



COMISIÓN
PARA EL MERCADO
FINANCIERO

Documento de Trabajo

Documento de Trabajo N°04/20

Financing Firms in Hibernation during the COVID-19 Pandemic

Tatiana Didier (World Bank), Federico Huneeus (Yale University & Central Bank of Chile),
Mauricio Larraín (Financial Market Commission & PUC Chile) y Sergio L. Schmukler (World
Bank)

Mayo 2020

www.cmfchile.cl

Financing Firms in Hibernation during the COVID-19 Pandemic

Tatiana Didier (World Bank), Federico Huneus (Yale University & Central Bank of Chile),
Mauricio Larraín (Financial Market Commission & PUC Chile) y Sergio L. Schmukler (World Bank)

The Working Papers series is a publication of the Financial Market Commission (CMF), whose purpose is to disseminate preliminary research in the finance area for discussion and comments. These works are carried out by professionals of the institution or entrusted by it to third parties.

The objective of the series is to contribute to the discussion and analysis of relevant topics for financial stability and related regulations. Although the Working Papers have the editorial revision of the CMF, the analysis and conclusions contained therein are the sole responsibility of the authors.

La serie de Documentos de Trabajo es una publicación de la Comisión para el Mercado Financiero (CMF), cuyo objetivo es divulgar trabajos de investigación de carácter preliminar en el área financiera, para su discusión y comentarios. Estos trabajos son realizados por profesionales de esta institución o encargados por ella a terceros.

El objetivo de la serie es aportar a la discusión y análisis de temas relevantes para la estabilidad financiera y normativas relacionadas. Si bien los Documentos de Trabajo cuentan con la revisión editorial de la CMF, los análisis y conclusiones en ellos contenidos son de exclusiva responsabilidad de sus autores.

Financing Firms in Hibernation during the COVID-19 Pandemic*

Tatiana Didier (World Bank), Federico Huneus (Yale University & Central Bank of Chile), Mauricio Larraín (Financial Market Commission & PUC Chile) y Sergio L. Schmukler (World Bank)

May 2020

ABSTRACT

The coronavirus (COVID-19) pandemic has halted economic activity worldwide, hurting firms and pushing them toward bankruptcy. This paper provides a unified framework to organize the policy debate related to firm financing during the downturn, centered along four main points. First, the economic crisis triggered by the spread of the virus is radically different from past crises, with important consequences for optimal policy responses. Second, to avoid inefficient bankruptcies and long-term detrimental effects, it is important to preserve firms' relationships with key stakeholders, like workers, suppliers, customers, and creditors. Third, firms can benefit from “hibernating,” using the minimum bare cash necessary to withstand the pandemic, while using credit to remain alive until the crisis subsides. Fourth, the existing legal and regulatory infrastructure is ill-equipped to deal with an exogenous systemic shock such as this pandemic. Financial sector policies can help increase the provision of credit, while posing difficult choices and trade-offs.

Keywords: Cash crunch, coronavirus, credit risk, Financial policies, firm relationships
JEL Codes: G21, G28, G32, G33, G38, I18

RESUMEN

La pandemia del coronavirus (COVID-19) ha golpeado la actividad económica mundial, dañando empresas y empujándolas hacia la bancarrota. Este artículo presenta un marco unificado para organizar el debate de política sobre el financiamiento de empresas durante esta recesión, centrado en cuatro puntos principales. Primero, la crisis económica iniciada por la propagación del virus es radicalmente distinta a crisis anteriores, con implicancias importantes para la respuesta de política óptima. Segundo, para evitar bancarrotas ineficientes y efectos negativos de largo plazo, es importante preservar las relaciones de las empresas con sus distintos stakeholders, tales como empleados, proveedores, clientes y acreedores. Tercero, las empresas se pueden beneficiar de “hibernar” durante este período, usando el mínimo de caja necesario para resistir la pandemia y usando crédito para sobrevivir la crisis. Cuarto, la infraestructura legal y regulatoria existente no está bien preparada para enfrentar un shock exógeno y sistémico como esta pandemia. Políticas del sector financiero pueden ayudar a aumentar el flujo de crédito, planteando decisiones difíciles y trade-offs.

* We received very useful comments from Alvaro Aguirre, Saki Bigio, Steen Byskov, Charlie Calomiris, José Ignacio Cuesta, Augusto de la Torre, Andrés Fernández, Michael Fuchs, Alfonso García Mora, Cristobal Huneus, Alain Ize, Aart Kraay, Norman Loayza, Fernando Mendo, Ernesto Pasten, Rekha Reddy, and participants at webinars organized by the Catholic University of Chile, Columbia University, the University of Buenos Aires, and the World Bank in Kuala Lumpur and Washington, D.C. We thank Rosario Cisternas Vial and Marta Guasch Rusiñol for able research assistance and Nancy Morrison for helpful edits. A shorter version of this paper appeared as World Bank Research & Policy Brief No. 30. The World Bank Chile Research and Development Center, the Finance, Competition, and Innovation (FCI) group at the Malaysia Global Knowledge and Research Hub, the Knowledge for Change Program (KCP), and the Research Support Budget (RSB) provided financial support for this paper. The findings, interpretations, and conclusions are entirely those of the authors. They do not necessarily represent the views of the World Bank Group, its Executive Directors, or the governments they represent, or the views of the Financial Market Commission of Chile or the Central Bank of Chile. E-mail addresses: tdidier@worldbank.org, federico.huneus@yale.edu, mlarrain@cmfchile.cl, sschmukler@worldbank.org.

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. Because of the rapid transmission of the virus, people around the globe have simultaneously isolated following strict public health orders. Social distancing is an emergency measure that saves lives, but it has led to a synchronized collapse in economic activity. Major stock market indexes have crashed at an unprecedented pace (Baker et al., 2020; Huang et al., 2020), erasing close to one-third of their value in just a matter of weeks, hitting industries across the board, reflecting expected losses in the corporate sector (Figure 1).

Policy makers around the world have rapidly deployed a wide arsenal of tools to cope with the inevitable economic recession, pledging aid to firms in Europe and the United States equivalent to their entire profits for the past two years (Economist, 2020).¹ Many of these policies focus on helping firms manage the crisis (Ilzetzki, 2020). Germany’s bazooka program included €550 billion in new loans to firms through its state investment bank (Garicano, 2020). In the United States, a relief package of over US\$2 trillion has provided economic assistance to both households and firms (Baldwin and di Mauro, 2020). The Federal Reserve has also extended liquidity to firms through the purchase of financial securities in capital markets (De Vito and Gomez, 2020a).

Economists have come up with several other proposals. Governments could be the backstop for absorbing losses (Beck, 2020) or act as a payer of last resort (Saez and Zucman, 2020). Others have suggested shield packages aimed at supporting firms in financial distress (Bénassy-Quéré et al., 2020). Additional proposals include a negative lump sum tax for small and medium enterprises (SMEs) (Drechsel and Kalemlı-Özcan, 2020), a liquidity lifeline to cash-strapped firms (Brunnermeier et al., 2020), evergreening loans (Brunnermeier and Krishnamurthy, 2020), debt extension for SMEs without bank capital charges (Acharya, 2020), and preserving bank capital (Acharya and Steffen, 2020).

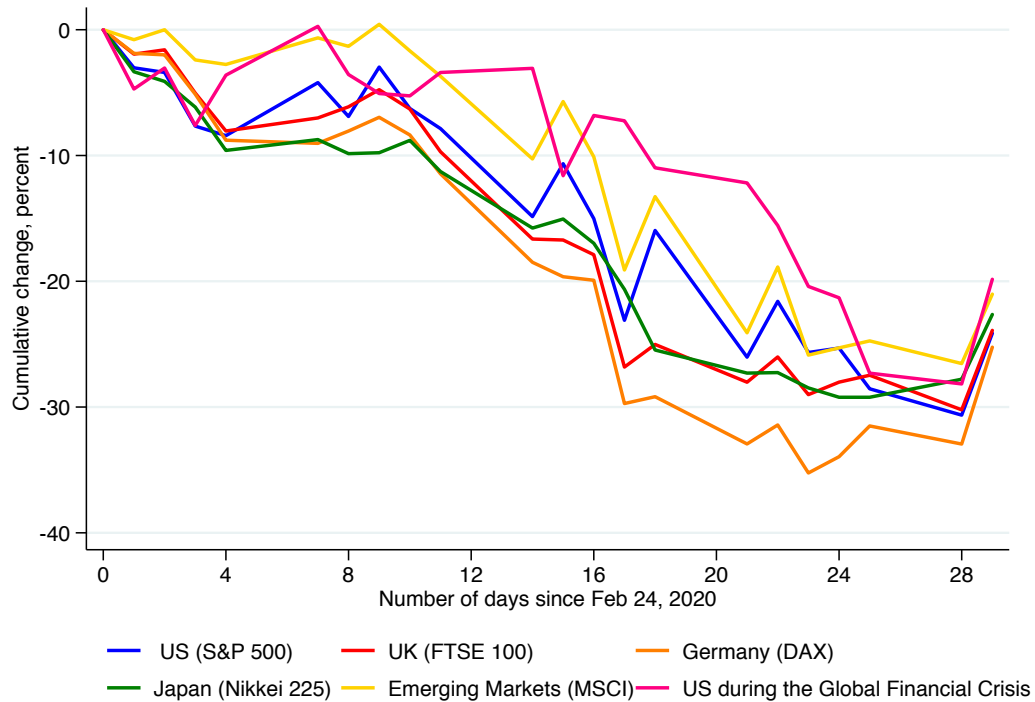
In this paper, we provide a unified framework to organize the policy debate related to the financing of firms during the COVID-19 pandemic. The aim of this discussion is to understand the optimal policy choices given the challenges and trade-offs that policy makers face when trying to save firms from collapsing, as well as the incentives they generate. The framework is centered along four main points.

First, the economic crisis triggered by the spread of the coronavirus is radically different from past economic and financial crises. Unlike in 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

¹The continuously growing policy trackers compiled by the [IMF](#), the [World Bank](#), and [Yale’s Program on Financial Stability](#), and discussed in places like [Econfip](#) and [Elgin et al. \(2020\)](#), provide just a glimpse of the many initiatives being implemented or proposed.

Figure 1: Magnitude of the COVID-19 Shock across Countries and Industries

(a) Decline in Stock Markets across Countries



(b) Decline in Stock Markets across Industries in the United States

	COVID-19 Pandemic		GFC 2008-09	
	Stock Prices	Rank	Stock Prices	Rank
Telecommunications	-24%	1	-35%	10
Technology	-25%	2	-26%	3
Health care	-25%	3	-24%	2
Consumer services	-30%	4	-29%	9
Consumer goods	-31%	5	-23%	1
Utilities	-35%	6	-29%	8
Basic materials	-36%	7	-40%	12
Transportation	-36%	8	-26%	4
Industrials	-38%	9	-28%	7
Financial services	-41%	10	-27%	6
Real estate	-41%	11	-27%	5
Energy	-54%	12	-39%	11
Simple Average	-35%		-29%	
<i>S&P 500 Index</i>	-31%		-28%	

Note: Panel (a) shows the cumulative changes since February 24th, 2020, of stock market indices across countries. It includes also cumulative changes after September 14th, 2008, of S&P 500. Panel (b) 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 30 days starting on February 24th, 2020, for the COVID-19 pandemic, and September 12th, 2008, for the Global Financial Crisis (GFC).

Source: Authors calculations based on Refinitiv data.

hazard (Kaminsky and Reinhart, 1999; Reinhart and Rogoff, 2009). Moreover, the shock is transitory in nature. These features have important implications for the menu of options available for policy makers. In a typical crisis, there is a problem in the financial sector that needs to be resolved, so the optimal response is to quickly identify and isolate the part of the financial system that is in trouble (e.g., insolvent banks, bankrupt companies, or distressed corporate or sovereign debt markets). In many instances, this entails liquidating firms in financial distress. In this way, the rest of the financial system remains safe and keeps operating and financing the real sector (Laeven and Valencia, 2008, 2010; Calomiris et al., 2016). However, because the real and financial sectors were in good health before the pandemic struck, activating the prevailing crisis-resolution mechanisms might prove counterproductive as they could cut financing to firms in need of temporary funds.

Second, firms have relationships with an array of key stakeholders, such as workers, suppliers (of intermediate inputs, equipment, commercial real estate), customers, and creditors. These relationships are costly and time-consuming to build, maintain, and adjust (Hamermesh and Pfann, 1996). Because firms face costs in developing these relationships, avoiding destruction during a temporary negative shock can allow for a quicker economic recovery (Gourio and Rudanko, 2014; Huneus, 2018). Namely, destroying the relationships between firms and stakeholders only to reconstruct them post-pandemic would be inefficient, and could lead to long-term economic consequences and hysteresis effects. Once a vaccine or an effective treatment is found, the original source of the COVID-19 shock will mostly disappear, but the economic effects will linger if firms need to establish a new set of relationships.

Third, as a response to the transitory COVID-19 shock, some initiatives have argued in favor of “freezing the economy” so it can resume later (Atlantic, 2020a,b; Wall Street Journal, 2020). But the term freeze can be somewhat misleading; it is not possible to completely stop the economy or firms in time. Workers need a 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 may be “hibernation.” This means using the minimum bare cash necessary for firms to withstand the pandemic lockdown and the social distancing measures. That cash is utilized 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 are adjusted downwards, like for example workers’ wages or accounts payable, such that firms and their relationships remain viable in the long run. Credit can help significantly in this period, providing the cash that firms do not have on hand. Even firms that have ceased operations during the lockdown will need financing to stay alive and remain ready to reopen when the lockdown eases (akin to the energy that animals need during their hibernation).²

²Khan and Wagner (2020) provide a model to analyze the funding of temporary shutdowns in production. The optimal policy in their setting requires promising attractive funding conditions to firms for when the pandemic is over. This provides incentives for firms to hang on, that is, neither to go out of business nor to return to full production immediately.

Fourth, despite the desirability for credit during the hibernation period, the existing legal and regulatory infrastructure (bankruptcy codes, crisis resolution mechanisms) is not designed to deal with an exogenous systemic shock such as the COVID-19 pandemic. In fact, the existing infrastructure of financial systems could actually amplify the problem, as it tends to penalize firms that face difficulties, leading in the current scenario to inefficient bankruptcies and excessive destruction of relationships. Policy makers were prompted to innovate and reassess the financial policy response while the health crisis gets resolved. This 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 cycle 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 posing 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 presents the idea of hibernation and how credit might help during the hibernation period. Section 4 discusses the policy actions and trade-offs. Section 5 concludes.

2. The Nature of the COVID-19 Crisis

Past economic crises (such as the Debt Crisis of the 1980s, the 1997-98 Asian Crisis, and the 2008-09 Global Financial Crisis or GFC) originated in financial vulnerabilities. Typically, financial intermediaries (such as banks) took excessive risks, got in trouble, suffered runs, 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. These problems in the financial sector 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. In a few months, since being spotted in Wuhan, China, the virus has 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, policy makers were forced to take a dismal policy decision: impose social distancing 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. Containment measures are saving lives but have brought economic activity to a near halt.

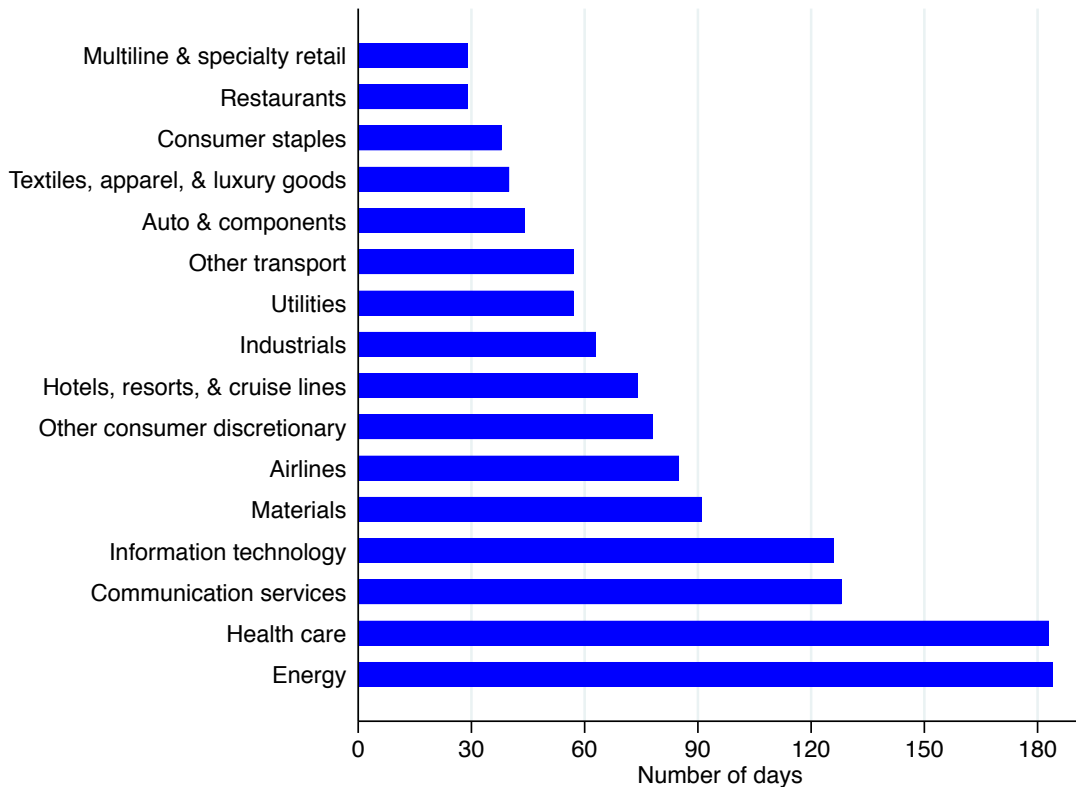
Unlike in previous crises, during the COVID-19 outbreak, economies have faced a combination of a supply shock (most immediately, employees cannot go to work, impairing production, disrupting supply chains, freezing investments) and a demand shock (notably, households and firms cannot buy certain goods and services), which reinforce each other (Eichenbaum et al., 2020; Guerrieri et al., 2020; Rogoff, 2020). The shock has transmitted quickly throughout the economy, affecting firms and industries across the board. Importantly, it has also disturbed a wide range of economic relationships, like those between firms and their several stakeholders.

With business revenue plummeting, corporate cash flows have collapsed at an unprecedented scale. Firms have struggled to survive as their working capital gets depleted. The ensuing cash crunch can be depicted by the average number of days that firms can continue to pay for their operating expenses with the cash they historically had on hand (Figure 2). Some of the industries that have been hit hard by the pandemic crisis, such as restaurants, retail stores, and service firms (hospitality, leisure, and hotels) will last for only a few weeks if revenues cease. Nevertheless, the availability of cash before the crisis can help firms during the pandemic shock and also in the recovery (Joseph et al., 2019). But in some cases the available cash will not be sufficient (De Vito and Gomez, 2020b), and thus, a firm's ability to continue operating during the pandemic shock, thus depends on whether it can raise additional financing, as well 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 magnitude and duration of the pandemic shock and how much of the economic losses are borne by the different stakeholders that interact with the firms. Because the source of the crisis this time around is specific to the COVID-19 pandemic, once a vaccine or an effective treatment is found, the source of the crisis could basically disappear. That is, the health shock is transitory in nature. Nonetheless, there has been a high degree of uncertainty about its severity and the ramifications on the overall economy. The longer the heightened levels of uncertainty and paralysis last, the tougher it will be for firms to withstand and survive the shock. The losses incurred during the pandemic will need to be absorbed over time.

Fundamentally, as long as the shock does not persist for too long, most firms should remain viable: that is, their net worth will still be positive. However, firms have faced a temporary slowdown or even a pause in business as a consequence of the COVID-19 pandemic and the containment measures taken by governments around the world. Furthermore, the shock has led to a sharp and widespread increase in credit risk, as not all firms can survive a long-lasting lockdown, and those that do survive might lose lines of business or customers. Industries as a whole will weather the shock and survive. For example, the restaurant industry will not disappear and neither will the airline industry. But the same cannot be said about individual firms. Some will cope with the shock or scrape by. Others will end up defaulting and breaking contracts with their different stakeholders, even if they do not shut down entirely.

Figure 2: Days of Cash on Hand across Industries



Note: Days of cash on hand refers to days of operating expenses covered by cash held, across United States-listed firms, by industry. The figure shows 2000-2016 averages.

Source: Authors calculations based on Compustat data.

In fact, the heavy cost that the COVID-19 outbreak has imposed on the world economy will eventually be borne by all parties. Shock-hit firms have already suffered a collapse in revenues. Shareholders have already lost a significant fraction of their stakes in firms. Workers have been laid off or accepted wage cuts. Suppliers have postponed receivables. Creditors have started to renegotiate 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 credit, existing crisis resolution mechanisms and bankruptcy codes, revised after previous financial crises, are not designed to deal with 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, policy makers would step in, resolve the financial intermediaries or creditors in trouble (the “bad apples”), while shielding the rest of

the system from a collapse. Once policy makers addressed the main problems in the financial sector, bank lending to the real sector resumed, and economic activity started to recover.

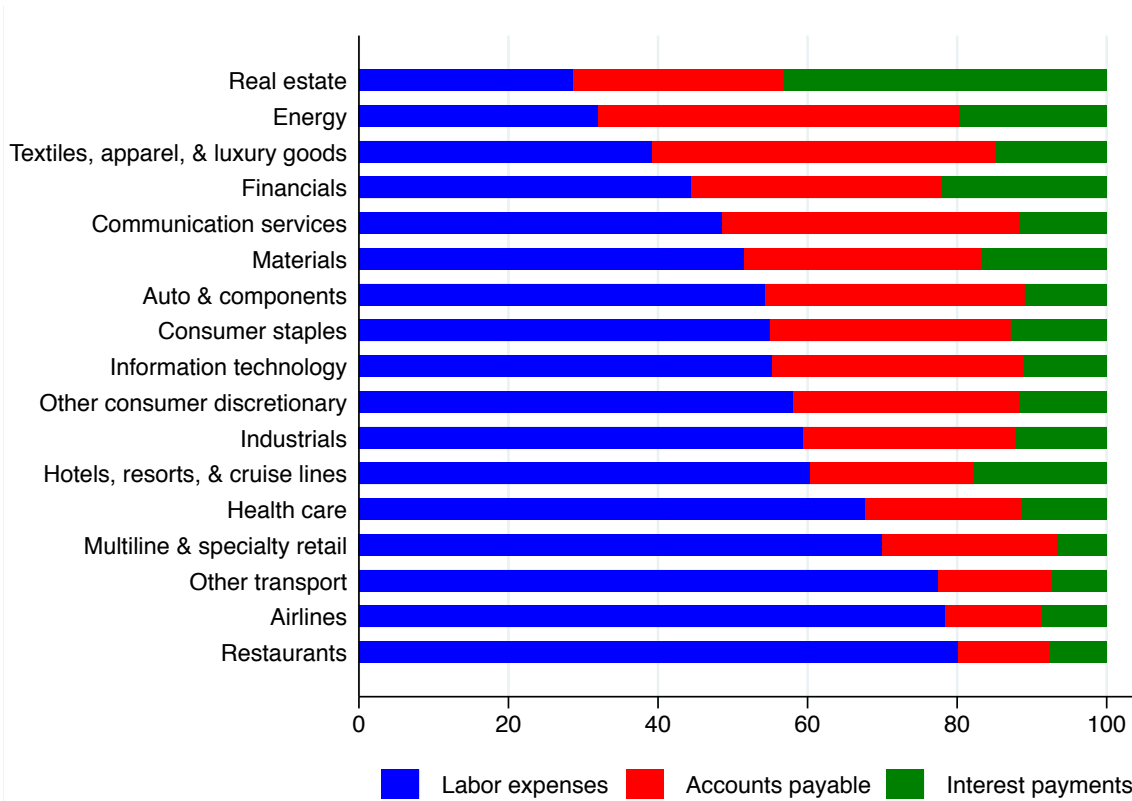
This time around, because the problem does not emanate from the financial sector or from a particular firm or industry, the solution is significantly more challenging. Policy makers must be creative until the health crisis gets resolved, in the meantime adopting policies that mitigate the shock and the impact of the social containment measures on the real sector. This involves working with the financial sector to improve the likelihood that viable firms are not pushed into default and bankruptcy by a financial infrastructure that is not prepared to deal with a pandemic. It also involves 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 financial systems play a key intermediary role in channeling savings to productive activities, failure in this function could aggravate significantly the already sizable economic impact of the pandemic shock (Buera et al., 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 system can help firms stay alive and preserve their relationships.

3. Credit to Maintain Relationships during Hibernation

Firms depend on key and unique relationships with different stakeholders, such as workers, suppliers, customers, and creditors. The relative importance of operational expenditures to these different stakeholders varies significantly across industries, depending on the nature of businesses activities (Figure 3). These relationships are costly and time-consuming to build, maintain, and adjust. Firms generally spend resources in building the best relationships for their needs. They usually require relationship-specific investments that involve the creation of 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 relations with customers that 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.

Pushing firms into bankruptcy would mean that the different relationships would need to be reconstructed in the recovery following the crisis. Such a churning process of destroying and then recreating relationships and contracts is far from efficient, as it is slow and costly, leading to hysteresis. It is, thus, inefficient to destroy the relationships between firms and their stakeholders, even during the lockdown phase of the COVID-19 pandemic shock. A transitory shock that destroys a significant

Figure 3: Payments to Key Stakeholders across Industries



Note: Payments to key stakeholders refer to the share of operating expenses owed to workers, suppliers, and creditors, across United States-listed firms, by industry. The figure shows 2000-2016 averages.

Source: Authors calculations based on Compustat data.

mass of relationships could lead to long-term scarring economic effects and a slow economic recovery.

Avoiding bankruptcy for all firms, however, is not a forgone conclusion given the uncertainties about the magnitude and duration of the pandemic shock. Although temporary, the shock has already been large and widespread. Many firms have suffered massive declines in revenues and severe cash crunches. In this context, honoring all preexisting commitments to the different stakeholders could quickly turn liquidity problems into solvency ones.

Given the transitory nature of the shock, a good option might be what we label “hibernation:” slowing the economy until the pandemic is brought under control, while using fiscal policy to compensate for some of the many losses that the economy needs to withstand. Hibernation means using the minimum bare cash necessary to withstand the pandemic. This would imply different thresholds for firms in different industries and countries. Some firms would be effectively shut down while the restrictions last (such as movie theaters and restaurants with no takeout or delivery options), whereas other firms could adapt and operate at a much-reduced capacity

(such as airlines maintaining some flights and retailers selling only online). Hibernation is intended to freeze the firms' relationships with their stakeholders, but not to freeze firms or the economy itself. Even 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 would not be a simple solution, 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. Borrowing to maintain all preexisting contracts—assuming business as usual—could 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).

Given the uncertainties about the duration and magnitude of the shock, 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, while using 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 flexibility in contracts with the different stakeholders 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. First, the private sector debt built up after the 2008 global financial crisis means that many firms have entered this shock 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). During the COVID-19 crisis, all markets across all countries have been simultaneously hit; financing from both banks and capital markets has dried up for many firms. They have been left with no obvious source of financing, during a period in which access to finance might determine their own survival.

Third, and maybe most importantly, creditors in general and banks in particular have become reluctant to lend to firms, unwilling to absorb the higher credit risk of firms. Amid widespread uncertainty regarding the magnitude and duration of the shock, creditors have faced challenges in evaluating the likelihood of firm survival, given that assessments of credit risk under these circumstances have significant margins of error. Firms that can cut workers' wages or renegotiate accounts payable with suppliers would pose lower credit risks for creditors. Yet, the crucial challenge for creditors is that they have imperfect information about contract flexibility between firms and their other stakeholders. Thus, they might cut financing across the board. 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 are not able to obtain financing during the hibernation phase would have lower chances of survival. Such market failures alone could justify a role for policy intervention to restore firm financing.

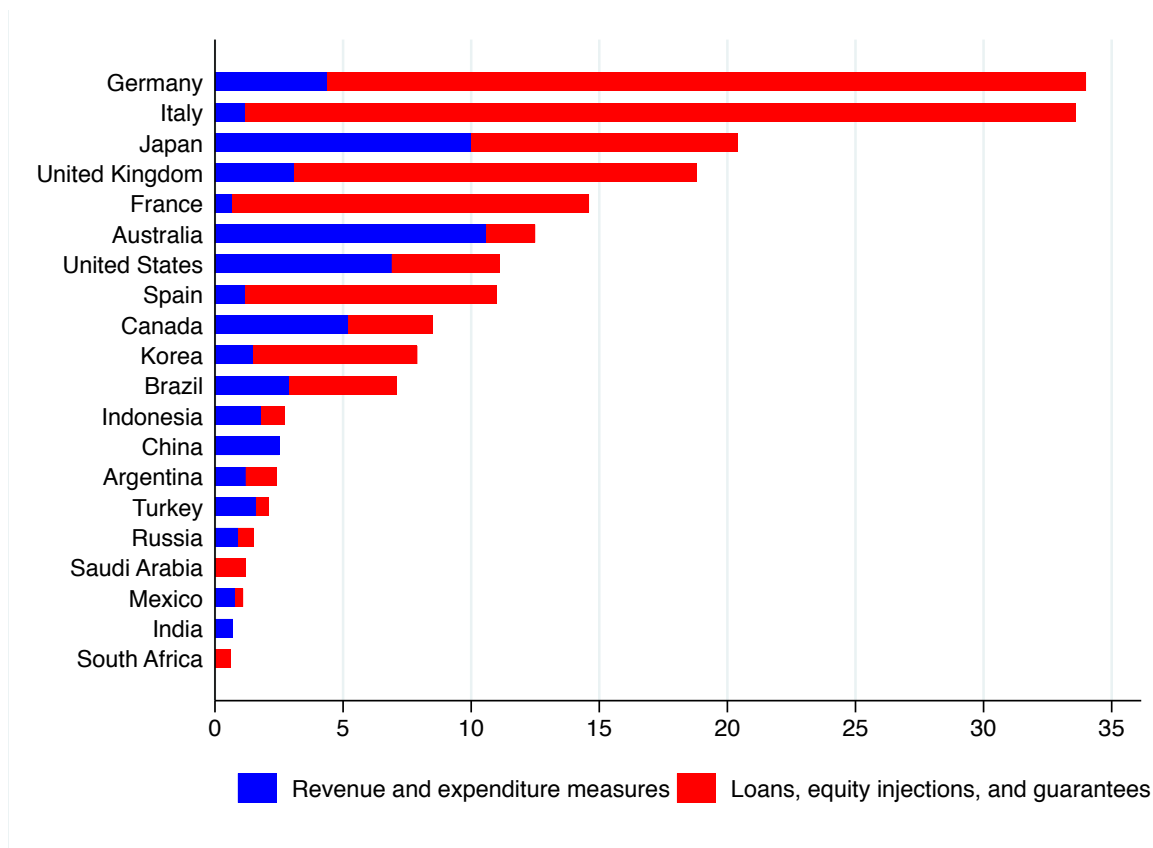
4. Policy Interventions to Sustain Firm Financing

Policy makers could play a useful role in stabilizing the economy by working with the financial sector to keep firms afloat. This would 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, policy makers around the world have implemented a large number of policies. Several of those policies try to help firms manage their liabilities with different stakeholders, while improving their odds of survival. Whereas there is heterogeneity across countries, the magnitude of different policies aimed at

helping firms manage their liabilities (“below-the-line” measures) is sizable when compared to direct transfers to both households and firms (Figure 4).

Figure 4: Financial Policies to Firms and Direct Expenditures across Countries



Note: Policy measures announced (relative to GDP) related to government revenues and expenditures (above-the-line) and loans, equity injections, and guarantees (below-the-line). Above-the-line policy measures are the ones that affect current fiscal budgets. Below-the-line measures are the ones that affect future fiscal budgets, i.e., they affect net assets of public coffers. Both above- and below-the-line measures can be related to households and firms, but below-the-line measures are more commonly used to support firms.

Source: April 2020 Fiscal Monitor “Policies to Support People During the COVID-19 Pandemic” (IMF).

In the rest of this section, we discuss different policy options available to policy makers along two broad dimensions. One set of policies relates to adapting the institutional framework to meet the challenges imposed by the pandemic shock. A second set of policies is linked directly to the provision of credit to firms.

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 firms facing severe cash shortfalls due to the collapse in their revenues. This 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.

In 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.

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, as they are closely interconnected. For example, a government policy that pays a portion of wages for workers that stay at home reduces the financing needs of firms to cover such costs. Coordination across policy makers—central banks, finance ministries, and regulators—is thus essential to ensure policy effectiveness during this crisis.

4.1. Adapting the Institutional Framework

Financial systems are ill-equipped to cope with a shock like COVID-19 because they are geared toward detecting idiosyncratic risk when it arises. Legal and regulatory frameworks have been established to prevent shocks and allow 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, regulation requires banks to increase provisions to reflect the higher risk. In addition, the credit score of the firm is reduced. If failure to pay the debt persists, the firm may be pushed into bankruptcy. As a result, the existing infrastructure of financial systems could actually amplify the problem this time around, leading to inefficient bankruptcies and excessive destruction of relationships. Some existing work has discussed how to avoid bankruptcies when there is a systemic shock or how to deal with them more effectively if they are widespread, such as the idea of a “super Chapter 11” in the United States or corporate debt restructurings (Miller and Stiglitz, 2010; Roukny et al., 2018; Becker et al., 2020).

During the COVID-19 crisis, signaling firms in trouble would 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, policy makers 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 postponement of repayments of existing bank loans for a number of months (e.g., six months). Some financial regulators have allowed banks to freeze provisions if and when they postpone the loan of a client. Regulators 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 the loan was classified as performing before the pandemic hit, the renegotiation would not affect the firm’s credit score.

An important consideration of these measures is to determine for which set of firms to apply 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, thus increasing their likelihood of survival, it creates significant risks for financial systems, 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 regarding 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 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 screening, however, could delay implementation and it would not offer the same chance of survival for all existing firms.

In applying forbearance, regulators and creditors would 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 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.

4.2. Providing Credit to Firms

Policy makers around the world have considered several options to enhance the provision of credit to firms. We divide these policies into monetary and regulatory policies, on the one hand, and policies aiming to transfer risk to the government, on the other hand.

4.2.1. 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 magnitude and duration of the shock, 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.

Some central banks have also extended liquidity lines to banks at 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. The heavy draw down of credit lines by large firms early on during the pandemic shock might reflect an anticipation of firms that banks might reduce lending as the crisis progresses and credit risk rises (Bloomberg, 2020). Liquidity policies would work only to the extent that banks pass through the higher liquidity from the central bank to firms.

Likewise, some financial regulators have reduced Basel III capital requirements charged to banks, such as counter-cyclical 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 have in place the space to reduce capital charges.

4.2.2. 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 that firms have access to resources during the hibernation phase. In particular, the state 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 percent 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, while some countries have sizable state-owned banks, others do not. Also, some countries have guarantee programs in place, while 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 exchange in the coun-

try; 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 is 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 issue securities, which can then be directly purchased by the government or the central bank. In this case, both convertible bonds and preferred equity would allow the government to participate in the upside should the underlying firm succeed. Once the shock subsides, the government can exit such investments by selling the securities purchased to others 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 such funding is provided.

Regarding 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. Other countries have 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 the 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 portfolios of SME loans. Under such arrangements, banks sell securities backed by those loans to the government (or the central bank). In case of default, the government bears the risk. Other central banks have 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 includes financing companies offering invoice financing (factoring), leasing financing, and consumer financing. These policies allow credit to reach the 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.

4.2.3. Policy Considerations

Policies aimed at transferring credit risk to the government work best when they are designed in a way that minimizes 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 place, 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 should be partial, so that banks retain some “skin in the game,” and thus have incentives to monitor and screen borrowers. Similarly, in the securitization policies, banks should keep a fraction of the loan portfolio in their balance sheets. Regarding 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. 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 firms 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 matches than is socially optimal. This justifies a scope for policy making 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.

5. 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, at the same time that they evaluate their trade-offs. This is not easy to achieve given the urgency of the needs and the speed at which decisions must be made. Nevertheless, it is worth keeping several considerations in mind when designing different policy responses. For example, policy makers 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, tourism, and other services) are worth assisting over others. Furthermore, policy makers 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.

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 length of the pandemic 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.

The scope for policy action implies stark differences between developed and developing countries, as well as among countries within each group. Their different initial conditions determine the set of policies they are able to implement and at which cost (Hausmann, 2020; Loayza and Pennings, 2020). Countries with underdeveloped financial markets, less fiscal slack, and more constrained central banks will face greater challenges to channel credit to firms so as to avoid a breakup in their relationships. Nonetheless, many developing countries have banking systems that they could use to channel credit to firms and tools to assist banks if they face funding difficulties at a later stage. Moreover, the fact that developing countries generally have more informal firms might help them 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. Moreover, pressure from households and firms with fewer resources in developing countries could make the lockdown period shorter, triggering a higher rate of infection and more rapid herd immunity, at a tragically higher mortality rate, but requiring fewer resources for the quicker hibernation phase.

With the rise in global risk, 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 trigger widespread sovereign debt restructurings (Blanchard, 2020; Gourinchas and Hsieh, 2020). In turn, they 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 pol-

icy action, involving international financial institutions and creditor countries, might help resolve a problem that can become common across developing countries.

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. 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 (Reis, 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 that have the resources to survive the lockdown without public assistance will in effect subsidize those that receive such help.

References

- Acharya, V. (2020). A simple proposal to support indebted small businesses (SMEs) during COVID-19. *New York University*.
- Acharya, V. and S. Steffen (2020). “Stress tests” for banks as liquidity insurers in a time of COVID. *VoxEU.org*, March 22.
- Anginer, D., A. de la Torre, and A. Ize (2014). Risk-bearing by the state: When is it good policy? *Journal of Financial Stability* 10, 76–86.
- Atlantic (2020a). Denmark’s idea could help the world avoid a great depression. *The Atlantic*, March 21.
- Atlantic (2020b). Do more—fast. Don’t wait. *The Atlantic*, March 24.
- Baker, S., N. Bloom, S. Davis, K. Kost, M. Sammon, and T. Viratyosin (2020). The unprecedented stock market reaction to COVID-19. *Covid Economics*, 1:3, 33-42.
- Baldwin, R. and B. W. di Mauro (2020). Mitigating the COVID economic crisis: Act fast and do whatever it takes. *VoxEU.org eBook*.
- Beck, T. (2020). Finance in times of COVID-19: What next? in *Mitigating the Covid Economic Crisis: Act Fast and Do Whatever It Takes*, edited by R. Baldwin and B.W. di Mauro, VOXEu.org Book.
- Becker, B., U. Hege, and P. Mella-Barral (2020). Corporate debt burdens threaten economic recovery after covid-19: Planning for debt restructuring should start now. *VoxEU.org*, March 21.
- Becker, B. and V. Ivashina (2014). Cyclicalities of credit supply: Firm level evidence. *Journal of Monetary Economics* 62, 76 – 93.
- Bénassy-Quéré, A., A. Boot, A. Fatás, M. Fratzscher, C. Fuest, F. Giavazzi, R. Marimon, P. Martin, J. Pisani-Ferry, L. Reichlin, D. Schoenmaker, P. Teles, and B. W. di Mauro (2020). A proposal for a Covid credit line. *VoxEU.org*, March 21.
- Blanchard, O. (2020). What it will take to save the economy from COVID-19. *Peterson Institute for International Economics*, Washington, DC.
- Bloomberg (2020). Dash for cash on as corporate titans draw down credit lines. *Bloomberg News*, March 12.
- Brunnermeier, M. and A. Krishnamurthy (2020). Stick, carrot, and evergreen loans: A policy proposal to save small and medium-sized firms. Pro-Market Blog, *University of Chicago Booth School Business and Economics for Inclusive Prosperity* (Econfp).

- Brunnermeier, M., J.-P. Landau, M. Pagano, and R. Reis (2020). Throwing a COVID-19 liquidity life-line. *Economics for Inclusive Prosperity* (Econfp).
- Buera, F., R. Fattal-Jaef, A. Neumeyer, and Y. Shin (2020). The economic ripple effects of COVID-19. Unpublished manuscript. Available at the *World Bank Development Policy and COVID-19* — eSeminar Series.
- Caballero, R. J., T. Hoshi, and A. K. Kashyap (2008). Zombie lending and depressed restructuring in Japan. *American Economic Review* 98(5), 1943–77.
- Calomiris, C. W., M. Flandreau, and L. Laeven (2016). Political foundations of the lender of last resort: A global historical narrative. *Journal of Financial Intermediation* 28, 48 – 65.
- Danielsson, J., R. Macrae, D. Vayanos, and J.-P. Zigrand (2020). The coronavirus crisis is no 2008. *VoxEU.org*, March 26.
- De Vito, A. and J. Gomez (2020a). COVID-19: Preventing a corporate cash crunch among listed firms. *VoxEU.org*, March 29.
- De Vito, A. and J. P. Gomez (2020b). Estimating the COVID-19 cash crunch: Global evidence and policy. *Journal of Accounting and Public Policy* 39(2), 1–14.
- Drechsel, T. and S. Kalemli-Özcan (2020). Are standard macro policies enough to deal with the economic fallout from a global pandemic? *Economics for Inclusive Prosperity* (Econfp) Policy Brief 25.
- Economist (2020). Bail-outs are inevitable—and toxic. *The Economist*, April 4th Edition.
- Eichenbaum, M., S. Rebelo, and M. Trabandt (2020). The macroeconomics of epidemics. *NBER Working Paper 26882*, National Bureau of Economic Research, Cambridge, MA.
- El-Erian, M. (2020). Race between economics and COVID-19. *Project Syndicate*, March 26.
- Elgin, C., G. Basbug, and A. Yalaman (2020). Economic policy responses to a pandemic: Developing the COVID-19 economic stimulus index. *Columbia University*.
- Garicano, L. (2020). The COVID-19 bazooka for jobs in europe. in *Mitigating the Covid Economic Crisis: Act Fast and Do Whatever It Takes*, edited by R. Baldwin and B.W. di Mauro, VOXEu.org Book.
- Gourinchas, P.-O. and C.-T. Hsieh (2020). The COVID-19 default time bomb. *Project Syndicate*, April 9.
- Gourio, F. and L. Rudanko (2014). Customer capital. *The Review of Economic Studies* 81(3), 1102–1136.

- Guerrieri, V., G. Lorenzoni, L. Straub, and I. Werning (2020). Macroeconomic implications of COVID-19: Can negative supply shocks cause demand shortages? *NBER Working Paper 26918*, National Bureau of Economic Research, Cambridge, MA.
- Hamermesh, D. S. and G. A. Pfann (1996). Adjustment costs in factor demand. *Journal of Economic Literature* 34(3), 1264–1292.
- Hausmann, R. (2020). The macro-economic implications of COVID-19 in our partner countries. *Harvard University*. Available at the Centre for Development and Enterprise.
- Huang, Y., C. Lin, P. Wang, and Z. Xu (2020). Saving china from the coronavirus and economic meltdown: Experiences and lessons. *VoxEU.org*, March 23.
- Huneus, F. (2018). Production network dynamics and the propagation of shocks. Working Paper.
- IIF (2020). Global debt monitor data. *Institute for International Finance*, January.
- Ilzetzki, E. (2020). COVID-19: The economic policy response. *VoxEU.org*, March 28.
- Joseph, A., C. Kneer, N. V. Horen, and J. Saleheen (2019). All you need is cash: Corporate cash holdings and investment after the financial crisis. CEPR Discussion Paper 14199 and Bank of England SWP No. 843.
- Kaminsky, G. L. and C. M. Reinhart (1999). The twin crises: The causes of banking and balance-of-payments problems. *American Economic Review* 89(3), 473–500.
- Khan, C. and W. Wagner (2020). Liquidity provision during a pandemic. Working Paper, *Erasmus University*.
- Laeven, L. and F. Valencia (2008). Systemic banking crises : A new database. IMF Working Paper 08/224.
- Laeven, L. and F. Valencia (2010). Resolution of banking crises; the good, the bad, and the ugly. IMF Working Paper 10/146.
- Loayza, N. and S. Pennings (2020). Macroeconomic policy in the time of COVID-19: A primer for developing countries. Research and Policy Brief No. 28. *World Bank*, Washington, DC.
- Miller, M. and J. Stiglitz (2010). Leverage and asset bubbles: Averting armageddon with chapter 11? *Economic Journal* 120(544).
- Reinhart, C. and K. Rogoff (2009). Time is different: Eight centuries of financial folly. *Princeton University Press*.
- Reis, R. (2020). How do countries differ in their response to the coronavirus economic crisis? *The Guardian*, April 3.

Rogoff, K. (2020). That 1970s feeling. *Project Syndicate*, March 2.

Roukny, T., S. Battiston, and J. Stiglitz (2018). Interconnectedness as a source of uncertainty in systemic risk. *Journal of Financial Stability* 35, 93–106.

Saez, E. and G. Zucman (2020). Jobs aren't being destroyed this fast elsewhere. Why is that? *The New York Times*, March 30.

Wall Street Journal (2020). Europe opts for economic freeze to fight coronavirus, as U.S. debate continues. *The Wall Street Journal*, March 26.

