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Supporting SMEs during COVID-19: The case for targeted equity injections

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A B S T R A C T

We analyze the potential role of equity injections in addressing solvency risks among small and medium-sized enterprises (SMEs) after the COVID-19 crisis. Building on firm-level balance sheet projections for a sample of European economies, we simulate selected policy interventions and find that equity injections are quite effective at dampening the rise in insolvencies. Cost effectiveness requires careful targeting, however; under an illustrative scenario, leaving aside any costs arising from imperfect information and implementation, the cost of a program targeting only those SMEs worth saving is just a tenth of the cost of an untargeted approach directed to all insolvent firms. Overall, our paper provides a case for governments to rely more on targeted equity injections in responding to major shocks that trigger mass solvency risks.

1. Introduction

The COVID-19 pandemic has hit small and medium-sized enterprises (SMEs) disproportionately hard, raising concerns of mass bankruptcies (Gourinchas et al., 2021a) and ripple effects on jobs and incomes, considering that SMEs account for 99 percent of all firms and over half of sales in advanced economies.1 Governments responded forcefully through liquidity support measures such as loans, credit guarantees and moratoria, as well as, to a lesser extent, grants and transfers (IMF, 2020a,b). These measures mitigated immediate risks that SMEs would run out of liquidity and go bankrupt, which would have risen sharply otherwise (Gourinchas et al., 2021b).

At the same time, as the crisis persisted, liquidity shortfalls morphed into solvency risks, which policy measures like public loans or loan guarantees are ill-suited to address—indeed, they may weaken SMEs’ solvency metrics while eventually entailing large fiscal costs. This raises the broader issue of how to respond to shocks that trigger mass solvency risks, particularly when the social gain from keeping a firm solvent may exceed its private gain due to various market imperfections such as crowded (and thereby inefficient) bankruptcy courts, extreme macroeconomic uncertainty, heightened asymmetric information about a firm’s long-run viability or aggregate demand spillovers from mass insolencies (e.g., (Hanson et al., 2020)).

Quasi-equity injections have been proposed (e.g., (Boot et al., 2020; Kammer, 2021)) and implemented (e.g., in France and Italy) as a way to address mass SME solvency risks. These injections are technically challenging for non-listed firms and require adequate fiscal space, administrative capacity, firm accountability, and low corruption—typically making them better suited for advanced economies. Such injections may take several forms, including cash grants combined with deferred taxation (of future profits), or junior “profit participation” loans (through either fresh loans or conversion of existing debts to the government). These injections could also be made conditional on private investors co-investing equity to mitigate asymmetric information problems (see also (Blanchard et al., 2020)). In either case, to qualify as “quasi” equity, the policy should yield a return indexed onto the recipient firm’s profits.

Against this background, this paper builds on firm-level balance sheet projections across a sample of SMEs in

1 We thank participants in seminars and conferences organized by COMPNET, the ECB, German Finance Ministry, IMF and OECD. The views expressed in the paper are those of the authors and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

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1 Statistics derived from OECD’s structural business statistics for a sample of European countries.
advanced economies to simulate selected policy interventions, including equity injections, assessing the effectiveness and cost-effectiveness of their impact on insolvencies.

2. Data and modeling framework

We use private firms’ balance sheet and income statement data for 5 European countries from Orbis, a product of Bureau van Dijk–Moody’s Analytics.2,3 The final dataset consists of almost half a million SMEs, defined as firms with at most 250 employees.

The exercise employs 2017 data and incorporates different Covid-related shocks to project the evolution of firms’ balance sheet and corresponding liquidity and solvency indicators for 2020 and 2021. This projection builds upon the modeling framework proposed by Gourinchas et al. (2021a). In this model, firms optimize their demand for labor and intermediate inputs, subject to several Covid-19 shocks described below.

On the supply side, firms produce output combining labor, materials, and a fixed input using a Cobb–Douglas production function. On the demand side, firms face a CES demand function for their differentiated goods. Further, the firms’ optimization problem is static, in a partial equilibrium setup, and varies across different sectors depending on the constraints induced by the Covid-19 shocks.

The model provides a closed-form expression of how a firm’s cash flow depends on the shocks, which we use to assess each firm’s liquidity and solvency risks by considering the following definitions: a firm is considered to be illiquid if it has a negative stock of cash, and insolvent if it has negative equity. These definitions imply, respectively:

\[
\text{Cash Stock}_{i,t-1} + \text{Operating Cash Flow}_{i,t} - \text{Interest Payment}_{i,t} \leq 0, \quad \text{(illiquidity)}
\]

\[
\text{Equity}_{i,t-1} + \text{Net Income}_{i,t} < 0, \quad \text{(insolvency)}
\]

where initial Equity is taken directly from the data. Operating Cash Flow is the model-implied expression for the firm’s cash flow, and Net Income is built consistently with that expression assuming there is no dividend distribution. Simulating firm balance sheets for 2021 requires a few additional assumptions: illiquid firms at the end of 2020 were able to issue debt (to either the private sector or the government, which indeed provided extensive liquidity support) to cover exactly their liquidity shortfalls; firms with liquidity surpluses used these to accumulate cash; all firms were able to roll over existing debt; the interest rate on existing debt remained unchanged.

As a complement to these binary measures, we also look at the full distribution of leverage – measured as the ratio of total debt to total assets – across firms.

Finally, we consider four Covid-19 shocks: an aggregate demand shock affecting all industries (calibrated using the IMF’s April 2021 World Economic Outlook projections), an industry demand shock (based on the fraction of employees relying on face-to-face interactions with customers, computed at the 4-digit NACE level), an industry supply shock (based on whether the industry is non-essential and its jobs not teleworkable), and an industry productivity shock (related to a productivity differential between working from home and at the office) (for details, see (Gourinchas et al., 2021a)).

The analysis assumes that a first 8-week lockdown is implemented from week 9 of 2020, and a second 4-week lockdown takes place in November 2020. During the lockdowns, all four shocks are in place. Once the lockdowns end, the sectoral labor supply and technology shocks return to pre-Covid levels, while sectoral demands evolve according to an AR(1) process with an autocorrelation coefficient of 0.5 at a quarterly frequency.

3. Results

3.1. Baseline scenario

Fig. 1 presents our baseline estimates of financial distress caused by Covid-19 for the pooled sample for 2021, compared to a no-Covid counterfactual scenario. By the end of 2021, the shares of firms facing liquidity shortfalls and showing negative equity are estimated to increase, relative to the no-Covid scenario, by 3 and 6 percentage points, respectively.

Fig. 2 further confirms the deterioration of solvency metrics by plotting the distributions of leverage (debt-to-assets ratio) prior to Covid-19 (Panel A) and at the end of 2021 assuming that any 2021 liquidity shortfalls are covered with new loans (Panel B). Panels D and E repeat the exercise but distinguishing healthy

2 For details on data cleaning, see Kalendi-Ozcan et al. (2015).
3 The countries considered are France, Germany, Italy, Spain, and the United Kingdom.
firms from those firms projected to be distressed in 2021. The figure shows a rightward shift of the leverage distribution, mostly concentrated among firms whose financial position was already relatively weak prior to the pandemic. For instance, while the mean leverage ratio for healthy firms remains stable at 23 percent following the pandemic, it increases from 21 to 65 percent for unhealthy firms.

Our analysis also finds substantial heterogeneity across both sectors (severely hitting the food, accommodation and entertainment industries) and countries (with Southern EU countries more affected than their Northern counterparts).

3.2. Policy simulations

The previous analysis indicates that the combined effects of Covid-19 and government liquidity support predominantly via loans increases SME solvency risks. To gauge the potential solvency benefits from alternative policies, we simulate firm balance sheets assuming that any end-2021 liquidity gaps are met through equity injections rather than new loans. Both tools strengthen the cash position but, while loans weaken solvency, equity injections bolster it.

Under the simulated equity injections, the share of firms facing negative would drop from 16 to 15 percent and, as shown in Fig. 2 (Panels B vs C, and E vs F) the distribution of leverage would shift leftwards, especially for unhealthy firms whose mean ratio decreases from 65 to 46 percent.

However, any policy – be it solvency or liquidity support – should maximize cost effectiveness which, in our context, should be the number of “right” firms saved per dollar spent. Indeed, most firms need not be supported because they are either unconditionally solvent – even with Covid-19 – or unconditionally insolvent—even without Covid-19. For illustrative purposes, we simulate the cost of equity injections into firms projected to be insolvent in 2021 under two policies: (i) a “blanket” policy covering all insolvent firms; (ii) a “targeted” policy directed to the “right” firms, defined as those insolvent with Covid-19 but solvent in the no-Covid counterfactual. Fig. 3 shows that, on average across countries, addressing the equity gaps of all insolvent firms would cost almost 4 percent of total SME revenue, while an efficient targeted approach would only cost a tenth of that amount. A poorly-designed blanket policy that would also benefit some (unconditionally) solvent firms would obviously cost even more.

In addition to being cost-effective, a targeted approach can also be productivity-enhancing. Regression analysis shows that the “right” firms are 25–35 percent more productive than the average insolvent firm (Table 1). By contrast, there is no meaningful difference in (total factor) productivity between the average insolvent firm and the average firm.

4. Concluding remarks

The Covid-19 crisis and some policy responses – loans and loan guarantees – have increased solvency risks among SMEs. These risks cannot be addressed through further liquidity support. Instead, we highlight the power of quasi-equity injections in bolstering the solvency of SMEs, but also the large efficiency gains from targeting them to the “right” firms—those facing solvency risks only with Covid-19.

In practice, such injections may be less cost-effective than our simulations imply due to asymmetric information and implementation challenges. To some extent, however, such risks and challenges are also common to government loans and guarantees. Further, recent experience suggests that these limitations of equity injections can be partly overcome by exploiting the informational advantage of private co-investors, and by repurposing existing tools such as government loans turned into “quasi” equity. Finally, our analysis shows that large improvements in cost effectiveness can be achieved by simply excluding from the program both the firms that remain solvent during the crisis.

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4 These results are available upon request. See also Diez et al. (2021).
and those that were already insolvent before it—which can be pursued reasonably well by making use of available financial data, with the limitation that a firm’s book equity may not reflect its economic value.

Fiscal costs and risks under uncertainty are also important considerations for governments to factor in when considering quasi-equity injections versus both loans or loan guarantees. Typically, the former entail both greater fiscal risks (equity being junior to loans) and rewards (higher returns in the event of recovery) than the latter.5

Finally, it should be noted that these lessons, while not applicable to every recession, hold for this crisis and others that may trigger mass solvency risks.

5 This holds true when the government holds a quasi-equity claim on the firm, for example through a participation loan whose return is indexed onto the recipient firm’s profits. Alternative incentives to SME capitalization, like tax incentives conditional on private equity increases – implemented by some European countries during the COVID-19 crisis – come closer to conditional grants and, thus, do not entail any potential fiscal gain.

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