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**THE EFFECTS OF THE COVID-19 CRISIS ON THE PRODUCTIVE
SECTORS IN SPAIN: ECONOMIC AND FINANCIAL IMPLICATIONS**

1 Introduction

The crisis triggered by the COVID-19 pandemic has increased the vulnerability and risks faced by the productive sectors of the Spanish economy. At the outset of the pandemic, the decline in income, together with the existence of fixed outgoings, drove up firms' and sole proprietors' liquidity needs, in a climate of growing uncertainty and heightened concerns among lenders about the risks assumed. This increased the risk of some of these agents being unable to meet their payment obligations (liquidity risk). However, the resolute and forceful measures taken by economic authorities helped mitigate this risk, enabling a broad share of these agents to cover their liquidity needs by resorting to new debt. As the crisis has persisted, concerns have shifted towards the risks related to the deterioration in firms' and sole proprietors' financial position, associated with increasing liabilities and declining profits, especially in the sectors hit hardest by the crisis.

This greater vulnerability in the productive sectors could hamper the economic recovery through various channels (see Figure 3.1). Indeed, the historical evidence shows that highly indebted firms are more sluggish in taking investment and hiring decisions. In addition, if this downturn were to manifest in business solvency problems, persistent losses could arise in the productive system and employment. This situation could also impact financial institutions' balance sheet position if the business solvency problems were to affect a significant share of their credit portfolio. In extreme circumstances, this could make it difficult for the affected banks to accommodate loan applications from households and firms, which would limit growth in aggregate demand and curtail the economic recovery.

The relevance of these risks at the current juncture warrants particularly close monitoring of the economic and financial situation of the productive sectors and deposit institutions alike. Early identification of these risks is key if the economic authorities are to introduce the corrective measures needed to prevent them from materialising. The deployment of a broad range of measures since the start of the crisis has helped mitigate these risks. Any additional measures to be taken in the future will need to be adjusted based on macro-financial developments.

This chapter analyses how the COVID-19 crisis has affected the vulnerability and risks of the productive sectors of the Spanish economy, and the situation of deposit institutions. This chapter first reviews how the crisis has affected firms' and sole proprietors' liquidity, and goes on to assess the changes in their financial position and the scale of the viability and solvency problems.

Figure 3.1

VULNERABILITY OF THE PRODUCTIVE SECTORS

VULNERABILITY OF THE PRODUCTIVE SECTORS: INDICATORS, ECONOMIC EFFECTS AND POLICIES		
	Short term	Medium term
Indicators	<p>Liquidity risk When firms' liquidity needs exceed their liquidity buffers (liquid assets and credit facilities)</p>	<p>Low profitability When the return on assets is negative</p> <p>High indebtedness When the ratio of net financial debt to ordinary earnings exceeds a certain threshold</p>
Economic and financial effects	<p>Bankruptcy, which has an economic impact through:</p> <ol style="list-style-type: none"> 1 Loss of the productive system and employment 2 Possible contraction in the supply of credit if debt defaults affect a notable portion of banks' credit portfolios 	<p>Obstacles to investment and hiring plans (debt overhang)</p>
Economic policies	<ol style="list-style-type: none"> 1 Income support (short-time work schemes) 2 Payment deferrals (loan moratoria, Social Security contributions) 3 Credit support: <ul style="list-style-type: none"> – ICO guarantees – TLTRO III 	<p>Income support (short-time work schemes)</p>

SOURCE: Banco de España.

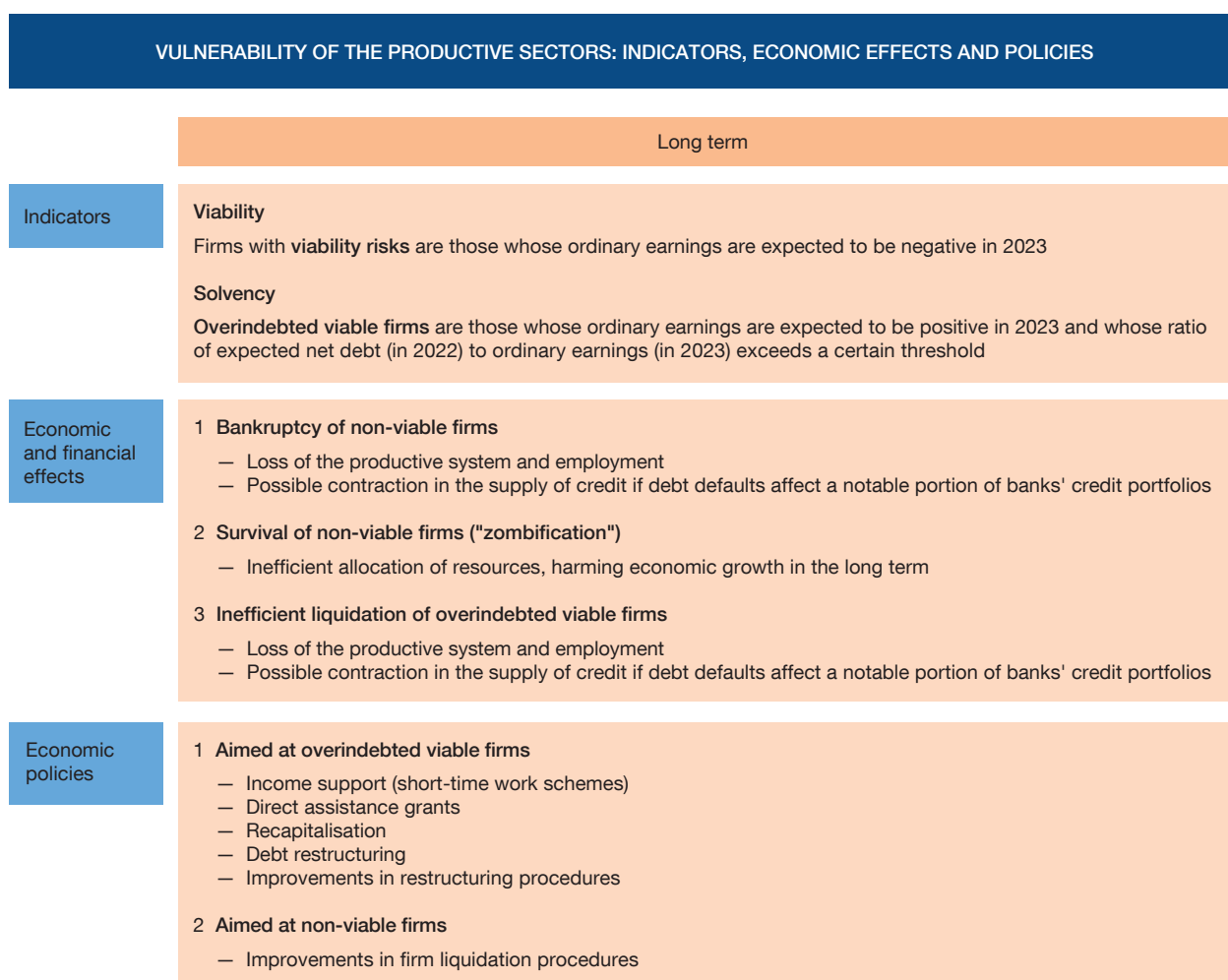
A discussion then follows on the macroeconomic implications of these developments and the role of economic policies. The chapter concludes with an analysis of the impact of these developments on deposit institutions' financial position.

2 Short-term liquidity risks of the productive sectors

2.1 Firms' liquidity needs

Firms' revenues fell sharply in 2020 as a consequence of the COVID-19 crisis, although there is high dispersion by sector and size. The measures taken by the authorities to limit the spread of the pandemic, together with the contraction in the demand for goods and services associated with the heightened uncertainty and the difficulties in undertaking certain expenses, have, in many cases, triggered a notable fall in business turnover. This decline has been highly heterogeneous by activity: accommodation and food service activities saw the sharpest falls (over 50%), while the manufacture of refined petroleum products, social and cultural services, transportation and storage, the manufacture of textiles, and the manufacture of

Figure 3.1

VULNERABILITY OF THE PRODUCTIVE SECTORS (cont'd)

SOURCE: Banco de España.

transport equipment all posted declines of more than 15% (see Chart 3.1.1). In this chapter, these are classified as sectors severely affected by the pandemic, while those whose sales declined by between 15% and 8% are classified as moderately affected sectors.¹ At end-2019, the severely affected sectors accounted for 24% of paid employment, 26% of the self-employed and 21% of the stock of bank credit. Moderately affected sectors accounted for 27%, 25% and 27%, respectively, of these variables. By size, microfirms (those with fewer than 10 employees) were the hardest hit in terms of sales within each sector (see Chart 3.1.2). In any event, beyond size, there was high intra-sectoral heterogeneity in firms' revenues in 2020.

The decline in firms' revenues raised their liquidity needs. The sharp reduction in turnover, combined with existing fixed costs, led to a rise in the share of companies

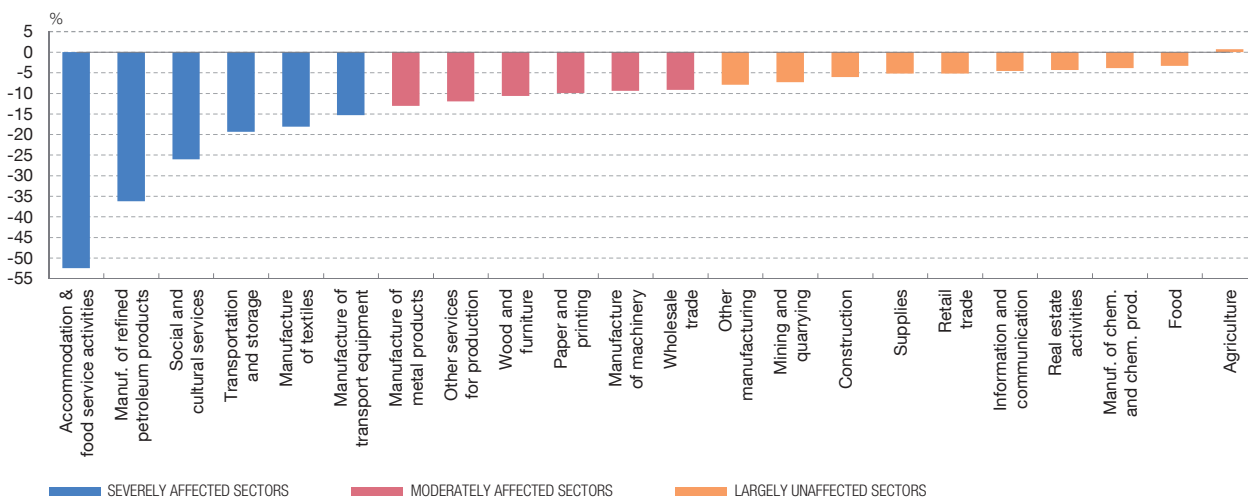
¹ The rest are included in the group of largely unaffected sectors.

Chart 3.1

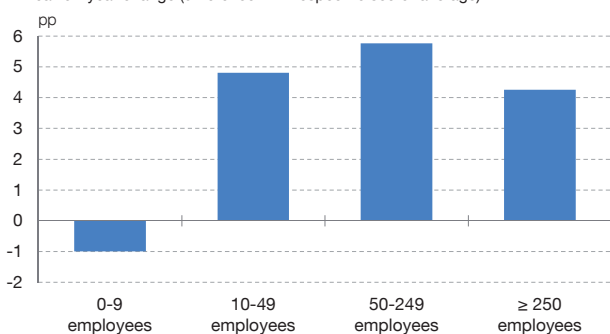
THE IMPACT OF COVID-19 ON BUSINESS REVENUES HAS BEEN SHARP, BUT HIGHLY HETEROGENEOUS

The COVID-19 crisis has triggered falls in business turnover across the board. The intensity of these falls has varied, depending on the sector and size of the firms. The activities hardest hit by the pandemic represent around 25% of employment and about 20% of the stock of credit.

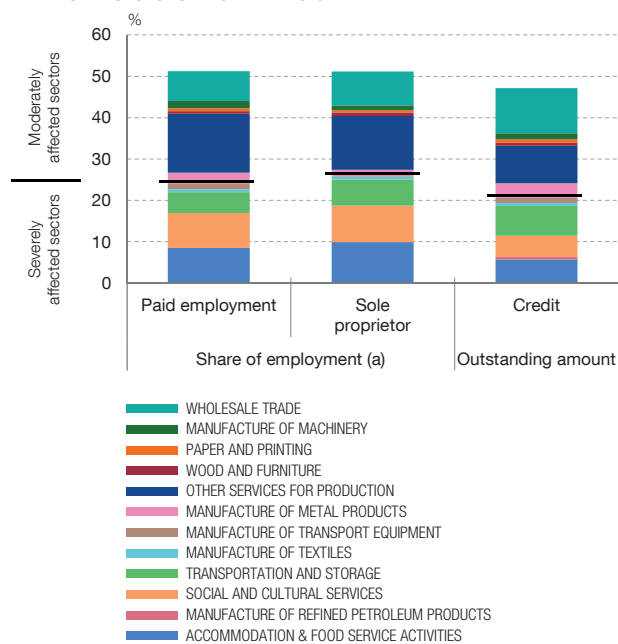
1 BUSINESS TURNOVER IN 2020, BY SECTOR
Year-on-year change



2 BUSINESS TURNOVER IN 2020, BY SIZE
Year-on-year change (difference with respect to sector average)



3 SHARE OF EMPLOYMENT AND CREDIT ACCOUNTED FOR BY MORE AFFECTED SECTORS. DECEMBER 2019



SOURCES: Agencia Estatal de Administración Tributaria, Seguridad Social and Banco de España.

a Calculated on the basis of average employees registered with Social Security in December 2019.



with operating deficits, i.e. firms whose revenues were insufficient to cover current payments for utility bills, rents, financial expenses and personnel costs. Added to this were the liquidity needs stemming from their fixed asset investments and debt repayments. All this drove up liquidity needs, understood as the sum of the three foregoing components.

An estimated 70% of Spanish non-financial corporations had liquidity needs between April and December 2020, based on the results obtained from the micro-simulations conducted by the Banco de España.² This is 13 pp higher than under a (hypothetical) counterfactual scenario of no pandemic (see Chart 3.2.1). In any event, and as mentioned above in relation to the fall in turnover, the crisis has had an uneven impact on firms' liquidity needs. By size, the percentage of firms with liquidity needs is somewhat higher among smaller firms. By sector, the severely affected sectors saw a higher proportion of firms with liquidity shortfalls (80%).

The overall liquidity needs of the corporate sector amounted to around €233 billion in 2020 Q2–Q4 (see Chart 3.2.2). The fiscal policies to support income (such as the greater ease in carrying out short-time work schemes and the deferral of rent, Social Security and tax payments) helped reduce firms' liquidity needs.³ Nevertheless, the liquidity shortfall incurred between April and December is estimated to be around €67 billion higher than under a counterfactual scenario of no pandemic. Most of these liquidity needs derived from the repayment of outstanding debt.

Despite firms having high liquidity buffers, these were insufficient to cover a significant part of the aggregate liquidity needs, given the scale of the shock. To address such needs, firms that have difficulties in accessing external financing can resort to their liquid assets and the undrawn amount on existing credit facilities. Firms, particularly SMEs, had gradually built up their liquid assets following the 2008 financial crisis. Nevertheless, it is estimated that the corporate sector as a whole was able to cover a maximum of 44% of its liquidity needs in 2020 Q2-Q4 through full use of its buffers (see Chart 3.2.2). Further, the breakdown of liquidity needs shows that close to 37% of firms had insufficient internal funds to cover them.

Difficulties in internally covering liquidity shortfalls, together with the foreseeable tightening of access to external financing, initially increased

2 These exercises were conducted using the information from the Central Balance Sheet Data Office integrated database (CBI), which contains data on around 400,000 firms for 2019 (the latest year available), and from the Central Credit Register as at December 2019 and March 2020. The estimates include the median of 100 micro-simulations in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales for each sector and firm size is replicated. These simulations are performed to generate heterogeneous sales patterns for the firms in each sector and size group. The amounts obtained have been extrapolated to the national total, based on the information available in the Central Companies Directory on the number of firms per sector and size segment. For more details of the methodology, see Blanco et al. (2021).

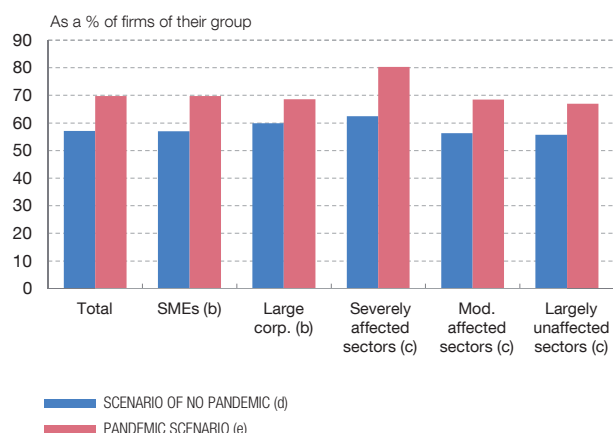
3 For a description of these measures, see Box 1.3 in Chapter 1 of this Report.

Chart 3.2

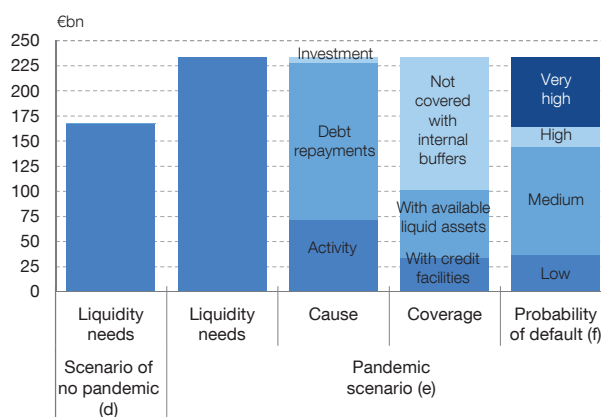
THE PANDEMIC HAS INCREASED FIRMS' LIQUIDITY RISKS

In 2020 Q2-Q4, an estimated 70% of firms had liquidity needs amounting to around €233 billion. Firms' liquidity buffers covered less than half of this liquidity shortfall. Further, around €90 billion arose at companies with a high risk profile.

1 PERCENTAGE OF FIRMS WITH LIQUIDITY NEEDS. 2020 Q2-Q4 (a)



2 FIRMS' LIQUIDITY: NEEDS, CAUSE, COVERAGE AND PROBABILITY OF DEFAULT. 2020 Q2-Q4 (a)



SOURCE: Banco de España.

- a Excludes holding companies and financial services sector firms.
- b The definition of size is in line with European Commission Recommendation 2003/361/EC.
- c Sectors are defined as severely affected if their sales fell by more than 15% in 2020 and as moderately affected if their sales fell by between 8% and 15%. Other sectors are deemed to be largely unaffected.
- d Counterfactual scenario under which GDP growth is in line with the scenario published by the Banco de España in December 2019.
- e The results shown correspond to the median of 100 micro-simulations in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales for each sector and firm size is replicated.
- f Probability of default is considered very high if it exceeds 5%, high if it is between 3% and 5%, medium if it is between 0.5% and 3%, and low if it is below 0.5%.



liquidity risk in the corporate sector. Liquidity risk refers to the capacity to meet payment commitments. If it materialises, it can entail severe damage to productive activity and, in extreme cases, jeopardise a firm's survival, with the consequent impact in terms of job destruction and damage to the productive system. This risk depends not only on the amount of the shortfall, but also on how readily it can be covered. As indicated above, given that a significant share of firms was unable to cover its liquidity needs using liquid assets and undrawn credit facilities, part of these needs had to be covered with external financing. Further, by heightening macroeconomic uncertainty and lender concern regarding credit risks, the COVID-19 crisis initially prompted expectations of tighter access to credit, especially for those firms with a worse credit profile. It should be borne in mind that a large portion of the estimated liquidity needs (almost €90 billion) arose at companies with a high risk profile⁴ (see Chart 3.2.2).

4 Risk profiles are considered to be high when the probability of debt default exceeds 3%. This threshold corresponds to credit quality steps (CQS) 7 and 8. Probabilities of default are obtained drawing on the results of the statistical models developed by the Banco de España's Financial Risk Department for credit assessment. For more information, see [Gavilá, Maldonado and Marcelo \(2020\)](#).

2.2 Financing the liquidity needs

The swift and forceful measures taken by national and supranational authorities have helped to largely mitigate these liquidity risks. The public guarantee facilities managed by the Official Credit Institute (ICO, by its Spanish acronym) for business loans and the monetary and financial policy measures applied have stimulated the supply of financing. Thus, as indicated by the BLS, in 2020 Q2 credit institutions eased credit standards on loans to firms, in contrast to the sharp tightening of the loan supply at the onset of the 2008 financial crisis.⁵ The banking system's starting position – significantly more sound at the beginning of the current crisis than in 2008 – and the different nature of the current crisis, which is non-financial in origin, also appear to have contributed to the expansion in the supply of credit during the first wave of the pandemic. Nevertheless, according to the BLS, from 2020 Q3 credit standards on loans to firms tightened slightly, owing to greater risk-related concerns among financial institutions, given the climate of heightened uncertainty and the prolongation of the health crisis. In the corporate debt markets, following a significant increase upon the outbreak of the pandemic, the cost of debt tended to decline gradually, especially after the ECB announced the launch of the PEPP.

Against this backdrop of favourable financing conditions, a large number of firms and sole proprietors resorted to external financing, chiefly bank credit, to cover their liquidity needs. Thus, according to the Financial Accounts, in 2020, net fund-raising by firms amounted to €43 billion (see Chart 3.3.1). This comprised mainly bank loans (€35 billion, compared with the negative flow of €9 billion on average in previous years) and, to a lesser extent, funds in the form of capital (€17 billion), corporate debt security issuances (€11 billion), foreign credit (€6 billion) and inter-company loans (€2 billion). By contrast, the net flow of trade credit was negative (€29 billion), in line with the sharp decline in business activity.⁶

Bank finance grew to a greater extent in the sectors that have been hit hardest by the pandemic and which, therefore, had greater financing needs. In 2020 lending to productive activities grew by 7.9% as compared with the previous year (see Chart 3.3.2). The breakdown by sector shows that this credit buoyancy was related to the impact of the crisis on firms' turnover. Thus, growth was 17.9% in the sectors severely affected by the pandemic, 10.6% in the moderately affected sectors and 2.6% in the rest.

The increase in the bank debt of non-financial corporations and sole proprietors has been highly heterogeneous. At end-2020, 35% of the stock of bank debt was

5 See [Menéndez and Mulino \(2021a\)](#).

6 If it is assumed that the fraction of purchases and sales payable in instalments and the average collection and payment periods are maintained, the fall-off in activity results in a reduction of the outstanding balance of trade debts.

on the balance sheets of firms and sole proprietors whose bank debt increased by more than 20% in 2020, compared with 26% a year earlier (see Chart 3.3.3). At the other end of the scale, nearly one-third of firms and sole proprietors reduced their stock of loans by more than 20%; this share was, admittedly, somewhat smaller than that observed a year earlier. Among the firms and sole proprietors that previously had no borrowings from Spanish credit institutions, the increase in bank debt was smaller in 2020 than in 2019, which could suggest that these agents had greater difficulties in raising financing through bank credit.

The microdata available for 2020 also show that firms covered the bulk of their liquidity needs by borrowing. For instance, the data on the sample of the Central Balance Sheet Data Office Quarterly Survey (CBQ), comprising around 800 (predominantly large) firms, suggest a high increase in 2020 Q2-Q4 in borrowing by the group of firms with a liquidity shortfall. This borrowing took the form of both bank debt and other types of instrument, chiefly loans received from the business group (see Chart 3.3.4).

It is estimated that, as a whole, Spanish non-financial corporations covered close to half of their liquidity needs through bank loans maturing after 2020. Specifically, the coverage of these needs is estimated at 48%, of which 34 pp is attributable to loans under the public guarantee schemes (see Chart 3.4.1). The share of loans under the guarantee schemes managed by the ICO as a percentage of total gross funds raised is comparatively higher among companies for which access to external financing is a priori more difficult, such as smaller firms and those presenting higher credit risk. This evidence suggests, therefore, that the guarantee schemes fostered access to credit for such firms. By contrast, firms with no previous bank debt covered barely 8% of their liquidity needs using bank loans, of which somewhat more than 60% were guaranteed by the ICO facilities. The evidence available suggests that this latter finding could be explained, at least in part, by the difficulties these firms had in accessing external financing.⁷ Consequently, such companies would foreseeably have covered a notable part of their liquidity needs by using their liquidity buffers. In any event, it should be borne in mind that these firms' liquidity ratios are comparatively higher than those of the corporate sector as a whole, reducing the risk of their being unable to meet payment commitments. Moreover, Chart 3.4.2 shows that ICO-backed financing contributed decisively to the increase in the stock of loans to firms and, to a lesser extent, sole proprietors. Specifically, it shows that, for the non-financial corporate sector as a whole, loans other than those backed by ICO facilities made a negative contribution to the growth in debt. The breakdown by firm size shows this same pattern in the case of SMEs. By contrast, for large corporations, loans other than those backed by ICO facilities made a positive, albeit small, contribution to the growth in their debt.

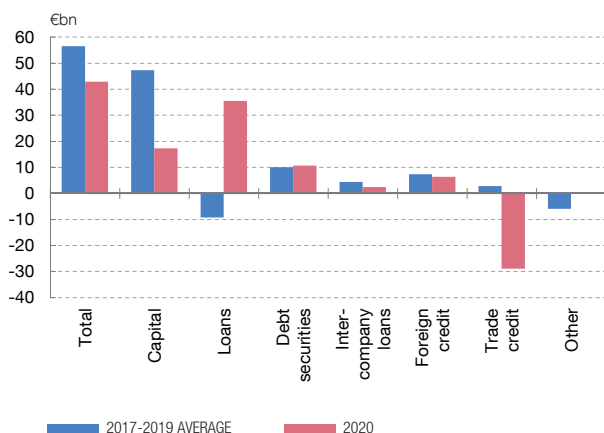
⁷ See Arce et al. (2021).

Chart 3.3

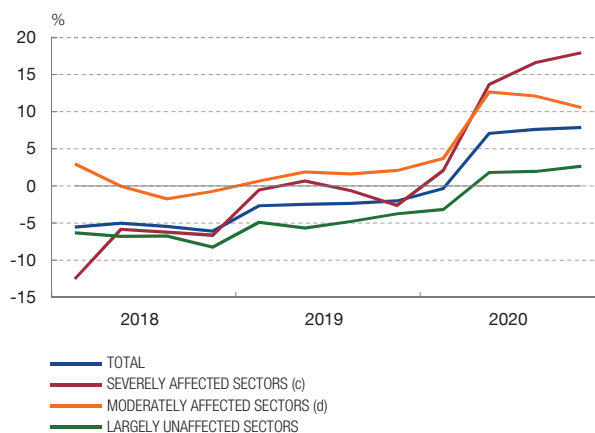
IN 2020, FIRMS COVERED THEIR LIQUIDITY NEEDS BY RESORTING MAINLY TO BANK FINANCING

Bank financing has been the main resource used by firms to cover their financing needs, followed by capital and issuances of corporate debt. Credit has been used to a greater extent in those sectors more affected by the pandemic, although there is high heterogeneity across firms. The CBQ microdata confirm this pattern.

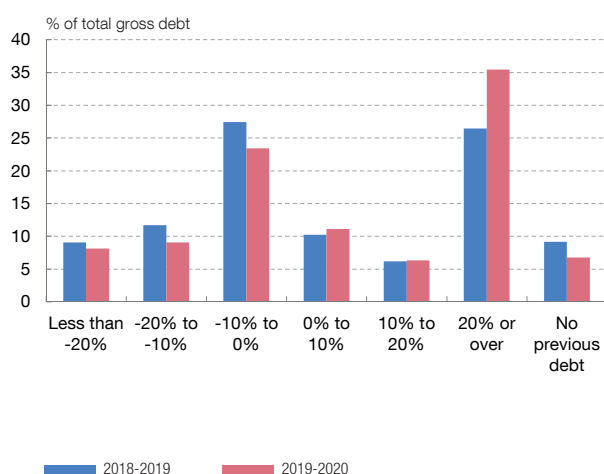
1 NET FINANCIAL FLOWS OF LIABILITIES OF NON-FINANCIAL CORPORATIONS (a)



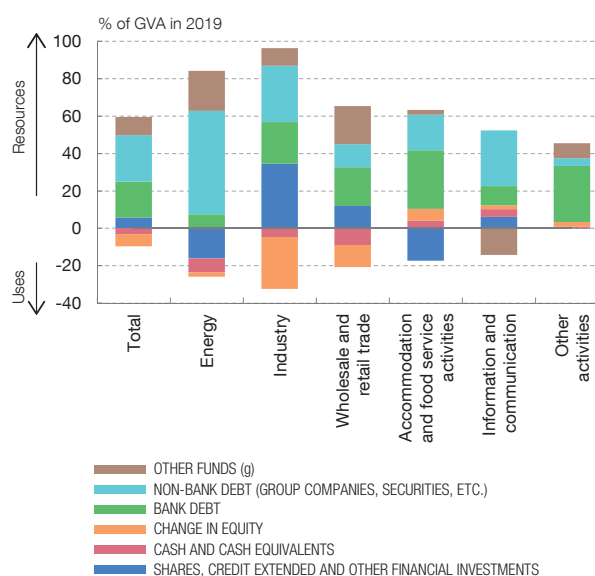
2 LENDING TO PRODUCTIVE ACTIVITIES, BY SECTOR (b)
Year-on-year change



3 DISTRIBUTION OF THE CHANGE IN GROSS DEBT OF FIRMS AND SOLE PROPRIETORS



4 RESOURCES AND USES OF FIRMS WITH LIQUIDITY NEEDS. 2020 Q2-Q4. CBQ (e) (f)



SOURCE: Banco de España.

- a Cumulative flows in the first three quarters of each year.
- b Excludes the financial intermediation sector.
- c Severely affected sectors are those whose turnover fell by more than 15% in 2020, namely: accommodation and food service activities, the manufacture of refined petroleum products, social and cultural services, transportation and storage, the manufacture of textiles, and the manufacture of transport equipment.
- d Moderately affected sectors are those whose turnover fell by between 8% and 15% in 2020, namely: the manufacture of metal products, other services for production, wood and furniture, paper and printing, the manufacture of machinery, and wholesale trade.
- e The CBQ is the Central Balance Sheet Data Office Quarterly Survey.
- f Excludes holding companies and financial services sector firms.
- g Includes other accounts receivable other than customer receivables, other trade accounts payable other than payables to suppliers, and other assets and liabilities (net).



2.3 The liquidity situation at end-2020

The use of the ICO facilities has helped improve firms' and sole proprietors' debt maturity profile and reduce the average cost of debt. Thus, between 2019 and 2020, these agents' bank debt structure showed a shift from short-term maturities (less than one year) towards medium-term maturities (between three and five years), particularly among firms (see Chart 3.5.3). During the same period, the weight of bank debt with an average interest rate of less than 3% rose by 4 pp in the case of non-financial corporations and 2 pp for sole proprietors, to the detriment of debt at a higher cost (see Chart 3.5.4). The use of the ICO facilities, with highly favourable financing conditions in terms of both interest rates and maturities,⁸ has contributed to these developments in both cases.

Part of the increase in corporate debt during 2020 appears to have been earmarked for building up precautionary buffers, rather than for covering short-term liquidity needs. The CBQ data for 2020 suggest there is a positive relationship between the rise in gross indebtedness and the build-up of liquid assets (see Chart 3.5.1). Consequently, many firms' net indebtedness would have increased less than their gross debt, and their financial position would not therefore have worsened to the extent suggested by the raw data. This increase in liquidity buffers is more clearly apparent in the upper end of the liquidity ratio distribution (see Chart 3.5.2). In the same vein, it is observed that, overall, the firms with liquidity needs in this sample have not used their liquid assets to cover their liquidity shortfall. Indeed, they appear to have even increased their holdings of these types of assets, except in the case of companies in the hospitality and, to a lesser extent, information and communication sectors (see Chart 3.3.4). At the other end of the scale, some firms have repaid debt by disposing of a part of their liquid assets. These firms, which account for 43% of the sample, started out with significantly higher liquidity ratios than the firms that have increased their liquidity buffers.⁹

Despite the increase in many firms' liquidity buffers and the more favourable debt maturity profile, some liquidity risks persist. Indeed, it is estimated that the sectors hit hardest by the pandemic will continue to have relatively high financing needs in 2021 (albeit ones that are considerably more moderate than in 2020), as they are not expected to return to their pre-crisis levels of activity and profitability in the near term. Moreover, the latest information on financing conditions in the BLS suggests some tightening of credit standards which, if prolonged or intensified, could hamper the financing of some firms.

8 See Alves et al. (2020).

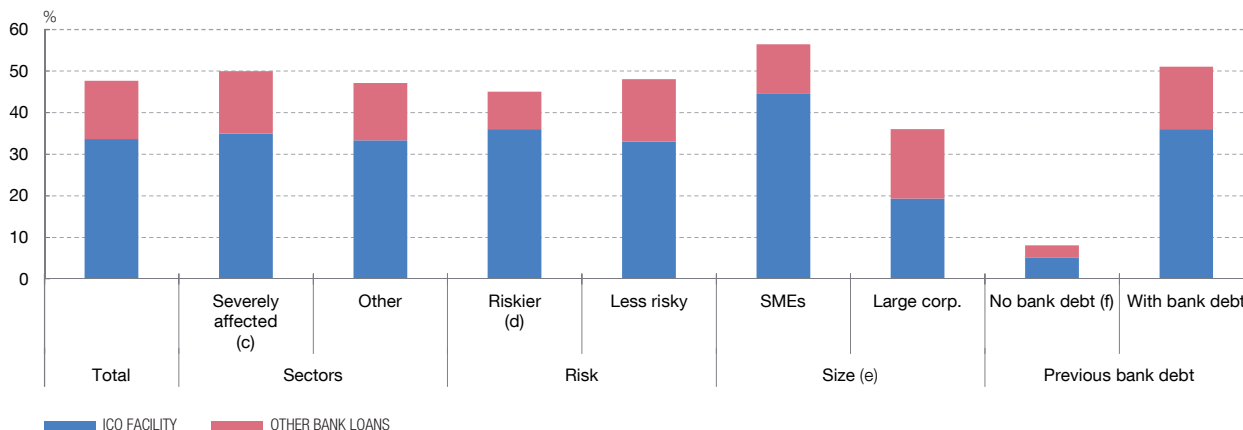
9 The results obtained from a test of means comparing the characteristics of firms in 2019, depending on whether or not they reduced their liquid assets in 2020, indicate that the firms that used their liquidity buffers in that year had a higher liquid assets ratio before the onset of the pandemic. However, statistically significant differences at the standard significance levels are not observed as regards their size, profitability or indebtedness.

Chart 3.4

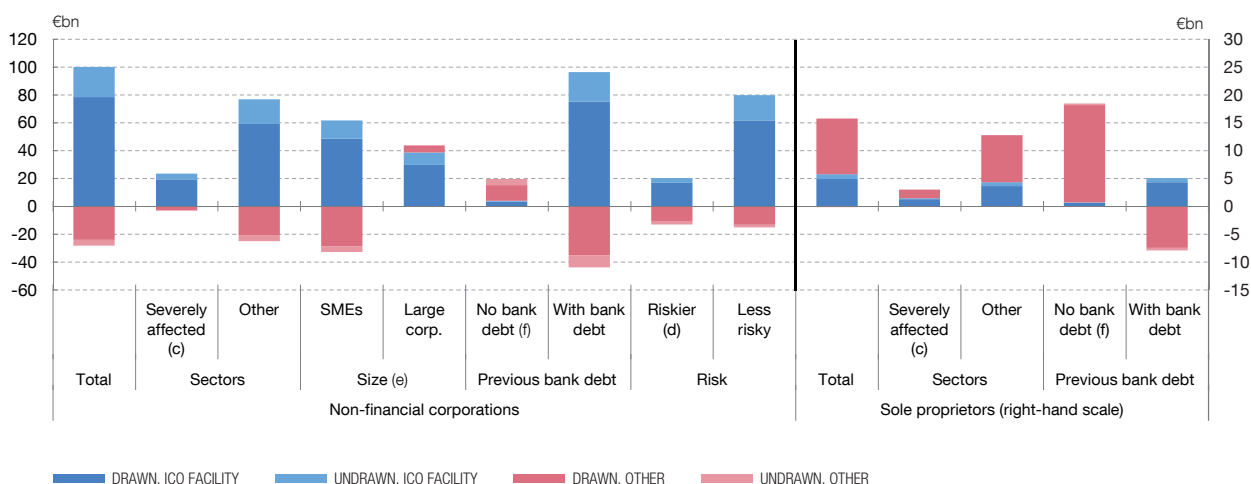
THE PUBLIC GUARANTEE FACILITIES HAVE PLAYED A VERY IMPORTANT ROLE IN COVERING FIRMS' LIQUIDITY NEEDS

An estimated 48% of liquidity needs were covered with bank loans, 71% of which were under the public guarantee schemes. This ICO-backed financing was more significant, in relative terms, in the firms severely affected by the pandemic, riskier firms and SMEs, and contributed decisively to the increase in the stock of loans to firms.

1 COVERAGE OF LIQUIDITY NEEDS OF NON-FINANCIAL CORPORATIONS BY SECTOR, SIZE AND RISK. MARCH-DECEMBER 2020 (a) (b)



2 CHANGE IN THE STOCK OF LOANS TO PRODUCTIVE ACTIVITIES. FEBRUARY-DECEMBER 2020



SOURCE: Banco de España.

- a Includes new credit transactions (drawn and undrawn), but not drawdowns on previously granted credit facilities.
- b Only credit transactions maturing after 2020 are considered, as those maturing in 2020 would have to be refinanced. Firms' liquidity needs are identified based on a simulation of their ordinary activities during 2020 and debt repayments between March and December 2020.
- c Severely affected sectors are those whose turnover fell by more than 15% in 2020, namely: accommodation and food service activities, the manufacture of refined petroleum products, social and cultural services, transportation and storage, the manufacture of textiles, and the manufacture of transport equipment.
- d Riskier companies are those with a probability of default of over 5%.
- e The definition of size is in line with European Commission Recommendation 2003/361/EC. Small firms forming part of a business group are not classified as SMEs.
- f Firms with no previous debt to credit institutions are those that neither had credit drawdowns nor held any credit facilities in early February 2020, on the information available in the Banco de España Central Credit Register.



3 Firms' financial vulnerability in the medium and long term

3.1 Profitability

The CBQ data show that the average return on assets of the sample fell by more than 2 pp in 2020. These developments were attributable to the sharp contraction in activity, which was not sufficiently offset by the decline in personnel costs, and to the notable slide in financial income, chiefly as a result of the reduction in dividends received. The percentage of firms with negative profitability rose by 8 pp to 34%.

The micro-simulation exercises conducted by the Banco de España for the corporate sector as a whole also present a very significant decline in profitability in 2020, albeit with high heterogeneity.¹⁰ SMEs' median profitability is estimated to have fallen by 5 pp to a negative value of -1.2%, while for large corporations it is estimated to have decreased by 4.3 pp to 1% (see Chart 3.6.1). The decline in profitability appears to be sharper in the 25th percentile of the distribution (below which are concentrated the least profitable firms), especially in the case of SMEs. The share of SMEs and large corporations with negative profitability is estimated to have increased by 24 pp (to 55%) and 18 pp (to 45%), respectively. Details by activity show that the downturn was substantially greater for the severely affected sectors, whose median profitability fell from 4.1% to -9.4% (see Chart 3.6.2).

From 2021 onwards, a gradual and uneven increase is expected in firms' profitability, in line with the recovery in economic activity envisaged in the baseline scenario of the Banco de España's latest macroeconomic projections.¹¹ The return to pre-crisis levels of profitability would be slower for firms operating in the sectors whose sales suffered a steeper drop in 2020. Thus, in 2023 median profitability in the moderately affected and largely unaffected sectors is expected to surpass its pre-pandemic levels, but would remain below pre-crisis levels in the severely affected sectors.

10 Simulated based on information from the CBI for 2019 and the State tax revenue service (AEAT) for 2020, and on the changes associated with the projected economic developments under the baseline scenario of the Banco de España's macroeconomic projections published in March 2021. The results obtained are extrapolated to the entire corporate sector. The median of 100 micro-simulations is presented, in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales for each sector and firm size is replicated. For 2023, it is assumed that the firms recover a level of sales compatible with the expected performance of sectoral GVA in nominal terms in the period 2019-2023. In the period 2021-2023, sales are interpolated between their 2020 and 2023 levels based on the growth of sectoral GVA. For more details on the methodology, see Blanco et al. (2021).

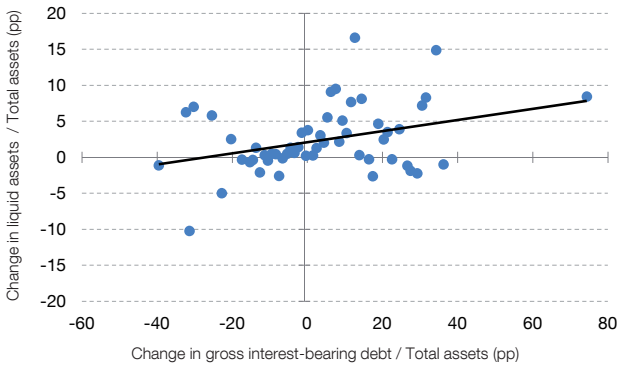
11 The baseline scenario of the Banco de España's macroeconomic projections of March 2021. For more information, see [Banco de España \(2021\)](#).

Chart 3.5

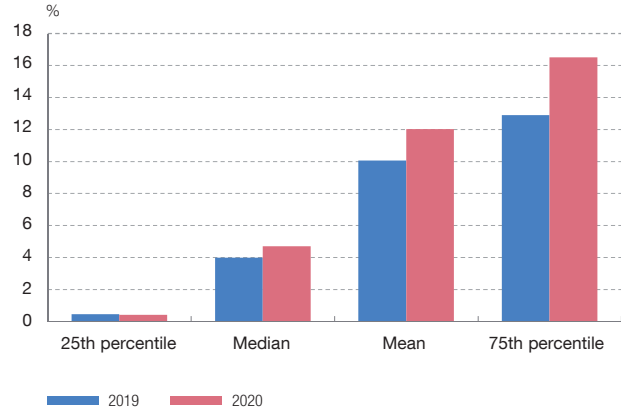
PART OF THE INCREASE IN CORPORATE DEBT APPEARS TO HAVE BEEN EARMARKED FOR BUILDING UP PRECAUTIONARY LIQUIDITY BUFFERS

The ICO facilities have helped improve firms' financing structure by extending maturities and reducing the average cost of bank debt. Net debt increased less than gross debt, as part of this debt appears to have been earmarked for building up liquidity buffers.

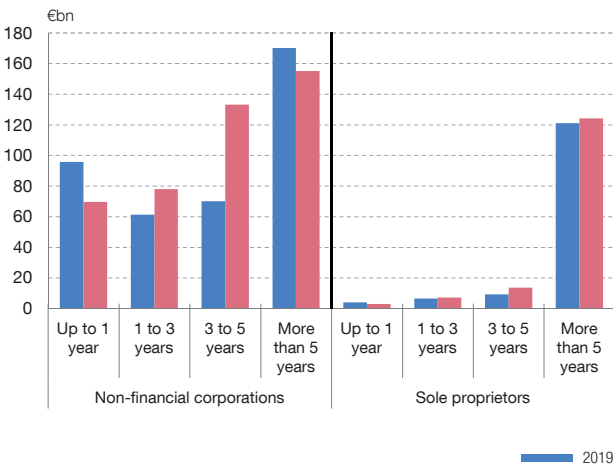
1 RELATIONSHIP BETWEEN THE CHANGES IN GROSS DEBT AND IN LIQUID ASSETS IN 2020. CBQ (a) (b)



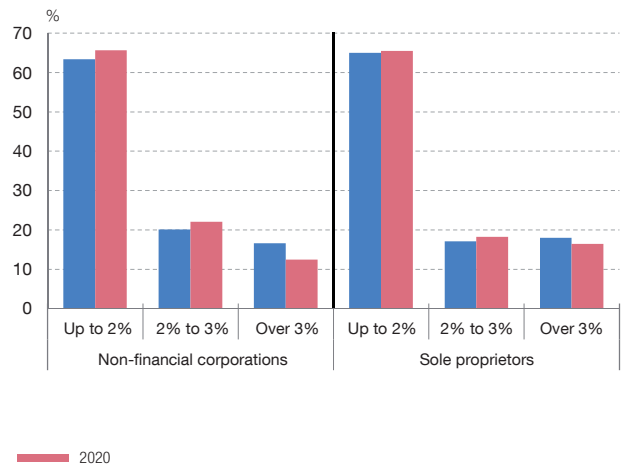
2 DISTRIBUTION OF FIRMS' LIQUIDITY RATIO. CBQ (a) (c)



3 DISTRIBUTION OF BANK DEBT BY MATURITY



4 DISTRIBUTION OF BANK DEBT BY INTEREST RATE



SOURCE: Banco de España.

- a The CBQ is the Central Balance Sheet Data Office Quarterly Survey.
- b Liquid assets are defined as cash and cash equivalents. Each point on the chart corresponds to the average change in gross interest-bearing debt as a percentage of total assets and to the average change in liquid assets as a percentage of total assets, which are obtained in intervals with a width of 1 pp of the change in debt relative to assets. Only those intervals containing more than one firm are considered.
- c The liquidity ratio is defined as the firm's liquid assets as a percentage of its total assets.



3.2 Financial position

The increase in debt and the decline in profitability may impair some firms' financial position. This section uses three indicators to proxy that position: one that assesses the level of equity and two that assess indebtedness. The first indicator explores the proportion of firms with negative equity. Although such a position, resulting mainly from the accumulation of losses over an extended period of time, does not automatically imply a firm's bankruptcy, it does represent an important factor of vulnerability since it increases the likelihood of bankruptcy in future. The first of the debt indicators, calculated as the ratio of net financial debt (financial debt less liquid assets) to the sum of net financial debt and equity, reflects the firms' liability structure. The second, calculated as the ratio of net financial debt to ordinary earnings (gross operating profit plus financial revenue), proxies firms' ability to repay financial debt out of the funds generated during the year.

The CBQ data for 2020 show a deterioration of the financial position of the firms in this sample, mostly attributable to the decline in profits, since the increase in net debt appears to have been moderate. According to the data available in this survey, the proportion of companies with negative equity increased in 2020 from 3% to 4%, owing essentially to the losses generated over the course of the year. As for the debt indicators, the CBQ data show that the distribution of the firms by weight of net debt in corporate balance sheets did not change very significantly in 2020, reflecting the relatively moderate increase in net debt for the majority of firms in this sample. As discussed in the previous section, this seems in part linked to the fact that a proportion of the increase in gross debt has been earmarked for building up liquidity buffers. By contrast, the distribution of firms by ratio of net debt to ordinary earnings points to a more marked deterioration. Therefore, these results suggest that the heightened financial pressure borne by the firms in this sample as a result of the COVID-19 crisis owes more to the decline in corporate profits than to the increase in net debt, which appears to have been moderate for the sector as a whole.¹²

The micro-simulation exercises conducted by the Banco de España show a more marked deterioration of the financial position for the overall corporate sector.¹³ Thus, in 2020 the proportion of firms with negative equity increased by more than 9 pp (see Chart 3.7.1.1). Furthermore, the percentage of those presenting more vulnerable financing structures (understood as those with a net debt/balance sheet ratio of over 75%) increased by 7 pp in 2020. And the proportion of firms whose ratio of net debt to ordinary earnings exceeds 10 or which are loss-making rose by 15 pp (see Charts 3.7.1.2 and 3.7.1.3).

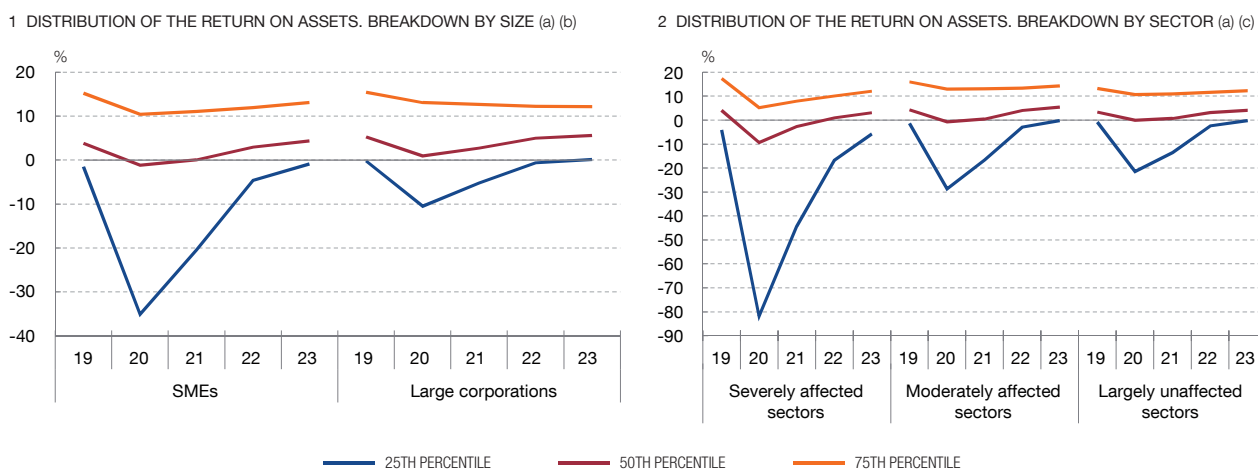
¹² See [Menéndez and Mulino \(2021b\)](#).

¹³ See footnote 10.

Chart 3.6

FIRMS' PROFITABILITY FELL SIGNIFICANTLY IN 2020 ON ACCOUNT OF THE COVID-19 CRISIS AND IS EXPECTED TO RECOVER GRADUALLY FROM 2021

On the micro-simulations conducted, the deterioration in profitability was especially severe in the sectors hit hardest by the COVID-19 crisis. From 2021, firms' profitability is expected to recover gradually. Median profitability for the corporate sector as a whole is not expected to return to pre-pandemic levels until 2023.



SOURCE: Banco de España.

- a Return on assets (ROA) = (Ordinary net profit + Financial costs) / Assets net of non-interest-bearing borrowing. Results obtained based on simulations consistent with the economic developments projected under the baseline scenario of the macroeconomic projections published by the Banco de España in March 2021. The results shown in these panels correspond to the median of 100 micro-simulations in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales for each sector and firm size is replicated.
- b The definition of size is in line with European Commission Recommendation 2003/361/EC.
- c Sectors are defined as severely affected by the COVID-19 crisis if their sales fell by more than 15% in 2020 and as moderately affected if their sales fell by between 8% and 15%. Other sectors are deemed to be largely unaffected.



The degree of vulnerability appears to have increased across all firm sizes and sectors of activity, albeit somewhat more acutely among smaller firms and, above all, in the sectors hardest hit by the crisis. The micro-simulation exercises indicate that, in 2020, the increase in the percentage of firms with negative equity and with high levels of debt was somewhat greater among SMEs than among large corporations. By sector, the severely affected sectors showed more acute downturns in all three indicators analysed (see Charts 3.7.1 and 3.7.2). It is also noteworthy that, before the crisis, there was a higher proportion of firms that were more vulnerable, based on these indicators, in the sectors hardest hit by the pandemic than in other sectors.

The projected developments over the coming years, under the Banco de España's latest baseline macroeconomic scenario (March 2021), point to a progressive stabilisation of the balance sheet structure indicators, while the debt-to-earnings ratio would gradually return to near pre-crisis levels. The simulation exercises suggest that the proportion of firms with negative equity and of those whose debt exceeds 75% of their balance sheet will increase moderately in 2021 and remain virtually unchanged in the subsequent two years. Conversely, the

pick-up in activity would, from 2021 onwards, allow a significant reduction in the proportion of firms with a net debt-to-ordinary earnings ratio above 10 or that are loss-making. Thus, by 2023 the percentage of vulnerable firms, as per this latter indicator, would be close to, albeit still somewhat higher than, pre-pandemic levels, except in the sectors severely affected by the crisis, where they would remain clearly higher.

3.3 Risks to corporate viability and solvency

The sharp downturn in corporate profitability in 2020 and the subsequent sluggish recovery, together with the increase in debt, could cause persistent damage to the financial position of some firms. These effects are proxied using two indicators, measuring, respectively, the risk of firms ceasing to be viable and the risk of them presenting solvency problems (overindebted firms) as a consequence of the crisis. Firms at risk of becoming non-viable are defined as those that would consistently accumulate losses in the period 2020-2023. Meanwhile, overindebted but viable firms are those with positive earnings in 2023 but that would find it difficult to repay their debt out of their expected future cash flows. A firm is deemed to face such difficulties when the ratio of estimated net debt for 2022 to ordinary earnings for 2023 exceeds a certain threshold.¹⁴ It is important to note that the existence of these risks does not necessarily mean a significant deterioration in the ability to repay bank loans in the short term. This is, first, because in many cases much of the debt of such at-risk firms is not bank debt. Second, this analysis does not take into account the debt maturity structure, which is an important determinant of the time pattern of potential defaults.¹⁵

According to the micro-simulations conducted by the Banco de España,¹⁶ the COVID-19 crisis will cause the proportion of firms at risk of becoming non-viable to rise moderately. Specifically, as compared with a counterfactual scenario of no pandemic, it would increase by between 2 pp and 3 pp, depending on whether the baseline macroeconomic scenario or a more adverse scenario is considered¹⁷ (see Chart 3.8.1). The share of employment in the non-financial corporations sector accounted for by firms that would become non-viable would stand between 2.7%

14 Net debt is defined as liabilities (interest-bearing and non-interest-bearing) less cash and cash equivalents, short-term financial investments, inventories and amounts receivable.

15 In particular, the greater the share of debt maturing in the short term, the higher the probability of defaults occurring.

16 Simulated based on information from the CBI for 2019 and the State tax revenue service for 2020, and on the changes associated with the projected economic developments under the two scenarios (baseline and severe) of the Banco de España's macroeconomic projections, published in March 2021. The results obtained are extrapolated to the entire corporate sector. The median of 100 micro-simulations is presented, in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales for each sector and firm size is replicated. For 2023, it is assumed that the firms recover a level of sales compatible with the expected performance of sectoral GVA in nominal terms in the period 2019-2023. In the period 2021-2023, sales are interpolated between their 2020 and 2023 levels based on the growth of sectoral GVA. For more details on the methodology used, see Blanco et al. (2021).

17 The more adverse scenario corresponds to the severe scenario of the Banco de España's March 2021 projections.

and 3.7%, while their share of total gross debt¹⁸ would be lower (between 0.6% and 1%, depending on the scenario considered). In any event, it should be noted that these estimates do not consider the potential structural changes in demand associated with the crisis and therefore may underestimate to some extent the risks relating to the viability of some firms' business.

There is high heterogeneity across firm sizes and sectors in the incidence of firms at risk of becoming non-viable. The increase in the percentage of firms in this situation on account of the crisis would be higher among SMEs than among large corporations. By sector, that percentage would rise far more markedly (by between 4.9 pp and 7.2 pp) in the sectors severely affected by the crisis.

The increased debt and the decline in expected future cash flows would also drive up the proportion of overindebted but viable firms. Specifically, it is estimated that, as compared with a scenario of no pandemic, the percentage of such firms would increase by 3 pp under the more benign scenario (baseline macroeconomic scenario and assuming that the threshold for overindebtedness – based on the ratio of estimated net debt for 2022 to ordinary earnings for 2023 – is 12 times).¹⁹ Under the adverse macroeconomic scenario and with a lower debt threshold (9 times; hereinafter, less benign scenario),²⁰ the increase would be 4.7 pp (see Chart 3.8.2).²¹ Overall, the firms that would become overindebted account for between 3.5% and 6.1% of employment and between 2.8% and 3.9% of gross debt in the corporate sector, depending on the scenario considered. For the sectors severely affected by the crisis, the percentage of overindebted but viable firms would rise by between 5.1 pp and 6.7 pp, while the increase in the other sectors (moderately affected and largely unaffected) would be considerably smaller. As noted in relation to the above estimates for the increase in firms at risk of becoming non-viable, these figures do not capture the possible effects of the crisis on the deterioration of corporate sector solvency associated with potential structural changes in demand. However, in this case, it should be borne in mind that the implicit assumption that firms will cover their financing needs over the coming years exclusively with debt would tilt the results in the opposite direction.²²

The unsustainable debt of firms that would become overindebted as a consequence of the COVID-19 crisis, but would remain viable, would stand

18 Includes interest-bearing and non-interest-bearing debt.

19 This threshold has been set assuming that firms are able to refinance their debts with a 15-year loan at the market interest rate. Under these conditions, a firm whose net debt is more than 12 times its ordinary earnings would have to earmark an amount exceeding its ordinary earnings to the annual repayment of that loan. The same threshold is used for the different firm sizes, given that there are no statistically significant differences in the average maturity of restructured loans based on borrower size.

20 This threshold has been set assuming that firms are able to refinance their debts with a 10-year loan at the market interest rate.

21 For more details on the methodology used, see Blanco et al. (2021).

22 Indeed, if firms were to cover their liquidity needs using own funds, their solvency would not be impaired.

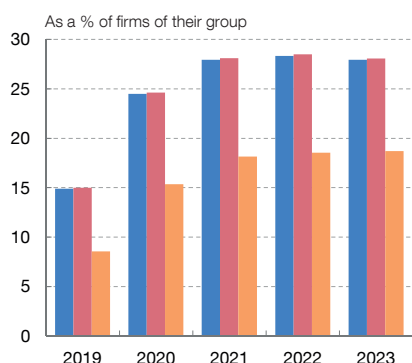
Chart 3.7

IN 2020, THE FINANCIAL POSITION OF SOME FIRMS DETERIORATED AS A RESULT OF THE COVID-19 CRISIS. A GRADUAL IMPROVEMENT IS EXPECTED FROM 2021 ONWARDS

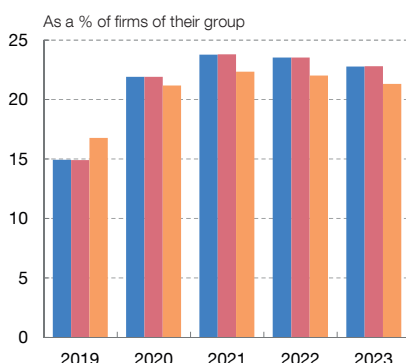
The deterioration in firms' financial position was more acute among SMEs and in the sectors most affected by the crisis. From 2021 onwards, a gradual decline in the proportion of vulnerable firms is expected, in line with the anticipated economic recovery.

1 BREAKDOWN BY SIZE (a) (c)

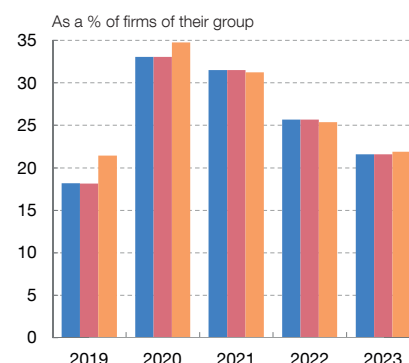
1.1 FIRMS WITH NEGATIVE EQUITY



1.2 MORE VULNERABLE FIRMS BASED ON THE RATIO OF NET FINANCIAL DEBT / (NET FINANCIAL DEBT + EQUITY) (d)



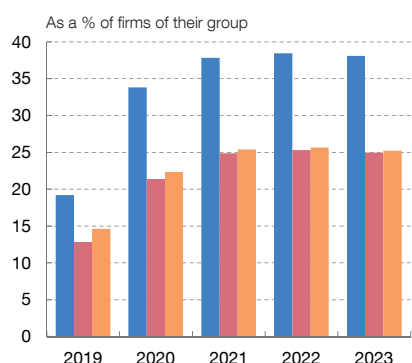
1.3 MORE VULNERABLE FIRMS BASED ON THE RATIO OF NET FINANCIAL DEBT / (GROSS OPERATING PROFIT + FINANCIAL REVENUE) (d)



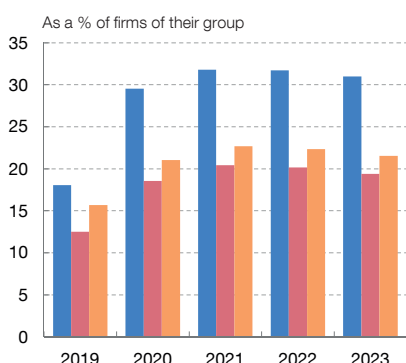
■ TOTAL ■ SMEs ■ LARGE CORPORATIONS

2 SECTORAL BREAKDOWN (b) (c)

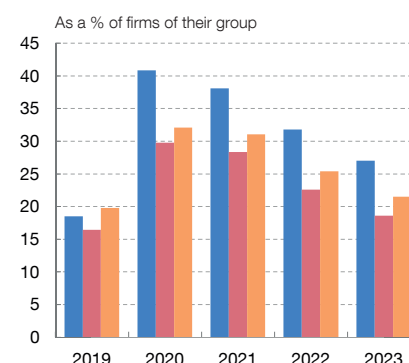
2.1 FIRMS WITH NEGATIVE EQUITY



2.2 MORE VULNERABLE FIRMS BASED ON THE RATIO OF NET FINANCIAL DEBT / (NET FINANCIAL DEBT + EQUITY) (d)



2.3 MORE VULNERABLE FIRMS BASED ON THE RATIO OF NET FINANCIAL DEBT / (GROSS OPERATING PROFIT + FINANCIAL REVENUE) (d)



■ SEVERELY AFFECTED SECTORS ■ MODERATELY AFFECTED SECTORS ■ LARGELY UNAFFECTED SECTORS

SOURCE: Banco de España.

- a The total excludes holding companies, financial services firms, property development and buying and selling of own real estate. The size definition is in line with European Commission Recommendation 2003/361/EC.
- b Sectors are defined as severely affected if their sales fell by more than 15% in 2020 and as moderately affected if their sales fell by between 8% and 15%. Other sectors are deemed to be largely unaffected.
- c Results obtained based on simulations consistent with the economic developments projected under the baseline scenario of the macroeconomic projections published by the Banco de España in March 2021. The results shown in these panels correspond to the median of 100 micro-simulations in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales for each sector and firm size is replicated.
- d Net financial debt is defined as interest-bearing borrowing less liquid assets and short-term financial investments. More vulnerable firms are defined as those whose Net financial debt / (Net financial debt + Equity) ratio is higher than 0.75 or whose Net financial debt / (Gross operating profit + Financial revenue) ratio is higher than 10 or that have positive net financial debt and negative or zero earnings.



between €9 billion and €19 billion, depending on the scenario considered, with just over half accounted for by SMEs (see Chart 3.8.3). In the simulation exercises, the unsustainable debt²³ of each firm is proxied by the portion of debt that exceeds the overindebtedness threshold. In other words, this measure indicates the amount by which these firms' debt would have to be reduced to avoid theoretical insolvency. The proportion of this unsustainable debt accounted for by SMEs would stand at around 73% under both of the scenarios considered.

This unsustainable debt is mainly concentrated in the sectors severely affected by the crisis, although other sectors likewise accumulate a significant amount.

In the severely affected sectors, the unsustainable debt generated by the pandemic ranges between €4 billion and €6 billion, depending on the scenario considered, representing between 40% and 34%, respectively, of the total increase in such debt for the corporate sector as a whole (see Chart 3.8.3). Accordingly, the other sectors of activity (moderately affected and largely unaffected) would, together, likewise accumulate a significant increase in unsustainable debt.

If sole proprietors are included, unsustainable debt would stand between approximately €10 billion and €20 billion. The relative weight of sole proprietors and SMEs in the unsustainable debt of agents that would have become overindebted as a consequence of the COVID-19 crisis, but would remain viable, would be close to 75% under both of the scenarios considered.²⁴

4 The economic implications of firms' financial vulnerability and the role of economic policy

4.1 Economic implications

The increase in firms' financial vulnerability generated by the COVID-19 crisis could have some negative implications for the economic growth outlook through various channels (see Figure 3.1). The empirical evidence shows that high corporate debt is associated with more sluggish investment and hiring decisions at firms, even at those with no solvency problems. In the literature, this is known as "debt overhang".²⁵ This sluggishness may owe to highly indebted firms using a large share of earnings from new and profitable projects to pay old creditors rather than remunerating shareholders, which could reduce the propensity to undertake new investment projects. In addition, financing conditions tend to be tighter for the most

23 Includes all types of financial and non-financial debt (trade credit, payables to employees, general government, etc.). In 2019, the share of bank loans in the total debt of firms that would remain viable but become overindebted stands at around 30%.

24 The unsustainable debt of sole proprietors is estimated by extrapolating the results for firms without employees. Specifically, the increase in unsustainable debt is calculated for each sector and multiplied by the ratio of sole proprietors in that sector to firms without employees.

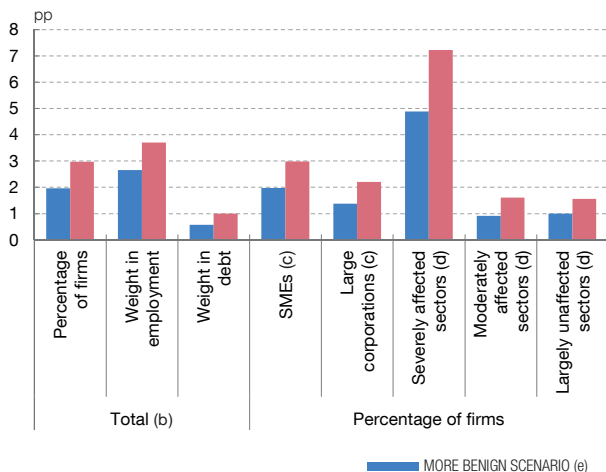
25 See Myers (1977).

Chart 3.8

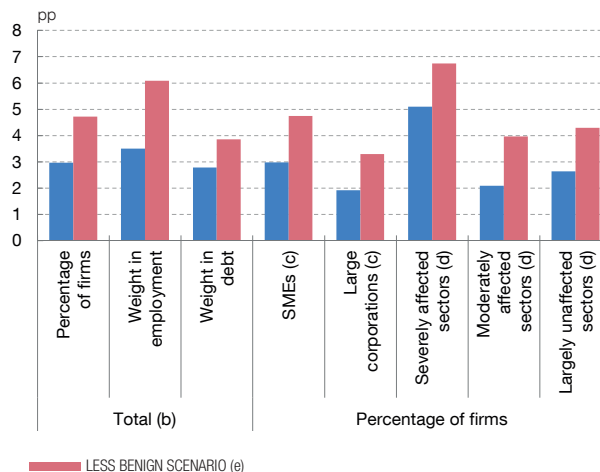
THE COVID-19 CRISIS HAS INCREASED THE PROPORTION OF FIRMS AT RISK OF NON-VIABILITY AND INSOLVENCY

The deterioration in firms' financial position, together with the decline in expected future cash flows, has driven up the proportion both of firms at risk of non-viability and of viable but overindebted firms. The unsustainable debt of firms finding themselves in the latter situation on account of the crisis would fluctuate between €9 billion under the more benign scenario and €19 billion under the less benign scenario.

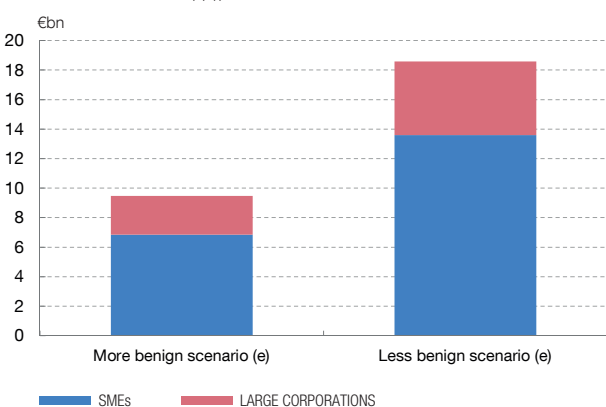
1 INCREASE, OWING TO THE COVID-19 CRISIS, IN THE PERCENTAGE OF FIRMS AT RISK OF NON-VIABILITY AND IN THEIR WEIGHT IN EMPLOYMENT AND DEBT (a)



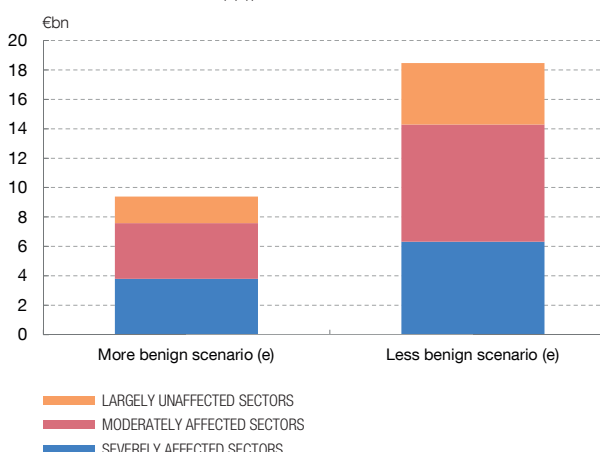
2 INCREASE, OWING TO THE COVID-19 CRISIS, IN THE PERCENTAGE OF VIABLE BUT OVERINDEBTED FIRMS AND IN THEIR WEIGHT IN EMPLOYMENT AND DEBT (a) (f)



3 UNSUSTAINABLE DEBT OF FIRMS THAT WOULD BECOME OVERINDEBTED BUT REMAIN VIABLE. BREAKDOWN BY SIZE (c) (f)



4 UNSUSTAINABLE DEBT OF FIRMS THAT WOULD BECOME OVERINDEBTED BUT REMAIN VIABLE. SECTORAL BREAKDOWN (d) (f)



SOURCE: Banco de España.

- a Changes, with respect to a counterfactual scenario of no pandemic, in the median of 100 micro-simulations in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales observed for each sector and firm size is replicated. The counterfactual scenario is consistent with the Banco de España's December 2019 macroeconomic projections. Firms at risk of non-viability are defined as those with negative ordinary earnings (the sum of gross operating profit and financial revenue) in 2023.
- b Excludes holding companies and firms in the following sectors: financial services, property development and buying and selling of own real estate.
- c The definition of size is in line with European Commission Recommendation 2003/361/EC.
- d Sectors are defined as severely affected if their sales fell by more than 15% in 2020 and as moderately affected if their sales fell by between 8% and 15%. Other sectors are deemed to be largely unaffected.
- e Scenarios consistent with the baseline scenario (more benign) and severe scenario (less benign) of the Banco de España's March 2021 macroeconomic projections. The results shown correspond to the median of 100 micro-simulations in which each firm is randomly allocated a variation in 2020 sales such that the distribution of sales observed for each sector and firm size is replicated.
- f Overindebted firms are defined as those with positive net debt in 2022 and whose debt ratio (calculated as Total net debt for 2022 / Ordinary earnings for 2023) exceeds 12 in the more benign scenario and 9 in the less benign scenario. Net debt is defined as borrowings (interest-bearing or non-interest-bearing) less cash and cash equivalents, short-term financial investments, inventories and debts pending collection.



indebted firms, which hampers access to and raises the cost of new funding to finance business growth. Therefore, if a high level of corporate debt were to extend to a significant proportion of firms, this would tend to depress growth in investment, aggregate productivity and GDP.²⁶

In the case of viable firms with solvency problems, a number of factors may lead to their inefficient liquidation, with potential adverse macroeconomic implications. Firms in this situation typically experience difficulties repaying their debt out of expected long-term cash flows, but also have a going-concern value that exceeds their liquidation value. Accordingly, the liquidation of these firms would be a sub-optimal solution from the standpoint of economic efficiency. Therefore, these companies would be able to continue operating if they manage to rectify their insolvency situation. However, certain frictions could bring about their inefficient liquidation. One factor that could lead to this outcome, particularly in private debt renegotiations,²⁷ is the so-called “holdout problem”. This can arise at firms with numerous creditors where each individual creditor has no incentive to accept debt reductions on their portion of the debt, on the premise that accepting them will reduce the incentive for other creditors to do likewise. Each creditor acting in the same way will result in the firm’s liquidation, despite it being viable, owing to a lack of coordination among creditors. Inefficient liquidations can also occur for firms (generally large corporations) whose social value exceeds their private value due to the high number of jobs that they generate or their multiple relationships with suppliers and customers.²⁸ The winding up of such firms would generate a negative externality for the overall economy. Given that private creditors do not internalise this effect and traditional insolvency systems are designed for idiosyncratic rather than systemic shocks, the upshot would be a socially inefficient number of corporate liquidations.²⁹ This would be accompanied by job destruction and loss of part of the productive system, with negative implications for short and medium-term economic growth.

The potential impact of the inefficient liquidation of firms that have solvency problems prompted by the COVID-19 crisis but remain viable could be significant. According to a macroeconomic model simulating a hypothetical extreme scenario that envisages the exit of all firms made overindebted by the crisis (but that remain viable), the maximum resulting loss in GDP one year after the shock would

26 See also Philippon (2010), Kalemli-Ozcan, Laeven and Moreno (2019), and Bickle and Santos (2020).

27 In private debt negotiations a consensus must be reached among all creditors, while in insolvency proceedings a qualified majority voting in favour of the restructuring would suffice.

28 For more details, see Blanchard, Philippon and Pisani-Ferry (2020).

29 A further circumstance that can lead to inefficient liquidations is where creditors have substantive decision-making power in insolvency proceedings and uncertainty over the firm’s future value is high. The problem is that the creditors’ claims structure based on the company’s value means that the amount receivable by each creditor from the insolvent company is limited to the value of the debt that they hold. Therefore, the creditors bear all of the downside risk vis-à-vis the value of the company but enjoy none of the upside risk; this tends to bias them towards liquidation. See Aghion, Hart and Moore (1992). However, Spain’s Insolvency Law is not clearly pro-creditor.

stand between 0.8% and 1.3%, depending on the severity of the scenario considered (see Box 3.1). It should be borne in mind that these estimates may underestimate the ultimate effect insofar as they do not capture certain channels that could be relevant, such as the effects associated with chains of bankruptcies owing to the trade and financial relationships between firms. If the effect of the liquidation of those firms rendered non-viable by the crisis is included, the total impact on GDP, again one year after the shock, would rise to between 1.4% and 2.1%. In any event, as discussed in the following paragraph, a swift and efficient exit from the market of non-viable firms can have beneficial effects on long-term growth.

In fact, the prolonged survival of non-viable firms may also have negative implications for medium and long-term economic growth. This circumstance arises when certain firms have a liquidation value that exceeds their business value – meaning it would be efficient to wind them up –, and yet they survive thanks to the support of other agents, such as their creditors or general government agencies. According to the economic literature, the survival of these companies, commonly known as “zombie” firms, has negative effects on the investment and employment of viable firms and represents an obstacle to the entry of new and more profitable firms. This leads to an inefficient allocation of resources, generating lower aggregate productivity in the economy and weaker economic growth in the medium and long term.³⁰

Lastly, should the business solvency problems extend to a considerable share of the corporate sector, the capital of their creditor banks could be affected. This could ultimately limit their financial intermediation capacity, with adverse macroeconomic implications. Indeed, losses materialising in banks’ credit portfolios could erode their capital. Should this fall below the minimum legal requirement or the levels demanded by the market, it could constrain new lending, with the attendant adverse effect on private sector spending decisions.³¹

4.2 The role of economic policy

The optimal solution for problems associated with firms’ indebtedness and viability depends on the position of the firm concerned. In the case of non-viable firms, a swift, orderly and efficient exit from the market should be encouraged. By contrast, the optimal solution for overindebted but viable firms would be to restore

30 See Caballero, Hoshi and Kashyap (2008), McGowan, Andrews and Millot (2017 and 2018), Acharya, Eisert, Eufinger and Hirsch (2019), and Acharya, Crosignani, Eisert and Eufinger (2020). According to the empirical evidence available for Spain (see González et al. (2021)), a higher incidence, within a given sector, of financially vulnerable firms whose investment and turnover are also persistently stagnant produces a decline in both employment and aggregate productivity in the medium term. Therefore, the survival of these firms can stymie the reallocation of resources to other firms with stronger potential for growth and job creation, which comes at a significant macroeconomic cost.

31 See Brunnermeier and Krishnamurthy (2020).

their financial position by means of, for example, recapitalisation or debt restructuring (debt reduction or conversion of debt into equity or hybrid instruments).

Although there are private mechanisms for implementing these solutions, in some cases the existence of frictions or inefficiencies would justify the intervention of economic authorities. For instance, against a backdrop of heightened uncertainty, private investors might be reticent to invest in firms' capital given the difficulties in assessing the business outlook for certain productive sectors. This particularly applies to small firms, since gathering information on their situation is more complex.³² To address these difficulties, which are especially significant in a climate of major economic uncertainty like that characterising the pandemic crisis, the public sector could invest directly in the firms affected, either by itself or in collaboration with the private sector (possibly offering incentives for the latter's participation). Another possibility would be to incentivise the restructuring of these firms' debt through various channels, or to bolster their financial position by granting direct assistance.

In any event, these potential public actions face significant implementation challenges. First, identifying firms that are in a highly vulnerable financial position and that simultaneously remain viable, i.e. those that should be provided with public support, is no simple matter. This is particularly true in the current context of heightened uncertainty regarding the potential structural effects of the crisis on changes in demand patterns. Second, the task is all the more challenging when it comes to small firms and sole proprietors – which represent a large portion of the Spanish productive system and have been hit comparatively harder by the crisis – owing to their high number and the typically lower availability of information regarding their economic and financial position and outlook. Lastly, instruments are not always available to efficiently channel public funds towards small firms in need of capital.

The Spanish Government has undertaken various actions during the current crisis to strengthen the balance sheets of viable firms with solvency problems. Specifically, last summer it set up a €10 billion fund to recapitalise firms affected by the COVID-19 crisis that are deemed strategic to the productive system (see Box 3.2). In March 2021, the Government approved a raft of measures, with a budget of €11 billion, structured around three main courses of action: direct assistance, recapitalisation of firms, and debt restructuring. The first of these accounted for the bulk of the funds (€7 billion).

The ultimate effectiveness of these measures will depend on their actual implementation and their adaptability, in terms of size and design, to developments regarding the impact of the pandemic on firms' economic and financial position. On the estimates presented in Section 3.3, under the more

³² See Berger, Klapper and Udell (2001).

benign of the scenarios considered in the above micro-simulations, the total budget of the programme approved in March 2021 (€11 billion) appears sufficient to cover the restructuring needs of firms and sole proprietors that remain viable but have accumulated unsustainable levels of debt as a result of the crisis. Therefore, the programme should be bolstered if less benign scenarios materialise.

The direct assistance programme approved by the Government focuses on improving the financial position of certain viable firms whose financial situation has deteriorated severely as a result of the crisis. This is particularly the case for smaller-sized firms and sole proprietors. As noted above, channelling resources in the form of capital poses difficulties which are particularly significant in the case of the smallest firms.

The direct assistance is allocated on the basis of simple criteria, which can make it easier to implement in a context of some urgency. However, such a design could reduce the effectiveness in the fulfilment of the objectives pursued. Insofar as the assistance eligibility requirements are based on criteria relating to belonging to certain sectors and the decline in turnover, there is a risk that not all viable but overindebted firms (and sole proprietors) will benefit. Indeed, the findings of the previous section show that insolvency problems would increase, albeit less extensively, even in sectors that are not among the hardest hit by the crisis. This is largely because the situation of insolvency analysed in the above exercises depends not only on the decline in turnover, but also on the firms' profitability and debt position prior to the crisis. In any event, flexibility in regional governments' application of the support programme approved in April could mitigate this risk.³³ Similarly, it cannot be ruled out that the symmetric risk will materialise. That is to say, the mechanical application of criteria relating to sector and recent turnover could lead to the programme's funds being allocated to firms and the self-employed that may not actually be clearly at risk of insolvency or in a situation of unsustainable indebtedness.

The measures adopted to date could be complemented by other measures to encourage private recapitalisations. For example, consideration could be given to reducing or eliminating the tax bias towards the raising of funds in the form of debt rather than capital, or other kinds of tax incentives. This bias arises from the deductibility of debt interest from the corporate income tax base, which is a disincentive for firms to issue shares. Alternatively, the possibility of introducing incentives for investors in these instruments could be explored.

Another ostensible priority in the current context of deteriorating business solvency is the improvement of debt restructuring mechanisms. Debt can be

³³ Royal Decree-Law 6/2021 of 20 April 2021 adopting complementary support measures for firms and the self-employed affected by the COVID-19 pandemic.

restructured through formal insolvency proceedings or out-of-court proceedings, be they pre-insolvency arrangements or private renegotiations (see Box 3.3). The foreseeable increase in congestion in the Commercial Courts due to a surge of bankruptcy filings once the insolvency moratorium expires (currently scheduled for the end of the year) suggests the need to encourage out-of-court proceedings as an alternative. This is essentially because insolvency proceedings tend to be lengthy and costly, which reduces a firm's business value and results in its liquidation. Meanwhile, the success of private renegotiations is limited by the problems discussed above relating to collective action.

In the current circumstances, it would be worthwhile fostering pre-insolvency arrangements and reviewing the role of public sector creditors. One advantage of pre-insolvency arrangements over wholly private solutions is that the enforcement of guarantees on the debtor's assets is suspended during negotiations between the firm and its creditors, thus preventing the firm from being dismantled. There is a crucial role for the public sector to play in incentivising both these arrangements and insolvency proceedings, given that public credit can represent a considerable share of firms' liabilities, particularly for small firms.³⁴ Furthermore, as a claimant the public sector is diversified among all taxpayers, which means, a priori, it is better positioned to assume any losses stemming from potential debt relief.

Consideration could also be given to designing specific insolvency mechanisms for small firms. To be successful, these proceedings should be designed to be faster and less costly than insolvency proceedings for larger firms. Standardised and highly automated solutions, aimed at facilitating the debt restructuring of small firms, would be of particular value in this regard.³⁵ That automation could benefit from the fact that these firms tend to have simpler capital structures than their larger counterparts, since they usually have fewer creditors.

5 The impact of the financial vulnerability in productive sectors on deposit institutions

5.1 Deposit institutions' exposure to productive sectors

Banks' exposure to productive activities has increased since the onset of the pandemic, especially in the riskier segments. In 2020, credit to non-financial corporations and sole proprietors increased by 8.9%. Rapid access to the ICO

³⁴ In their reports on the Spanish economy, both the International Monetary Fund (2013, 2014 and 2015) and the Organisation for Economic Co-operation and Development (2018) have recommended that public law claims (taxes and Social Security contributions) be eligible for negotiation in pre-insolvency arrangements and insolvency proceedings and waived in bankruptcies of sole proprietors and small firms. According to these organisations, such reforms would improve the efficiency of insolvency proceedings in Spain.

³⁵ See, for example, Skeel (2020).

guarantee facility in 2020 Q2 more than offset the decline in the stock of credit (due to repayments and write-offs) in that period, while its impact in H2 was far more muted owing to the slowdown in the scheme's deployment, with a net reduction of the stock of credit to productive activities (see Chart 3.9.1). In the year as a whole, growth was strongest (21.5%) in the sectors severely affected by the pandemic, whereas the increase was 12.7% in the moderately affected sectors and 2.4% in those that were largely unaffected.³⁶ Bank lending to SMEs and sole proprietors increased at a somewhat faster rate (close to 10%) than that to larger firms (around 8%). In any event, the dispersion among banks of the credit growth in the riskier segments (sectors severely affected by the pandemic and SMEs) is relatively high (see Chart 3.9.2).³⁷

At end-2020, lending to the sectors severely affected by the pandemic accounted for a relatively low share (less than 20%) of total bank lending to businesses. However, if the moderately affected sectors are included, the exposure exceeds 50% of the total, which is similar to the share of total financing extended to SMEs (see Chart 3.10.1). The percentage of exposures guaranteed by the State through the ICO facilities in relation to total lending is higher in the moderately affected sectors (26%) than for the rest of the portfolio (18% for the severely affected sectors and 12% for the largely unaffected sectors). However, the bulk of the lending extended through ICO guarantee facilities went to firms in the largely unaffected or moderately affected sectors (41% and 36%, respectively). By firm size, the share of State-guaranteed credit is higher in the SMEs segment. The dispersion among banks of the exposure to the severely affected sectors and of the portion covered by State guarantees is low. However, there is greater variability in the share of the portfolio accounted for by loans to SMEs (see Chart 3.10.2).

5.2 The effects on banks' balance sheets and results in 2020

The adverse effects of the COVID-19 pandemic on economic activity have not, thus far, led to an increase in non-performing loans (NPLs) in financing extended to the corporate sector, although they have prompted an increase in Stage 2 loans. This is explained, at least in part, by the public support measures such as the guarantee schemes and, to a lesser extent for this sector, by the loan

³⁶ The data availability with respect to bank exposures precludes the use of exactly the same classification by economic activity as in the previous sections, but the approximation is very close. The severely affected sectors include accommodation and food services, the manufacture of refined petroleum products, social services and entertainment, transportation and storage, and the manufacture of transport equipment. The moderately affected sectors include basic metals, the manufacture of machinery, other manufacturing, professional services, mining and quarrying, wholesale and retail trade, and repair of vehicles. The largely unaffected sectors comprise the group of other productive activities.

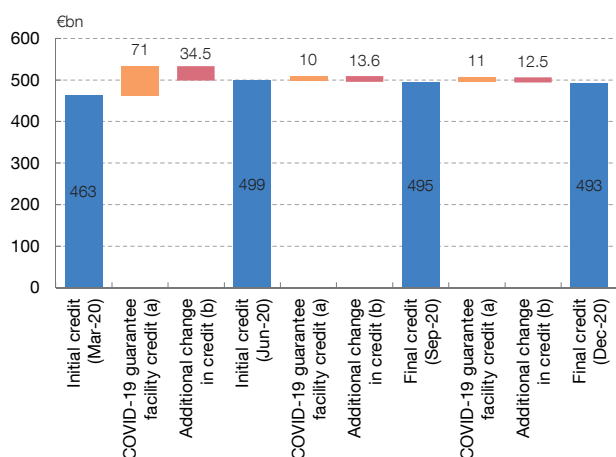
³⁷ Chart 3.9.2 shows that the median growth in lending to SMEs and sole proprietors is lower than that for large corporations. This has not prevented the volume-weighted average growth being higher in the smaller-sized firms segment for deposit institutions as a whole.

Chart 3.9

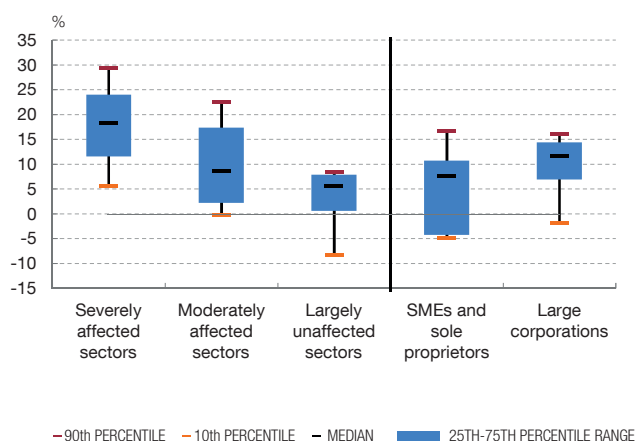
THE IMPACT OF THE COVID-19 GUARANTEE FACILITY ON THE GROWTH OF BUSINESS LENDING WAS VERY MARKED IN 2020 H1 AND MORE LIMITED IN H2, WITH A HETEROGENEOUS EFFECT BY SECTOR AND FIRM SIZE

The launch of the State guarantee facility for firms and sole proprietors approved by Royal Decree-Law 8/2020 stimulated growth in the stock of bank credit to this sector in 2020, particularly in the quarter following its approval. However, its impact in 2020 H2 was very limited. Stronger growth was observed in the sectors severely affected by the pandemic, with notable heterogeneity among institutions. Nevertheless, the greatest dispersion across institutions came in the moderately affected segment. ICO guarantees have provided significant support to SME financing, albeit again with considerable dispersion among institutions.

1 CHANGE IN BANK CREDIT TO NON-FINANCIAL CORPORATIONS AND SOLE PROPRIETORS BETWEEN MARCH AND DECEMBER 2020 (a) (b)
Dls. Individual data. Business in Spain



2 CHANGE IN CREDIT IN 2020 BY SECTOR OF ACTIVITY AND FIRM SIZE (c) (d)
Dls. Individual data. Business in Spain



SOURCES: ICO and Banco de España.

- a COVID-19 guarantee facility of Royal Decree-Law 8/2020 up to a total of €100 billion. The total guaranteed credit granted up to December 2020 amounted to €115 billion, with around €92 billion actually drawn down by non-financial corporations and sole proprietors.
- b The additional change in credit to non-financial corporations and sole proprietors reflects the change in the stock of credit not explained by the implementation of the COVID-19 guarantee scheme, which corresponds to the net difference between new lending outside the guarantee scheme and repayments and write-offs.
- c Shown are the year-on-year rates of change for the 10th, 50th and 90th percentiles and the interquartile range for significant institutions.
- d The severely affected sectors include accommodation and food service activities, the manufacture of refined petroleum products, social services and entertainment, transportation and storage, and the manufacture of transport equipment. The moderately affected sectors include the manufacture of basic metals, the manufacture of machinery, other manufacturing, professional services, mining and quarrying, wholesale and retail trade, and repair of vehicles. The other productive activities comprise the group of largely unaffected sectors.



moratoria.³⁸ Thus, for 2020 as a whole, NPLs arising from credit to non-financial corporations and sole proprietors declined by 1.8%, although this drop was far more muted than that recorded in previous years (the decline in 2019 exceeded 23%). Meanwhile, forbore performing loans shrank at a year-on-year rate of 13.9% in 2020, similar to the drop of 13.2% in 2019. However, the sharp increase in corporate loans classified as Stage 2³⁹ is noteworthy, growing at a rate of 37% in 2020,

38 The moratoria entail the temporary suspension of payment obligations deriving from credit agreements; they mostly affect individuals but may also apply to firms. The characteristics of the legislative moratoria and the eligible borrowers are set out in the corresponding Royal Decrees: [Royal Decree-Law 8/2020](#), [Royal Decree-Law 11/2020](#), [Royal Decree-Law 26/2020](#) and [Royal Decree-Law 25/2020](#). The moratoria arrangements between lending institutions and their customers are also provided for in the agreements fostered by banking associations (banking sector moratoria) and envisaged in [Royal Decree-Law 19/2020](#).

39 Loans for which credit risk has increased significantly since their initial recognition, but with insufficient credit impairment to be classified as non-performing.

compared with a decline of around 4% a year earlier (see Chart 3.11.1). Stage 2 loans to the corporate sector amounted to €48.6 billion in December 2020, equivalent to 9.8% of this portfolio.

Developments in troubled assets (NPLs and Stage 2 loans) have been uneven across the sectors of activity. For the sectors severely affected by the pandemic, the distribution among institutions of the weight of troubled assets in the portfolio has shifted towards higher values, while the dispersion among institutions has simultaneously increased. By contrast, the distribution of this metric for the other sectors has held relatively stable (see Chart 3.11.2). The troubled loans ratio for deposit institutions as a whole has risen by 5.3 pp in the hardest-hit sectors, while it increased by 1.3 pp in the moderately affected sectors and remained stable in the other sectors. All this reflects banks' greater risk perception for exposures to firms operating in the activities hardest hit by the crisis.

Despite the stability observed in NPLs, bank profitability in Spain declined in 2020, largely as a result of the increase in impairment provisions for the portfolio of loans for productive activities. On data in the individual statements of business in Spain, the aggregate return on assets (ROA) fell by close to 70 basis points (bp), into negative territory (-0.12%). The growth of impairment provisions for loans for productive activities in Spain appears to have contributed in part to these developments, as illustrated by the negative correlation between this item and the change in ROA in 2020 (see Chart 3.12.1).

Bank profitability is also being affected by the reduction in interest income on lending to productive activities. The banking sector's interest income on loans to resident non-financial corporations fell in 2020 (by 13 bp, relative to the loan volume in the previous year). These developments were similar to those in overall interest income for loans extended to the private non-financial sector. However, in the case of business loans, the changes in volume (positive effect of 17 bp) and in average interest rates (negative effect of -28 bp) have been more marked and partially offset each other (see Chart 3.12.2). The adverse effect of the reduction in average interest rates could, in part, be linked to the improvement in financing conditions and the lower credit risk of guaranteed loans. In this case, the benefits in terms of lower future credit losses would therefore offset, at least in part, the reduction in current income.

5.3 Outlook for credit risk developments

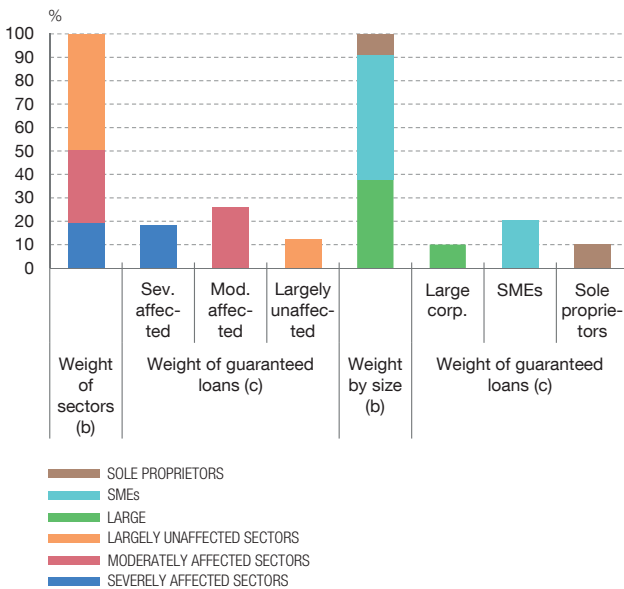
Historical experience shows that economic recessions have a significant impact on the profitability of productive sectors, with the credit quality of financial institutions' exposures to these sectors subsequently deteriorating. In the wake of the 2008 global financial crisis, very significant across-the-board

Chart 3.10

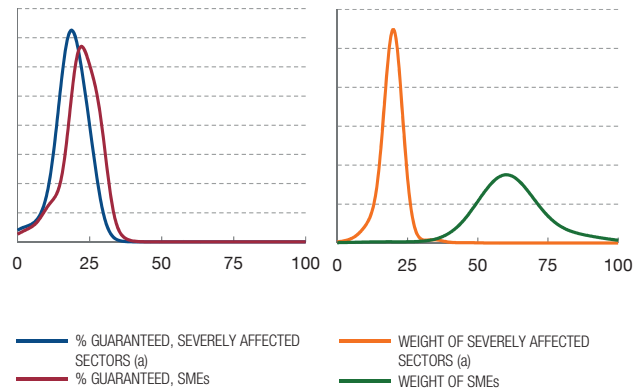
THE EXPOSURE OF DEPOSIT INSTITUTIONS TO THE SEVERELY AFFECTED SECTORS IS RELATIVELY LOW, BUT IT IS HIGH TO MODERATELY AFFECTED SECTORS AND SMEs

Relative to total business lending, exposure to the severely affected sectors (less than 20% on average) and its dispersion among banks is low, which limits the attendant risks for the banking sector. However, the relative weights of firms in moderately affected sectors (more than 30%) and of credit to SMEs (more than 50% on average) are higher, with greater dispersion among banks in the latter category. The percentage of guaranteed exposures relative to total lending is comparatively higher in the severely and moderately affected sectors, as it is in the smaller firms segment, with low dispersion among banks.

1 PERCENTAGE OF GUARANTEED CREDIT BY SECTOR AND FIRM SIZE, AND THEIR RELATIVE WEIGHT (a)
Dls. Individual data. Business in Spain. December 2020



2 DISTRIBUTION OF THE PERCENTAGE OF GUARANTEED CREDIT IN SEVERELY AFFECTED SECTORS AND SMEs, AND THEIR WEIGHT IN TOTAL LENDING TO PRODUCTIVE ACTIVITIES (d)
Dls. Individual data. Business in Spain. December 2020



SOURCES: ICO and the Banco de España Central Credit Register.

- a The severely affected sectors include accommodation and food service activities, the manufacture of refined petroleum products, social services and entertainment, transportation and storage, and the manufacture of transport equipment. The moderately affected sectors include the manufacture of basic metals, the manufacture of machinery, other manufacturing, professional services, mining and quarrying, wholesale and retail trade, and repair of vehicles. The other productive activities comprise the group of largely unaffected sectors.
- b Weight of the volume of lending to each sector of activity, classified by their sensitivity to the pandemic and by firm size, as a proportion of total lending to non-financial corporations and sole proprietors.
- c For each segment, by sectoral sensitivity to the pandemic and by firm size, the weight of credit with an ICO guarantee as a proportion of total loans
- d The charts show the density function of the corresponding variables weighted by the amount of credit to the severely affected sectors and to SMEs (left-hand panel) and by the total amount of credit to business activity (right-hand panel). This function is approximated through a kernel estimator, which allows a non-parametric estimate of the density function, yielding a continuous and smoothed graphical representation of that function.



growth was observed in the NPL ratio of loans for productive activities, which persisted until 2013. Specifically, the NPL ratio reached 20.9% in this portfolio (37.3% in the case of construction and real estate activities). The deterioration in credit quality was accompanied by a loss of production capacity, having been preceded by adverse changes in firms' profitability and their debt burden, which posted its worst figure in 2012 (see Charts 3.13.1 and 3.13.2).

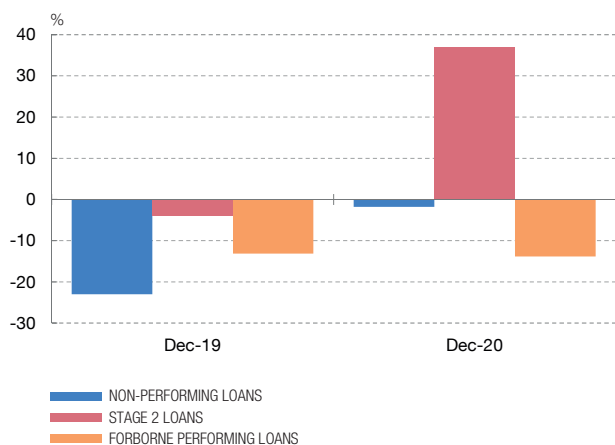
In the current crisis, the swift and broad deployment of public support measures has, so far, contributed to substantially mitigating the deterioration

Chart 3.11

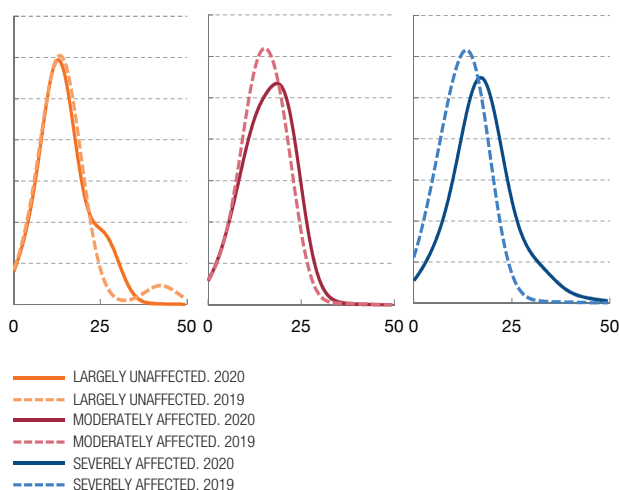
THE VOLUME OF NPLs IN LENDING TO BUSINESS HAS NOT INCREASED SINCE THE ONSET OF THE PANDEMIC, ALTHOUGH THERE HAS BEEN AN INCREASE IN STAGE 2 LOANS, WHILE DEVELOPMENTS IN TOTAL TROUBLED ASSETS HAVE BEEN UNEVEN ACROSS SECTORS OF ACTIVITY

The decline in NPLs in loans to business observed in recent years slowed in 2020, while the rate of reduction in forborne performing loans to non-financial corporations was unchanged. Stage 2 business loans have risen sharply since the onset of the COVID-19 pandemic, at a year-on-year rate of close to 40%. By sector of activity, the proportion of troubled assets increased more in the sectors severely affected by the pandemic, where cross-institution heterogeneity was likewise higher. The distribution of this proportion deteriorated only slightly in the moderately affected sectors, while there was a slight improvement in the largely unaffected sectors.

1 YEAR-ON-YEAR RATE OF CHANGE IN TROUBLED AND FORBORNE PERFORMING LOANS FOR BUSINESS ACTIVITY
Dis. Individual data. Business in Spain (a)



2 DISTRIBUTION OF TROUBLED LOAN RATIO BY SECTOR OF ACTIVITY (b) (c)
Dis. Individual data. Business in Spain



SOURCE: Banco de España.

- a The categories of Stage 2 loans and forborne or refinancing transactions are not mutually exclusive, particularly as of the entry into force of Banco de España Circular 3/2020 of 11 June 2020, amending Circular 4/2017 of 27 November 2017 to credit institutions on public and confidential financial reporting rules and financial statement formats.
- b The troubled loan ratio considers the proportion of non-performing exposures and Stage 2 exposures relative to the total lending of deposit institutions in Spain to non-financial corporations and sole proprietors. The density function of this variable is approximated through a kernel estimator, which allows a non-parametric estimate of the density function, yielding a continuous and smoothed graphical representation of that function.
- c The severely affected sectors include accommodation and food service activities, the manufacture of refined petroleum products, social services and entertainment, transportation and storage, and the manufacture of transport equipment. The moderately affected sectors include the manufacture of basic metals, the manufacture of machinery, other manufacturing, professional services, mining and quarrying, wholesale and retail trade, and repair of vehicles. The other productive activities comprise the group of largely unaffected sectors.



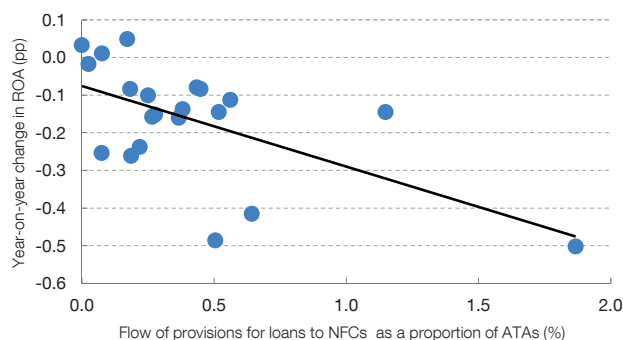
in borrowers' repayment capacity, thereby helping prevent an increase in the business exit rate. As discussed above, contrary to what happened in the previous global financial crisis, the unprecedented drop in GDP in 2020 has not, to date, led to rising NPLs in loans to business, despite the deterioration in firms' financial situation, as shown in previous sections (see Chart 3.13.1). This difference appears to be largely due to the public measures to support the productive sectors deployed during the current crisis – which have sustained businesses' debt repayment capacity –, and to the credit support measures and banks' stronger starting position, which has enabled them to accommodate the increase in demand for financing for productive activities.

Chart 3.12

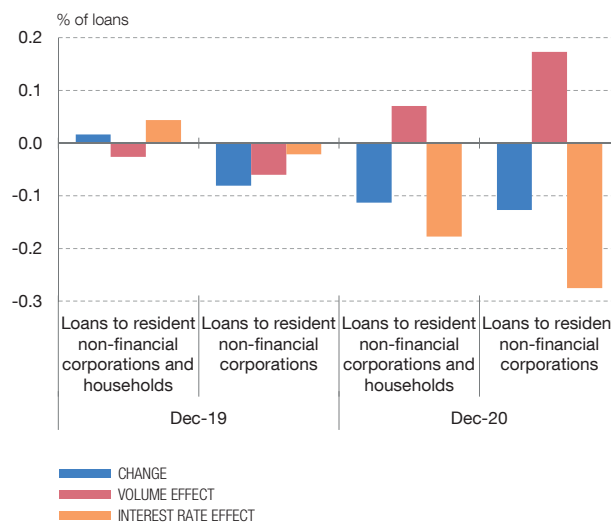
IN 2020, A NEGATIVE CORRELATION IS OBSERVED BETWEEN IMPAIRMENT PROVISIONS FOR LOANS TO NON-FINANCIAL CORPORATIONS AND THE PROFITABILITY OF THE BANKING BUSINESS IN SPAIN, WHILE A REDUCTION IN INTEREST RATES CONTRIBUTED TO LOWER INCOME GENERATION IN THIS SEGMENT

Provisions have increased owing to the potential impact of the COVID-19 crisis on the credit quality of loans to non-financial corporations; the increase appears to be associated with lower profitability for banks in Spain in 2020. Interest income on loans to non-financial corporations and households declined last year, and the business sector experienced greater relative shocks in relation to volume (positive effect) and interest rates (negative effect). The increase in volume is clearly linked to the deployment of the ICO guarantee facility approved by Royal Decree-Law 8/2020, but more favourable credit standards due to moderating credit risk appear also to have contributed to the decline in interest rates on business loans.

1 FLOW OF PROVISIONS FOR LOANS TO NFCs RELATIVE TO ATAs AND CHANGE IN ROA IN 2020 (a)



2 ESTIMATED CHANGE IN INTEREST INCOME ON CREDIT Dis. Breakdown of effects (b)



SOURCE: Banco de España.

- a The sector's largest institutions (by average total assets in 2020) are included, except for two institutions which registered a very sharp change in ROA in 2020 owing to highly significant negative extraordinary adjustments.
- b The estimated change in interest income on credit (Interest income t - Interest income t-1) breaks down as follows: 1) the volume effect $((\text{Loans } t - \text{Loans } t-1) \times (\text{Interest income } t-1 / \text{Loans } t-1))$, and 2) the interest rate effect $(\text{Loans } t-1 \times ((\text{Interest income } t / \text{Loans } t) - (\text{Interest income } t-1 / \text{Loans } t-1)))$. Each of these effects is relative to the volume of loans in (t-1).



The fact that NPLs have not increased in the near term does not rule out the possibility of greater credit default risk materialising in the medium term. In the global financial crisis, stock price corrections were very pronounced during the initial phase (2008-2009), despite the increase in NPLs being contained across most sectors during that time relative to the deterioration observed in the broader period 2008-2013 (see Chart 3.13.3). This historical experience shows that credit risk materialises with some delay after a shock occurs.

The decline in stock prices for the sectors hardest hit by the pandemic provides an implicit signal of increased credit risk, although the cumulative stock price falls have eased following the rises posted in recent months. Stock prices for sectors such as hospitality, leisure and transportation have deteriorated since March 2020, as have those of the banking sector, which is exposed to the credit risk of

business activities (see Chart 3.13.3). This performance coincided with greater uncertainty about the profitability of non-financial corporations and it therefore appears to be reasonably associated with a more negative perception among investors of the latent credit risk.⁴⁰ Nevertheless, the recovery in stock prices in recent months could suggest an easing of these signs of risk.⁴¹

Credit default risk could materialise once the effects of the support measures peter out, although part of their mitigating impact is expected to extend beyond the near term. While the moratoria and public guarantee schemes⁴² have some exclusively short-term effects (for instance, payment deferrals), by preventing the triggering of chains of bankruptcies, they also help maintain activity and the ability to pay bank debt over a longer time frame. The new support measures in Royal Decree-Law 5/2021 to shore up the financial position of firms and the self-employed are also expected to directly strengthen the recipients' payment capacity over a longer horizon. Further, the existence of the public guarantee scheme, as a mitigator of banks' losses, is likely to lessen the sensitivity of bank solvency to the deterioration in the quality of credit extended to non-financial corporations compared with that observed in the 2008-2013 crisis (see Chart 3.13.4). Banks also have more capital now, bolstered by the regulatory reform in response to that crisis, and are therefore in a position to bear greater deterioration without their lending capacity being affected.

The differences between the current crisis and that of 2008-2013, in terms of the composition of the banking sector's credit portfolio and the nature of the shock, could also limit to some extent the increase in NPLs in lending to business during this crisis. In the run-up to 2008, the construction and real estate development sectors took on a systemic dimension both in terms of economic activity and the volume of credit (accounting for around 50% of lending to productive activities in 2008). The current concentration of lending in the sectors most affected by the pandemic is much more limited (close to 20%). That said, if the moderately affected sectors are included, the weight of the portfolio approaches 50% of loans for productive activities in Spain. The medical advances against the pandemic could limit the duration of the adverse effects of this crisis, as it originated in an exogenous shock to the financial system, rather than in the build-up of unsustainable imbalances in the productive system (as occurred in the previous crisis, and which required a prolonged period of correction).

40 Stock prices would reflect the latent credit risk of larger firms. This can be interpreted as a lower bound for SMEs and sole proprietors, which have less access to financing than larger firms. The negative trajectory of the banking sector (the main funding provider for these smaller-scale entrepreneurs) also appears to be influenced by an adverse outlook for this sector.

41 In any event, it should be borne in mind that share prices move not only because of changes in firms' earnings expectations, but also owing to other factors, such as changes in interest rates, in the degree of uncertainty, and in investors' risk aversion.

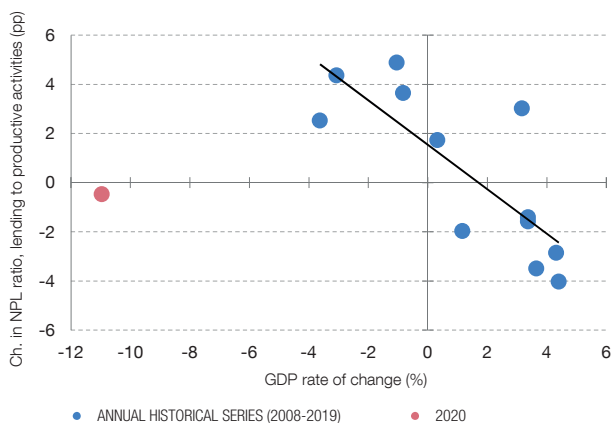
42 Most of the loans under the guarantee scheme include a grace period on principal payments.

Chart 3.13

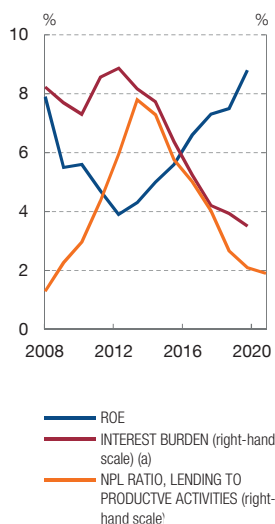
THE SHARP CONTRACTION IN GDP HAS NOT, SO FAR, RESULTED IN AN INCREASE IN NPLs IN LENDING TO PRODUCTIVE ACTIVITIES THANKS TO THE PUBLIC SUPPORT MEASURES. HOWEVER, NPLs COULD RISE IN THE MEDIUM TERM AND AFFECT BANKS' CAPITAL

As evidenced by the global financial crisis, a severe contraction in activity weakens firms' financial situation, which anticipates impairment of their credit quality and potential damage to the productive system. However, in the current crisis the support measures have so far prevented this adverse scenario from materialising and sustained businesses' debt repayment capacity, despite the slump in activity and income. In any event, the stock market performance of some sectors since March 2020, much of which has been reversed in recent months, provides an implicit signal of increased perceived credit risk among investors. Its materialisation would have a negative impact on bank solvency, although lower sensitivity to a given increase in the NPL ratio is to be expected owing to the presence of support measures, such as the ICO guarantees.

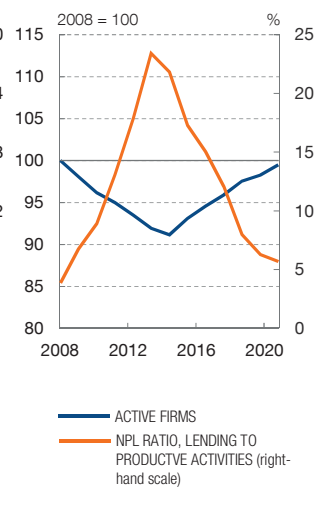
1 RATE OF CHANGE OF GDP AND CHANGE IN THE NPL RATIO FOR PRODUCTIVE ACTIVITIES



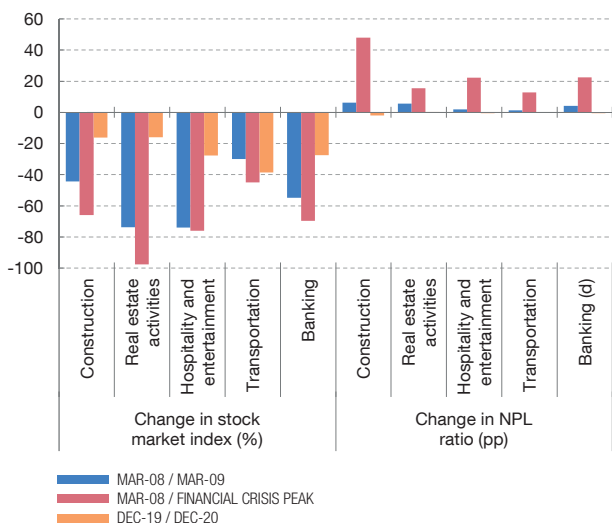
2.1 ROE, INTEREST BURDEN AND NPL RATIO



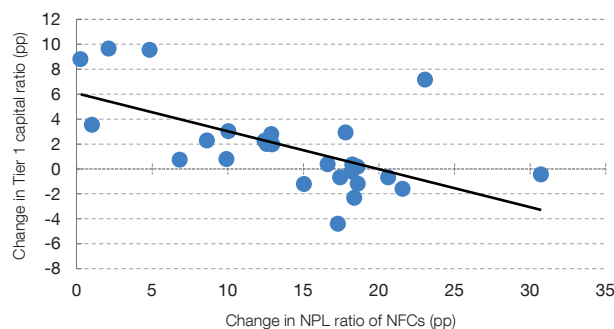
2.2 NPL RATIO AND CHANGE IN NUMBER OF ACTIVE FIRMS (b)



3 CHANGE IN THE STOCK MARKET INDICES AND NPL RATIOS OF THE MAIN SECTORS IN THE GLOBAL FINANCIAL CRISIS AND IN THE CURRENT CRISIS (c)



4 CHANGE IN THE NPL RATIO OF NFCs AND IN THE TIER 1 RATIO BETWEEN 2008 AND 2012



SOURCES: Banco de España, INE and Thomson Reuters.

- a The interest burden is defined as the ratio of interest on funding received to the sum of gross operating profit and financial revenue.
- b The number of active firms is calculated at 1 January of each year.
- c The chart shows the change in the non-performing loan ratio and in the stock market index of some sectors of the Madrid Stock Exchange. Shown is the change in the first year of the global financial crisis (March 2008-March 2009), from the onset of the global financial crisis to its peak (for NPLs) and trough (for market levels), and in the first year of the current crisis (December 2019-December 2020).
- d The NPL ratio for the banking sector refers to the NPL ratio of non-financial corporations as a whole.



Despite these mitigating factors, the quality of banks' credit portfolios could be significantly affected if the crisis ultimately brings about persistent damage to corporate sector balance sheets. The historical evidence suggests that a hypothetical prolongation of the financial vulnerability in the productive sectors could be accompanied by a notable deterioration in bank solvency. Under extreme scenarios, this could limit banks' intermediation capacity, with the consequent adverse impact on the prospects of economic recovery (see Chart 3.13.4).⁴³ This underscores the need to strengthen firms' financial situation in order to prevent this risk scenario from materialising. In this context, close monitoring of firms' financial position is essential so as to identify any signs of additional deterioration at an early juncture and to adopt the containment measures needed, should such deterioration occur.

43 In the period 2008-2013, the Tier 1 capital ratio increased for banks as a whole owing to the 2013 data incorporating the government intervention aimed at strengthening their capital. The period 2008-2012 has therefore been considered so as to exclude the effect of this intervention, although a negative relationship can be observed between the increase in the NPL ratio and the change in the Tier 1 capital ratio both in 2008-2012 and in 2008-2013.

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THE MACROECONOMIC EFFECT OF THE VIABILITY AND SOLVENCY PROBLEMS OF FIRMS CAUSED BY THE COVID-19 CRISIS

The analysis of the financial position of Spanish firms presented in the main text provides an estimate of the percentages of such firms that, as a consequence of the COVID-19 crisis, are at risk of becoming non-viable or that, although viable, are over-indebted. The first group of firms is destined to exit the market, while the latter may survive if they manage to turn around their situation by means of a debt restructuring, recapitalisation or public support in the form of direct assistance.

According to the results of the analysis mentioned in the main text (summarised in the first two columns of Table 1), firms that under the more benign scenario (consistent with the baseline macroeconomic scenario of the Banco de España's March 2021 projections and with a debt threshold of 12 times earnings, for the purposes of determining whether a situation of over-indebtedness exists) will become over-indebted as a result of the crisis, while remaining viable, accounted for 1.8% of pre-pandemic investment and 3.5% of pre-pandemic employment. Under the less benign scenario (consistent with the severe macroeconomic scenario of the Banco de España's March 2021 projections) those percentages rise to 3.1% of investment and 6.1% of employment. When firms that will become at risk of being non-viable are also included, these shares rise to 2.3% of investment and 6.1% of employment under the more benign scenario and to 3.8% of investment and 9.8% of employment under the less benign scenario. These figures represent the direct impact on aggregate investment and employment that the disappearance of these groups of vulnerable firms would have under each of the scenarios considered.

These direct impacts, however, underestimate the overall effect of a shock of this type, owing to the existence of certain general equilibrium effects. To enable this overall effect to be approximately quantified, simulations conducted using the Quarterly Model of the Banco de España (MTBE,¹ by its Spanish initials) are presented below. This macroeconomic model, estimated using historical series for the Spanish economy, captures the general equilibrium effects of a fall in unemployment on household income and spending decisions and how firms, in the face of lower demand, reduce their own demand for employment and investment. In addition to these amplifying effects, the model also incorporates certain

dampening channels, associated with price reductions and with automatic stabilisers, such as those arising from the increase in unemployment benefits increase. Also, as a consequence of the decline in incomes, direct taxes and social contributions decrease and, as a result, real household disposable income falls by less than employment. It should be noted, however, that the model does not capture certain financial channels, such as, for example, the effects associated with multiple business failures resulting from the commercial and financial relationships between firms.

The exercises summarised below quantify the effects on GDP of the possible loss of production capacity associated with the problems of business viability and solvency generated by the COVID-19 crisis, under different macroeconomic scenarios. The disappearance of the affected firms is assumed to take place gradually during 2021.

When the impact of the shock is simulated using the MTBE (the first two columns of Table 1 show the size of the shock and the other three show the results of the simulation), the amplifying effects are more pronounced in terms of business investment than in terms of employment, as the automatic stabilisers are more effective in the case of employment, ensuring that the dampening channels almost completely offset the amplifying ones. Overall, under the more benign scenario, a contractionary effect of 0.8% of GDP is estimated for 2022 (when the maximum impact occurs, owing to the delayed effect with which the transmission channels operate in this model), stemming from the disappearance of viable firms that are over-indebted after the COVID-19 crisis. This effect, albeit not permanent, is persistent: after five years the effect is approximately one third of what it was initially, so that the average effect is 0.6% of GDP and the cumulative loss of GDP over those five years amounts to 3.2% of annual GDP (see the last column of Table 1). Under the less benign scenario, the impact on GDP in 2022 associated with the failure of all the firms with over-indebtedness problems as a result of the crisis is 1.3%. If the impact of the failure of all the firms that become at risk of being non-viable as a consequence of the crisis is also considered, the estimated effect is a contraction of 1.4% of GDP in 2022 under the more benign scenario and 2.1% under the less benign one.

¹ See Arencibia Pareja, Hurtado, De Luis and Ortega (2017), "New version of the Quarterly Model of Banco de España (MTBE)", *Occasional Papers*, No 1709, Banco de España.

THE MACROECONOMIC EFFECT OF THE VIABILITY AND SOLVENCY PROBLEMS OF FIRMS CAUSED BY THE COVID-19 CRISIS (cont'd)

Table 1
MACROECONOMIC EFFECT OF THE DISAPPEARANCE OF FIRMS IN DIFFICULTY

%	Share of firms in difficulty relative to all firms		Macroeconomic effect in 2022 of the disappearance of firms			Cumulative effect on GDP over 5 years (a)
	In investment	In employment	On GDP	On inv.	On empl.	
More favourable scenario						
Disappearance of firms that become over-indebted but remain viable	1.8	3.5	-0.8	-2.9	-3.5	-3.2
Disappearance of firms that become at risk of being non-viable and over-indebted but remain viable	2.3	6.1	-1.4	-4.0	-6.2	-5.3
Less favourable scenario						
Disappearance of firms that become over-indebted but remain viable	3.1	6.1	-1.3	-4.8	-5.9	-5.2
Disappearance of firms that become at risk of being non-viable and over-indebted but remain viable	3.8	9.8	-2.1	-6.4	-9.6	-8.2

SOURCE: Banco de España.

a Calculated as five times the average annual impact in percentage terms.

ECONOMIC MEASURES APPROVED IN SPAIN DURING THE COVID-19 CRISIS TO SHORE UP BUSINESS SOLVENCY

The COVID-19 crisis has entailed a worsening of the financial position of many firms and sole proprietors, especially in the sectors most affected. Against this background, the Spanish government has approved various measures to strengthen these agents' financial position. The measures can be grouped into three blocks on the basis of the instruments used: recapitalisations, direct aid and support for the restructuring of financial debt.

As regards the first group of measures, the Spanish government set up firstly the Strategic Companies Solvency Support Fund, managed by SEPI (the State Industrial Holdings Corporation).¹ The aim of this €10 billion fund is to shore up the solvency of large non-financial corporations affected by the COVID-19 crisis and which are considered strategic to the productive system. The fund draws on various instruments such as participating loans, subordinated debt and the subscription of shares or other capital instruments. To date, €968 million has been granted (9.7% of the total budgeted) and distributed in four operations.

Further, as part of a wide range of measures included in Royal Decree-Law 5/2021 of 12 March 2021, on extraordinary business solvency support measures in response to the COVID-19 pandemic,² the creation of a fund worth €1 billion (the "Fund for the Recapitalisation of COVID-Affected Companies") is being considered. Its aim is the recapitalisation of viable medium-sized firms facing solvency problems and which cannot gain access to the SEPI-administered fund.³ The Fund will be managed by COFIDES (the Spanish Development Financing Company), a State commercial public limited company with public and private capital. The Fund will use various financial instruments, such as average loans, participating loans and capital or other instruments to support these companies.

Some regional governments have also introduced business solvency support mechanisms. Thus, for example, the Valencia government and the Valencia Finance Institute have designed a public-private collaboration framework for the recapitalisation of Valencian SMEs at risk of insolvency owing to the COVID-19 crisis. To this end, the Valencia government has selected a venture capital company to manage a fund endowed with a total sum of €60 million (€25 million provided by the regional government and €35 million by private investors).⁴ The Andalusia regional government has set up a hybrid capital fund, using participating loans, endowed with €60 million, to assist in the recapitalisation of Andalusian SMEs whose structure has been weakened by the crisis. The Catalan regional government has made available a participating loan facility, worth €9 million, on which Catalan firms particularly affected by the crisis may draw. A similar arrangement, involving funds totalling €6 million, has been implemented in Asturias to cover the investment needs for all types of assets of companies belonging to the industrial sector.

As to the second block of measures, the Royal Decree-Law establishes the "COVID line of direct aid to sole proprietors and companies" with the chief purpose of reducing the debt incurred as from March 2020 by the firms and sole proprietors most affected by the crisis. This facility, funded with a total of €7 billion, will channel direct aid to firms and sole proprietors whose activity has been most adversely affected by the economic effects of the pandemic, insofar as their income in 2020 has fallen by more than 30% on 2019 and they belong to certain sectors. It involves in particular specific-end direct aid that allows for the payment of debts incurred by firms since March 2020, such as payments to suppliers, supplies, wages, rentals and, in the event of any remaining amount, debts with bank creditors, giving priority to the reduction of the publicly backed debt's

1 See Royal Decree-Law 25/2020 of 3 July 2020 on urgent measures to support the economic recovery and employment.

2 Receiving all the aid envisaged in the Royal Decree-Law will be conditional upon the recipient firms not being domiciled in a tax haven, not being subject to insolvency proceedings or having ceased trading at the time of application, being up to date with their tax and social security payments, not distributing dividends or increasing the wages of their management team for a period of two years and maintaining their activity until June 2022.

3 The operations financed by the SEPI Fund shall be for an amount of no less than €25 million per beneficiary, except in duly justified cases.

4 It is envisaged that private investors should grant participation loans to vulnerable but viable companies, while the creditor banks forgive the unsustainable portion of the companies' debt, in exchange for them repaying the rest of the debt.

ECONOMIC MEASURES APPROVED IN SPAIN DURING THE COVID-19 CRISIS TO SHORE UP BUSINESS SOLVENCY

(cont'd)

face value. This aid may rise to 40% of an over-30% decline in revenue for micro-SMEs and sole proprietors, and to 20% for other firms, with a fixed amount of €3,000 for sole proprietors paying tax under the objective estimate scheme and between €4,000 and €200,000 for other companies. The regional governments will manage this facility.⁵ Subsequently, in April 2021, the Royal Decree-Law was further amended to allow regional governments to apply more flexible criteria regarding the beneficiary sectors and the requirement to post earnings in 2019.

Finally, the Royal Decree-Law establishes the “Line for the restructuring of financial debt with a State guarantee”,

endowed with €3 billion. Its aim is to enable the ICO to join restructuring processes of debt with a public guarantee applied for during the pandemic. Specifically, measures may be agreed on, first, to extend for a further period the maturity of loans with a public guarantee; and second, to convert loans with a public guarantee into participating loans and, as a last resort, to grant direct aid to reduce the amount of the debt. The structuring of these measures will involve the approval of a Code of Good Practices, to which financial institutions may voluntarily adhere, whose aim is to set in place a common framework for action in the restructuring of corporate balance sheets.

5 The line is structured in two compartments. The first, endowed with €5 billion, is for all regional governments except the Balearic and the Canary Islands, and for the city-enclaves of Ceuta and Melilla; and the second compartment, worth €2 billion, is for the Balearic and Canary Islands, given the greater differential impact of the crisis stemming from the high weight of tourism in their economies.

HOW THE INSOLVENCY AND PRE-INSOLVENCY SYSTEM WORKS IN SPAIN

This box reviews the main features and shortcomings of insolvency procedures in Spain. These procedures generally play an important role in the development of business activity, since they allow insolvent but viable firms, whose debt needs to be restructured, to be distinguished from unviable firms that need to be liquidated. International evidence¹ shows that the existence of an efficient insolvency system helps to raise aggregate productivity, the rate of innovation and business investment. In addition, soundly functioning insolvency mechanisms support the intermediation activity of banks as they make it easier for them to recover part of their unpaid loans. Finally, the correct functioning of bankruptcy procedures for individuals encourages entrepreneurship: sole proprietors will be less concerned about the possibility of failure, since part of their debts can be discharged.

In Spain, pre-insolvency and insolvency procedures are governed by the Insolvency Law approved in 2003, which came into force on 1 September 2004.² However, the increase in insolvency proceedings as a result of the global financial crisis laid bare various malfunctions in the system, which led to six reforms of the Insolvency Law in the period 2009–2015. These procedures can also be used by consumers, although this box focuses on firms and the self-employed. Figure 1 shows the various pre-insolvency and insolvency procedures according to the type of firm involved.

The aim of insolvency proceedings is to resolve a situation of insolvency via one of two channels: a restructuring agreement or liquidation. A restructuring agreement is an agreement between creditors and the debtor company, which includes a debt restructuring seeking to ensure

that lenders recover the highest possible proportion of their claims and that the firm continues to operate. The agreement may envisage a reduction in the nominal amount of the debt, a deferral (postponement of the scheduled payments), a debt-equity swap and assignment of assets and rights in payment of debt. Such agreements must have the backing of the majority of unsecured credit. A liquidation involves the sale of a firm's assets to pay its creditors in accordance with a certain order of priority of claims.

In addition, there are two types of pre-insolvency arrangements, which aim to resolve insolvency problems that are detected early: out-of-court payment agreements for individuals and small firms; and refinancing agreements, which are used predominantly by firms of a certain size. The latter include a variant – court-approved refinancing agreements – that offers greater protection to the debtor firm.

Lastly, in the case of individuals, whether self-employed or owners of small businesses, there are two insolvency channels: immediate discharge of debt following liquidation of the debtor's assets; and the fresh-start mechanism, which consists of a five-year repayment plan ending with discharge of all other debts.

By international standards, very limited use has been made of insolvency proceedings in Spain, even during economic crises. This is mainly explained by the low use of these procedures by the self-employed and microfirms (firms that employ fewer than 10 persons), which make up the bulk of the productive system in Spain. In the case of the self-employed, in 2019 there were 2 insolvency proceedings for every 10,000 self-employed persons in

1 M. A. McGowan, D. Andrews and V. Millot (2017), "Insolvency regimes, zombie firms and capital reallocation", *OECD Economic Department Working Papers Eco No 31*. V. V. Acharya and K. Subramanian (2009), "Bankruptcy Codes and Innovation", *The Review of Financial Studies*, Volume 22, Issue 12, pp. 4949–4988. J. Ponticelli and S. Alencar (2016), "Court Enforcement, Bank Loans and Firm Investment: Evidence from a Bankruptcy Reform in Brazil" *Quarterly Journal of Economics*, 131 (3), pp. 1365–1413. R. La Porta, F. Lopez de Silanes, A. Shleifer and R. W. Vishny (1997): "Legal Determinants of External Finance", *Journal of Finance*, 53, pp. 1131–1150. M. Giannetti (2003), "Do Better Institutions Mitigate Agency Problems? Evidence from Corporate Finance Choices", *Journal of Financial and Quantitative Analysis*, 38(1), 185–212. J. Qian and P. Strahan (2007), "How Laws and Institutions Shape Financial Contracts: The Case of Bank Loans", *Journal of Finance*, 52(6), 2803–2834. G. Rodano, N. Serrano-Velarde and E. Tarantino (2016), "Bankruptcy Law and Bank Financing," *Journal of Financial Economics*, Volume 120, Issue 2, pp. 363–382. W. Fan and M. White (2003), "Personal bankruptcy and the level of entrepreneurial activity", 46:2, *Journal of Law and Economics*, 543–68. J. Armour and D. Cumming (2008), "Bankruptcy Law and Entrepreneurship", *American Law and Economics Review*, V10 N2, pp. 303–350.

2 Law 22/2003 of 9 July 2003. Owing to the numerous amendments to the original text, the Consolidated Text of the Insolvency Law came into force on 1 September 2020. See Royal Legislative Decree 1/2020 of 5 May 2020, approving the consolidated text of the Insolvency Law.

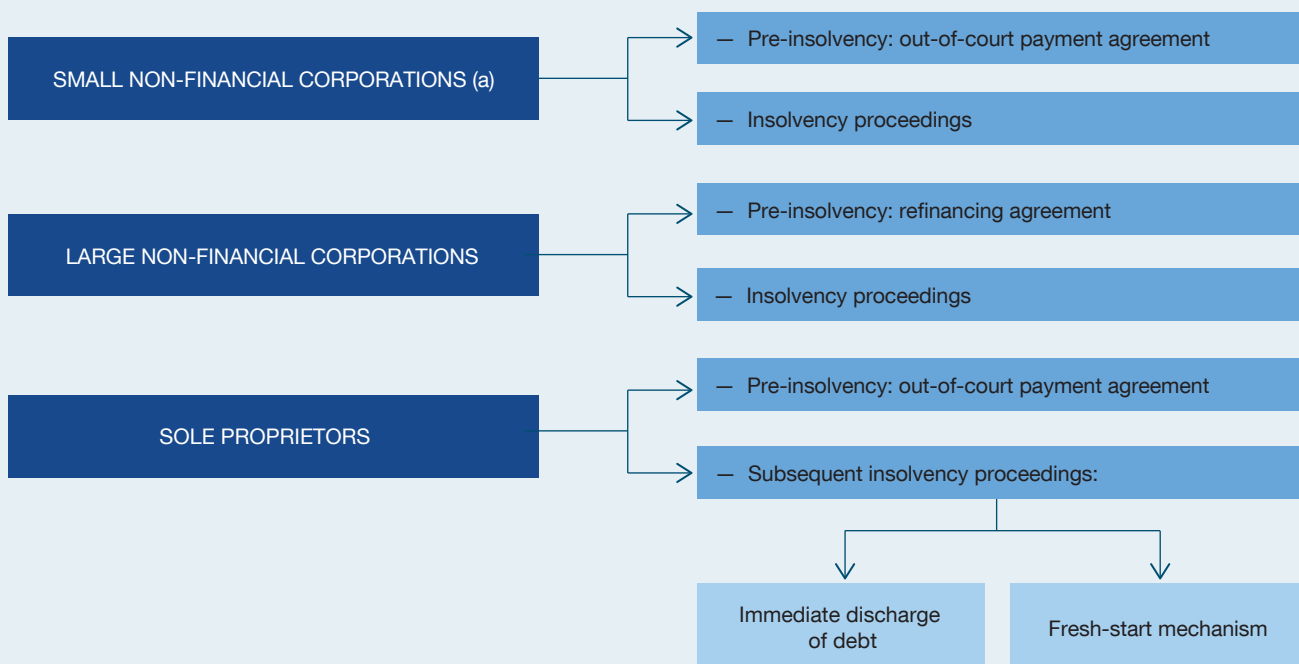
HOW THE INSOLVENCY AND PRE-INSOLVENCY SYSTEM WORKS IN SPAIN (cont'd)

Spain, as against 32 in France and 74 in England and Wales. As regards microfirms, in 2019 there were 9.5 insolvency proceedings for every 10,000 Spanish microfirms, as against 105 in France.³

This limited use of insolvency proceedings in Spain is essentially for two reasons: (i) the inefficiency of the insolvency system, reflected in how slow the proceedings are (with an average duration of 3-4 years),⁴ which is a result, at least in part, of congestion in the commercial courts; and (ii) the lack of appeal that the system has for individuals, considering how difficult it is to obtain a discharge of debts. In particular, public claims (essentially

taxes and social security contributions) cannot be discharged and usually make up a significant part of the debt of microfirms and the self-employed. Also, some experts stress that the repayment plan of the fresh-start mechanism is excessively long (five years), although the transposition of the EU Insolvency Directive⁵ should reduce the duration of the repayment plan to a maximum of three years. Lastly, a further deterrent is the fact that the cost of the proceedings (legal costs, remuneration for insolvency administrators and lawyers) is high and largely fixed or not sufficiently dependent on the amount of the firm's debt or assets. In consequence, and given the stigma that may result from using pre-insolvency and

Figure 1
PRE-INSOLVENCY ARRANGEMENTS AND INSOLVENCY PROCEEDINGS FOR NON-FINANCIAL CORPORATIONS AND SOLE PROPRIETORS



SOURCE: M. García-Posada (2020), "Analysis of insolvency proceedings in Spain against the backdrop of the COVID-19 crisis: insolvency proceedings, pre-insolvency arrangements and the insolvency moratoriums", *Occasional Papers*, No. 2029, Banco de España.

a Fewer than 50 creditors, estimated liabilities of no more than €5 million, assets of no more than €5 million.

3 M. García-Posada (2020), "Analysis of insolvency proceedings in Spain against the backdrop of the COVID-19 crisis: insolvency proceedings, pre-insolvency arrangements and the insolvency moratoriums", *Occasional Papers*, No. 2029, Banco de España.

4 M. García-Posada and R. Vegas (2018), "Bankruptcy reforms in the midst of the Great Recession: the Spanish Experience", *International Review of Law and Economics*, Volume 55, September 2018, pp 71–95.

5 Directive (EU) 2019/1023 of the European Parliament and of the Council of 20 June 2019 on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt, and amending Directive (EU) 2017/1132.

HOW THE INSOLVENCY AND PRE-INSOLVENCY SYSTEM WORKS IN SPAIN (cont'd)

insolvency procedures,⁶ firms generally use insolvency proceedings only as a last resort. This means that the great majority of proceedings end in liquidation,⁷ because when firms file for insolvency their financial situation is already extremely vulnerable.

Finally, as regards pre-insolvency arrangements, refinancing agreements seem to be performing their function of providing an alternative mechanism to insolvency proceedings for firms of a certain size. Conversely, the limited use of out-of-court payment agreements shows that they are not attractive for the self-employed and owners of small businesses.⁸ According to some experts,⁹ there are two reasons for this. First, negotiation of the debt with public creditors is beyond the scope of out-of-court payment agreements.

Second, the economic incentives for possible mediators to recommend an out-of-court payment agreement to potential beneficiaries are generally limited since the remuneration is usually very low, and consequently most do not recommend them and do not inform debtors of the existence of this procedure. In this context, some analysts¹⁰ have proposed various ways of promoting the participation and performance of the professionals involved in pre-insolvency and insolvency procedures, by for example increasing the remuneration of insolvency mediators entrusted with managing and negotiating out-of-court payment agreements, guaranteeing the remuneration of insolvency administrators and broadening the scope of application of justice provided free of charge (the *turno de oficio* system) to the area of insolvency.

6 M. A. McGowan and D. Andrews, (2018): "Design of insolvency regimes across countries"; *OECD Economics Department Working Papers* No. 1504.

7 93% according to M. García-Posada and R. Vegas (2018), "Bankruptcy reforms in the midst of the Great Recession: the Spanish Experience", *International Review of Law and Economics*, Volume 55, September 2018, pp 71–95.

8 According to Van Hemmen (2020a), between 1 March 2015 and 31 March 2020 only 93 out-of-court payment agreements were initiated. E. Van Hemmen (2020a), *Estadística concursal. Anuario 2019*, Colegio de Registradores de la Propiedad y de lo Mercantil de España, Madrid.

9 S. Van Hemmen (2020b), "Acompañando la segunda oportunidad", *Anuario de Derecho Concursal*, No 50.

10 M. Celentani and F. Gómez Pomar (2020). "Concursos y pre-concursos de personas físicas, autónomos y microempresas: déjà vu all over again", *InDret* 3/2020.