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Financing firms in hibernation during the COVID-19 pandemic☆

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ABSTRACT

The coronavirus (COVID-19) pandemic halted economic activity worldwide, hurting firms and pushing many of them toward bankruptcy. This paper discusses four central issues that have emerged in the academic and policy debates related to firm financing during the downturn. First, the economic crisis triggered by the pandemic is radically different from past crises, with important consequences for optimal policy responses. Second, it is important to preserve firms' relationships with key stakeholders (e.g., workers, suppliers, customers, and creditors) to avoid inefficient bankruptcies and long-term detrimental economic effects. Third, firms can benefit from "hibernation," incurring the minimum bare expenses necessary to withstand the pandemic while using credit to remain alive until the crisis subdues. Fourth, the existing legal and regulatory infrastructure is ill-equipped to deal with an exogenous systemic shock like a pandemic. Financial sector policies can help channel credit to firms, but they are hard to implement and entail different trade-offs.

1. Introduction

The coronavirus (COVID-19) outbreak has imposed a heavy toll on economic activity worldwide. The shock has been sudden and concurrent across countries, and it has been characterized by significant uncertainty regarding its magnitude and duration. The rapid transmission of the virus has caused people around the globe to simultaneously isolate following strict public health orders. Social distancing and other containment measures are emergency measures that save lives, but they have contributed to a synchronized collapse in economic activity. Major stock market indexes crashed at an unprecedented pace (Baker et al., 2020), erasing close to one-third of their value in just a matter of weeks and hitting industries across the board, reflecting expected losses in the corporate sector. However, the rebound from this initial collapse has also been relatively swift in the wake of a strong policy response (Fig. 1). For example, in the United States, stock prices for most industries recovered about two-thirds of their value lost within six months of the initial collapse (Table 1).

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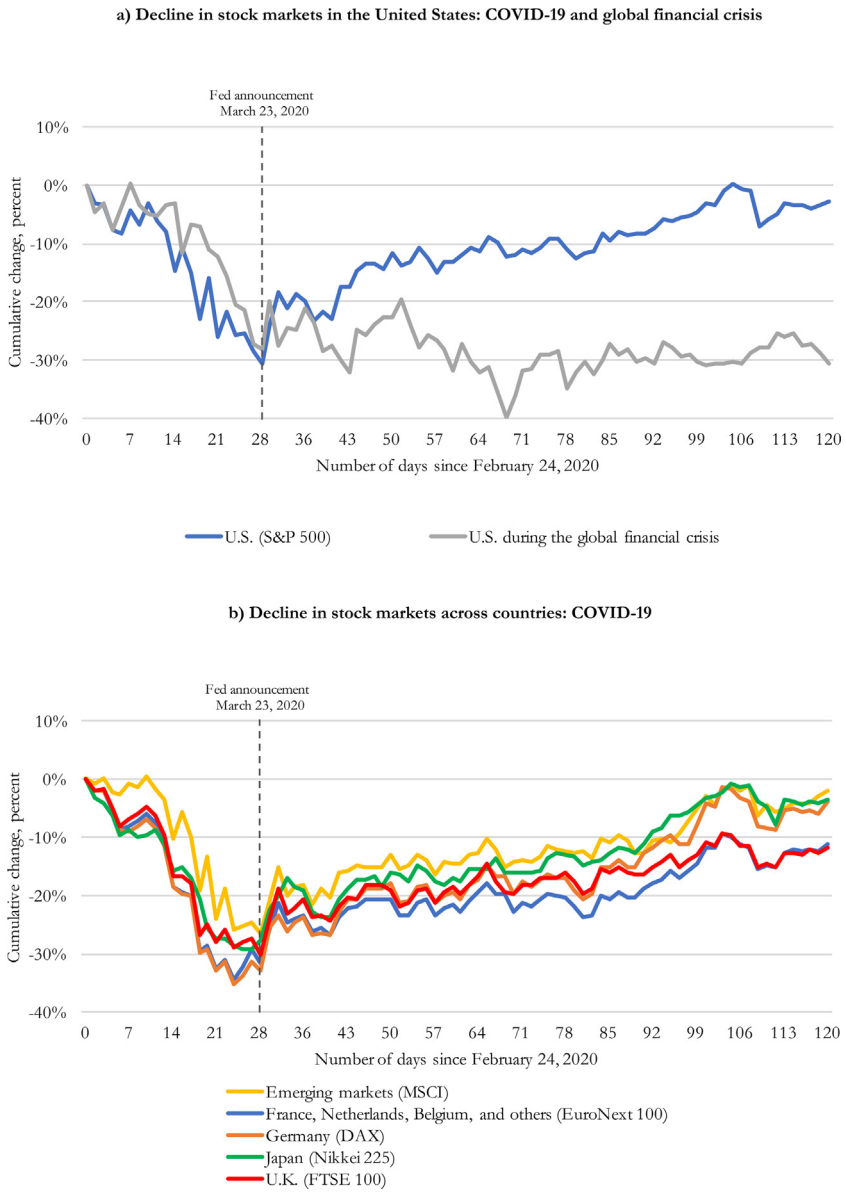

Fig. 1. Magnitude of the COVID-19 shock across countries. **Note:** This figure shows the performance of stock markets across countries. Panel (a) shows a comparison between the cumulative changes in the S&P 500 since February 24, 2020 for the COVID-19 pandemic and since September 14, 2008 for the 2008–2009 global financial crisis (GFC). Panel (b) shows the cumulative changes in stock markets indexes across countries since February 24, 2020. The dotted vertical line in each panel shows the day in which the Federal Reserve announced a set of measures to support the U.S. economy (March 23, 2020). For the EuroNext 100 index, France, Netherlands, and Belgium are, respectively, the countries with the largest number of companies as of August 2020. **Source:** Authors' calculations based on Refinitiv data.

Policymakers around the world have rapidly deployed a wide arsenal of tools to cope with the inevitable economic recession and cushion the effects of the shock.[1] Many of these policies have focused on helping firms manage the crisis (Ilzetzki, 2020). In Europe, Germany's bazooka program included €550 billion in new loans to firms through its state investment bank (Garicano, 2020), while in the U.K. and Switzerland the policies introduced enabled firms to obtain bridging loans (Eckert et al., 2020; Goodhart et al., 2020). At the union level, the European Central Bank launched early in March a program of private and public securities purchases, in addition to easing collateral eligibility rules and providing financial assistance to firms (Delatte and Guillaume, 2020). Moreover, the European Council approved in July a recovery plan that included both debt issuance and large-scale transfers (Blesse et al., 2020).

Similarly, in the United States the Federal Reserve extended liquidity to firms through the purchase of financial securities in capital markets (De Vito and Gomez, 2020a). In emerging markets and developing countries, countercyclical monetary policy has been extensively used, with governments slashing policy rates and intervening in foreign exchange markets while trying to provide liquidity to firms (Gelos et al., 2020; Hofmann et al., 2020). For example, in Mexico, the Central Bank announced the purchase of corporate bonds in April (Hartley and Rebucci, 2020), while in Pakistan and Egypt the drop in the monetary policy rate was the largest in a sample of 85 nations that included both

[1] The continuously growing policy trackers compiled by the https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19 IMF, the https://datacatalog.worldbank.org/dataset/covid-19-finance-sector-related-policy-responses World Bank, and https://som.yale.edu/faculty-research-centers/centers-initiatives/program-on-financial-stability/covid-19-crisis Yale's Program on Financial Stability, and discussed in places like https://econfip.org/Econfip, Elgin et al. (2020), and https://voxeu.org/ VoxEU, provide just a glimpse of the many initiatives that have been implemented.

Table 1
Decline in stock markets across industries in the United States.

	COVID-19: 28 days		COVID-19: 120 days		GFC 2008-09: 120 days	
	Δ (Stock prices)	Rank	Δ (Stock prices)	Rank	Δ (Stock prices)	Rank
Energy	−54%	1	−24%	1	−31%	7
Real estate	−41%	2	−20%	2	−50%	1
Financials	−41%	3	−17%	4	−46%	3
Industrials	−38%	4	−10%	6	−34%	5
Transportation	−36%	5	−14%	5	−35%	4
Materials	−36%	6	−4%	9	−47%	2
Utilities	−35%	7	−19%	3	−21%	11
Consumer goods	−31%	8	−5%	8	−26%	10
Consumer services	−30%	9	−2%	10	−30%	8
Health care	−25%	10	2%	11	−21%	12
Technology	−25%	11	12%	12	−31%	6
Telecommunications	−24%	12	−8%	7	−29%	9
Simple average	−35%		−9%		−33%	
S&P 500 Index	−31%		−3%		−30%	

Note: This table shows stock market changes across industries in the United States, measured through iShares exchange-traded funds (ETFs). The changes in stock market prices are cumulative changes calculated over 28 and 120 days starting on February 24, 2020 for the COVID-19 pandemic and 120 days starting on September 12, 2008 for the 2008-2009 global financial crisis (GFC). For the stock market performance during the COVID-19 pandemic, the first interval is measured up to day 28 to coincide with the Federal Reserve announcement (March 23, 2020) of a set of measures to support the U.S. economy.
Source: Authors' calculations based on Refinitiv data.

developed and developing countries (Benmelech and Tzur-Ilan, 2020).

Economists have come up with additional policy proposals. Governments could be the backstop for absorbing losses (Beck, 2020), act as a payer of last resort (Saez and Zucman, 2020), adopt measures of social insurance as a way to mitigate the short-run negative effects of the pandemic (Chetty et al., 2020), or support bridging the gap between pre- and post-pandemic economies (Hassler et al., 2020). Others have suggested shield packages aimed at supporting firms, especially those in financial distress (Bénassy-Quéré et al., 2020). Additional proposals include the provision of support to wage payments (Alstadsæter et al., 2020), the need for "helicopter money" (Cukierman, 2020), restricting financial institution's voluntary payouts (Beck et al., 2020b), equity-like cash flow injections (Boot et al., 2020), a liquidity lifeline to cash-strapped firms (Brunnermeier et al., 2020), evergreening loans (Brunnermeier and Krishnamurthy, 2020), and preserving bank capital (Acharya and Steffen, 2020). As economic hardships caused by the pandemic have persisted over several months, economists have analyzed alternative lockdown strategies (Abel and Panageas, 2020) while emphasizing the need for liquidity to keep flowing to firms (Button et al., 2020).

In this paper, we systematically discuss the academic and policy arguments related to the financing of firms during the COVID-19 pandemic. This discussion aims to understand, through a unified framework, the optimal policy choices given the priorities and trade-offs policymakers face when trying to save firms from collapsing as well as the incentives such policies generate for firms and financial intermediaries. The discussion is centered along four main points.

First, the economic crisis triggered by the spread of the COVID-19 is radically different from past economic and financial crises. Unlike previous crises, this time the shock did not originate in the financial sector and was not the result of financial intermediaries or companies behaving irresponsibly due to ex-ante moral hazard (Kaminsky and Reinhart, 1999; Reinhart and Rogoff, 2009). Moreover, the health emergency, which triggered the crisis, is transitory in nature. Although the timing of its resolution remains uncertain, the pandemic will get resolved eventually. That said, the shock could have permanent effects and could lead to profound changes in some economic activities. These particular features of the current crisis have important implications for the menu of tools available to policymakers. In a typical economic crisis, there is a problem in the financial sector that needs to be resolved. Thus, the optimal response generally is to quickly identify and isolate the part of the financial sector in trouble (e.g., insolvent banks, bankrupt companies, or distressed corporate or sovereign debt markets).

In many instances, this policy response entails liquidating firms in financial distress so that the rest of the financial sector remains safe and continues operating and financing the real sector (Laeven and Valencia, 2008, 2010; Calomiris et al., 2016). However, because the real and financial sectors were in relative good shape before the pandemic struck, activating the prevailing crisis resolution mechanisms, which tend to punish firms and banks in trouble, might prove counterproductive. For example, requiring banks to increase loan-loss provisions or to reduce the credit score of firms hit by the COVID-19 shock could actually amplify the problem this time around, inefficiently pushing firms into bankruptcy. As a result, those firms negatively impacted during the pandemic (with otherwise good economic prospects) would get hit not only by the pandemic itself but also by these conventional actions designed to protect the financial sector.

Second, supporting firms to maintain their organizational capital during the pandemic crisis can allow for a quicker economic recovery once an effective treatment or vaccine is developed. Firms have relationships with an array of key stakeholders, such as workers, suppliers, customers, and creditors. These relationships are costly and time-consuming to build, maintain, and adjust, and they may embed significant organizational capital and skills externalities (Hamermesh and Pfann, 1996; Kahn and Wagner, 2020). The churning process of destroying these relationships between firms and stakeholders only to reconstruct them post-pandemic is far from efficient. Moreover, pushing otherwise viable firms into bankruptcy can trigger economy-wide magnification effects through, for example, a firm exit multiplier in which firm closures generate ripple effects by negatively impacting different stakeholders. Hence, a transitory negative shock that destroys a significant mass of firms' relationships can lead to long-term economic scarring and hysteresis effects, slowing down the economic recovery (Gourio and Rudanko, 2014; Huneeus, 2018; Gregory et al., 2020; Hassler et al., 2020).

Third, we introduce the idea of "firm hibernation" as a way to avoid the economic costs of breaking firms' valuable relationships with their stakeholders and bankruptcies. As a response to the COVID-19 shock, some initiatives have argued in favor of "freezing the economy" so that it can resume later (Atlantic, 2020a,b;

Wall Street Journal, 2020). But the term freeze is not clearly defined and can be somewhat misleading; it is not possible to completely stop the economy or firms in time as if they were frozen. Workers need basic income during the lockdown, some firms need to deliver essential products and services, and minimal maintenance and operations are required, leading to some expenses. A more appropriate term might be "hibernation," which means using the minimum bare cash necessary for firms to withstand the pandemic lockdown and the social distancing measures. That cash is used to freeze firms' relationships with their stakeholders, while adapting their activities, but not to freeze firms themselves. During the hibernation period, payments to different stakeholders would be adjusted downward, such as workers' wages or accounts payable, in a way that firms and their relationships can remain viable in the long run. Credit can help significantly in this period, providing the cash that firms may not have on hand. Even firms that have ceased operations during a lockdown will need financing to stay alive and remain ready to reopen when such lockdown eases (akin to the energy that animals need during their hibernation).[2]

Fourth, despite the desirability for credit during the hibernation period, the existing legal and regulatory infrastructure (e.g., bankruptcy codes or crisis resolution mechanisms) is not designed to deal with an exogenous systemic shock such as the COVID-19 pandemic. The existing infrastructure of financial sectors could in fact amplify the problem because it tends to penalize firms that face difficulties, leading, in the case of the pandemic, to inefficient bankruptcies and excessive destruction of relationships. Hence, policymakers have been prompted to innovate and reassess their financial policy response until the health crisis gets resolved. This process has implied working with the financial sector to improve the likelihood that viable firms are not shut down and are in fact assisted during the pandemic by a financial infrastructure that has been prepared to withstand other types of shocks. Various financial sector policies can help in the provision of credit while generating different trade-offs. We group policies along two dimensions: those aimed at adapting the institutional framework to meet the challenges imposed by the pandemic shock and those aimed at extending credit to firms. These policies have distinct implications for different firms, countries, and generations.

The rest of the paper is organized as follows. Section 2 discusses the nature of the COVID-19 crisis and how it differs from previous crises. Section 3 summarizes the value of saving firms and the challenges it may pose. Section 4 presents the idea of hibernation and how credit might help firms hibernate. Section 5 discusses the financing policy options and their trade-offs. Section 6 concludes.

2. The nature of the COVID-19 crisis

Past economic crises (such as the debt crisis of the 1980s, the 1997–1998 Asian financial crisis, and the 2008–2009 global financial crisis, GFC) originated in financial vulnerabilities. Typically in past crises, financial intermediaries (such as banks) took on excessive risks, experienced losses, suffered runs on deposits, lost access to funding, and, in turn, stopped lending to the real sector. In other cases, debt markets froze as borrowers became unable to rollover existing liabilities, leading to increased fragility in the financial sector, which then got transmitted to the rest of the economy, generally causing a recession.

In contrast, the root of the COVID-19 crisis lies outside the financial sector: a highly contagious virus transmitted from animals to humans. A few months after being spotted in Wuhan, China, the virus spread throughout populations across the world. The highly contagious nature of the virus has meant that many people have gotten sick at once, and a historically high percentage of those have required intensive care, rapidly overwhelming existing hospital capacity. To diminish the number of concurrently infected people and to accommodate proper hospital care for the sick, policymakers were forced to take a dismal policy decision: impose social distancing and other containment measures, such as lockdowns, to flatten the curve of infections and give health care systems a greater chance to treat the infected population. Cities have shut down, mandatory quarantines have been implemented, and borders have been closed. These measures have saved lives but have severely affected economic activity, bringing it to a near halt at the onset of the crisis and a sluggish recovery since then.

The source of the crisis this time around is an exogenous health shock, and almost every aspect of the pandemic crisis has been surrounded by massive uncertainty. Uncertainty indicators have reached their highest values on record in reaction to the pandemic and its economic fallout (Ahir et al., 2019; Altig et al., 2020). More than six months since the onset of the pandemic, little is known about the disease itself. Uncertainties range from the infectiousness and long-term health effects of COVID-19 to the effectiveness of containment measures to the time needed to develop a vaccine (or treatment) and even to its efficacy. In addition to the uncertainty about COVID-19 itself, there is significant uncertainty about the pandemic's short- and long-run economic effects.

In the short run, there are active debates, for example, about the magnitude of the pandemic crisis, the speed of the eventual recovery, and the effectiveness of different policies. Considering a longer-term horizon, there are significant uncertainties about whether the pandemic will produce long-lasting changes in the nature of economic activity, prompting some industries to flourish and others to shrink. In fact, the pandemic has accelerated some changes that were already under way. Notably, the lockdown and other social distancing measures have led to a surge in the use of digital technologies that promote remote communications and interactions. The COVID-19 crisis has also led to significant shifts in consumer spending and investment patterns. But it remains to be seen the extent to which these shifts in economic activity will persist in the post-pandemic world.

Also, unlike previous crises, during the COVID-19 outbreak, economies have faced a combination of a supply shock (most immediately, employees could not go to work, impairing production, disrupting supply chains, and freezing investments) and a demand shock (notably, households and firms reduced their demand for certain goods and services), which have reinforced each other (Baqaee and Farhi, 2020; Eichenbaum et al., 2020; Guerrieri et al., 2020). The scope of the crisis is also more extensive than in past macro-financial crises. The COVID-19 shock has transmitted quickly within national borders, affecting firms and industries across the board, as well as across borders, affecting countries around the world in a highly synchronized manner.

The impact of these combined shocks on firms has been unprecedented. It has led to a sudden collapse in corporate revenues; corporate cash flows have plummeted at an unparalleled scale, and firms have struggled to survive as their working capital is depleted. Historical data on the average number of days firms can cover their operating expenses with their cash holdings illustrate the extent of the cash crunch they have faced with the COVID-19 pandemic (Fig. 2). The analysis indicates that cash availability could help firms withstand the pandemic shock, but in some cases the available cash would not be sufficient (Joseph et al., 2019; De Vito and Gomez, 2020b; Schivardi and Romano, 2020). For exam-

[2] Kahn and Wagner (2020) provide a theoretical framework to analyze the funding of temporary shutdowns in production. The optimal policy in their model requires promising attractive funding conditions to firms for when the pandemic is over so as to provide incentives for them to subsist (i.e., neither to go out of business nor to return to full production immediately).

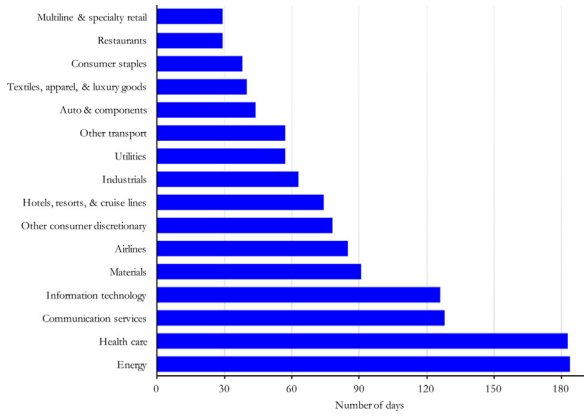

Fig. 2. Days of cash in hand across industries. **Note:** This figure shows the number of days of operating expenses covered by cash holdings across U.S.-listed firms. The figure shows 2000–2016 averages by industry. **Source:** Authors' calculations based on Compustat data.

ple, some of the industries that have been hit hard by the pandemic crisis, such as restaurants, retail stores, and service firms (e.g., hospitality and leisure), would last for only a few weeks if revenues ceased completely and expenses remained at pre-pandemic levels. Thus, a firm's ability to continue operating during the pandemic crisis depends not only on the magnitude of the decline of its revenues but also on whether it could raise additional funding as well as on its ability to adjust expenses (such as payroll, supplier payments, and other overhead costs).

The resilience of the corporate sector is also tightly linked to the duration of the pandemic shock. The exogenous health emergency is transitory. Eventually a vaccine or an effective treatment will be developed, or the disease will run its course, and the source of the crisis will basically disappear. Nonetheless, the timeline for these exits from the pandemic are still unknown and are hard to predict. Hence, the duration of the pandemic crisis remains a crucial source of uncertainty. The longer the pandemic lasts, the tougher it would be for firms to withstand the economic downturn, survive, and recover. To the extent that the shock does not persist for too long, a significant proportion of firms are likely to remain viable. That is, their net worth will still be positive as the economy returns to pre-pandemic levels. However, not all firms can survive a prolonged crisis with extensive lockdowns and other containment measures. While industries themselves will weather the shock and survive (e.g., the restaurant or airline industry will not disappear), the same cannot be said about individual firms. Those that do survive might be severely impacted, possibly losing lines of business or customers, and may in fact need to transform themselves (or close) to thrive in the post-pandemic world.

The heavy costs that the COVID-19 outbreak has imposed on the world economy have been born not only by firms themselves but rather by all parties. In fact, the pandemic crisis has disturbed a wide range of economic relationships. Shock-hit firms have suffered a collapse in revenues. Shareholders of firms negatively affected by the pandemic have lost a significant fraction of their stakes. Workers have been laid off or accepted wage cuts. Production chains have been disrupted, with many suppliers having postponed receivables. Creditors have renegotiated debts. However, if firms start to default on their debts, they risk being pushed into bankruptcy. To avoid reaching this situation, credit in the form of rollover of payments coming due and new financing would help.

Despite the desirability for more financial support to firms, existing crisis resolution mechanisms and bankruptcy codes, revised after previous financial crises, are not designed to provide such support to hard-hit firms amid an exogenous systemic shock such as the COVID-19 pandemic. They are focused on mitigating the spillovers of shocks that originate from the financial sector and on preventing those shocks from materializing in the first place (such as deposit insurance, lender of last resort, and Basel III bank capital regulation). During past crises rooted in the financial sector, policymakers would step in and resolve the financial intermediaries or creditors in trouble (the "bad apples") while shielding the rest of the system from a collapse. Once policymakers addressed the main problems in the financial sector, bank lending to the real sector resumed and economic activity recovered.

This time around the solution is significantly more challenging because the problem does not emanate from the financial sector or from a particular firm or industry. Policymakers must be creative until the health crisis is resolved, adopting policies that mitigate the shock and the impact of the containment measures on the real sector. This involves working with the financial sector, as well as with other stakeholders, to improve the likelihood that viable firms are not pushed into default and bankruptcy by a financial infrastructure and by a legal and regulatory system that are not prepared to deal with a pandemic. It also involves adopting policies related to the financial sector itself, which has been affected by the shock (like all the other sectors in the economy), and which would naturally tend to contract lending in these circumstances. Because the financial sector plays a key intermediary role in channeling savings to productive activities, failure in this function could significantly aggravate the already sizable economic impact of the pandemic shock (Beck, 2020). Preserving the financial sector in good standing can avoid even greater damage to the overall economy. Although financing alone is not enough, a well-functioning financial sector can help firms stay alive and preserve their relationships.

3. The value of saving relationships

Firms depend on key and unique relationships with different stakeholders, such as workers, suppliers (of intermediate inputs, equipment, and commercial real estate), customers, and creditors. The relative importance of operational expenditures to these different stakeholders varies significantly across industries, depending on the nature of businesses activities (Fig. 3).

Firms generally spend resources in building the best relationships for their needs, which usually requires relationship-specific investments that involve creating knowledge and reputation. For example, firms must find the best workers, suppliers, and creditors that match their production processes. To do so, they must learn about workers' skills and capabilities, develop methods to adapt specific intermediate inputs to production lines, and seek investors that might be better suited for their financing needs. Firms also have long-term relationships with customers who have become loyal to their products and services. These relationships or matches, and the knowledge embedded in them, can be thought of as an important intangible asset or organizational capital of firms. Survey evidence for 500 large firms in ten emerging countries suggests that firms value these crucial relationships (Beck et al., 2020a). The surveyed firms were negatively affected by the pandemic shock, and their immediate response was to reduce investment while protecting their long-term relationships with stakeholders.

Pushing viable firms into bankruptcy during the COVID-19 pandemic would mean that the different relationships would need to be reconstructed in the recovery following the crisis. This churning process of destroying and then rebuilding relationships and contracts is far from efficient. For instance, maintaining employment in firms during the temporary negative shock could enable firms to keep specific human capital within the firm and avoid the costly processes of separation and then re-hiring and training when the crisis is over. For workers, it could preserve experience and specific human capital and prevent the long-term career costs of layoffs

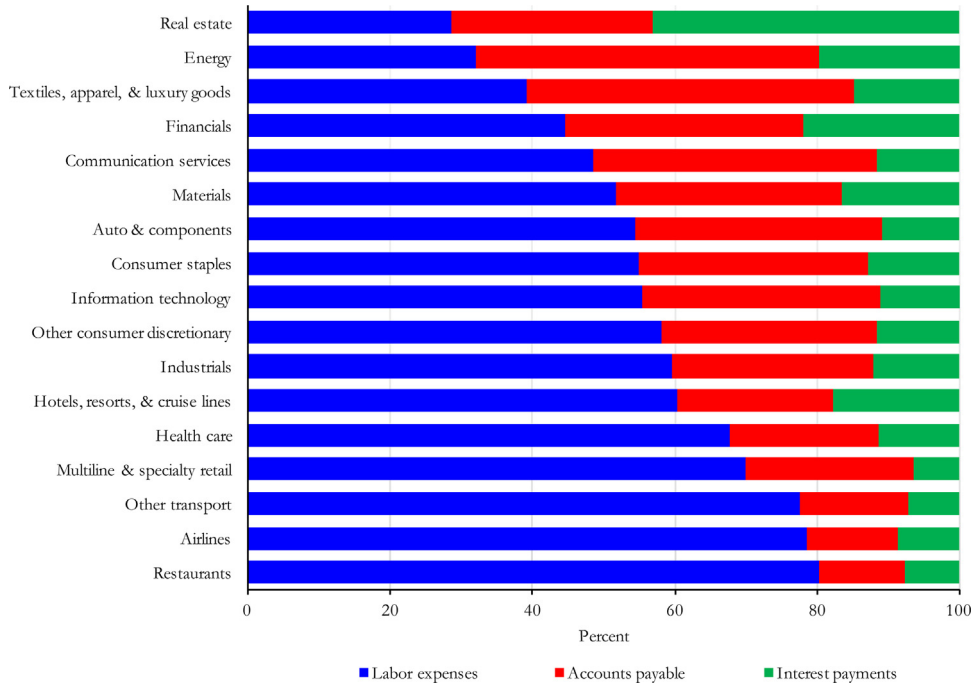

Fig. 3. Payments to key stakeholders across industries. **Note:** This figure shows the share of operating expenses owed to workers, suppliers, and creditors across U.S.-listed firms. The figure shows 2000–2016 averages by industry. **Source:** Authors' calculations based on Compustat data.

(Davis and Von Wachter, 2011). These benefits may be particularly large in emerging and developing economies, where formal firms (and jobs) account for a relatively small, laboriously built fraction of the economy but concentrate the bulk of society's organizational capital (Alfaro et al., 2020). Nonetheless, there are costs to keeping firms and their key relationships active: some firms might not be viable after the crisis, and preventing their closure early on during the crisis can lead to inefficiencies. Hence, there are trade-offs involved in designing policies to help keep firms alive and maintain their relationships.

Research has argued that a transitory shock that destroys a significant mass of relationships can lead to long-term scarring economic effects and a slow economic recovery. Predictions from a search-theoretic model for labor market dynamics show that the speed of the post-pandemic recovery would crucially depend on the extent to which relationships between firms and employees are maintained, suspended, or terminated (Gregory et al., 2020). An L-shaped recession would ensue if many workers go into unemployment without maintaining ties to their previous employer and if those workers cannot quickly find new, stable jobs. Moreover, financial constraints and bargaining frictions distort labor hoarding decisions when firms are hit by a temporary shock, leading to inefficiently low overall employment levels (Giupponi and Landais, 2020). Empirical evidence from the GFC suggests that keeping workers' attachment to their previous employers, thus preserving the aggregate stock of firm-specific human capital, could avoid persistent mismatches and preclude the temporary shock from becoming a prolonged stagnation (Fujita et al., 2020).

Breaking firms' relationships can trigger magnification effects within firms, which can justify a role for government intervention. One channel is an unemployment and asset price deflation "doom loop" working through credit market imperfections and a productivity-related channel (Cespedes et al., 2020).[3] Specifically, weak aggregate demand triggered by the pandemic could lead to a destruction in worker-firm matches. If these broken relationships are numerous (e.g., layoffs beyond certain thresholds), they could lower firms' expected productivity. This, in turn, could lower the collateral value of the firms, tightening financial constraints and limiting their borrowing capacity, which could further lower their productivity.

A number of recent theoretical studies emphasize that business closures since the onset of the COVID-19 pandemic could trigger significant economy-wide amplification effects, which further justify policy interventions. One line of argument posits that the supply shocks originated by lockdowns and other containment measures could become amplified through demand factors.[4] A firm exit multiplier can trigger such an amplification mechanism (Guerrieri et al., 2020). Specifically, business closures in the sectors most affected by the pandemic (such as those highly dependent on social interactions) could lead to reduced demand for businesses in less-affected sectors. In turn, some of those other businesses might become unable or unwilling to remain open. These additional closures could generate a new endogenous supply shock that amplifies the initial exogenous shock, creating a multiplier effect that may be sufficiently strong to shut down most of the economy. The large supply shock could also endogenously reduce agents' risk tolerance, lowering asset prices and reducing agents' wealth, which, in turn, could induce a disproportionately large contraction in aggregate demand that exceeds the decline in supply (Caballero and Simsek, 2020).

Other studies analyze the amplification effects of corporate bankruptcies working through the financial sector (Elenev et al., 2020; Segura and Villacorta, 2020). Specifically, the fall in firms' revenue due to the pandemic could spur a wave of corporate defaults, which would involve a deadweight loss to society that can be interpreted as the cost of breaking relationships with their stakeholders. These corporate defaults would translate into higher credit spreads,

[3] See Fornaro and Wolf (2020) for a broader explanation of this vicious cycle.

[4] Some studies examine the extent to which a decline in demand in some sectors can propagate to others (Bigio et al., 2020; Faria-e-Castro, 2020).

which would generate a decline in corporate investment. Defaults would also inflict losses on their lenders, especially banks. For some banks, the losses could be so severe that they could (optimally choose to) fail. Their failure would potentially depress credit even further, leading to further corporate sector distress, lowering further capital formation and output in future periods and thus prolonging the crisis. Hence, the pandemic could lead to a mutually reinforcing downward spiral of firm and financial sector distress working through the balance sheet linkages between firms and banks (or financial intermediaries more broadly).

Firms' bankruptcies and the implied destruction of relationships could also spillover through production networks, where nonlinearities can amplify the effects of a negative shock by disrupting supply-chain networks (Baqaee and Farhi, 2020). For example, the sectors most affected by the lockdowns and other containment measures could become supply bottlenecks that drag other sectors down with them. This amplification mechanism is particularly important in the short run as firms might find it harder to substitute their production plans on short notice (Huneeus, 2018). The propagation of the pandemic shock can also occur through a trade linkage channel or global supply chains, where indirect effects on domestic GDP from trading partners affected by the pandemic can be non-trivial (Bonadio et al., 2020; Ma et al., 2020). Similarly, the course of the pandemic abroad can also affect domestic sectors via international input-output linkages within an international production network, whereby lower external demand can amplify the domestic demand shocks (Çakmakli et al., 2020).

Although it may be inefficient to destroy the relationships between firms and their stakeholders, there is a trade-off between economic activity and disease transmission due to production externalities. That is, pushing firms to remain open and operating during the pandemic might generate negative externalities by facilitating the spread of the virus (Bethune and Korinek, 2020; Eichenbaum et al., 2020). Hence, unlike in ordinary crises and recessions, stimulating the economy to return to normal capacity might not be necessarily a desirable solution.

4. Credit to maintain relationships during hibernation

Some firms and countries have, in practice, implemented what we call hibernation: slowing the economy until the pandemic is brought under control while using policy interventions to compensate for some of the many losses the economy needs to withstand. Hibernation entails using the minimum bare cash necessary to withstand the pandemic, which implies different thresholds for firms in different industries and countries. Some firms have been effectively shut down while the restrictions last (such as movie theaters and restaurants with no takeout or delivery options), whereas other firms have adapted and operated at a much-reduced capacity (such as airlines maintaining some flights and retailers selling only online). Even the firms that have ceased operations during the lockdown would need some minimal funds to stay alive, keeping their human and physical capital ready to reopen when the lockdown passes. Therefore, the concept of hibernation is useful for firms with different degrees of reduction in their routine activities.

Hibernation reduces the trade-off between keeping firms alive and spreading the virus, maintaining the contracts underlying firms' relationships active while diminishing the disease transmission. Because it is intended to keep firms' relationships with their stakeholders alive, firms can recover more quickly when the shock subdues, with no need to reconstruct all their relationships. But hibernation is not a simple solution to implement, as the relationships between firms and their different stakeholders, and the contracts that support them, might need to be renegotiated to somehow share the burden of the inactive period.

In the absence of hibernation, firms would need to borrow to maintain all preexisting contracts, assuming business as usual. This would generate a high and perhaps unbearable debt burden on firms by the time the recovery starts. An ensuing debt overhang problem, with so-called zombie firms, could linger for years (Caballero et al., 2008). Therefore, hibernation allows firms to minimize the amount of debt they take to remain viable both during (while economic activity is depressed) and after the pandemic, when economic activity recovers and accumulated debts need to be repaid.

Given the uncertainties about the shock's duration and magnitude, a key question is the extent to which different stakeholders could absorb part of the losses associated with the hibernation phase. That is, firms could increase their likelihood of surviving the pandemic if they had some flexibility in negotiating payments to their different stakeholders. Meanwhile, firms could use their cash and borrowing capacity to cover their reduced operational costs during the lockdown period.

The relationships with the different stakeholders are tightly linked. For instance, the ability of firms to pay creditors depends on whether they have enough money left over after paying other stakeholders, especially while businesses are temporarily halted. The bargaining power of different stakeholders, reflected in the flexibility in their contracts, will ultimately determine which relationship firms adjust to weather the pandemic. For example, if part of a firm's suppliers' payments is variable, with room for adjustments, then suppliers could absorb a share of the costs of continuing the business. This, in turn, might allow the firm to fire fewer workers and also provide some slack to pay its creditors. Exploiting the flexibility of some relationships could help firms adjust their expenses, keep important relationships active, and reduce costly churning while improving their prospects for the recovery.

Creditors could provide a crucial margin of adjustment for firms, especially if they could offer extra financing that would allow firms to avoid breaking up their other relationships. In addition to internal financing options, which are limited in the short term, firms could turn to external financing from banks (such as credit lines, term loans, and letters of credit) and capital markets (bonds and equities). Some firms could also benefit from trade credit from firms with spare cash.

There are, however, three unique sets of challenges related to firm financing during the pandemic shock that might justify a role for policy intervention. First, the private sector debt built up after the GFC means that many firms have entered the crisis with high levels of debt. There was around US$75 trillion of non-financial corporate debt outstanding in the world in September 2019 (IIF, 2020). Non-financial corporations in emerging markets alone will need to pay back or refinance more than US$700 billion during 2020, which does not include the new financing needs that arise as a result of the COVID-19 crisis. Such high corporate indebtedness represents an important source of fragility and could impose significant constraints on firms' ability to borrow, especially for emerging-economy firms with debts denominated in foreign currency, as many domestic currencies have plummeted.

Second, firms might have a limited capacity to substitute across external financing sources during this crisis. During a typical financial crisis, if the banking sector shuts down and banks stop providing loans, some firms are able to substitute away from bank loans toward bond financing (Becker and Ivashina, 2014; Cortina et al., 2020). However, during the COVID-19 crisis, all markets across all countries have been simultaneously hit and financing from both banks and capital markets has dried up for many firms. Firms might have been left with no obvious source of financing during a period in which access to finance might determine their own survival.

Third, and perhaps most importantly, creditors in general and banks in particular have become reluctant to lend, unwilling to

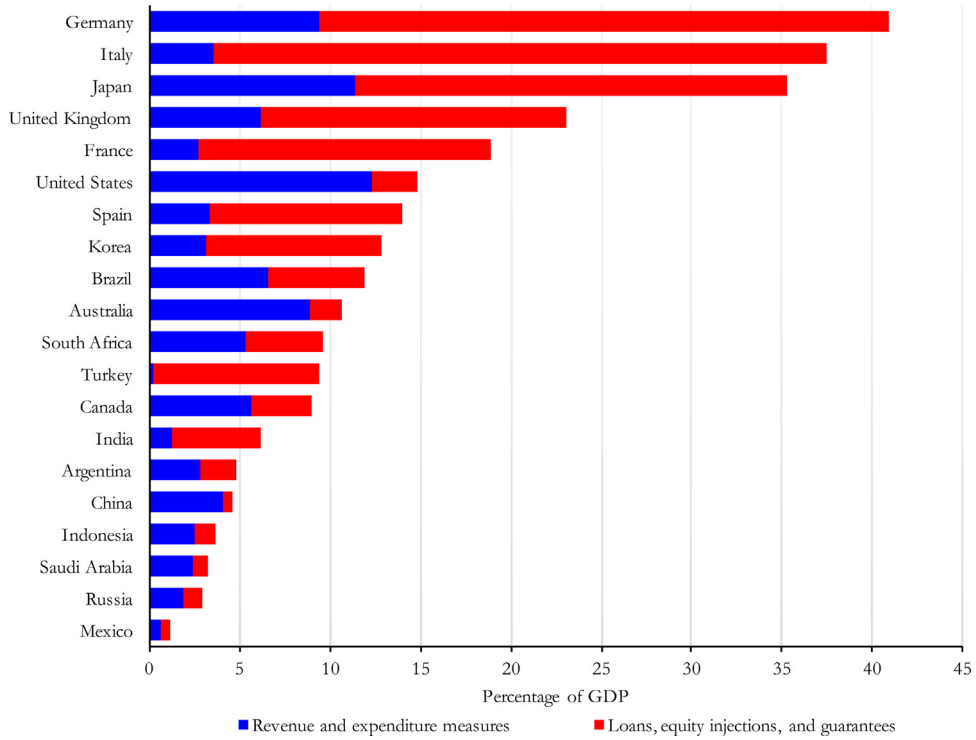

Fig. 4. Financial policies to support firms and direct expenditures across countries. **Note:** This figure shows the size of policy measures (relative to GDP) announced by each country, distinguishing between those related to government revenues and expenditures (above-the-line) and those related to loans, equity injections, and guarantees (below-the-line and contingent liabilities). Above-the-line policy measures affect current fiscal budgets, while below-the-line and contingent liabilities measures can affect future fiscal budgets. Whereas above-the-line measures are related to households and firms, below-the-line measures and contingent liabilities are more commonly used to support firms. **Source:** IMF Fiscal Policy Database as of June 2020.

absorb the higher credit risk of firms. Amid widespread uncertainty regarding the shock's magnitude and duration, creditors have faced challenges in evaluating the likelihood of firm survival given that credit risk assessments under these circumstances have significant margins of error. Firms that can cut workers' wages or renegotiate accounts payable with suppliers would pose a lower credit risk for creditors. Yet, the crucial challenge for creditors is that they have imperfect information about contract details (including their flexibility) between firms and their other stakeholders. Thus, they might cut financing across the board, both because of the higher credit risk and the increased risk aversion. Furthermore, there could be externalities. Individual creditors might not look beyond their immediate contractual requirements or narrow self-interest to fully understand the general feedback loop over time. Firms that cannot obtain financing during the hibernation phase would have lower chances of survival, which could, in turn, affect the likelihood of survival of other firms with which they have relationships, thus feeding the feedback loop.

5. Policy interventions to sustain firm financing

Policymakers could play a useful role in stabilizing the economy by working with the financial sector to keep firms afloat. Government intervention could improve the likelihood that viable firms are not pushed into default and bankruptcy. Financial sector policies are complementary to other actions that firms undertake with both private and public stakeholders to adjust previous commitments in response to the pandemic shock.

Since the pandemic struck, policymakers around the world have implemented a large number of policies, several of which try to help firms manage their liabilities with different stakeholders while improving their odds of survival. Whereas heterogeneity exists across countries, the magnitude of different policies aimed at helping firms manage their liabilities ("below-the-line" and contingent liabilities measures) is sizable when compared to direct transfers to both households and firms (Fig. 4).

In the rest of this section, we discuss different policy options available to policymakers along two broad dimensions: one set of policies related to adaptations to the institutional framework to meet the challenges imposed by the pandemic shock, and a second set linked directly to the provision of credit to firms. We also discuss some of the practical and distributional implications related to these policies.

In framing the discussion, we start with the idea that a key goal of public policy for the corporate sector is to ensure that credit flows to firms during the (full or partial) lockdown phase of the pandemic, especially to those facing severe cash shortfalls due to the collapse in their revenues. Attaining this goal means not only refinancing existing credit lines but also extending new financing to existing and new clients given that funding needs are likely to increase with the ensuing economic recession.

When considering the policy options, it is important to take into account the trade-offs underlying the different alternatives that can foster firm financing as well as the incentives they generate. The effectiveness and fiscal costs of the different paths adopted are also relevant considerations. Not all governments have the fiscal or monetary space to implement the much-needed mitigating policies and might need to borrow from the international community to do so. Furthermore, because payments to the different stakeholders are tightly connected with one another and jointly affect firms' prospects, the various policies that governments implement need to be viewed as a package. For example, a government policy that pays a portion of wages for workers who stay at home reduces the need to finance firms to cover such costs. Coordination across policymakers—central banks, finance ministries, and

regulators—is thus essential to ensure policy effectiveness during this crisis.

5.1. Adapting the institutional framework

The financial sector is ill-equipped to cope with a shock like COVID-19 because it is geared toward detecting idiosyncratic risk when it arises. Legal and regulatory frameworks have been established to prevent shocks and allow for a clear plan of action whenever shocks happen, with the goal of safeguarding the stability of the overall system. For example, when a firm fails to meet a payment, regulations require banks to increase loan-loss provisions to reflect the higher risk, and the firm's credit score is also reduced. If failure to pay the debt persists, the firm may be pushed into bankruptcy. As a result, the existing infrastructure of financial sectors could actually amplify the firm's financing problem this time around, leading to inefficient bankruptcies and excessive destruction of relationships.

During the COVID-19 crisis, signaling firms in trouble might not be very informative or helpful given that most firms have suffered a sizable and unexpected negative external shock. To the extent that financial sector stability can be preserved, allowing forbearance and avoiding undue increases in borrowing costs might be needed. Otherwise, applying the standard procedures when firms cannot repay their liabilities would hurt those firms even more.

Because unnecessarily liquidating firms will impose even larger costs to the economy in the longer term, policymakers around the world have started to adapt their legal and regulatory structures to the unique nature of the COVID-19 shock. Several of these policy measures are geared toward existing credit. For example, some countries have implemented repayment deferrals for existing bank loans for a number of months (e.g., six months). Some financial regulators have allowed banks to freeze loan-loss provisions if and when they postpone the loan of a client, and others have also allowed banks to freeze the credit classification of firms at their pre-shock status (e.g., December 2019). That is, as long as a loan was classified as performing before the pandemic hit, any renegotiation would not affect the firm's credit score.

Some existing work has also discussed how to avoid liquidations or how to deal with them more effectively when there is a systemic shock, such as the idea of a "super Chapter 11" for corporate debt restructurings (Miller and Stiglitz, 2010; Roukny et al., 2018). Such a procedure would override the normal restructuring processes in the midst of a crisis, providing quasi-automatic protection to debtors from debt increases due to a systemic shock. In addition, given the inefficiencies of court-supervised bankruptcy procedures, some have argued that government agencies must be prepared to lead the debt restructuring process for the firms that receive bailouts (Becker et al., 2020). These agencies would prioritize out-of-court renegotiations whenever possible, which could include temporary nationalizations when needed, with tough conditions for existing shareholders to avoid further distortions.

An important consideration of these measures is to determine which set of firms should receive forbearance. Some countries have implemented automatic postponement of loan repayments for all firms. Whereas universal application is easy to implement and provides relief for all firms, increasing their likelihood of survival, it creates significant risks for the financial sector because it imposes no conditions on firms, such as having a good credit standing before the crisis. These types of measure might, in fact, encourage the survival of zombie firms by overriding banks' ability to act on hard and soft information to determine firms' prospects and ability to repay. They could also discourage new lending by increasing the probability of further blanket forbearance measures (like a broad moratorium on payments to all creditors or automatic stays in bankruptcy procedures) if the pandemic crisis deepens further. In contrast, policies that allow for some screening of firms—drawing, for example, on good behavior before the crisis—would allow banks to distinguish between different credit risks. Such screenings, however, could delay implementation and would not offer all existing firms the same chance of survival.

In applying forbearance, regulators and creditors would also benefit from providing the right incentives such that borrowers do not engage in ex-post moral hazard and fail to repay their loans. This is usually hard to achieve, but to the extent that regulators and creditors can use tools to penalize firms engaging in bad behavior, they might want to deploy them to save on future fiscal costs. It thus seems important to closely monitor the implementation of such measures and their potential impact to ensure the soundness of financial institutions, to preserve the stability of the financial sector, and to signal the exceptional nature of the changes while the COVID-19 crisis persists.

The measures regarding renegotiation vis-à-vis creditors could be complemented with measures to renegotiate contracts with other stakeholders, which would allow firms to reduce their overall liabilities and gain flexibility to meet their preexisting commitments. To this aim, some governments have facilitated the deferral of tax payments (Demmou et al., 2020). Proposals to postpone payments of rents for workers could also be extended to small and medium enterprises (SMEs) so that evictions could be delayed, giving renters time to pay accumulated accrued rents (Sturzenegger, 2020). Another case could be labor laws and agreements, which bind firms' obligations with workers. These renegotiations might give firms some flexibility regarding their obligations with workers if they are forced to reduce operations or shut down during the pandemic crisis.

5.2. Providing credit to firms

Policymakers around the world have considered several options to enhance the provision of credit to firms. We divide these policies into monetary and regulatory policies and policies aiming to transfer risk to the government. These policies might have played a role in the flow of credit during the COVID-19 crisis, at least relative to previous crises. The evolution of commercial credit for a group of six selected countries during the COVID-19 crisis and during previous economic crises (i.e., the 1997–1998 Asian financial crisis, the dot-com bubble, the Euro crisis, and the GFC) suggests that the COVID-19 crisis is indeed different (Fig. 5). Fig. 5 shows the growth of commercial credit for up to four months after the start of each crisis episode. Credit to firms in each of the selected countries increased during the COVID-19 outbreak, whereas during previous crises, corporate credit in these countries fell, sometimes sharply. This empirical result is consistent with the idea of firms needing credit to survive during the hibernation period. The support that governments have provided to encourage banks and financial markets to lend to firms during the pandemic might have helped in this regard.

5.2.1. Monetary and regulatory policies

Central banks have quickly responded by lowering interest rates. However, standard monetary policy measures can have limited effects during the COVID-19 outbreak. In normal times, monetary policy rate reductions by the central bank lower the cost of funding for firms, thereby increasing corporate investment. With pandemic-related containment measures in place, as well as the uncertainty about the shock's magnitude and duration, corporate investment might not be responsive to lower interest rates. Moreover, in many countries, interest rates were already at low levels before the pandemic hit, reducing the space for further interest rate cuts.

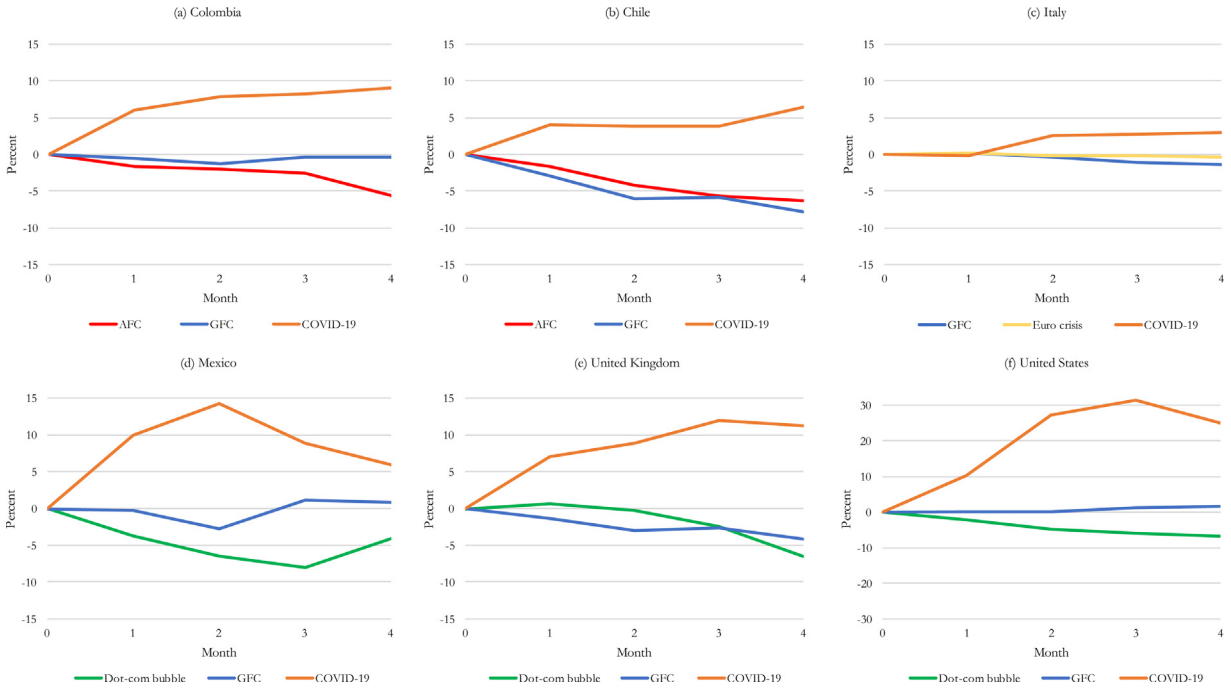

Fig. 5. Evolution of commercial credit by country during different crises. **Note:** This figure shows the difference (in percentage points) in the 12-month change in commercial credit relative to the 12-month change in t = 0 for different crises episodes. The figure is constructed for six countries for which we could obtain data. Period t = 0 is the month before the first negative 12-month change in a country's economic activity index. For each country, crises and t = 0 are, respectively, defined as follows. Panel (a) Colombia: AFC (Asian financial crisis, June 1998), GFC (global financial crisis, October 2008), and COVID-19 (February 2020). Panel (b) Chile: AFC (September 1998), GFC (October 2008), and COVID-19 (February 2020). Panel (c) Italy: GFC (April 2008), Euro crisis (May 2011), and COVID-19 (January 2020). Panel (d) Mexico: Dot-com bubble (April 2001), GFC (October 2008), and COVID-19 (February 2020). Panel (e) United Kingdom: Dot-com bubble (January 2001), GFC (July 2008), and COVID-19 (February 2020). Panel (f) United States: Dot-com bubble (March 2001), GFC (December 2007), and COVID-19 (February 2020). For the United States, the scale of the y-axis is different from the scale used for other countries. **Source:** Authors' calculations based on each country's credit registry data.

Some central banks have also extended liquidity lines to banks at a low cost, with incentives to expand lending to the real economy. Nevertheless, unlike in a typical financial crisis, banks have generally not encountered major liquidity problems (Danielsson et al., 2020). Instead, they have had to deal with a discrete increase in the credit risk of firms, which depends on the magnitude and duration of the pandemic shock. In fact, the heavy draw down of credit lines by large firms early on during the pandemic shock might reflect that these firms anticipated a reduction in lending as the crisis progressed and credit risk rose (Ashworth and Goodhart, 2020; Li et al., 2020). In this context, liquidity policies would work only to the extent that banks pass the higher liquidity from the central bank to firms.

Likewise, some financial regulators have reduced Basel III capital requirements charged to banks, such as countercyclical capital buffers, conservation buffers, systemic risk buffers, and Pillar II charges. To be effective, banks would need incentives to convert the released capital into greater lending to firms in the context of increased credit risk. Those measures alone might not provide sufficient incentives for them to do so. In addition, not all countries have implemented Basel III, and therefore not all of them have the space to reduce capital charges.

5.2.2. *Transferring credit risk to the government*

In a context of high uncertainty, with lenders generally retrenching, governments have stepped in and absorbed the increased credit risk, ensuring firms have access to resources during the hibernation phase. In particular, the public sector is generally in a good position to offer credit guarantees when there is high risk aversion (Anginer et al., 2014). Among other things, governments have capitalized state-owned banks, scaled up public credit guarantee programs (typically covering 70 to 90 percent of the loans), and supported large-scale purchases of portfolios of loans. The feasibility of rapid delivery of these different policy options varies across countries and depends on the institutional setting. For example, whereas some countries have sizable state-owned banks, others do not. Also, some countries have guarantee programs in place, whereas others do not. To the extent that new distribution channels may need to be created, challenges to implement this set of policies will arise (El-Erian, 2020).

When considering policies addressed to transfer credit risk to the government, it is useful to distinguish between large corporations and SMEs. Whereas large firms use a combination of both bank credit and capital market financing, SMEs rely mostly on bank financing. Also, large firms have larger spillover effects and generate greater externalities in the economy than individual SMEs. The failure of a large corporation could lead to more workers being laid off, possibly affecting local labor markets; more suppliers being unpaid, possibly disrupting supply chains; fewer exports, possibly affecting the availability of foreign currency in the country; and default on large debts, possibly affecting the liquidity and solvency of its creditors. At the same time, precisely because of their size, larger firms also have stronger bargaining power relative to their stakeholders than SMEs and might thus be better able to cope with the shock.

To the extent that SMEs' access to external finance occurs mostly through banks, channeling funds to large firms through the banking system may be inefficient, as it could crowd out SMEs from this funding source. Indeed, some governments have supported financing to large corporations through capital markets. For example, they have provided a transitory capital injection by purchasing corporate liabilities. That is, large firms issued securities, which could then be directly purchased by the government or the central bank. In this case, both convertible bonds and preferred equity allow the government to participate in the upside should the underlying firm succeed. Once the shock subdues, the government can exit such

investments by selling the securities purchased to other investors in the market, recouping its initial investment. The conversion of bonds to equity also works as a threat to the firm, thereby reducing ex-post moral hazard. Because there are generally only a few large firms in each industry, governments can monitor them closely (and, in some cases, even regulate them) if and when funding is provided.

In regard to SME financing, the capitalization of state-owned banks can help to the extent that they are well managed and have explicit mandates to lend to SMEs. Some countries have also scaled up public credit guarantee programs, which are focused on the public provision of guarantees to loans made by banks to SMEs. Because these programs absorb part of firms' credit risks (the government bears a significant fraction of the costs in case of default), they provide incentives for banks to lend to such firms. Other countries with fairly well-developed capital markets have moved toward allowing the central bank or the government to engage in large-scale purchases of SME loan portfolios. Under such arrangements, banks sell securities backed by those loans to the government (or the central bank), and in case of default, the government bears the risk. Some central banks have even developed lending facilities to encourage investors to purchase securities collateralized by the portfolio of SME loans. Both securitization policies can potentially have a multiplier effect in the financing available to SMEs if lenders were to use the cash obtained through those transactions to lend again to SMEs. The effectiveness of these policies can be enhanced if they were to include both existing as well as new bank credit to SMEs.

Some countries are also extending public credit guarantees to financing provided by non-bank financial institutions. This approach includes financing companies offering invoice (factoring), leasing, and consumer financing. These policies allow credit to reach micro firms, which in many countries typically do not have access to traditional bank financing. Because these firms are generally riskier than SMEs, the coverage of partial credit guarantee schemes tends to be higher for non-bank credit than for bank credit.

5.2.3. Policy considerations

Policies aimed at transferring credit risk to the government work best when they are designed in a way that minimize the cost to public coffers. Policy interventions would benefit from three characteristics. First, scale is crucial to allow for risk diversification, both across industries (some industries have been hit harder than others) and across firms within industries (not all firms in the same industry will go bankrupt because of the shock). To achieve this type of diversification across the economy, the public sector is in a unique position, which is difficult for individual private sector financial institutions (typically banks) to emulate. This diversification would also help the government cope with the inevitable fiscal cost of the crisis.

Second, providing incentives for both creditors and debtors is also important. For example, public credit guarantee schemes could be partial so that banks retain some "skin in the game" and have incentives to monitor and screen borrowers. Similarly, securitization policies could require that banks keep a fraction of the loan portfolio in their balance sheets. In regard to firms, the challenge is to avoid the ex-post moral hazard problem of firms not repaying their loans, which could turn out to be very costly for credit providers. This source of concern becomes more acute the longer the shock lasts. If the shock lasts for many months, firms might find it more efficient or profitable to declare bankruptcy (with all its costs of broken relationships) and avoid repaying their creditors, only to then "reproduce" the business with new credentials—like closing down one restaurant only to open another one next door shortly thereafter. However, it would be difficult for creditors under such systemic shock to disentangle whether firms defaulted strategically or not.

Third, even when firms repay, there is a challenge in terms of providing incentives so that they use the liquidity obtained by financing policies to keep relationships instead of using it for other purposes. Firms might not internalize the social value of the knowledge embedded in their relationships with stakeholders and might be willing to destroy more connections than is socially optimal. This challenge justifies a scope for policymaking in terms of providing incentives so that firms internalize the social benefit of keeping relationships. The benefit of including those incentives has to be evaluated together with the costs of monitoring them. For example, several countries do not allow firms to distribute dividends when they receive public funds to endure this crisis, which is a low-monitoring-cost restriction.

6. Conclusions

Because governments have limited resources, they need to prioritize which policies to pursue when trying to save firms from collapsing during the COVID-19 pandemic while also evaluating their trade-offs. This is not easy to achieve given the urgency of the needs and the speed at which decisions must be made. At the same time, targeting support for firms might also be difficult because of limited (and lagged) information that the government has about firms' needs.

It is worth keeping several considerations in mind when designing different policy responses. For example, policymakers need to make decisions on how much to allocate to large firms versus SMEs, to firms that have relationships that are more difficult to reconstruct, or to firms that would be more disruptive for value chains if they were to go bankrupt. They might even be pushed to decide whether some essential industries (such as basic infrastructure, health, and education) or industries hit hardest by the shock (such as travel and tourism) are worth assisting over others. Furthermore, policymakers need to determine how much they condition the assistance on keeping certain relationships over others. For example, governments are usually keen on forcing firms to keep workers on their payroll while avoiding payments to shareholders. However, determining which relationships are more valuable than others for different firms is not trivial. Lastly, given the limited information the government has on firm performance and financing needs, trying to narrowly target support for firms might exclude some firms that require more support than others.

Governments also need to think about how to allocate resources over time. Firms might be in hibernation and need funds for several months, using bridge financing to make it through the lockdown period. During this critical time, government assistance might be needed the most, as banks and investors face higher uncertainty about the pandemic's length and the related probability of firm survival. Eventually, surviving firms will need additional lines of credit to restart or jump-start their operations when they stop hibernating. Private lenders might be more willing to lend at that stage when uncertainty has diminished, and they would be in a better position to assess firms' prospects and credit risks.

In addition, governments need to consider the accumulation of liabilities that can occur during the pandemic. Although the short-term needs generated by the pandemic can be pressing, the large packages of financial aid provided by governments around the world can pile up to already high debt-to-GDP ratios. High levels of public debt could lead to new financial crises, especially if the cost of borrowing increases. The risk is especially higher for countries with more limited fiscal capacity. Furthermore, the pandemic can generate lasting consequences on the financial sector, as losses in the corporate sector accumulate and credit granted during the pandemic becomes hard to service. This potential problem in the financial sector might impose further fiscal needs if governments

try to bail out the financial sector. These longer-term considerations are difficult to weigh in during times of stress and more urgent needs, but they inevitably become part of the debate as the demand for fiscal resources expand and the pandemic lingers. The upside is that some rescue packages might be less costly than what they appear ex-ante. As in the GFC, governments can exchange assistance for stakes in companies. If those companies do well after the crisis, governments can recoup some of the costs. Moreover, governments might benefit from more fiscal revenues if economies recover faster because of their help during the crisis.

When establishing financing programs to maximize the probability of firm survival, it is important to consider to what degree governments will play the role of "lender of last resort" versus "loss absorber of last resort." While the health emergency is transitory, its economic consequences can be permanent. If the crisis inflicts adverse, persistent effects on the solvency of firms, it will require a significant reallocation of resources and reconfiguration of enterprises, including the exit of unviable firms and entry of new ones. Hence, where needed and feasible, the role of the state might have to migrate ex-post from lender of last resort (with the expectation that firms will repay) to loss absorber of last resort (as eventual defaults materialize).

The role of government intervention can be more easily justified on policy grounds when risk aversion is high (as reflected in high risk premiums) as opposed to credit risk being high. To the extent that governments are more risk neutral (because they can spread risk across the population and over time via the tax system), they can facilitate credit to encourage lending at lower risk premia to viable firms using different means. In this circumstance, governments can improve the social outcome without absorbing losses. When credit risk rises, the transfer of credit risk to the government could still be socially justified provided that the government has sufficient fiscal space (Anginer et al., 2014).

The scope for policy action implies stark differences between developed and developing countries (as well as among countries within each group and among rich and poor communities within each country). The initial conditions vary considerably across countries and determine the set of policies that developing countries are able to implement and at which cost (Hausmann and Schetter, 2020; Loayza and Pennings, 2020). Developing countries tend to have less monetary and fiscal space to deploy credit easing, wage subsidies, and domestic demand support. They also tend to have more informality, worse public health infrastructure, less ability for employees to work from home, less savings, and less state capacity to effectively deliver basic needs (Dingel and Neiman, 2020). Some developing countries can also be hit by lower commodity prices and less remittances income (Hevia and Neumeyer, 2020). Therefore, developing countries can suffer a larger shock and be less prepared to absorb the pandemic's impact.

Countries with underdeveloped financial markets, less fiscal slack, and more constrained central banks will face greater challenges to channel credit to firms and avoid a breakup in their relationships. As central bank credibility rises, so does the willingness of savers and investors to park their funds in local currency during bad times and the ability of the financial sector to grant credit to firms without generating currency mismatches. As fiscal viability rises, so does the government's access to long-term finance in international markets at interest rates close to those paid by the U.S. Treasury. Although risk absorption of last resort interventions might be socially efficient given the exogenous cause of the crisis, there are very few governments in the world that can shoulder such costs without endangering central bank credibility and fiscal viability. Moreover, prompted to take action, some governments could seriously cripple their medium-term debt viability through well-intended efforts to cushion the economic consequences of the pandemic.

With the rise in global risk, some developing countries have also faced a sudden stop in capital inflows, higher costs to issue new debt in capital markets, and sharp depreciations of their domestic currencies. These significant macroeconomic challenges, combined with the large financing needs that arise from the pandemic shock, could heighten the risk of sovereign debt restructurings (Marchesi and Masi, 2020). In turn, debt crises could be followed by widespread turbulence in the corporate sector, especially in countries where firms entered the shock with high outstanding debt levels. The liquidity issues in developing countries might thus rapidly turn into solvency problems—both at the firm and country levels. Multilateral policy action, involving international financial institutions and creditor countries, might help resolve problems that can become common across developing countries and can help avoid procyclical (contractionary) policy measures that would make the crisis more severe. These measures could include more international financial assistance to developing countries and facilities to restructure existing debts (Adam et al., 2020; Bolton et al., 2020; Stiglitz and Rashid, 2020).

Despite their inherent challenges, some mitigating factors are present in the case of certain developing countries. Many of them have banking systems that could be used to channel credit to firms and the tools to assist banks if they face funding difficulties at a later stage. Moreover, the fact that developing countries generally have more informal firms and younger populations might help them maintain some activities during the pandemic and reestablish relationships faster once the lockdown measures are eased. These informal firms might be better targeted through programs that assist households, which can use some forms of personal loans. Furthermore, pressure from households and firms with fewer resources to withstand a prolonged hibernation could make their social distancing state shorter, triggering higher rates of infection but keeping some economic activity alive.

Lastly, in designing policies for both developed and developing countries, it is useful to acknowledge the transfers that policy actions produce across different agents of the economy (Kaplan et al., 2020). The lockdown policies will tend to protect the more vulnerable older generation while restricting the economic activities of the younger generation, which has a lower risk of becoming seriously ill. This effectively induces transfers from the young to the old given that some of the costs of such policies will not necessarily be recovered (Pastor, 2020). Policies to keep firms alive, however, do not produce the same type of intergenerational transfers. Whereas they will be paid mostly by the young, that same generation will also benefit the most from keeping firms alive during the pandemic. Within the young generation, the socialization of losses still entails transfers. Those who have the resources to survive the lockdown without public assistance will in effect subsidize those who receive such help.

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