SPANISH NON-FINANCIAL CORPORATIONS' LIQUIDITY NEEDS AND SOLVENCY AFTER THE COVID-19 SHOCK

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Abstract

The COVID-19 pandemic is exerting an unprecedented adverse impact on economic activity and, in particular, on firms' income. In some cases this means firms' income is insufficient to meet payments to which they have committed. This article presents the results of an exercise simulating Spanish non-financial corporations' liquidity needs for the four quarters of this year. The needs derive both from the possible shortfalls caused by developments in operating activity, and from investments in fixed assets and debt repayments. According to the results, these liquidity needs, between April and December, might exceed €230 billion. It is estimated that, through the public guarantee programmes for lending to firms, almost three-quarters of this shortfall might be covered. To finance the remainder, companies could use their liquidity buffers and/or resort to new debt without public guarantee. In this respect, it should be borne in mind that, in recent months, firms with better access to credit have managed to raise a high volume of funds without resorting to public guarantees. Further, despite the unprecedented fall in business turnover, it is estimated that a significant percentage of companies (more than 40%) would be able to withstand this situation without undergoing a deterioration in their financial position. However, at the remaining companies, the fall-off in activity would have led to significant increases in their level of financial vulnerability, more sharply within the SME segment and especially among the firms in the sectors most affected by the pandemic, such as tourism and leisure, motor vehicles, and transport and storage.

Keywords: COVID-19, firms' liquidity needs, credit, guarantees, insolvency risk.

JEL classification: E51, E52, G21.

Resumen

La epidemia de Covid-19 está teniendo un impacto negativo sin precedentes sobre la actividad económica y, en particular, sobre los ingresos de las empresas, provocando que en algunos casos estos sean insuficientes para hacer frente a los pagos comprometidos. En este documento se presentan los resultados de un ejercicio de simulación de las necesidades de liquidez de las empresas no financieras españolas, para los cuatro trimestres de este año, derivadas tanto de los posibles déficits generados por la evolución de la actividad de explotación como de las inversiones en activos fijos y los pagos asociados a las amortizaciones de deuda. De acuerdo con los resultados, dichas necesidades de liquidez podrían superar los 230 mm de euros entre abril y diciembre. Se estima que, a través de los programas de avales públicos para los créditos a las empresas, podrían cubrirse cerca de las tres cuartas partes de dicho déficit. Para financiar el resto, las empresas podrían utilizar sus colchones de liquidez o recurrir a nueva deuda sin avalar. En este sentido, hay que tener en cuenta que, durante los últimos meses, las compañías con un mejor acceso al crédito han conseguido captar un volumen elevado de fondos sin recurrir a garantías públicas. Por otra parte, a pesar de la caída sin precedentes de la facturación empresarial, se estima que un porcentaje no desdeñable de empresas (por encima del 40 %) podría hacer frente a esta situación sin experimentar un deterioro de su situación patrimonial. No obstante, en el resto de las compañías el retroceso de la actividad habría llevado a elevar significativamente los niveles de vulnerabilidad financiera, haciéndolo con mayor intensidad dentro del segmento de las pymes y, especialmente, entre las empresas de los sectores más afectados por la pandemia, como los de turismo y ocio, vehículos de motor, y transporte y almacenamiento.

Palabras clave: Covid-19, necesidades de liquidez de las empresas, crédito, avales, riesgo de insolvencia.

Códigos JEL: E51, E52, G21.

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1 Introduction

The shutdown of much of economic activity as a result of the COVID-19 pandemic containment measures is causing a sharp reduction in revenues for a very high proportion of Spanish firms. This will mean that many of them have to obtain new financial resources to meet both current payments relating to their operating activity (supplies, rentals, financial expenses and personnel costs) and those arising from their investment decisions in fixed assets and debt repayments.

Firms have several options to cover their liquidity needs. They can use both their liquid assets such as bank deposits, or they can resort to the undrawn amounts on their credit lines. Alternatively, they can resort to new external borrowing, such as bank loans, to divestments, or to new capital contributions from their partners. In the case of those firms in a more vulnerable financial position at the outset and that are particularly affected by this shock, liquidity tensions might ultimately lead to certain solvency problems. This may be because the raising of new debt proves more complex or because the increase in debt becomes unsustainable, with the consequences this would have in terms of depletion of the productive system and job destruction, and the subsequent negative influence on the speed of recovery in the economy.

This article first presents the results of an exercise simulating the liquidity needs of Spanish non-financial corporations over the course of 2020, based on three alternative macroeconomic scenarios that match those published by the Banco de España on 8 June.[1] The three cases include assumptions of a reduction in activity, differentiating across sectors. The estimated liquidity needs include both the shortfall arising as a result of operating activity and that associated with investment in fixed assets and with repayments of financial debt. The article next analyses to what extent firms might cover these liquidity needs through the resort to undrawn credit lines and to their liquid assets, and which portion of these needs could be financed through the ICO guarantee lines approved by the Government to address the health crisis. A discussion then follows of what the impact of this shock might be in terms of firms' solvency. To this end, various indicators of financial vulnerability are analysed, and the percentage of firms, employment and debt that would be affected in 2020 by the crisis is quantified.

To perform these exercises, information has been drawn from the Integrated Central Balance Sheet Data Office Survey (CBI), which contains data on around 500,000 firms for 2018, the latest year available, and from the Central Credit Register (CCR) as at December 2019 and March 2020. The amounts obtained have been grossed up to the national total, based on the information available in the Central Companies Directory on the number of companies per sector and size segment.

1 See Banco de España (2020a).

2 Firms' liquidity needs

This section presents the results of simulation exercises that allow an estimation of what Spanish non-financial corporations' liquidity needs would be in each of the four quarters of 2020, under three alternative macroeconomic scenarios. These scenarios differ in terms of the speed of recovery of firms' activity after the lockdown (early recovery, gradual and very slow recovery, or risk scenario). Under the early recovery scenario, a re-start in activity in Q2 is considered, which would continue subsequently at a very high pace. Further, it is assumed that, following the lifting of the state of alert, it is possible to prevent fresh and significant outbreaks from emerging, and that the economic policy measures are effective in preventing the destruction of firms and, therefore, of the capital stock; accordingly, the downturn in the labour market is also transitory and an increase in long-term unemployment is successfully averted. The second, gradual recovery scenario assumes a greater impact from sectoral shutdowns in Q2, incorporating the possibility that, during the period in which a vaccine or effective treatment against the virus is not yet available, fresh outbreaks will emerge, albeit of less virulence than in the original episode. This scenario considers that there is lasting harm to the productive system, concentrated in the sectors most affected and in which the full recovery of normal activity will take longer to come about. Finally, the risk scenario, with a very slow recovery, envisages the possibility that there will be acute new bouts of fresh infections, requiring further strict lockdown measures, and the presence of financial channels that will amplify the real shock, meaning that its effects would have a notably higher degree of persistence. For each scenario, different paths for gross value added (GVA) in each of the four quarters of 2020 are assumed, differentiated for ten sectors of activity (see Table A.1 in the Methodological Annex). The early recovery, slow recovery and risk scenarios are compatible with declines in GDP in 2020 of 9%, 11.6% and 15.1%, respectively.

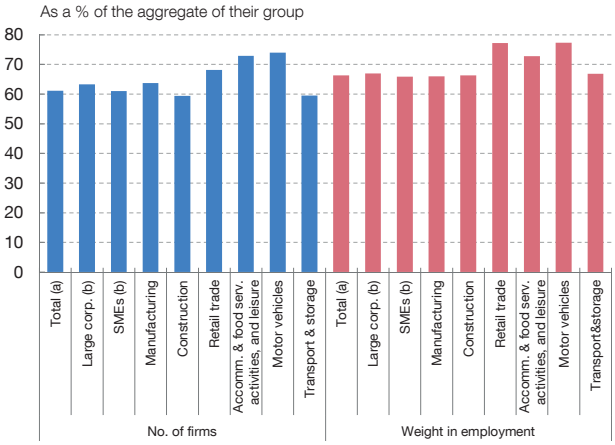
Liquidity needs, which have been estimated for each of the close to 500,000 firms available in the sample, include both the portion generated by operating activity and that arising as a result of investments in fixed assets and the repayment of financial debt. To obtain the shortfall associated with operating activity, all relevant payments and collections have been simulated. Revenues and expenses linked to sales and purchases have been obtained from the related levels of these variables in 2018 (latest information available) and applying to them the year-on-year change in expected sectoral GVA multiplied by the estimated sectoral elasticity of firms' turnover to the movements in this indicator. These revenues and expenses have been converted into collections and payments applying the cash-basis principle according to each firm's average collection and payment periods in 2018. The changes in personnel costs have been estimated by multiplying the change in GVA by coefficients, differentiated by sector, that reflect the elasticity of firms' turnover to movements in GVA and the proportion of employment that can be temporarily reduced without significant costs. This latter estimate has been based both on the weight of temporary employment and on the incidence of furlough schemes (ERTEs by their Spanish name) in each sector. Interest payments hold at their 2018 amounts, and those associated with debt

Chart 1

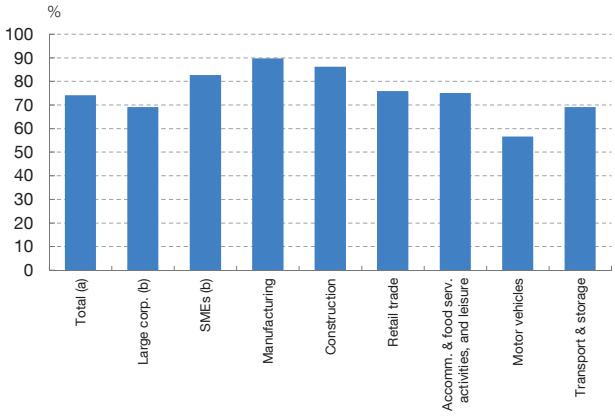
SOMEWHAT OVER 60% OF FIRMS ARE EXPECTED TO HAVE HAD LIQUIDITY NEEDS IN 2020 Q1, A HIGH PROPORTION OF WHICH WOULD HAVE BEEN COVERED BY BANK DEBT

The strong contraction in activity that firms experienced in the second fortnight of March, as a result of the start of the state of alert, meant that over 60% of firms would have posted liquidity needs in Q1. Around 75% of these liquidity needs are estimated to have been covered by bank debt.

1 LIQUIDITY NEEDS IN 2020 Q1



2 COVERAGE OF LIQUIDITY NEEDS BY BANK DEBT IN 2020 Q1



SOURCE: Banco de España.

a Excludes holding companies and financial services sector firms.
b The definition of sizes is in line with European Commission Recommendation 2003/361/EC.

repayment have been obtained from the CCR at end-2019 and March 2020,[2] in the case of credit with Spanish banks, and from the amount of firms' short-term non-bank debts at end-2018, according to the CBI, for the remainder of borrowed funds. Investment in fixed assets has been estimated taking as a reference both investment by firms, according to the CBI, in 2018 (latest year available) and the depreciation of fixed assets for the year, and taking into account whether the firms generated a deficit or surplus. These assumptions lead, in most cases, to an estimate whereby firms would invest in 2020 an amount equal to or below their spending on fixed assets in 2018, with the outcome being an aggregate fall in investment concentrated in firms that post a deficit.[3]

According to the results of the simulation exercises, in 2020 Q1 61% of firms (employing 66% of business sector workers) would not have generated sufficient revenues to meet current payments and those derived from investments in fixed assets and from debt repayments (see Chart 1.1). The overall amount of these firms' liquidity needs is estimated to be around €105 billion. By size, significant differences in the proportion of companies with liquidity needs are not observed. In terms of breakdowns by sector, retail trade,

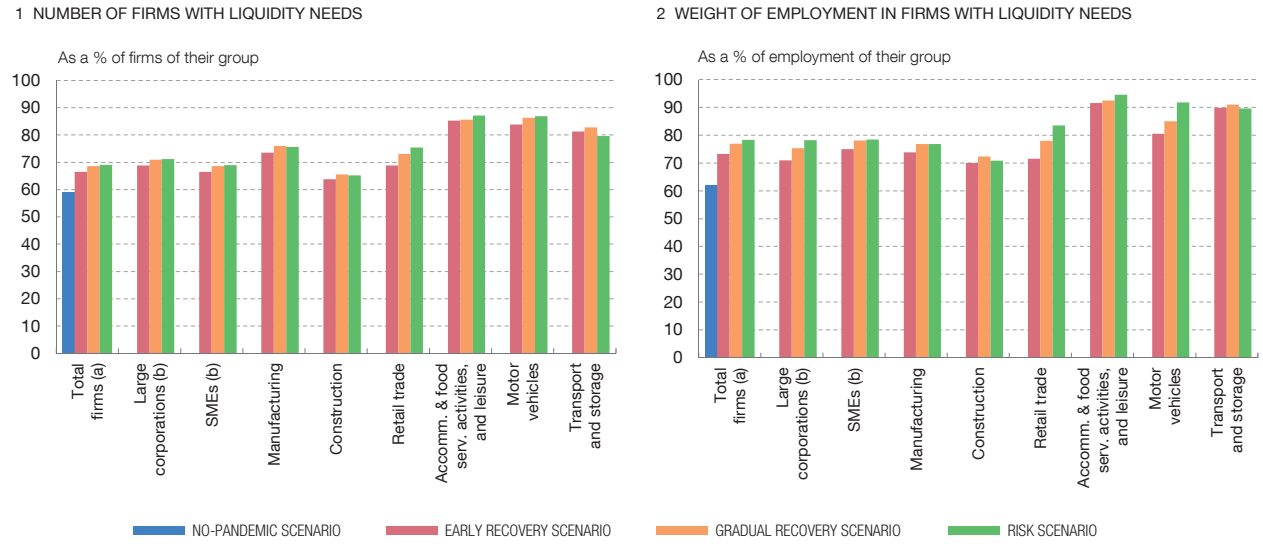
2 The December 2019 data are used to estimate debt repayments in 2020 Q1, and the March 2020 data for those of the three following quarters.

3 For greater details on the methodology used in the exercise, see the Methodological Annex.

Chart 2

AROUND 70% OF SPANISH FIRMS EMPLOYING MORE THAN 75% OF WORKERS IN THE BUSINESS SECTOR ARE EXPECTED TO HAVE LIQUIDITY NEEDS IN THE APRIL-DECEMBER 2020 PERIOD

As a result of the strong decline in productive activity, it is estimated that somewhat less than 70% of firms, with a weight in employment of around 75%, will post shortfalls (owing to their activity, their investments and their debt repayments) between April and December 2020. These percentages are expected to be 7-10 pp higher, in terms of the number of firms, and 11-16 pp higher, in terms of weight of employment, compared with those that would be recorded under a no-pandemic scenario. The sectors most affected would be tourism and leisure, motor vehicles, and transport and storage, where 80-87% of firms would post shortfalls, under the risk scenario, affecting 90-95% of employment in these segments.



SOURCE: Banco de España.

a Excludes holding companies and financial services.
b The definition of sizes is in line with European Commission Recommendation 2003/361/EC.

accommodation and food service activities and leisure (hereafter the tourism and leisure sector), and motor vehicles will be those in which a higher percentage of deficit-running companies will be concentrated.

The information from the CCR shows that the bulk of liquidity needs generated in the first quarter of the year would have been covered by the resort to bank lending (including the drawdown of financing available through credit lines). Specifically, almost 75% of liquidity needs would have been financed through this means, with the percentage somewhat higher at SMEs (83%) than at larger corporations (69%) (see Chart 1.2). Sector by sector, in all aggregates bank debts would have enabled a high percentage of the shortfall to be covered. The remaining liquidity needs would presumably have been covered through the drawdown of liquid assets or the resort to non-bank financing.

As Chart 2.1 shows, from April to December 2020, 67%-69% of Spanish non-financial corporations (depending on whether the scenario envisaged is that of early recovery or that of risk) would have liquidity needs. These firms employ 73%-78% of the workers in the business sector (see Chart 2.2). The percentages, compared with those that

would have been obtained under a scenario in which there had been no pandemic,[4] would be 8-10 pp higher in terms of the number of firms affected, and 11-16 pp higher in relation to the volume of employment, depending on the scenario envisaged. These differences, which might appear moderate a priori, reflect the assumption that under the pandemic-free scenario it is assumed that firms in the sample would have pursued investment plans on a scale similar to that of previous years, with the subsequent impact on their liquidity needs in that counterfactual scenario. In this respect, the nature of the new financing requirements generated in the wake of the pandemic is very different to that of the pandemic-free scenario, insofar as the former essentially reflect the strong downturn in business activity as a result of the economic impact of the health crisis.

In terms of size, the percentage of firms with liquidity needs would be slightly higher in the group of large corporations. The breakdown by sector highlights the fact that tourism and leisure, motor vehicles, and transport and storage would be those sectors with a higher proportion of companies with liquidity shortfalls. Thus, under the assumptions of the risk scenario, 80%-87% of firms in these sectors would be in this situation, affecting a percentage of workers that would range from 90%-95% of the employment in these segments.

The estimate of the overall amount of non-financial corporations' net liquidity needs from April to December stands at €224-238 billion, depending on the scenario considered (see Chart 3.1). The bulk of this amount would be accounted for by debt repayments (almost 90% of total needs), with the contribution associated with the shortfall generated by operating activity and by investment in fixed assets comparatively lower.

The breakdown by quarter evidences that the biggest shortfall would be generated between April and June, and stand at €103-108 billion, while in the following quarters the amounts will progressively decline, as activity gradually gathers momentum. This diminishing path is also due to the fact that debt repayments are higher in the first quarter of the horizon, given the concentration of maturities in the opening months and the assumption that these will be refinanced beyond 2020.

It is estimated that, under a scenario in which COVID-19 had not existed, firms' overall liquidity needs generated by their operating activity would have fallen by 30-50% relative to the needs calculated in the three scenarios that do take into account the impact of the pandemic. If we add to this the needs generated by debt repayments, which scarcely change when the effect of the health crisis is taken into account, these would also have been clearly lower in the absence of the crisis (€203 billion, compared with a figure that would range from €220-230 billion depending on the scenario considered). From the standpoint of liquidity risk, this definition (i.e. excluding the needs derived from investments in fixed assets) is more appropriate because it only considers committed expenses that firms cannot avoid. Further, and more significantly, liquidity risk not only

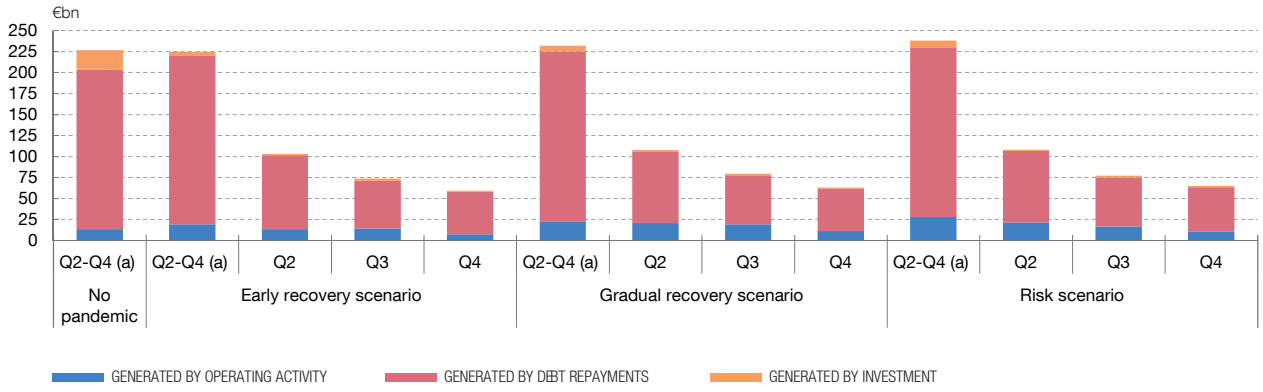
4 This scenario has been simulated assuming GVA growth of 2% in all firms, irrespective of their sector of activity, and that investment in fixed assets holds at its 2018 level.

Chart 3

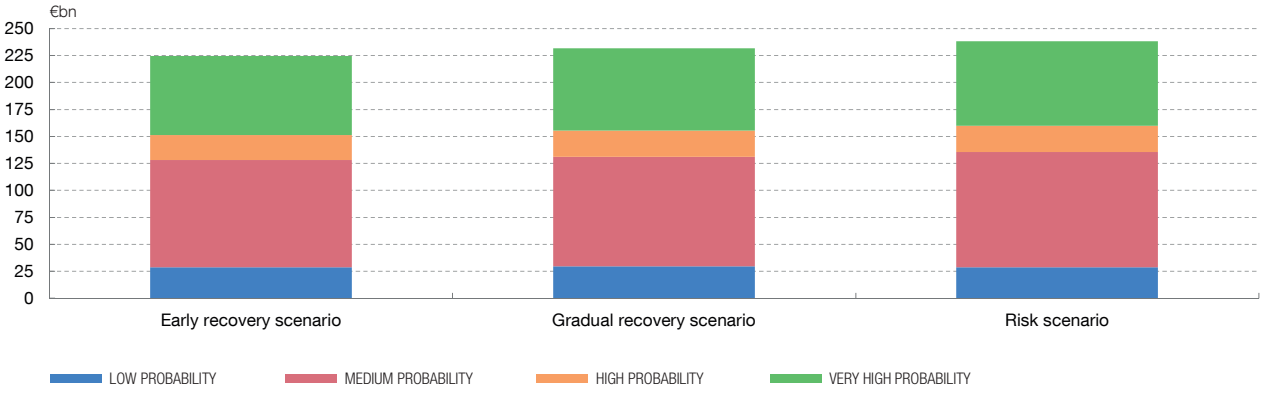
LIQUIDITY SHORTFALLS ARE EXPECTED TO RISE ABOVE €225 BILLION IN THE APRIL-DECEMBER 2020 PERIOD

Under the scenarios considered, the shortfalls accumulated between April and December would range between €224 bn and €238 bn. Under a no-pandemic scenario, the liquidity needs generated by operating activity would decline (by 30%-50%, according to the scenario) and they would also be notably lower even adding those generated by debt repayments. Moreover, a prominent portion of total needs (around €100 bn) will be generated by companies with a high or very high probability of default. In any event, firms could cover somewhat less than half of these needs by making full use of their liquid assets and credit lines.

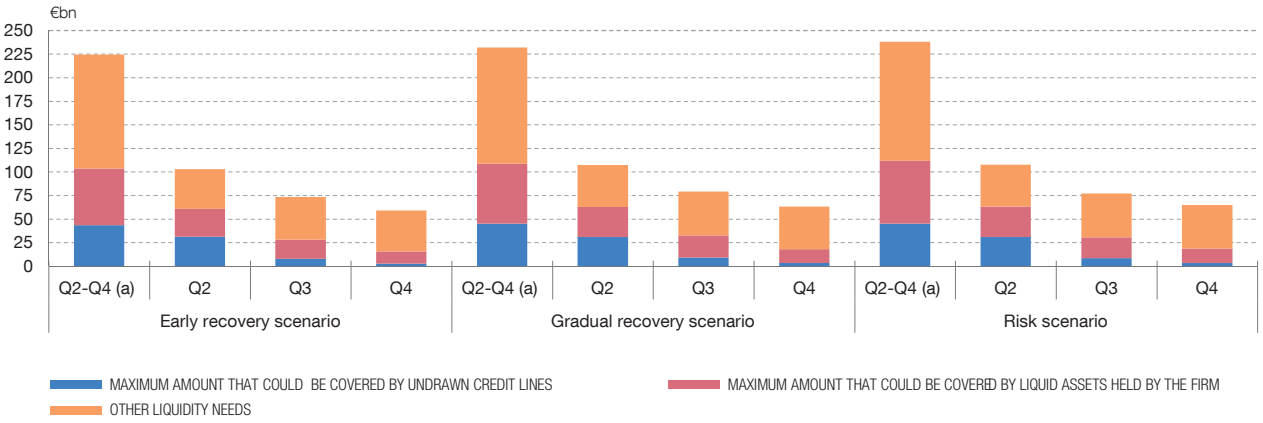
1 LIQUIDITY NEEDS (a)



2 BREAKDOWN OF LIQUIDITY NEEDS ACCORDING TO PROBABILITY OF DEFAULT (b)



3 LIQUIDITY NEEDS COVERAGE CAPACITY



SOURCE: Banco de España.

a Net needs accumulated in last three quarters of 2020.
b Default probability is considered very high if it is higher than 5%; high if it is between 3% and 5%; medium if it is between 0.5% and 3%, and low if it is lower than 0.5%.

depends on the amount of the shortfall, but also on how readily it can be covered. In this respect, the COVID-19 crisis, by raising macroeconomic uncertainty, has contributed to compounding the difficulties firms may face in gaining access to external financing with which to cover their liquidity needs.

One relevant dimension for evaluating liquidity risks is firms' debt default risk profile, insofar as those with the worst credit quality will face bigger difficulties gaining access to external financing. Hence, Chart 3.2 shows that a prominent portion of liquidity needs (€96-102 billion, depending on the scenario) would be generated by companies with a high or very high probability of debt default (over 3% and over 5%, respectively).[5]

In any event, a portion of firms' liquidity needs could be covered through resort both to the liquid assets they hold and to the undrawn amounts of their credit lines. These channels do not pose a risk, since access to them is guaranteed, and not dependent on the decision of a third party. In this respect, it should be borne in mind that companies, especially smaller ones, have been building up a growing volume of liquid assets since the 2008 financial crisis, meaning they face the current crisis with a historically high liquidity ratio. Chart 3.3 shows that, if firms make full use of their liquid assets and of their credit lines, they could at most cover somewhat less than half their liquidity needs. However, almost 30% of companies (in which 30%-33% of total employment is concentrated) would continue posting a shortfall (see Charts 4.1 and 4.2). Once again, in terms of the breakdown by sector, the tourism and leisure and the motor vehicles segments stand out as they show the highest percentages.

It does not in any event seem very realistic that firms will fully exhaust their liquid assets, since many of them prefer to keep them out of precaution, it being more likely that they would only consider making full use of them as a last resort, were they to have no other alternative sources of financing. Moreover, given that only companies of a certain size can tap the capital markets, the bulk of the funds needed to cover the shortfall would foreseeably be routed essentially through recourse to bank lending, as the data to May have shown. Bank financing by firms is made easier by the close relationships banks have with their customers. In particular, these relationships allow banks to obtain information on firms' financial situation, and to thus identify borrowers that are facing short-term liquidity needs arising from the COVID-19 crisis, but which have a solvent position in the medium term.

Moreover, the Eurosystem's liquidity support measures are helping banks and ensuring they have the additional resources to finance the private sector. Some of these measures, such as the targeted longer-term refinancing operations (TLTROs), contain explicit incentives for financial institutions to maintain or even increase their outstanding balance of lending. In addition, the Government's guarantee programmes, through the ICO lines, are

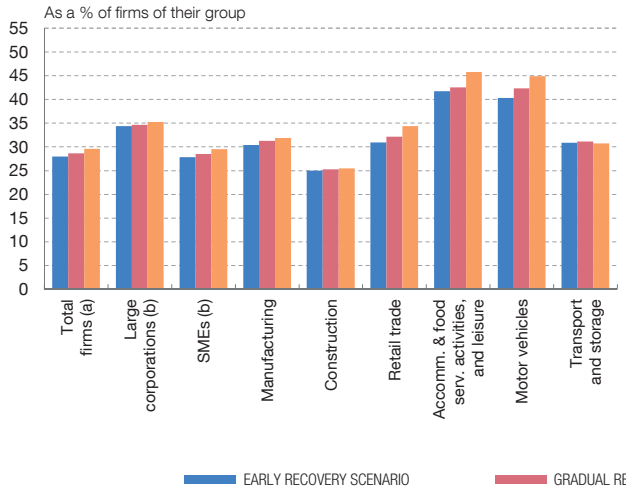
5 The following section explains how the debt default probabilities have been calculated.

Chart 4

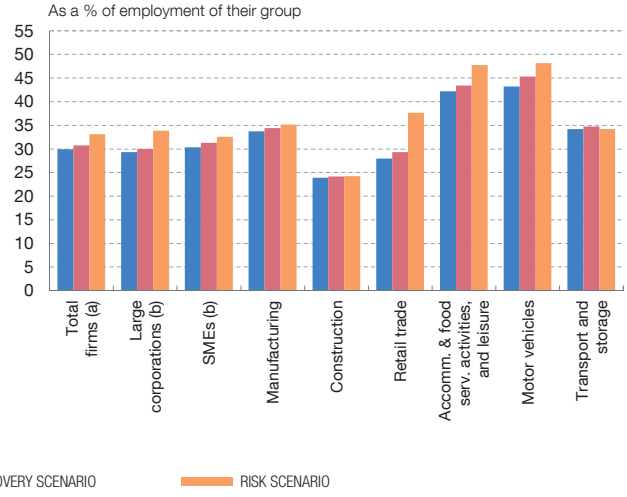
ALMOST 30% OF SPANISH FIRMS ARE EXPECTED TO CONTINUE POSTING LIQUIDITY SHORTFALLS BETWEEN APRIL AND DECEMBER, EVEN WERE THEY TO FULLY EXHAUST THEIR LIQUID ASSETS AND CREDIT LINES

A portion of firms' liquidity needs could be covered through the resort both to their liquid assets and to the undrawn amounts of their credit lines. However, even if they fully exhausted these resources, 28-30% of companies, with a weight in employment of somewhat over 30%, would continue posting liquidity shortfalls.

1 NUMBER OF FIRMS WITH LIQUIDITY SHORTFALLS ONCE THEIR CREDIT LINES AND LIQUID ASSETS HAVE BEEN EXHAUSTED



2 WEIGHT IN EMPLOYMENT OF FIRMS WITH LIQUIDITY SHORTFALLS ONCE THEIR CREDIT LINES AND LIQUID ASSETS ARE EXHAUSTED



SOURCE: Banco de España.

a Excludes holding companies and financial services.
b The definition of sizes is in line with European Commission Recommendation 2003/361/EC.

contributing to boosting the granting of loans to firms and to the self-employed, by reducing the new risks banks face in a setting of high uncertainty. Thus, at end-June, the five tranches of the ICO COVID-19 line of public guarantees, along with the sub-tranches intended to back SMEs and the self-employed in the tourism and related activities sector, and to finance the purchase, leasing and renting of new commercial land transport motor vehicles, for a value of €95.5 billion, have entailed the granting of loans to over 455,000 firms. The total amount of these loans was almost €85 billion, with an average term of more than four years. In the segment of firms (without including the self-employed), close to 67% of this volume has materialised in loans to SMEs. If the proportion of these guarantees earmarked for firms (93%, compared with 7% for the self-employed) and the average guaranteed percentage of each loan (76%) were to hold, the maximum amounts that firms would receive through these facilities would be €117 billion.[6] In addition, the new line of guarantees worth €40 billion approved by Royal Decree-Law 25/2020 will also contribute to the granting of new financing to the business sector.[7] Should the proportion earmarked for firms and the average guaranteed percentage of each loan hold at the same levels as those of the ICO COVID-19

6 The estimated maximum financing that could be granted is obtained by dividing the portion of the guarantees earmarked for firms (93%) by the average guaranteed percentage of each loan (76%): 95.5 x 0.93 / 0.76 = 117.

7 This line is earmarked preferentially to financing needs arising from investment.

line, a maximum volume of funds for firms of €51 billion could be generated.[8] Accordingly, these guarantee programmes would enable almost three-quarters (71%-75%, depending on the scenario) of firms' estimated liquidity needs for the last three quarters of the year to be covered. The rest of the shortfall (€56-70 billion) could be covered through other means, such as the resort to liquid assets, to undrawn credit lines or to new external borrowing. In this respect, the latest information on bank loans, spanning the period to May, shows that bigger companies, those with a lower risk profile and those least affected by the crisis are managing to raise high volumes of bank financing under very favourable conditions without resorting to the ICO guarantee lines.[9]

8 The estimated maximum financing that can be granted in this new line is obtained by considering parameters similar to those of the ICO COVID-2019 line, but applying them to the maximum amount of guarantees of the new line (€40 billion): 40 x 0.93 / 0.76 = 51.

9 For further details, see Banco de España (2020b).

3 Solvency

For some firms, tensions associated with liquidity shortages could give rise to solvency difficulties if they are unable to cover the shortfall produced either with their liquid assets or by resorting to debt. This risk is highest for the firms most affected by the shock and which started out from a more vulnerable financial position. There are two reasons for this: first, because it will be more difficult for these firms to obtain funding, and second, because even if they obtain new funding, higher debt levels could place some of them in a fragile financial position that could result in an inability to repay debts and, in the most extreme cases, bankruptcy.

To assess the impact of the COVID19 crisis on the solvency of the corporate sector, a first point to consider is the effect the crisis will have on firms' profitability. The simulations show that despite the intensity of the unprecedented possible decline in earnings, approximately half of firms would maintain a positive return on assets (see Chart 5.1). This reflects the strength of their starting position, which gives them sufficient capacity to absorb the impact of the shock. It also reflects their ability to adjust personnel costs when faced with a sharp temporary slide in activity levels, assisted in many cases by the high proportion of temporary employment and the large-scale use of furlough schemes. By firm size, it is observed that the falls in rates of return are somewhat more acute in the SME segment, and especially at the extreme percentiles of the distribution (25 and 75), where the least and the most profitable firms, respectively, are concentrated. By sector, the most marked deterioration is in motor vehicles and, especially, in tourism and leisure (see Chart 5.3).

The financial position of firms that present shortfalls as a result of their operating activity and their investment in fixed assets will deteriorate, reflected in lower equity and also in higher debt levels were they to finance that shortfall with borrowing.[10] Specifically, under the early recovery scenario, 52% of firms (with a share of employment of 48%) would see their financial position worsen in 2020, while under the risk scenario this proportion rises to 55% (affecting almost 57% of employment) (see Charts 6.1 and 6.2).

To assess the change in the solvency position of Spanish non-financial corporations, three alternative indicators are used. First, an indicator based on the volume of debt is analysed, to determine the proportion of firms that would find themselves in a more fragile financial position. High debt levels entail greater vulnerability, as they increase the debt service burden arising both from interest payments and debt repayments. The metric chosen to classify the most vulnerable firms is where their equity amounts to less than half their net debt (defined as interest-bearing liabilities minus liquid assets).[11]

10 Note that the relevant shortfall measure for assessing the effect of the shock on firms' balance sheets is that corresponding to operating activity and investment in fixed assets, not debt repayments. In particular, a high level of financial debt repayments increases the rollover risk, but covering that risk with borrowed funds does not entail an increase in debt, but rather replacing one kind of liability with another.

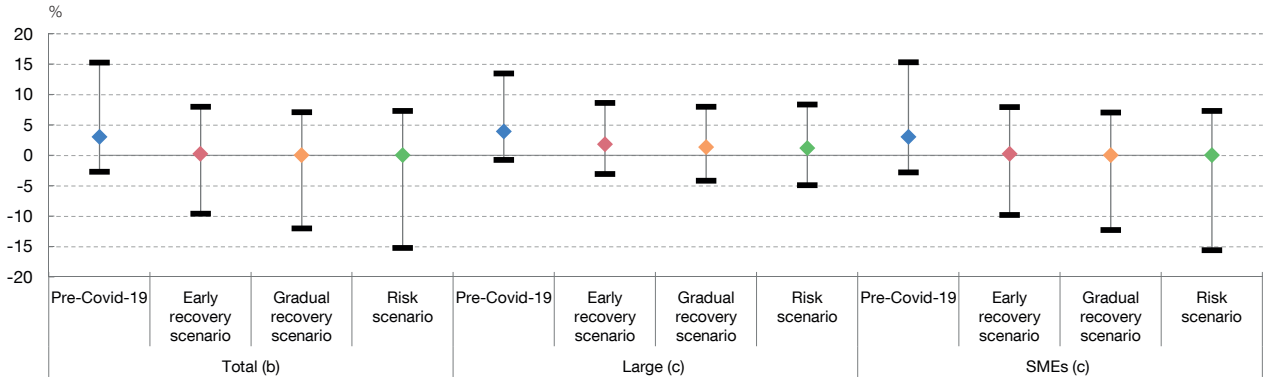
11 Leland and Toft (1996) find that when firms fall below this threshold, a loss of value ensues.

Chart 5

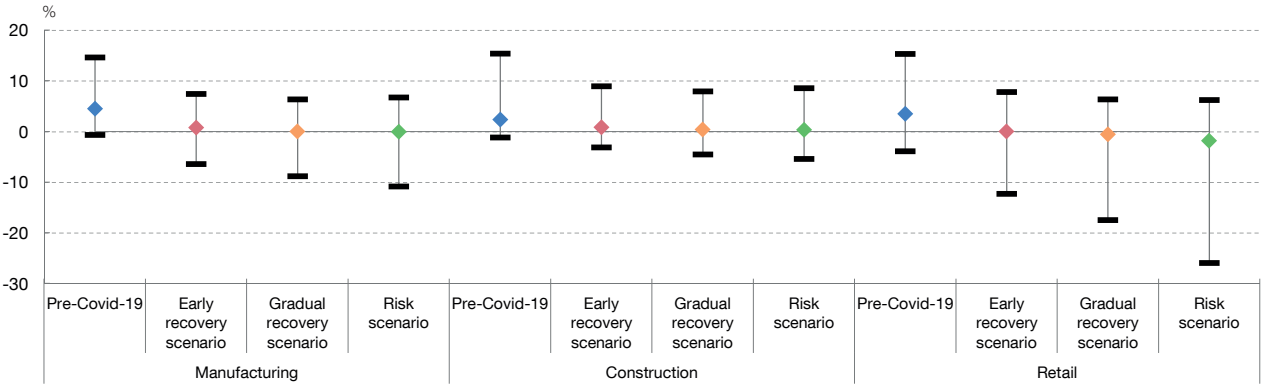
FIRMS' PROFITABILITY IS EXPECTED TO DECLINE ACROSS THE BOARD IN 2020

As a consequence of the crisis caused by the pandemic, return on assets is expected to decline across the board, but most particularly among SMEs and firms in the tourism and leisure and motor vehicle sectors. Yet despite this sharp fall, approximately half of all firms are expected to maintain a positive return on assets.

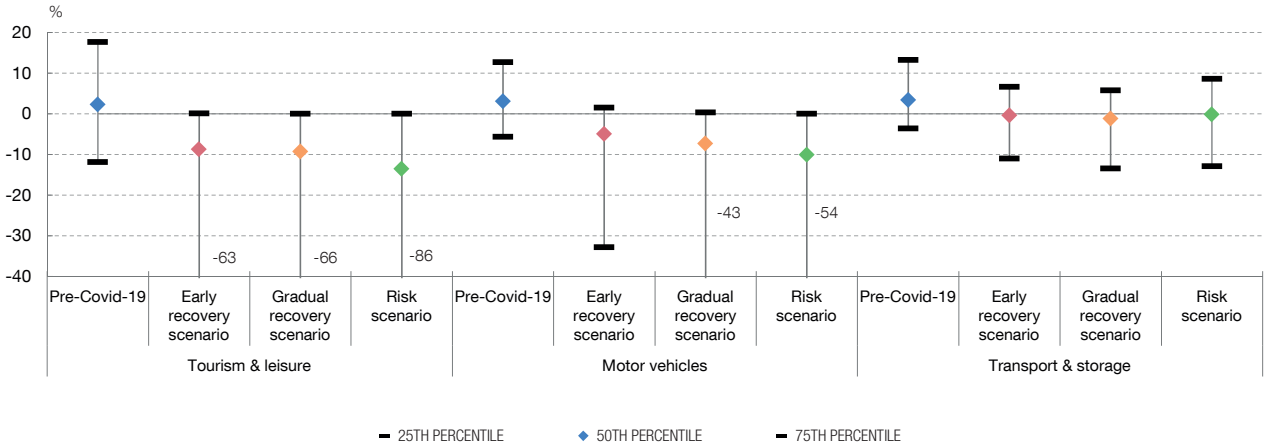
1 DISTRIBUTION OF ROA. BREAKDOWN BY SIZE (a)



2 DISTRIBUTION OF ROA. BREAKDOWN BY SECTOR (a)



3 DISTRIBUTION OF ROA. BREAKDOWN BY SECTOR (cont'd) (a)



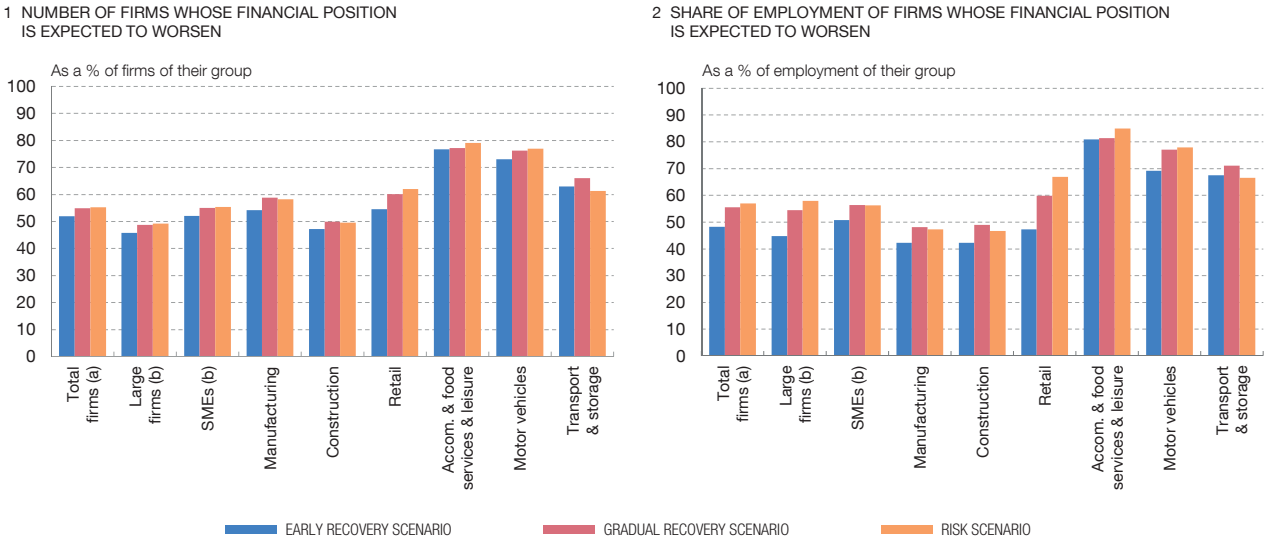
SOURCE: Banco de España.

a ROA = (Ordinary net profit + Financial costs) / Assets net of non-interest-bearing borrowing).
b Excludes holding companies and financial services sector firms.
c Definition of size in line with European Commission Recommendation 2003/361/EC.

Chart 6

THE FINANCIAL POSITION OF FIRMS WITH LIQUIDITY NEEDS CAUSED BY OPERATING SHORTFALLS AND INVESTMENTS IS EXPECTED TO DETERIORATE

Under the early recovery scenario, the financial position of 52% of firms (with a share of employment of 48%) is expected to worsen in 2020, while under the risk scenario this proportion rises to 55% (affecting almost 57% of employment).



SOURCE: Banco de España.

a Excludes holding companies and financial services.
b Definition of size in line with European Commission Recommendation 2003/361/EC.

Second, the proportion of firms that present negative equity is analysed. Although this situation, which is mainly the result of losses built up over a prolonged period, does not necessarily imply bankruptcy for a firm, it is an important indicator of vulnerability, as it increases the likelihood of future bankruptcy.[12]

Lastly, drawing on the results of the statistical models for assigning credit ratings developed by the Banco de España's Financial Risk Department,[13] the proportion of firms that would be in the higher default risk categories is obtained. The main variables used by these models to classify firms according to their credit quality are their profitability, liquidity, debt coverage and financial structure (debt-to-equity) ratios. The probabilities of default are estimated drawing on the simulated levels of the ratios for each of the three macroeconomic scenarios considered.

To analyse the importance of the risk of insolvency, the share of employment and of debt of the most vulnerable firms within the total corporate sector is calculated in accordance

12 There is considerable empirical evidence to show that firms with negative equity are more likely to become bankrupt, whether formally (insolvency proceedings) or informally (debt restructuring): see Davydenko and Franks (2008) and García-Posada and Mora-Sanguinetti (2012 and 2014), among others. In addition, the literature shows that firms with negative equity are less likely to enter into insolvency or informal agreements with creditors (see Gilson et al. (1990) and García-Posada and Vegas (2018)), which suggests that the latter consider these firms unviable even after debt restructuring, owing to their fragile financial position.

13 For more details on these models, see Gavilá, Maldonado and Marcelo (2020).

with the three indicators described above. The share of employment is the most appropriate measure for assessing the effects for economic growth, while the share of debt is the most appropriate measure for estimating the repercussions for financial stability.

Chart 7.1 shows that, before COVID19, almost 19% of Spanish non-financial corporations had equity amounting to less than half their net debt. Following the adverse impact of the pandemic, this proportion would rise, albeit relatively moderately given the scale of the shock, to a quarter of non-financial corporations under the early recovery scenario, and to 27% under the risk scenario. The share of employment of the most vulnerable firms within the total corporate sector would increase by between 4 pp and 7 pp, up to 20%-23% (see Chart 7.3). The groups most affected, and which would have a higher share of vulnerable firms and of employment, are once again the smaller firms and those operating in the tourism and leisure and motor vehicle sectors.

Regarding firms with negative equity, it is observed that, as a consequence of the losses built up in 2020, the proportion of firms in this position would also increase relatively moderately (by between 5 pp and 6 pp, up to 21%-22%, with a share of employment in the corporate sector of 10%-12%) (see Charts 7.2 and 7.4). The breakdown by firm size again reflects a more marked deterioration in the SME segment. By sector of activity, the proportion of firms with negative equity would increase across the board, but most sharply in the tourism and leisure sector and, albeit to a lesser extent, in the motor vehicle sector.

In terms of the share of corporate sector debt in the hands of vulnerable firms, the increases would be more moderate. Indeed, in some cases, even a slight decline is observed, as in the case of the debt-based indicator (see Charts 7.5 and 7.6). These results show that the shock appears to have most impact on smaller firms with lower previous debt levels.

Lastly, Chart 8.1 shows that the share of firms with a high or very high probability of default (over 3% and 5%, respectively) is 8 pp to 10 pp higher than the pre-COVID situation, amounting to 30% to 32% of all firms. The share of employment of the firms in this position and, to a lesser extent, their share of corporate sector debt, would also be higher, at 21%-24% and 33%-34%, respectively (see Charts 8.2 and 8.3).

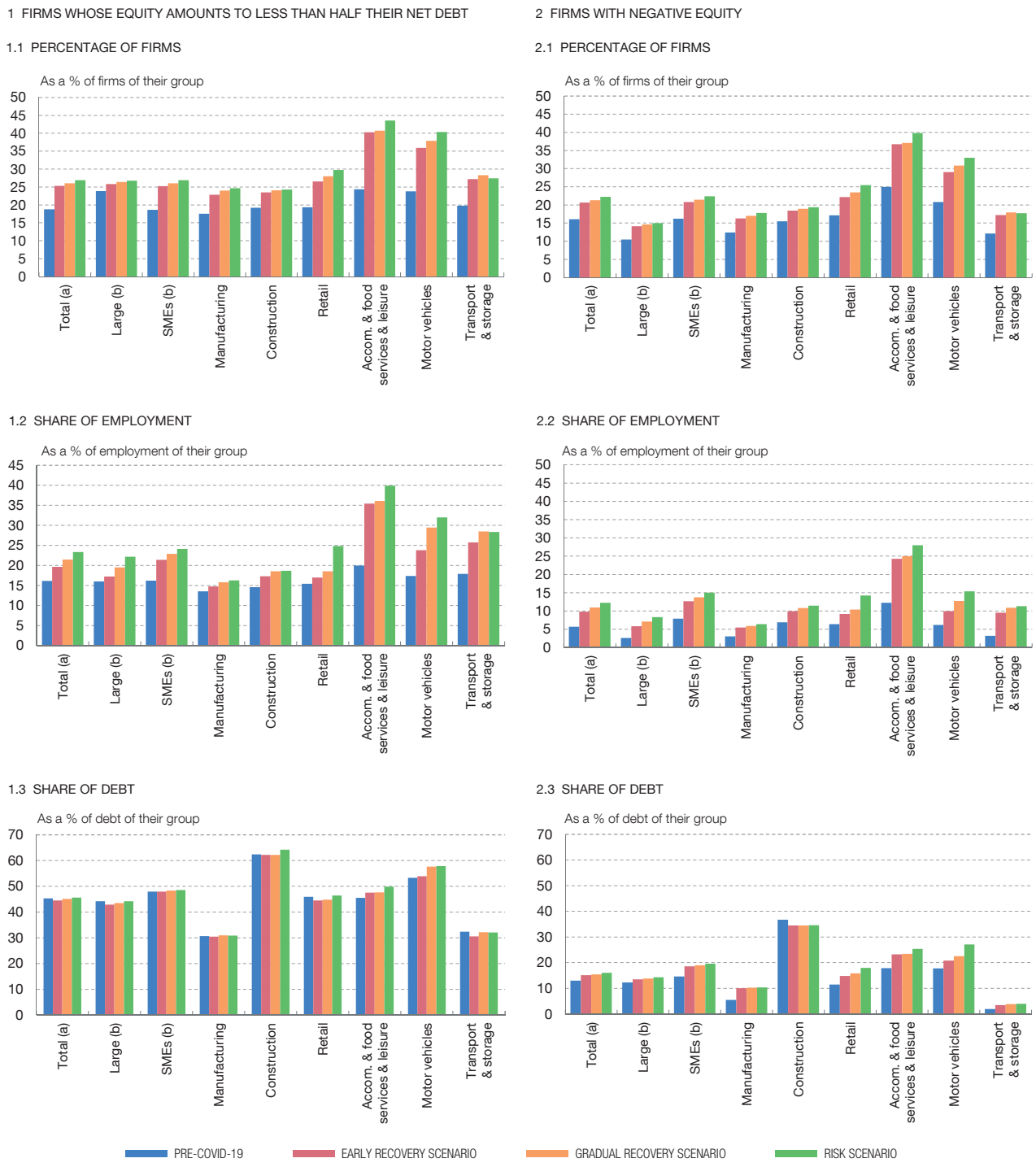
In short, the results indicate that despite the possible unprecedented fall in earnings as a result of the COVID19 crisis, more than 40% of firms could continue to generate operating surpluses and make new investment, with no deterioration in their financial position, while the majority of the remaining firms would continue in a non-vulnerable financial position. These results may be explained by the flexibility that enables firms to adjust their personnel costs when faced with a temporary fall in activity levels, and by the strong starting position of their balance sheets following the lengthy period of deleveraging of recent years.

In any event, a deterioration in the financial position of a significant portion of the corporate sector may be expected, particularly in the SME segment and especially in the tourism and leisure, motor vehicles, and transport and storage sectors.

Chart 7

THE PROPORTION OF FIRMS IN A MORE VULNERABLE FINANCIAL POSITION IS EXPECTED TO INCREASE, ESPECIALLY AMONG SMEs AND IN THE TOURISM AND LEISURE AND MOTOR VEHICLE SECTORS

As a consequence of the pandemic, the proportion of firms in a more vulnerable financial position, measured both by debt and equity levels, is expected to increase, with SMEs, and especially the tourism and leisure and motor vehicle sectors, the most affected. The share of employment of the firms with the highest risk of insolvency is also expected to rise. The estimated impact on debt is lower or even nonexistent, as the deterioration in activity is expected to be concentrated among smaller firms which started out with lower debt levels.



SOURCE: Banco de España.

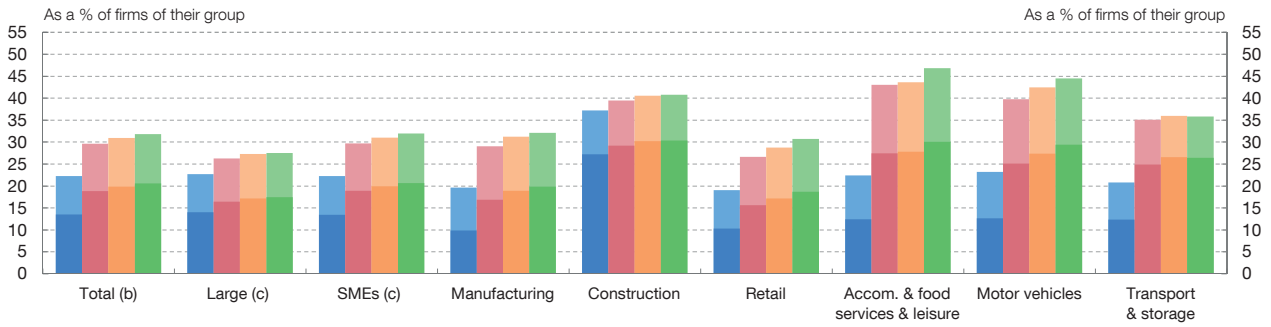
a Excludes holding companies and financial services.
b Size definition in line with European Commission Recommendation 2003/361/EC.

Chart 8

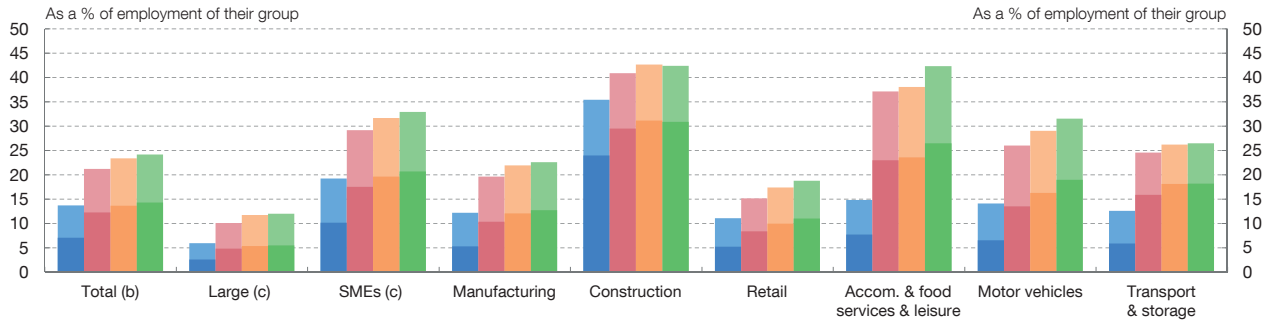
THE DETERIORATION IN THE FINANCIAL POSITION OF SOME FIRMS IS EXPECTED TO GIVE RISE TO AN INCREASE IN THE PROPORTION OF FIRMS WITH A HIGH PROBABILITY OF DEBT DEFAULT

The deterioration of firms' financial position as a consequence of the crisis caused by the pandemic is expected to give rise to an increase in the number of firms with a high or very high probability of debt default. Their relative share of employment and of debt is also expected to grow, albeit more moderately in the latter case.

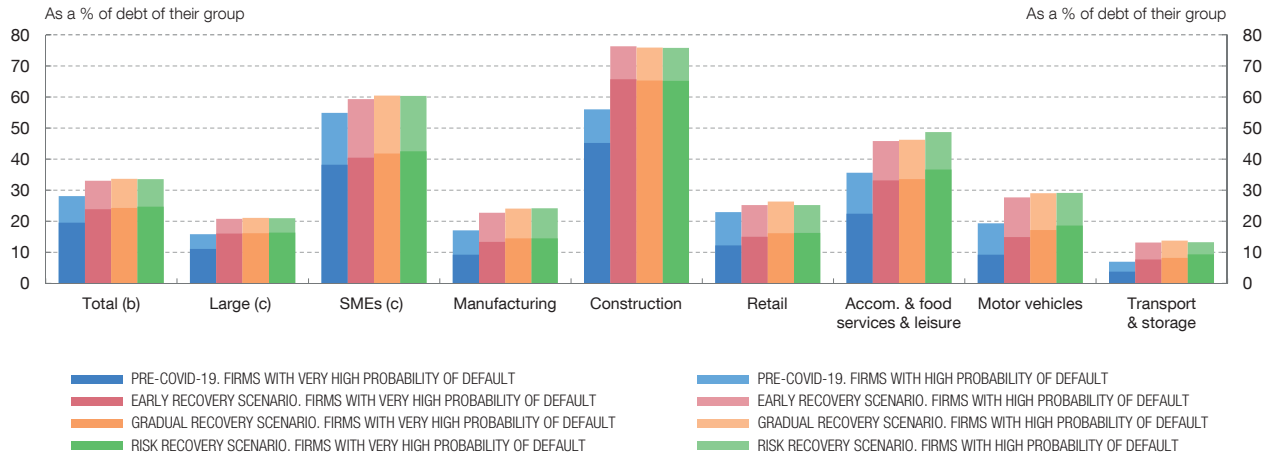
1 NUMBER OF FIRMS WITH A HIGH PROBABILITY OF DEFAULT (a)



2 SHARE OF EMPLOYMENT OF FIRMS WITH A HIGH PROBABILITY OF DEFAULT (a)



3 SHARE OF DEBT OF FIRMS WITH A HIGH PROBABILITY OF DEFAULT (a)



SOURCE: Banco de España.

a Probability of default is considered to be high between 3% and 5% and very high over 5%.
b Excludes holding companies and financial services sector firms.
c Size definition in line with European Commission Recommendation 2003/361/EC.

In the present setting, which is marked by high uncertainty, many firms are facing large liquidity needs. These firms may have difficulties accessing external financing, although the public guarantees made available for bank loans will help mitigate this risk. In extreme cases, possible difficulties funding these liquidity needs could lead to defaults and even to bankruptcy for some of the firms affected, with the adverse consequences that this would have for the economic recovery outlook, owing both to the possible destruction of part of the productive system and the consequent job losses.

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Methodological Annex

The main hypotheses used in the exercises performed in this paper are summarised below:

1 **Baseline data.** The baseline data correspond to 2018, which is the last year available in the CBI database. It is assumed that firms' balance sheet and income statement information for 2018 is representative of the situation in 2019. This is considered a realistic assumption, given: the forward activity levels indicated by the Central Balance Sheet Data Office Quarterly Survey (CBQ) for 2019 (gross value added (GVA) and gross operating profit (GOP) continued to grow in that period, by 1.8% and 0.8%, respectively, at a slightly slower pace than in the previous year); the rate of change in GVA at factor cost for 2019 according to National Accounts figures (4%); and the relative stability of firms' debt, which rose by 1% in 2019 according to the Financial Accounts of the Spanish Economy. Drawing on CBI data, simulations of firms' different balance sheet and income statement items are obtained for each quarter of 2020, applying year-on-year changes to the observed 2018 levels. As the CBI data are annual data, where they refer to flows they were disaggregated into quarterly data by dividing the annual data by four.

2 **Scenarios.** The three scenarios considered are those published by the Banco de España in its macroeconomic projections in June. These three scenarios (early recovery, gradual recovery and risk) are distinguished by the different speed of recovery (rapid, gradual and very slow), by the higher or lower degree of effectiveness of the economic policy measures adopted on the business sector, and by the possible impact of a future fresh outbreak of infection. For each scenario, different GVA paths are assumed for ten sectors of activity (see Table A.1). The early recovery scenario is compatible with a fall in GDP of 9% in 2020, the gradual recovery scenario with a fall of 11.6%, and the risk scenario with a fall of 15.1%.

3 **Personnel costs.** These costs are simulated drawing on the change in GVA, the relationship between changes in GVA and changes in turnover, and the proportion of flexible employment (understood as that which can be temporarily reduced at low cost). Specifically it was assumed that personnel costs evolve in accordance with the following expression:

$$\Delta \text{ Personnel costs} = \Delta \text{ VAB} \times \alpha \times \beta,$$

where Δ Personnel costs and Δ GVA are, respectively, the year-on-year change in personnel costs and in GVA, and α and β are coefficients that measure, respectively, the elasticity of turnover to changes in GVA and the share of non-flexible employment. It is, therefore, implicitly assumed that employment adapts according to the level of turnover and to the degree of ease of making job cuts at no cost.

Table A.1

ASSUMPTIONS ON THE CHANGE IN GVA AND PERSONNEL COSTS, BY QUARTER AND SCENARIO (year-on-year rate)

		Q1		Q2		Q3		Q4	
Group	CNAE (2-digits)	GVA	Personnel costs	GVA	Personnel costs	GVA	Personnel costs	GVA	Personnel costs
Early recovery scenario									
Primary sector	01-09	-0.9	-0.2	-8.3	-2.3	-3.0	-0.9	-2.0	-0.6
Energy	35-39	-3.0	-0.5	-15.0	-2.6	-5.5	-0.9	-3.7	-0.6
Manufacturing	10-28, 31-33	-4.0	-1.0	-20.8	-5.4	-7.6	-2.0	-5.1	-1.3
Motor vehicles	29-30	-17.5	-5.5	-40.5	-12.7	-14.9	-4.7	-10.0	-3.1
Construction	41-43	0.5	0.2	-15.9	-5.6	-5.8	-2.1	-3.9	-1.4
Wholesale & retail trade	46-47	-9.7	-2.8	-16.3	-4.8	-6.0	-1.8	-4.0	-1.2
Transportation	49-53	-16.3	-4.9	-38.8	-11.6	-14.3	-4.3	-9.6	-2.9
Accom. & food services and leisure	55-56, 79, 90-93	-17.5	-11.0	-85.9	-53.8	-31.6	-19.8	-21.2	-13.3
Other market services	58-78, 80-82	-0.6	-0.1	-11.2	-2.5	-4.1	-0.9	-2.8	-0.6
Public sector	84-88	1.7	0.7	-1.0	-0.4	-0.4	-0.1	-0.2	-0.1
Gradual recovery scenario									
Primary sector	01-09	-0.9	-0.2	-12.4	-3.5	-5.5	-1.5	-2.9	-0.8
Energy	35-39	-3.0	-0.5	-20.6	-3.5	-9.1	-1.6	-4.9	-0.8
Manufacturing	10-28, 31-33	-4.0	-1.0	-27.8	-7.2	-12.3	-3.2	-6.6	-1.7
Motor vehicles	29-30	-17.5	-5.5	-52.1	-16.3	-23.1	-7.2	-12.4	-3.9
Construction	41-43	0.5	0.2	-21.8	-7.7	-9.6	-3.4	-5.2	-1.8
Wholesale & retail trade	46-47	-9.7	-2.8	-28.1	-8.2	-12.4	-3.6	-5.2	-1.5
Transportation	49-53	-16.3	-4.9	-50.0	-14.9	-22.2	-6.6	-11.9	-3.5
Accom. & food services and leisure	55-56, 79, 90-93	-17.5	-11.0	-85.9	-53.8	-38.1	-23.8	-22.4	-14.0
Other market services	58-78, 80-82	-0.6	-0.1	-16.0	-3.5	-7.1	-1.6	-3.8	-0.8
Public sector	84-88	1.7	0.7	-3.4	-1.3	-1.5	-0.6	-0.8	-0.3
Risk scenario									
Primary sector	01-09	-0.9	-0.2	-12.4	-3.5	-8.3	-2.3	-6.7	-1.9
Energy	35-39	-3.0	-0.5	-20.6	-3.5	-13.8	-2.4	-11.2	-1.9
Manufacturing	10-28, 31-33	-4.0	-1.0	-27.8	-7.2	-18.5	-4.8	-15.1	-3.9
Motor vehicles	29-30	-17.5	-5.5	-52.1	-16.3	-34.8	-10.9	-28.4	-8.9
Construction	41-43	0.5	0.2	-21.8	-7.7	-14.5	-5.1	-11.8	-4.2
Wholesale & retail trade	46-47	-9.7	-2.8	-29.6	-8.6	-19.7	-5.8	-16.1	-4.7
Transportation	49-53	-16.3	-4.9	-50.0	-14.9	-33.4	-9.9	-27.2	-8.1
Accom. & food services and leisure	55-56, 79, 90-93	-17.5	-11.0	-85.9	-53.8	-57.3	-35.9	-46.7	-29.3
Other market services	58-78, 80-82	-0.6	-0.1	-16.0	-3.5	-10.6	-2.3	-8.7	-1.9
Public sector	84-88	1.7	0.7	-3.4	-1.3	-2.3	-0.9	-1.9	-0.7

SOURCE: Banco de España.

α was estimated on a sector by sector basis, drawing on the historical relationship between changes in GVA and in firms' turnover using CBSO data. These ratios are less than one (around 0.7), reflecting the fact that a portion of production costs, such as rents, for example, are fixed costs and do not depend on the level of activity.

β was estimated taking into account the impact of the furlough schemes by sector, and also the share of temporary employment (which offers greater flexibility in the event of a sharp decline in activity) in each sector. The impact of the furlough schemes was estimated using the data on their rate of incidence by sector observed in 2020 Q2, insofar as their use reflects the flexibility that this mechanism provides to reduce the labour costs of firms affected by a drop in activity.

Table A.1 presents the assumptions used on year-on-year rates of change in GVA and personnel costs, in each quarter and for each scenario considered. As the table shows, the fall in personnel costs is lower than the fall in GVA, which is explained by the existence of fixed costs that cannot be reduced when turnover declines.

4 **Trade payments and collections.** Liquidity needs are analysed on a cash basis rather than on an accrual basis. For this analysis, firms' trade payments and collections were estimated using purchases and sales, respectively, and average payment and collection periods for each firm in 2018.

5 **Financial revenue and costs.** Interest income and expenses are held at the 2018 levels, distributed evenly by quarter. For 2020 it is assumed that dividend income will be zero and that any new debt will mature after 2020. These assumptions facilitate the calculations and are considered relatively realistic, as it is assumed that a large part of firms' liquidity needs will be met by the ICO line. A high proportion of the loans arranged under this line include a grace period of approximately one year and have an average maturity of more than four years.

6 **Tax payments.** The three advance corporate income tax payments (one in Q2 and two in Q4) are each estimated as 18% of the previous year's net tax liability. Account has been taken of the deferral of the April tax payments (to November) for firms with net tax liability under €30,000 and sales under €6 million.

7 **Other operating expenses.** Calculated as sales incurred – purchases incurred – GVA. Purchases and sales incurred are obtained by applying, at the level of these variables in 2018, the change in GVA multiplied by the elasticity of turnover to changes in GVA.

8 **Calculation of operating shortfall/surplus**. As a result of the income and expenses generated, applying the criteria explained in the previous paragraphs, the operating surplus/shortfall is obtained based on the following formula:

Sales receipts – Purchase payments – Personnel costs – Other operating expenses – Financial costs + Financial revenue – Advance corporate income tax payments,

where a positive outcome denotes a surplus and a negative outcome a shortfall.

9 **Investment in fixed assets.** The benchmark used was firms' investment in 2018, according to CBI data, and their amortisation/depreciation costs (adjusted in accordance with the fall in their GVA). It is assumed that in 2020, firms with an operating shortfall will invest the lower of these two variables (investment and amortisation/depreciation in 2018), ruling out the possibility of negative investment (for example, for firms that recorded negative investment in 2018, on account of divestments made in that year, zero investment is assumed for 2020). In the case of firms with an operating surplus and whose investment in 2018 was higher than their adjusted amortisation/depreciation, it is assumed that in 2020 they will invest more than that amortisation/depreciation, up to the lower of the surplus or investment recorded in 2018. These assumptions give rise to a decline in investment in fixed assets of between 33% and 36%, according to the scenario considered. This is higher than estimated in the Banco de España's June projections exercise, which envisaged a fall of 20.6% under the early recovery scenario and of 26.5% under the gradual recovery scenario.

10 **Debt repayments.** These include repayments of debts maturing and also implicit partial repayments included in regular loan repayment instalments. Repayments of loans with resident banks were calculated drawing on CCR data at December 2019 (for repayments in 2020 Q1) and at March 2020 (for repayments of the other three quarters of the year). Repayments of debts not included in the CCR (non-bank debt and debts with non-resident banks) were calculated drawing on CBI data on firms' balance sheets, distributed evenly by quarters. In the case of intercompany debt, funding received and funding granted are both considered; in the latter case, assets represent income for firms that supply funds to other companies of their financial group.

11 **Liquidity needs.** Based on the above assumptions, the shortfall or surplus generated at each firm by operating activity, investment in fixed assets and debt repayments was calculated, for each quarter and for the whole year. This provides an approximation of firms' total liquidity needs in these periods.

12 **Liquid assets.** Firms may use liquid assets on their balance sheets to meet shortfalls. Liquid assets are understood to include: Cash and other equivalent liquid assets + Short-term financial investments in shares (not including shares of group companies) + Short-term financial investments in securities + Other short-term financial investments other than credits.

13 **Equity, debt, and fixed asset balance.** Firms' equity varies according to the shortfall/surplus on their operating activity, their amortisation/depreciation of fixed assets and their corporate income tax accrued and not paid. It is assumed that firms recording a shortfall generated by their operating activity and their investment in fixed assets meet that shortfall with debt. In the case of firms recording a surplus, it is assumed that the surplus takes the form of an increase

in liquid assets. Amortisation/depreciation reduces both tangible and intangible fixed assets.

14 **Grossing-up for the business sector overall.** Given that a sample of firms was used and not the total population, grossing-up factors were applied to the results obtained from the sample. The factors used for this purpose are those used by the CBSO to gross up to the total non-financial corporations sector, which are obtained from the number of firms in the Central Companies Directory (DIRCE) and in the CBI sample in each sector (using the National Classification of Economic Activities (CNAE) 2009 2-digit classification) and size segment (with the following breakdown: no employees; 1 to 9 employees; 10 to 19; 20 to 49; 50 to 199; 200 to 499; 500 to 999; 1,000 to 4,999; over 5,000 employees). Different grossing-up factors were applied to public limited companies and to all other firms.

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