

Will French companies be able to repay their state-backed loans (PGEs)?

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During the health crisis, the French government set up a system of guaranteed loans to deal with a context of great uncertainty. The loans were granted to companies by banks, with the State guaranteeing a share of the amount, which depended on the size of the company. PGEs (Prêt garanti par l'État) were very popular with French companies in 2020, with very high take-up rates, including among the largest companies. The growth of these loans has raised fears that the debt burden will quickly become unsustainable for many companies. In this policy brief, we assess the ability of recipients to repay these loans, using very detailed administrative data. Companies that participated in the scheme were often among those most affected by the health crisis, but banks excluded those that were particularly unprofitable before the crisis, while more profitable firms were less interested. Analysis of company balance sheets indicates, as one might expect, that the gross debt of recipients has risen very sharply. However, this was not in fact accompanied by an alarming increase in net debt, because some beneficiaries received other subsidies and others used the PGE scheme only as a precaution. Until the end of 2020, the investment capacity of recipients did not seem to have been affected compared to the companies that did not use the PGE. Finally, bankruptcy rates were particularly low for PGE participants at the same date, including in the sectors most affected by the health crisis. All of these elements indicate a good repayment capacity, provided of course that macroeconomic conditions continue their recovery trajectory.

- One third of French companies have used the scheme, a frequency of use that is 10 times higher than for the programs available during the 2008-2009 crisis. In the sectors most affected by the crisis, the take-up rate exceeded 50%.
- The gross debt ratio of PGE recipients increased by almost 10 percentage points, but the net debt ratio remained stable.
- Investment fell in the first half of 2020, then subsequently recovered at the same rate among PGE recipients and non-recipients.
- The probability of bankruptcy over the period up to March 2021 is less than 1% among beneficiaries, including among those with the largest drop in sales. The probability of bankruptcy is more than twice as high among firms that did not receive a PGE.
- Based on the low probability of bankruptcy among PGE holders, as well as the trajectory of rates observed in European bond markets, our analysis suggests that the budgetary cost of the program will be moderate.



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Introduction

The Covid-19 epidemic forced policymakers to quickly put in place aid programs to help businesses make up for the shortfall in activity caused by the health restrictions. These aid programs took several forms: moratorium or cancellation of social security and other tax debts, furlough schemes, and state-guaranteed loans. These loans were granted to a company by a bank (often its usual bank) thanks to the guarantee provided by the State on a very significant part of the loan. It is therefore not a direct loan from the State, but a loan from a bank to a company under very favorable conditions, and the bank is largely insured against this, should the beneficiary of the loan be unable to make the repayments. These loans have enabled companies to receive large sums of money quickly at favorable rates. In France, the guaranteed loan scheme has thus grown considerably, with around €130 billion of loans granted up to August 2020.¹

The purpose of this scheme is to enable companies to cope with situations of illiquidity (inability to meet short-term repayments) and thus avoid the collapse of financially sound companies. Nevertheless, supporting companies in the form of loans that have to be repaid may prove problematic in the medium term. On the one hand, the persistence of the crisis as a result of the second and third waves is forcing many companies to further deplete their liquidity rather than repay their debts. In the medium term, this is likely to lead to a sustained wave of bankruptcies, which will be disastrous for employment and activity. In addition, there is a risk that companies find themselves in a situation of "debt overhang" and will then give up profitable investment opportunities because of the pressure exerted by their creditors.

The question of the debt burden generated by the PGE scheme is all the more pressing given that repayment of around 80% of the loans is due to begin in the second half of 2021. There may have been multiple reasons for using these loans: Some companies may have used them to protect themselves against a potential cashflow shock that did not subsequently materialize ("insurance" motive); others because they were indeed experiencing a cashflow shock, but one that was temporary and set to fade away in the event of an upturn in activity ("illiquidity" motive); others because they were experiencing a permanent cashflow shock, with a loss of activity that was not subsequently compensated for ("insolvency" motive). Understanding these reasons should inform policymakers about how to proceed with the program. If the reason for the use of the loan was mainly insurance or to cope with an illiquidity shock, then repayment is possible once economic recovery is confirmed. If, on the other hand,

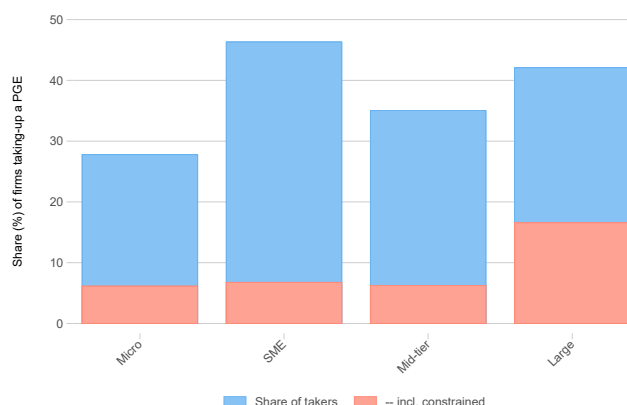
the reason was insolvency, then it will be necessary to consider a rescheduling of the debts or even their conversion into equity, without which the companies concerned would go bankrupt.

This policy brief presents original results on the use of PGEs and the repayment burden they represent. It combines highly detailed administrative data on the use of these loans, high-frequency measurements of firm sales and investments, and the first available data on firm balance sheets after the onset of the health crisis. These results were obtained as part of a study commissioned by the Senate Finance Committee that resulted in IPP Report n°32 (Bach et al., 2021).²

Who has used the PGEs?

A first step in understanding the reasons for using PGEs and possible repayment difficulties is a comparative analysis of the profile of recipient and non-recipient firms.

Figure 1: Distribution of PGE use by firm size



Notes: The height of the blue bars indicates the share of companies under the standard corporate income tax regime that obtained a PGE by company size category as defined by the 2008 LME law. The height of the red bars indicates the share of firms that have borrowed up to the ceiling imposed for PGEs.

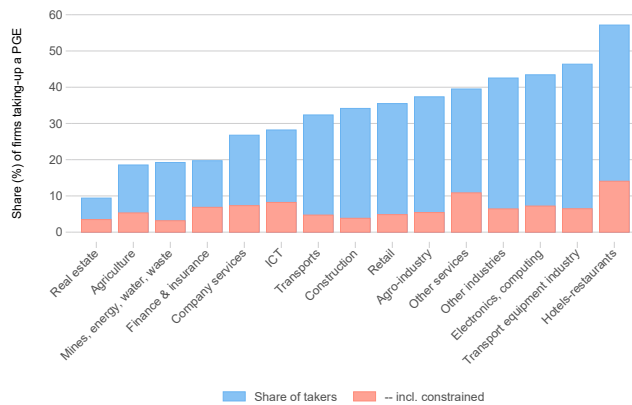
There has been a very high level of use of the scheme, ranging from 30% to 45% of firms (Figure 1), well above the level observed under a similar program implemented during the 2008 crisis.³ The red portion of the bars indicates the share of firms that borrowed up to the maximum amount allowed for a PGE. This share represents about 8% of the population in each size group, with the exception of large firms, more than 15% of which borrowed up to the PGE ceiling, often by mutual agreement with the Treasury.

¹Compared to €40 billion in Germany and €55 billion in Italy over the same period, see Falagiarda, Prapietis, Rancoita, et al., 2020.

²<https://www.ipp.eu/wp-content/uploads/2021/04/evaluation-contrainte-entreprises-remboursement-prets-garantis-etat-avril-2021.pdf>

³Barrot et al., 2019.

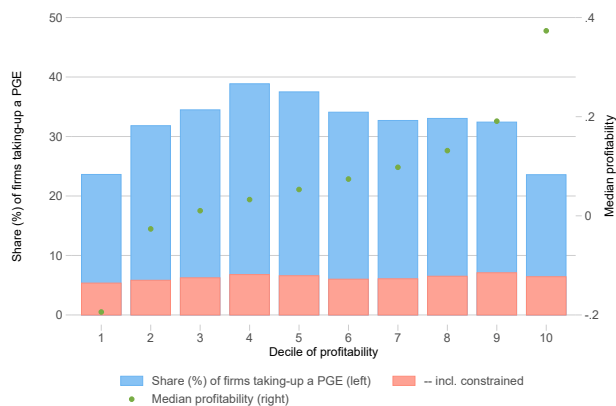
Figure 2: Distribution of PGE use by sector



Notes: The height of the blue bars indicates the share of companies under the standard corporate income tax regime that have obtained a PGE by sector A17 of NAF rev.2. The height of the red bars indicates the share of firms that borrowed up to the ceiling imposed for PGEs.

There is a very strong association between use of the loans and the restrictions imposed by the health crisis on the various sectors of activity (Figure 2): More than 55% of firms in the hotel and catering industry obtained a PGE, and more than 45% of firms in the freight transport industry, compared with rates closer to 25% for sectors such as finance or management.

Figure 3: Distribution of PGE use by pre-crisis profitability



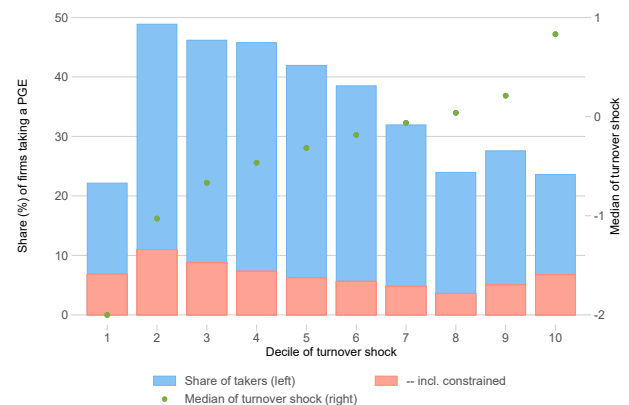
Notes: The height of the blue bars indicates (on the left-hand scale) the share of firms under the standard corporate income tax regime that obtained a PGE by segmenting the population of firms according to their pre-crisis profitability. The height of the red bars indicates the share of firms that have borrowed up to the ceiling imposed for the PGE. The green points indicate (on the right-hand scale) the median profitability of each decile of the population of firms.

Figure 3 presents the rate of recourse by classifying firms into 10 categories (deciles) of increasing profitability⁴ and of equal size in terms of the number of firms. We observe that PGE use peaks around the fourth and fifth deciles,

i.e., for firms of intermediate profitability. The extremes of the profitability distribution are the groups that borrow the least via PGEs: This suggests that the most profitable firms did not need the scheme (demand effect), while the least profitable firms were probably denied loans despite the State guarantee on a large part of the loan amount (supply effect).

“The most profitable firms did not need the scheme, while the least profitable firms were probably denied loans despite the State guarantee.”

Figure 4: Distribution of PGE use by exposure to the shock of the health crisis



Notes: The height of the blue bars indicates (on the left-hand scale) the share of firms under the standard corporate income tax regime that obtained a PGE according to the shock to their sales suffered during the first months of the health crisis (March-June). The height of the red bars indicates the share of those who borrowed up to the ceiling imposed for the PGE. The green dots indicate (on the right-hand scale) the median profitability of each decile of the population of firms.

Figure 4 shows PGE use as a function of exposure to the shock induced by the health crisis. A similar pattern to the previous figure can be seen: Firms on the left of the graph between deciles 2 and 5, which were strongly impacted by the crisis, borrowed heavily. This share decreases towards the right, i.e. towards firms whose sales fell less, or even increased, during the first phase of the crisis (the green dots and the scale on the right indicate that deciles 9 and 10 saw their sales increase over the period). Decile 1, composed of firms whose sales fell to zero or close to zero, had a PGE take-up rate almost two and a half times lower than that of the decile 2, which again suggests that banks may have done a significant amount of screening when receiving loan applications. However, this result could also be due to companies not receiving invoices on a regular basis while maintaining their usual level of activity. This double hypothesis is supported by analysis focused on decile 1 of the population of firms in

⁴Earnings for the year divided by the firm's assets.

which we studied the take-up of PGEs according to the intensity of the use of furlough and initial profitability.

What effect have PGEs had on balance sheets?

Debt

To what extent is the PGE scheme likely to have encouraged firms to take on more debt? To describe the effects of taking out a PGE on firms' balance sheets, we use two sources that provide individual financial information for a subset of firms after the start of the crisis.⁵ These two sources are described in Box 1. In the "registry" sample, the sample we present here, we exploit, among other things, the fact that some firms filed their tax return for the 2020 fiscal year before December 31, which made them available earlier.

Figure 5 presents this sample of debt-to-asset levels observed before and after the crisis for three groups of firms: non-PGE recipients, non-capped recipients, and capped recipients. Panel (a) shows that, while the gross debt of non-recipients remained stable over the period, it rose sharply (by around 50%) for firms with a PGE. While this picture may appear worrying at first glance, panel (b) shows the evolution of net debt for these same groups of firms, and presents a very different picture. We see that net debt has fallen sharply for non-PGE beneficiaries, remained relatively stable for non-capped beneficiaries, and increased moderately for capped beneficiaries. **This suggests that the majority of firms took out a PGE primarily for insurance purposes, and thus offset the increase in debt with an equivalent stock of liquid assets.**

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In Bach et al. (2021), we obtain a very comparable set of results among listed firms using the "Computstat" database. Debt increases sharply at the time of PGE use (by about 20%) while the net debt of beneficiaries is very stable. Moreover, the situation is very stable in the medium term (December 2020).

⁵The balance sheet of a firm is a table showing its asset situation at the close of accounts. It lists all the assets on one side and the liabilities on the other. Gross debt is the total amount of debt in relation to the total value of the company's balance sheet. Net debt is obtained by subtracting liquid assets from gross debt.

Figure 5: Short-term evolution of the debt



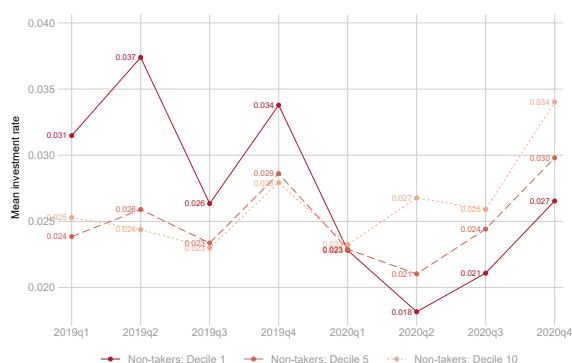
Notes: The sample includes all firms whose financial statements were filed with the registries between June and September 2020. The balance sheet items considered are related to the total assets of the legal entity. Debt is defined as financial liabilities only. Liquidity is the sum of cash and marketable securities. Net debt is the difference between financial liabilities and liquid assets.

Investment

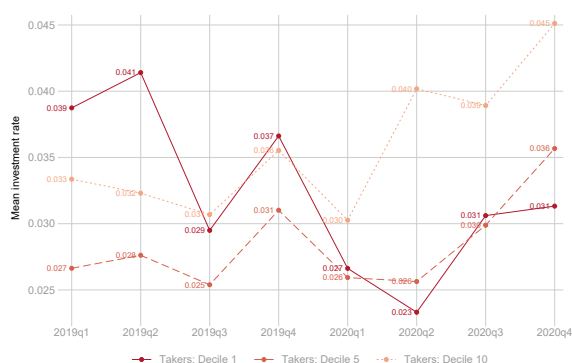
To what extent do investment dynamics differ between beneficiaries and non-beneficiaries according to the degree of exposure to the crisis? This is a critical question, since the debt overhang phenomenon is mainly observed in the inability of firms to invest. Figure 6 presents the investment rate over the period among non-recipients on the one hand, and PGE recipients on the other. Within these groups, we repeat the division of firms by the size of the sales shock experienced between March and June 2020, and plot deciles 1, 5 and 10 in order to illustrate respectively the situations of firms strongly impacted, moderately impacted and very weakly impacted by the crisis. Panel (a) thus presents the evolution of the average investment rate within these three deciles of sales shock: The dark red solid line contains the most strongly impacted firms, and shows a very marked decline in investment despite a pre-reform average higher than the other groups. We also observe a marked rebound in investment among these firms from Q3 2020 onwards. The other two

groups (moderately impacted firms on the red dashed line and lightly impacted firms on the orange dotted line) have a more homogeneous investment profile over the period but with similar trends: a fairly sharp decline in Q1 2020 followed by a rebound.

Figure 6: Quarterly investment rate by PGE use and shock exposure
(a) Non-recipients



(b) Recipients



Notes: The figure plots the change in the ratio of organic (i.e., not related to business acquisitions) investments made each quarter to the level of fixed assets at the end of fiscal year 2019, sorting businesses by exposure to the health crisis revenue shock and allocating them in equal numbers to 10 categories (deciles).

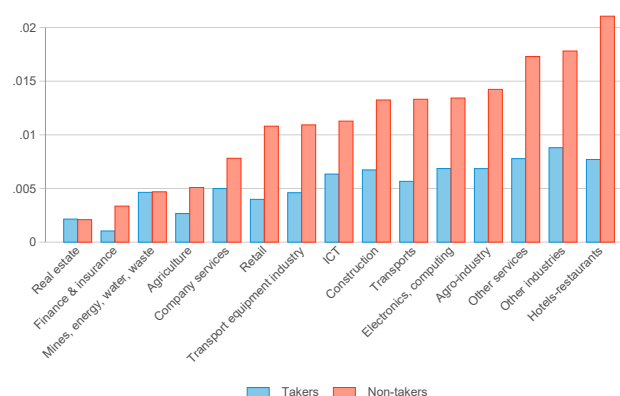
The situation for PGE beneficiaries is surprisingly similar: The most severely impacted firms drop their investment sharply at the beginning of 2020 then rebound, slightly below their pre-crisis level. Beneficiary firms in the intermediate group are very close to their counterparts in the non-beneficiary group. Lastly, companies that were only slightly impacted but that used the PGE show a rebound that exceeds their initial investment, which is not very surprising given their high level of activity over the period, and possibly indicates an opportunistic use of the scheme.

What is the risk of bankruptcy following a PGE?

A key question for policymakers is whether the PGEs have simply postponed a large number of bankruptcies, particularly among "zombie" firms that were already unviable before the crisis.⁶ With an average of less than 1% between March 2020 and March 2021, the probability of bankruptcy was indeed very low over this period (Cros, Epaulard, and Martin, 2021). The extent of the recovery to be expected is a crucial factor in deciding what to do with the PGE scheme, as well as the budgetary cost that the program will have.

Figure 7 shows the probability of bankruptcy between March 2020 and March 2021 by A17 sector for PGE recipients (blue) and non-recipients (red). A salient fact is that, while non-recipients have higher bankruptcy rates in the sectors most affected by the crisis (notably hotels and restaurants), the probability of bankruptcy is lower and more homogeneous across sectors among PGE recipients.

Figure 7: Probability of bankruptcy by A17 sector and PGE or non-PGE status



Notes: The height of the blue bars indicates the probability of bankruptcy within a sector for PGE recipients, that of the red bars the probability of bankruptcy for non-recipients.

Figure 8 also presents the probability of bankruptcy between PGE beneficiaries and non-beneficiaries, by dividing the population into 10 equal parts sorted according to the size of the turnover shock. The same phenomenon of a smoothing down of the probability of bankruptcy is observed among the beneficiaries of a guaranteed loan: While the probability of bankruptcy rises to nearly 2.5% among the firms most affected by the crisis and that did not receive a loan, it peaks at less than 1% for loan beneficiaries.

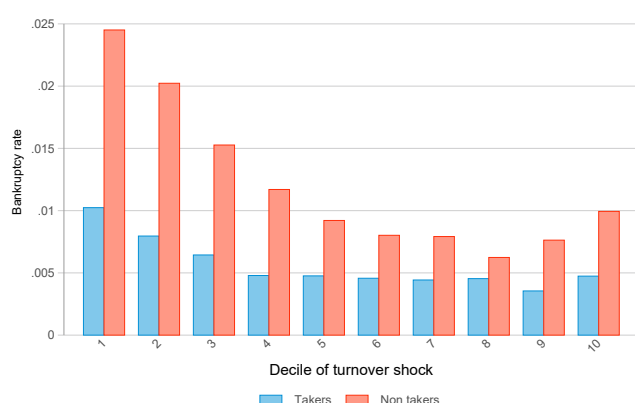
These fewer bankruptcies among PGE beneficiaries may

⁶We consider "zombie" firms to be all those firms that have persistent difficulties covering debt service costs from current profits (see Banerjee and Hofmann, 2018)

Box 1: Data used for the evaluation

- **PGE data:** Bpifrance provided access to its PGE management file via the Centre d'accès sécurisé aux données (CASD). It contains all PGE applications, excluding those made by the largest companies. This management file contains more than 683,000 loan records validated as of December 31, 2020 by more than 608,000 distinct legal entities. For companies with at least 5,000 employees or revenues of more than €1.5 billion in France, the application must be made directly to the Treasury in order to obtain the State guarantee. As these agreements are published in the *Journal Officiel*, we manually add these PGE credit lines to the database provided by Bpifrance.
- **BIC-IS data:** To obtain detailed data on the accounting situation of companies prior to the crisis, we use data from detailed tax returns (source: BIC-IS, DGFIP) for all completed fiscal years until 2019.
- **VAT data:** To measure the monthly exposure of each company to the consequences of the health crisis, we use the VAT database (DGFIP), which records the monthly turnover declarations used to calculate VAT deductions and refunds.
- **Commercial court registry data:** To conduct the analysis on the accounting years completed since spring 2020, we use the annual accounts filed with the commercial court registries. These data are made available online by the Institut national de la propriété industrielle (INPI) at <https://www.inpi.fr>. Our extraction used for this policy brief is dated April 4, 2021. The coverage of the data is partial, partly because many companies do not wish to make their accounts available via the registries, and partly because two thirds of companies close their accounts in December and can wait until the summer of 2021 to file their accounts for the year 2020. After matching with tax accounting data for the 2019 fiscal year, our "registry" sample is composed of approximately 25,000 firms, or about 3% of firms opting for the standard tax filing regime (*régime réel*) and 5% of the total PGE pool. Of these 25,000 companies, more than 95% filed between June 30 and September 30, 2020, and we therefore measure the short-term effect of the PGEs on the balance sheet.
- **Compustat data:** We obtain via the Compustat Global database a set of annual financial information on listed groups in France, filed with the French stock market regulator (Autorité des Marchés Financiers). Listed groups are required to publish their financial statements more regularly than other companies, including on a sub-annual basis. Almost all listed companies had already published financial statements since June 30, 2020, and approximately one third of these had, as of April 4, published financial statements up to December 31, 2020. We distinguish between these two groups in the rest of our analysis of listed companies. Listed groups account for about 20% of total PGE volume.
- **Bankruptcy data:** The *Bulletin officiel des annonces civiles et commerciales* (Bodacc) publishes the notices provided for in the French commercial code. The Bodacc A bulletin mainly covers collective proceedings. We consider that a company has entered bankruptcy after the beginning of the health crisis when one of the following events has occurred, according to Bodacc, after March 15, 2020: cessation of payments, opening of a safeguard procedure, receivership, or judicial liquidation.

Figure 8: Probability of bankruptcy per decile of sales shock between March and June 2020 and PGE recipient or non-recipient status



Notes: The height of the blue bars indicates the probability of bankruptcy within a turnover shock decile for PGE recipients, that of the red bars the probability of bankruptcy for non-recipients.

reveal a **protective effect of the PGE**: By providing otherwise inaccessible liquidity, the PGE makes it possible to survive an illiquidity crisis caused by the crisis. It may also be a **selection effect**: As already shown above, banks have

avoided allocating PGEs to the riskiest companies. In any case, we cannot conclude that there is a moral hazard phenomenon in which banks lent massively via PGEs to those clients that were in the worst shape before the crisis.

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The low probability of bankruptcy of PGE holders would be good news for public finances if it persisted over time. In Bach et al. (2021), we conduct a complementary analysis of the loan-loss experience (inability to repay) and the expected cost of PGEs. For this, we use a so-called *ex ante* method based on observed rates in European high-frequency bond markets as a function of the firms' credit rating. At the time of the loans, uncertainty was such that market borrowing rates for firms were very high, leading to a very high budgetary cost of the program. The average implicit subsidy rate for the loans was thus 9%, i.e. the financial equivalent of the State guarantee could then be

evaluated at 9% of the amounts borrowed, equivalent to almost €12 billion. The improvement in the situation, due in particular to the extent of public action through other instruments, has led to a revision of this evaluation on the basis of the new expectations of default revealed by bond markets. An *ex ante* evaluation conducted in March 2021 thus led to a threefold reduction in the subsidy rate that was initially calculated. Similarly, a cash-flow analysis based on bankruptcies already triggered leads to a provisional assessment of an average subsidy rate close to 0, taking into account the fees paid by companies to benefit from the guarantee. This analysis therefore makes it possible to reject, for the time being, the hypothesis that a large number of "zombie" firms are being kept alive artificially.

Conclusion

The massive take-up of PGEs in the spring of 2020 greatly reduced the risk of illiquidity for those companies most exposed to the health crisis. Many of the companies that did not take part in the scheme were in a poor position before the crisis.

The balance-sheet structure of the firms also seems to suggest that PGEs did cause many firms to have an abnormally high level of gross debt, but **it seems possible to rule out the risk of debt overhang caused by PGEs after analyzing the debt (net of liquidity), which increased considerably as a result of PGEs and other support measures.**

The fiscal cost of PGEs was initially high but has largely declined as the country's economic outlook has improved. The risk of numerous defaults on PGEs thus seems exaggerated even though, at the same time, the PGE scheme appears to have protected its beneficiaries from bankruptcies that would otherwise have been unavoidable. Our study therefore rules out important short-term risks, but does not allow us to conclude what the long-term consequences will be once the companies no longer receive public aid.

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Reference study

This policy brief is based on a study published in French as an *IPP Report*, commissioned by the Senate Finance Committee:

Bach, Laurent, Nicolas Ghio, Arthur Guillouzouic, and Clément Malgouyres (2021). "Rapport d'évaluation de la contrainte pour les entreprises du remboursement des prêts garantis par l'État (PGE)". In: *Rapport IPP*, 32.

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