. Overall, these amounts are reasonably small compared to total nonfinancial corporate debt securities of \$5.475 trillion, based on the June 2020 Financial Accounts of the United States.

In addition, it is not entirely obvious why DIP financing would be lacking. A classic problem with debt overhang is that new investors are not granted priority over existing ones. If they are, in theory this solves the problem of overhang, since overhang arises from legacy lenders having priority over the present value of new investments. But DIP is by definition senior in bankruptcy, so this problem should not arise. In addition, DIP is typically provided by senior lenders. If these are banks, the above analysis suggests that their balance sheets might be more resilient than commonly expected.

In sum, we do not consider it likely that there will be a scarcity in DIP financing, but the situation should be monitored closely; if needed, setting a government-sponsored special purpose vehicle dedicated to DIP financing, as suggested by DeMarzo, Krishnamurthy, and Rauh (2020), could prove useful and relatively cheap for the US taxpayers.

Distress Investing: High Elasticity to the Incidence of Distress Bankruptcy and liquidation are not the only mechanisms to reallocate assets.

Another mechanism for reallocation is merger or acquisition by a firm in a stronger financial position or by a financial buyer such as a private equity firm. Consider the role of M&A in saving struggling public firms during the Great Recession. Out of approximately 5,600 firms listed as of June 2008 in the Center for Research in Security Prices (CRSP) database, about 7 percent were acquired between September 2008 and December 2009. For comparison, about 8 percent were delisted for reasons other than exchange or merger, usually because they were headed toward bankruptcy. But acquisition is not a common path for firms that are struggling to survive: the market for corporate control is a more viable exit path for firms experiencing only moderate distress. For example, two of the largest acquisitions during the global financial crisis were the March 2009 purchase of Genentech by Roche and the October 2009 purchase of Wyeth by Pfizer. Neither of these were distressed, with both acquisitions occurring at valuations that exceeded their valuations in June 2008.

Gilson, Hotchkiss, and Osborn (2016) document a rise in M&A in bankruptcy in recent years. They show that post-bankruptcy survival rates are similar whether bankrupt firms sell businesses as going concerns versus reorganizing independently, consistent with redeployment of asset via sales.

Specialized financial buyers also play a role. Distressed bond investors seek to benefit from the resolution of financial distress by buying debt at discounted values with the expectation that the company will reemerge. Distressed equity investors bring in managerial skills to develop a strategy in order to benefit from the company's strengths and weaknesses. Ahead of the current crisis, assets under management held by distressed investors were at an all-time low (for instance, the assets under management of hedge funds investing in distressed securities were about \$20 billion in 2020:Q1 according to the data provider BarclayHedge).¹⁸ But the supply of funds in that industry is highly elastic to the state of the economy. Beyond the strict specialty of distressed investing, there is much "dry powder" in the private equity industry that could be deployed to rescue struggling but viable businesses. Bain Capital documents in its 2020 report that the amount of funds raised by the private equity sector was about \$400 billion in 2019, the second highest level since 2017 (MacArthur and others 2021).

18. BarclayHedge, "Hedge Fund Industry Assets under Management," <https://www.barcleyhedge.com/solutions/assets-under-management/hedge-fund-assets-under-management/>.

III. Policy Options

A series of policy proposals address the frictions listed in the previous section. These proposals fall into roughly three categories, tabulated in table 4. First, several proposals involve straight-out grants to firms to keep them alive through the initial lockdowns and subsequent downturn. The second category of proposals consists of steps to encourage out-of-court restructuring, including payment moratoria and debt restructuring subsidies. The third category consists of modifications to bankruptcy procedures—such as increasing the number of judges and easing DIP financing—to make it easier to restructure or liquidate in court. We focus our discussion on proposals dealing in the two latter categories.

III.A. Encouraging Out-of-Court Restructuring

Although bankruptcy is the most extreme outcome of financial distress, it is not the only one. Some businesses, after having accumulated obligations during the lockdown, will remain functional (like a restaurant becoming a food delivery operation), yet the accumulation of legacy debt will lead to debt overhang and underinvestment. Many firms will seek to deleverage progressively, by cutting investment and possible equity payouts, but this could be too slow, leading to a protracted period of underinvestment, in a sense similar to the slow recovery of consumption after the 2009 financial crisis. Debt overhang may arise not just from financial debt but also from fixed expenses coming from utility bills or rents, the focus of Hanson and others (2020). A number of policies can help with restructuring this debt out of court, thereby avoiding bankruptcy. The proposals below focus on smaller firms.

MORATORIA AND PAYMENT DEFERRAL PROGRAMS FOR SMES One simple option is for the government to temporarily stop contractual payments to claim holders. Most moratoria have historically applied to individuals (for rents) and government (for public debt). For instance, during the First World War, French landlords did not receive rent from certain occupants by decree until 1920. Since the beginning of the COVID-19 crisis, various states and cities have implemented eviction moratoria. In mid-April, the G20 suspended debt payments for many developing countries. The CARES Act allows borrowers to suspend or reduce payments on federally backed mortgages but interest and principal still accrue. So this provision is more of a payment deferral program.

As shown by Coelho and Zamil (2020), many countries have implemented loan payment deferral programs since the beginning of the crisis.

Table 4. Policy Options to Fight Financial Distress

<i>Policy/proposal</i>	<i>Friction</i>	<i>Instruments</i>
<i>Straight-out grants to fund firms</i>		
Hanson and others (2020)	Financial constraints Input reallocation frictions	Grants to cover fixed obligations only (rents, utility bills)
Saez and Zucman (2020)	All reallocation frictions	Grants to cover all firm expenses
<i>Non-bankruptcy financing policies</i>		
Payment deferral schemes (already implemented in several countries)	Financing constraints Credit supply shock	Moratoria/forbearance (no accrued interest) Payment deferrals (accrued interest) State guarantees of payment deferrals by banks Voluntary versus mandatory participation SME targeting
Brunnermeier and Krishnamurthy (2020)	Financing constraints Credit supply shock	Federal Reserve to set up SME loan refinancing facility at subsidized rates Regulators to actively encourage evergreening loans
Greenwood and Thesmar (2020)	Debt overhang Lack of out-of-court negotiation	Tax credit to haircut-consenting claimants
<i>Bankruptcy-specific policies</i>		
Iverson, Ellias, and Roe (2020)	Bankruptcy court congestion	Recall retired judges Create new temporary posts
Skeel (2020)	Fixed cost of restructuring	Create a standard “prepacked” restructuring process
Subchapter V of Chapter 11 (already enacted as part of SBRA)	Fixed cost of restructuring	Expedited procedure to restructure small firms No need for a creditor vote, easy to cram down
Blanchard, Philippon, and Pisani-Ferry (2020)	Wedge between private and social value of restructuring in bankruptcy	Government takes higher haircut than other creditors
DeMarzo, Krishnamurthy, and Rauh (2020)	Undersupply of DIP funding	Government to set up a DIP funding SPV, with equity from the treasury and Federal Reserve backing, to lend senior at Fed discount rate (0%)
Bankruptcy and COVID-19 Working Group (2020)	Uncertainty of viability of bankrupt firms	Extend deadlines for all small businesses that enter Chapter 11 by six months

Source: Authors' compilation.

Programs targeting SME lending were implemented in Australia, Hong Kong, Italy, Singapore, and South Africa. Although the details vary, in most of these programs firms can reschedule both interest and principal, and in no case are interest and principal forgiven. In some of them, banks have been required to accept companies' requests to reschedule payments. In others, banks are not mandated to do so but the government coordinates with professional associations to encourage compliance. In some countries (like Italy), banks can request state guarantees for loans whose payments are suspended. Overall, this crisis has revealed how reluctant most countries are to arbitrarily modify private contracts without the consent of participants without providing implicit or explicit subsidies.

A key challenge facing payment moratoria is the pain these inflict on lenders, primarily banks. We already addressed the effect of SME loans on US banks' balance sheets in section II. Overall our take is that SME loans do not have the power to shock banks' balance sheets to a significant extent, because SME loans are a small fraction of US banks' balance sheets (see table 3), and also because nonbanks have taken over this market since the financial crisis (Gopal and Schnabl 2020).

SUBSIDIZING VOLUNTARY RESTRUCTURING Another related policy option is to subsidize voluntary restructuring. Greenwood and Thesmar (2020) propose a one-size-fits-all approach for small businesses, subsidized by the government to reduce haggling between different counterparties and thereby to reduce the deadweight costs of bankruptcy and business failure.

Greenwood and Thesmar (2020) focus their discussion on unpaid rents, because these are often the largest class of financial claim facing the smallest businesses, after salaries and wages. Using Statistics of Income data, figure B.4 in the online appendix shows the aggregate rent-to-asset ratio by firm size. Canceling rents altogether can offer a significant relief: in the smallest category of firms, canceling one year of rent can reduce the debt-to-asset ratio by just over 8 percentage points.

To illustrate their proposal, consider a restaurant owner with a viable business post-pandemic, with a landlord to whom she owes \$1,000. The landlord voluntarily gives up her \$1,000 claim against the restaurant in exchange for a tax credit of \$300. If, for instance, rents are taxed at say 40 percent, giving up \$1,000 worth of claims has a net cost of only \$300 to the landlord. This proposal is designed to make renegotiation of debt simple and fast, and because the agreement is standardized, it eliminates the need of the landlord or creditor to investigate the financial resources of the small business. It is focused on small firms and valid for a prespecified grace period.

Government-subsidized restructuring shares the costs of restructuring between taxpayers (in the form of lower tax receipts in the future) and lenders or landlords. In this way, subsidized out-of-court restructuring lies somewhere between straight-out grants, which pass costs fully to taxpayers, and moratoria, which keep restructuring costs fully with investors. The Greenwood-Thesmar proposal recognizes the unique position of the government in implementing a form of debt-for-equity swap: the government “buys” the forgiven debt in exchange for a slice of the value created from restructuring the debt. The government can do this because it can give both tax credits and cash via corporate income taxes.

III.B. Bankruptcy-Specific Policies

BOLSTERING THE BANKRUPTCY JUDICIAL SYSTEM If bankruptcies increase as much as we forecast, they will strain the legal system. Crowded courts may lead to either excess liquidation or excess continuation and lower recovery rates overall.

There are 347 bankruptcy judges in the United States. According to Iverson, Ellias, and Roe (2020), between 50 and 246 temporary judges could be needed to ensure that the workload per judge does not increase more than it did in 2010. Congress could authorize additional judgeships or retired bankruptcy judges could be temporarily recalled. Bankruptcy case-loads are expected to vary substantially across districts, with the largest needs in Delaware, Texas, Illinois, and Florida (Iverson, Ellias, and Roe 2020), suggesting the need to transfer judges across jurisdictions.

Since February 2020, small businesses have had their own simplified version of Chapter 11, put forth by the Small Business Reorganization Act (SBRA). All businesses with less than \$7.5 million of liabilities can file under the new Subchapter V, whose goal it is to protect the owners’ equity. The economic rationale is that, for many small businesses, wiping out the owner’s equity destroys the enterprise value, as the entrepreneur is critical to the going concern of the firm.

There are two key differences between the Subchapter V procedure and Chapter 11. First, unsecured debt loses priority to equity. Second, the court has the power to confirm a plan without a formal vote of creditors. This has the effect of making creditors weaker than in Chapter 11 and leaves a pivotal role for the judge and trustee. It is, in short, untested. The efficiency of the process depends heavily on the ability of the legal system to filter viable from nonviable firms. As this form of bankruptcy became available just as the pandemic was taking root, its take-up has so far been limited. We suspect it will have little impact on the very smallest businesses that will

close without filing for bankruptcy, but it still has the potential to alleviate pressures on businesses with assets between \$1 million and \$10 million. To the extent that Subchapter V becomes more widely used, even more judges and trustees will be needed to be able to carefully consider these small business cases.

PREPACKAGED BANKRUPTCIES FOR SMALL FIRMS So-called prepackaged bankruptcies can save time and resources but are still used almost exclusively by large firms, where the firm files for Chapter 11 with a plan that is already preapproved by all classes of creditors. This shortens the procedure considerably, avoiding uncertainty, court fees, and a need for DIP financing. Skeel (2020) suggests generalizing this insight to help the bankruptcy system absorb the coming wave of financial distress.

An example of such prepackaged bankruptcy is the “Super Chapter 11” proposed by Miller and Stiglitz (1999). This proposal creates a new chapter of the bankruptcy code which resembles Chapter 11. The main difference is that the government injects fresh funds and becomes an equity holder, while creditors get a haircut. Management stays in place, allowing the firm to continue operations without firing employees. An economic rationale for such a policy is that firms are to some extent interdependent, so the government is best placed to internalize these externalities against taking a slice of the upside. The other rationale is that such a restructuring is simple and reduces costs of financial distress.

This proposal comes with many caveats. First, the government cannot rescue all firms that file, and if it did so it would rescue far too many nonviable entities. It has to make a choice, and it would need to set up a large-scale administrative process with little expertise and no time. This would be battlefield medicine with no experienced surgeon. As we discussed earlier, to this point it appears that private DIP financing is sufficient for the larger firms that typically rely on it. Second, some firms may have such large claims that the government would become the primary equity holder. Third, political economy considerations would likely pollute the process, with local politicians lobbying for federal funds to save small businesses.

GOVERNMENT SUBSIDIZING SUCCESSFUL RESTRUCTURING In the same spirit as Greenwood and Thesmar (2020), Blanchard, Philippon, and Pisani-Ferry (2020) suggest that the government could subsidize court-assisted debt restructuring by taking an extra haircut on its debt. This extra haircut would be a transfer to existing creditors but only conditional on the firm emerging from bankruptcy. If the firm were to liquidate, the government would not make any concession. In theory, the difference between the haircut

facing private investors and the haircut taken by the government should reflect the wedge between the private and social value of business continuity. This wedge would need to be estimated in order to calibrate the policy parameters.

DIP FINANCING SUBSIDY DeMarzo, Krishnamurthy, and Rauh (2020) suggested that there is an undersupply of DIP funding. They suggest that the government set up a special purpose funding vehicle, itself funded by equity from the Treasury and with Federal Reserve backing, to issue senior credit at very low discount rates. As our earlier discussion suggests an abundant supply of private capital, this will not be necessary.

EXTENDING CHAPTER 11 COURT DEADLINES Finally, there are policy options to modify the bankruptcy code without requiring any government funding. In May 2020, the Bankruptcy and COVID-19 Working Group sent a letter to Congress with recommendations designed to give small businesses more breathing room once they enter Chapter 11. In particular, their proposal is to temporarily extend all major deadlines by six months for small business bankruptcies. This would allow the business to continue to operate with protection from creditors but give the owner, judge, and trustee more time to evaluate the long-term viability of the business before needing to come up with a reorganization plan.

IV. CONCLUSION

Every year, firms become financially distressed. Some of these firms are affected by transitory shocks: to get back on their feet, they need new funding and a reduction of legacy leverage. Other firms are facing more existential threats: their products or markets are disappearing, their technology is obsolete. Usually, a financial and legal infrastructure helps route firms to the correct outcome. But this process is expensive; most distressed smaller firms simply shut down.

This paper addresses the question of whether this system is going to work as it should when, in the coming year, we encounter a potentially unprecedented surge of distress. Much depends on the length of the pandemic and what structural shifts in the economy it engenders. The longer the crisis and the greater the amount of reallocation needed, the more that some form of restructuring and liquidation will be inevitable. Viewed from this perspective, interventions that can reduce the costs of financial distress and ease the burden on the court system are low-hanging fruit. Especially promising are interventions that encourage out-of-court restructuring. Meanwhile, our analysis suggests that the financial system generally has

enough liquidity to support restructuring, but this should be monitored closely as the pandemic lengthens.

Our focus has been on firm-specific inefficiencies related to restructuring. But there may be additional spillovers as well, which combine to have long-lasting economic effects, ranging from aggregate demand externalities from failing businesses to the deadweight losses from firm-worker separations. For example, Bernstein and others (2019) show that forced liquidation has a strong negative effect on employment at other firms located in the same block as the liquidated business, and this effect lasts for at least five years. Moreira (2016) shows that firms born during recessions begin smaller and remain smaller throughout their life cycles. All of these forms of economic scarring reinforce our conclusion that policy should focus on smaller firms.

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Comment and Discussion

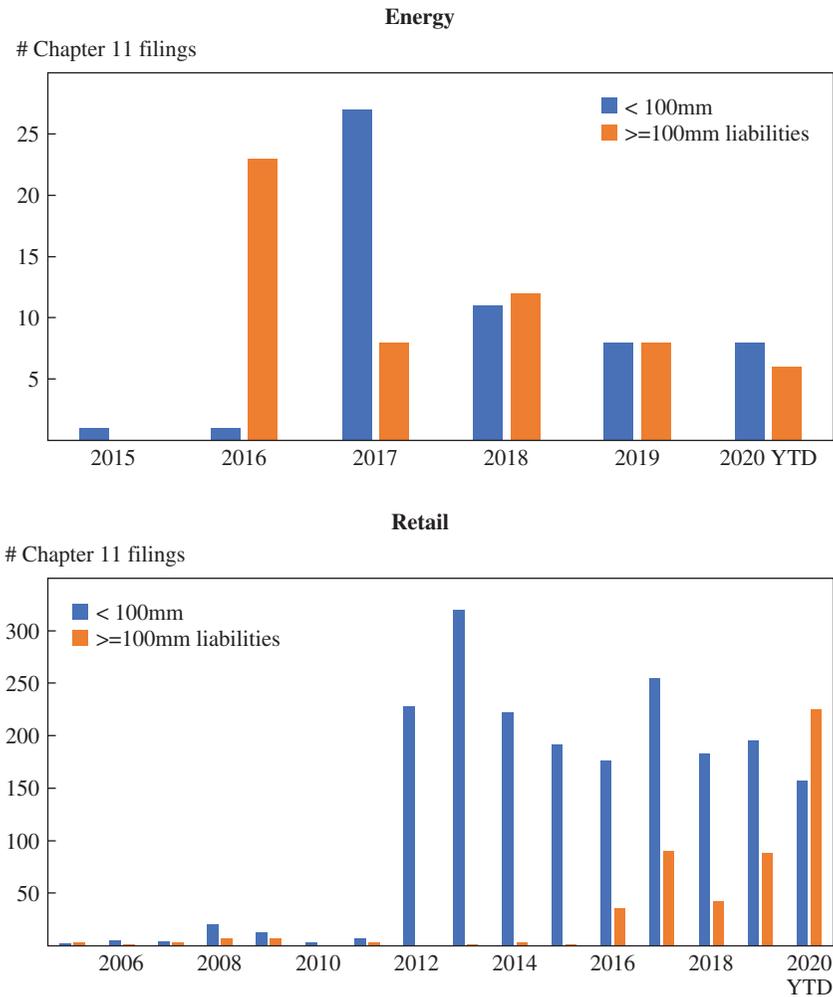
COMMENT BY

EDITH HOTCHKISS In order to evaluate economic policy proposals in the wake of the unexpected shock to businesses in the COVID-19 pandemic, one needs a broad understanding of the typical path for resolving financial distress of US companies. This paper by Greenwood, Iverson, and Thesmar undertakes such analysis, reviewing existing evidence and providing new estimates of the current and expected extent of financial distress among both small and large firms. It further provides discussion of the likely impact of government intervention on the incidence and outcomes of financial distress under the current crisis and a potentially prolonged recession.

HOW WIDESPREAD IS FINANCIAL DISTRESS DUE TO THE COVID-19 SHOCK? Unsurprisingly, the shock to business operations in the current global pandemic is of unprecedented magnitude. The paper provides two key analyses demonstrating the immediate impact on firms' financial condition based on (1) the decline in revenues and earnings of public companies, based both on analyst forecast revisions and on financials reported for the second quarter of 2020, and (2) evidence, including that from the Census Bureau Small Business Pulse Survey (as of July 2020), showing an even stronger shock to small firms who report that the pandemic has had a large negative effect on their business.

How should one interpret the sharp increase in distressed firms demonstrated in the paper? One complication is that many firms that are the most severely distressed are in industries already in decline pre-COVID-19—namely, energy and brick and mortar retail. In fact, as shown in figure 1, for both energy and retail firms a significant increase in large corporate bankruptcy filings under Chapter 11 of the US Bankruptcy Code had begun pre-COVID-19. Arguably, COVID-19 has accelerated a decline already under way. Thus, assistance to such firms runs the risk of

Figure 1. Chapter 11 Filings for Energy and Retail Sector Firms as of September 2020



Source: New Generation Research.

postponing needed restructuring of viable but insolvent firms and of extending the life of so-called zombie firms—both of which are costly outcomes.

Perhaps the most striking aspect of results throughout the paper is the large divide between large and small firms. For most academic research, “large” means studies of public companies whose equity is typically listed on an exchange. Data limitations present a challenge to researchers trying to understand outcomes for firms below this threshold. This is particularly

problematic in understanding the impact of financial distress, because many small firms do not use a formal bankruptcy process, making it even more difficult to track outcomes. Small firms often do not use debt or may simply shut down, as they cannot withstand the large fixed costs of a financial restructuring (including the cost of hiring legal and financial advisers with expertise specific to the restructuring process). Thus, the US Census surveys provide the clearest evidence of the extent of financial distress for small firms during the pandemic. The most negatively impacted industries for larger public firms are also among those reported to have the most severe negative impact for smaller firms.

Forecasts for corporate bond default rates are in the neighborhood of 5 percent based on studies cited in the paper (Ma 2020; Altman 2020). Default rates in the current recession may be exacerbated by the historically high levels of leverage of firms entering the crisis (Altman 2020). These forecasts, however, miss the market segment likely of most concern—that of smaller firms. The paper therefore provides analysis predicting a large increase in business bankruptcy filings based on expected unemployment (Iverson, Elias, and Roe 2020). The basis for this estimation is that there is a close historical relationship between the unemployment rate and the frequency of business bankruptcies (as shown in figure 3 in the paper). These results show a particularly clear divide between small and large firms. The authors forecast a 140 percent increase in total bankruptcies relative to the 2019 level, but the number is driven by smaller firms. Bankruptcies have not in fact reached these levels thus far, likely because small firms have been most directly targeted by the CARES Act and other interventions early in the pandemic.¹ Filings that have been delayed by these interventions may still occur but may be very dependent on when and if there is continued support.

There are additional reasons to question whether these forecasts will bear out in the current crisis, at least for large corporations. For example, following the 2008 failure of Lehman Brothers, Moody's forecast in February 2009 called for a 16.4 percent default rate among high yield bond issuers (Emery and Ou 2009), yet realized defaults were less than 12 percent, though still historically large (Levine 2010). The ability of some firms to avoid an expected default in this earlier episode is generally attributed to liquidity in credit markets, enabling firms to reduce their immediate cash flow burden by refinancing. The current situation is arguably similar to or even more extreme in terms of the supply of funds from US capital

1. US Courts, "Statistics and Reports," <https://www.uscourts.gov/statistics-reports>.

markets. Credit markets have further seen a significant impact as a result of the March 2020 actions of the Federal Reserve (see, for example, O'Hara and Zhou 2020). This has so far enabled a large number of firms to refinance, extending maturities and enabling firms to avoid default, as well as to raise record levels of additional capital to fund expected shortfalls in cash flows needed to fund operations (Hotchkiss, Nini, and Smith 2020). This is subject, of course, to the same caveat that these observations are based on the supply of capital to larger firms.

TRIAGING OF DISTRESSED FIRMS The authors provide an overview of the path and ultimate outcome of firms that become financially distressed, based on evidence from numerous prior academic studies. Most notably, a large proportion of firms that cease operating simply close and never enter a court-supervised restructuring process (91.7 percent of all firm closures).² This group of firms is vastly dominated by smaller companies, outside the realm of much prior academic research. In-court business bankruptcies represent a much smaller portion of firm failures and are also dominated by liquidations under Chapter 7 of the bankruptcy code; a substantially greater share of firms filing for Chapter 11 bankruptcy (over two-thirds) successfully reorganize, at least in the sense of emerging from the bankruptcy process (Altman, Hotchkiss, and Wang 2019).

The central question for researchers examining outcomes from any system for resolving firm failures is whether that system strikes an efficient balance between enabling viable firms to reorganize, yet not enabling excessive continuation of firms with low going concern relative to liquidation value. The information problem is that both reorganization and liquidation values are unobservable. Specific provisions of the bankruptcy code as well as costs to the firm of using these procedures can tilt the system toward either excessive dismemberment of viable firms or excessive continuation.

Researchers examining larger public firms have been somewhat divided on this question of whether our current system enables excessive continuation of weak firms. In fact, the occurrence of liquidations for larger firms is often overstated because of the significant trend toward sales of entire businesses as going concerns in Chapter 11 via Section 363 of the bankruptcy code (Gilson and others 2021). Researchers further cite the high incidence of failure after emergence from bankruptcy, the so-called Chapter 22 filings of public corporations (Altman, Hotchkiss, and Wang 2019). But the stark

2. US Census Bureau, "Business Dynamics Statistics," <https://www.census.gov/programs-surveys/bds.html>.

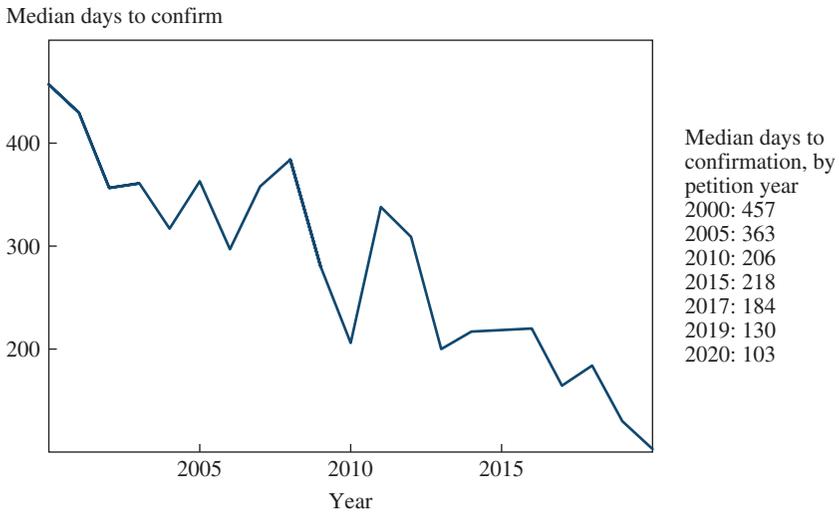
contrast shown by the evidence reviewed in this paper makes it clear that the primary concern for smaller business is that of excessive liquidation.

THE UPCOMING SURGE IN FAILURES AND EXPECTED COURT CONGESTION As the authors discuss, the ultimate length of the economic crisis (as of September 2020) is still highly uncertain. Whether there will eventually be a surge in defaults, bankruptcies, or inefficient liquidations will depend on whether or not there is continued government support and on the time it takes the COVID-19 pandemic to subside. If the current system proves inadequate to handle a sudden increase in bankruptcy filings, that will impose additional costs on distressed firms and likely lead to an even greater extent of inefficient liquidations.

There are several factors that currently suggest the supply of capital to firms experiencing negative shocks due to COVID-19 will be sufficient to ease cash flow constraints for many companies, including those already in bankruptcy (via debtor-in-possession financing). But the currently observed availability of financing may be limited to larger firms, which have access to public capital markets. In addition, private capital—what the authors call “dry powder”—that is available to inject equity or lend to private equity-backed firms, as well as interest from private equity funds in purchasing claims or entire companies in distress, also may enable larger firms to delay or avoid default. For smaller firms, insufficient bank capital is not a significant factor impairing the availability of credit at this point. However, increases in evictions and foreclosures or a prolonged recession would eventually have a negative impact on bank loan portfolios and ongoing lending.

Inefficient resolution of distress can also result from overcrowded bankruptcy courts. Offsetting a rise in cases filed, there has been a strong trend in recent years toward shorter stays in bankruptcy. The decrease in the time spent under court supervision can be attributed to increases in the use of prepackaged or pre-negotiated bankruptcies, in the use of restructuring support agreements (Casey, Tung, and Waldock 2020), and in the use of bankruptcy to facilitate sales of going concerns. Figure 2 demonstrates the steep decline in the time spent in bankruptcy for larger firms, with some recent cases even completed within twenty-four hours. These factors, combined with the length of time needed to appoint additional bankruptcy judges, suggest that market factors can adjust to compensate for court congestion.

POLICY OPTIONS AND CONCLUSIONS An important contribution of the paper is to provide a framework that can be used to compare potential policy responses to the pandemic. Specifically, one can evaluate proposals

Figure 2. Median Days to Plan Confirmation for Large Chapter 11 Bankruptcy Cases

Source: New Generation Research.

based on the particular source of inefficiency that a given policy might address and can consider whether the specific market friction is likely exacerbated by the crisis. The key frictions of concern are (1) large fixed costs of restructuring; (2) inability to renegotiate with claimants, given holdouts and complexities in capital structure, or to bring in new capital given debt overhang problems; and (3) search costs and financing frictions in asset redeployment.

The most apparent source of inefficiency based on the authors' analysis is that the large fixed costs and need for expertise of specialized advisers and lenders are beyond the capacity of most small firms to sustain. As a result, we observe high liquidation rates for smaller firms. In the current crisis, given smaller firms' more limited access to capital markets, limitations on their ability to restructure are likely to be even greater.

In response to the pandemic, the CARES Act increased the eligibility limit for small businesses to utilize Subchapter V of the Small Business Reorganization Act (SBRA) of 2019 from \$2,725,625 to \$7,500,000.³ The SBRA was enacted to provide a more streamlined path for smaller firms restructuring their debt in bankruptcy, recognizing the low rate of successful

3. Small Business Reorganization Act of 2019, Pub. L. 116-54, 133 Stat. 1079 (August 23, 2019), <https://www.congress.gov/116/plaws/publ54/PLAW-116publ54.pdf>.

reorganizations of smaller firms. Unfortunately, at this time there is little publicly available information to show whether firms have successfully made use of these relatively new procedures or whether there have been difficulties that suggest the need for further reform of these procedures. At the same time, because smaller firms have benefited more directly from funds provided under the Paycheck Protection Program (PPP), researchers have proposed that the ability to receive such funds be extended to firms operating under Chapter 11 protection (Bankruptcy and COVID-19 Working Group 2020).

To conclude, there is extensive literature that guides our understanding of the mechanism for resolution of financial distress. Adding to this work, the authors of this paper highlight the potential inefficiencies in this process, pointing toward those likely to be exacerbated in the pandemic. Given the large number of policy proposals in response, the paper provides a framework that can be used to better understand the likely impact of such proposals on economic outcomes. The evidence provided further demonstrates the importance of policies targeted at avoiding excessive liquidation of small firms in financial distress.

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GENERAL DISCUSSION Janice Eberly asked about the difference between small firms and young firms. She observed that although most firms tend to start off small, some grow quickly. It turns out, she continued, that these fast-growing firms are much more important for both employment and economic growth; while firms that start small and stay small are important to neighborhoods. She wondered whether the policy interventions—especially during COVID-19—were different for these two groups of firms.

Wendy Edelberg attempted to construct a coherent narrative linking all the papers presented at the conference. She commented that an underlying presumption in the discussion of this paper is that a wave of bankruptcies of small firms is coming. Edelberg wondered, however, whether it is also possible that instead there has been a massive structural shock that is both destroying many firms but also creating firms that are keeping employment elevated. She specified that these firm creations—which might be a reason behind why the unemployment rate has decreased quickly since its peak—show that the government response has been quite nimble. After the pandemic ends, however, these newly created firms might not be needed and another massive restructuring might take place, she concluded.

James Stock responded to Edelberg's comment and remarked that one coherent narrative could be the importance of both wearing masks and increasing testing. These two measures would allow those who are temporarily unemployed to get back to work and as a result many firms wouldn't go into bankruptcy, which, in turn, would have led to the Paycheck Protection Program (PPP) being a moderate success.

Elaine Buckberg mentioned the 2019 Small Business Reorganization Act, which makes it easier and less costly for small businesses to file for Chapter 11 bankruptcy by allowing small businesses to reorganize rather than liquidate. She asked whether this act changes the authors' outlook on business bankruptcies during the pandemic.

Ben Iverson responded to Buckberg, saying that the presentation's mention of Subchapter V of Chapter 11 is the same thing as the 2019 Small Business Reorganization Act. Iverson pointed out that the act had only been used by about 1,000 firms. Although he wasn't sure why this act hadn't been used very much, Iverson agreed with Buckberg that this act could prove to be very useful in keeping small businesses alive.

Referring to Edelberg's comment on whether the government response has been quite nimble, Iverson concluded that it is difficult to know. He observed, however, that if the government response has been nimble in response to the pandemic, it can also be nimble when the pandemic ends.

Replying to Eberly's comment on small firms versus young firms, Iverson said that in the data that he has looked at, variables listed typically include size of the firm but not age of the firm, which makes differentiating between these two types of firms when they are both small difficult but not impossible. The firms that are high-growth, Iverson argued, could be supported by markets.

Robin Greenwood brought up the figure in the paper that showed the percent of firms that have negative earnings per share. The level in regular times, Greenwood remarked, is about 40 percent. Young, fast-growing firms—like those in biotechnology—will continue to get financing, at least in the current market, Greenwood noted. It is the small, slower-growing firms, however, that tend to fail, which is costly to the economy, he concluded.