

### 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,<sup>1</sup> 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.

<sup>1</sup> 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.