Box 2.1

SENSITIVITY ANALYSIS: HOW FINANCIAL PRESSURE ON FIRMS RESPONDS TO ADVERSE SHIFTS IN THEIR PROFITABILITY AND BORROWING COSTS

This box examines Spanish firms' capacity to continue to cover borrowing costs out of profits in the event of hypothetical declines in profitability and/or increases in borrowing costs.

This issue is particularly relevant in the current context. Heightened geopolitical uncertainty, which has further intensified since the outbreak of the conflict in the Middle East in late February, could affect firms through various channels, including higher prices of certain inputs (especially energy), a slowdown in economic activity or tighter financial conditions. These developments could potentially lead to a combination of downward pressures on corporate profits and more restrictive financing conditions.

When assessing the financial stability implications of hypothetical deteriorations in firms' economic and financial conditions, the sectors that account for a larger share of overall corporate debt are particularly relevant.[1]

As Table 1 shows, in 2007 industry and the construction and real estate activities sector accounted for the largest shares of corporate debt (19.8% and 30.8%, respectively). Since then, both sectors have gradually lost share, largely to trade, transportation and storage. Consequently, in 2024 this sector ranked second in terms of corporate debt in the sample (20.1%), surpassed only by the construction and real estate activities sector (21.7%).[2]

In order to evaluate the corporate sector's financial resilience, a series of simulations has been conducted. These include simulating the extent to which different adverse shocks would increase the share of corporate assets and debt accounted for by firms under high financial pressure (i.e. firms whose profits are insufficient to cover their borrowing costs).

In particular, three types of hypothetical impact are considered: (1) a decline in corporate profits, differentiated by sector and by firms within each sector; (2) a broad-based and uniform increase in borrowing costs; and (3) a combined scenario in which both shocks occur simultaneously.[3] These exercises should not be interpreted as forecasts, but as a sensitivity analysis to identify which sectors would be most affected under different adverse assumptions. The results are assessed by comparing the estimated vulnerability

Table 1
Sectoral distribution of debt

%	2007	2012	2024
Energy (a)	16.3	17.8	14.2
Industry	19.8	17.6	17.5
Trade, transportation and storage (b)	14.6	16.2	20.1
Construction and real estate activities	30.8	30.0	21.7
Tourism (c)	3.8	4.5	5.8
Knowledge-intensive services (d)	10.3	8.3	11.4
Other (e)	4.4	5.6	9.3

SOURCE: Banco de España.

a Includes mining and quarrying and electricity, gas and water supply.
b Excludes air transport.
c Includes air transport, hospitality, travel agency activities and amusement and recreation activities.
d Includes information and communication, and professional, scientific and technical activities.
e Includes agriculture; education activities; administrative and support service activities, excluding travel agency activities; human health and social work activities; and other service activities.

1 The level of debt is a measure of the sector's propensity to incur defaults, which can affect its financial stability.
2 An analysis of asset shares by sector reveals a similar distribution.
3 The frequency of profit declines of the magnitude considered is close to 50% (number of firm-year observations where a similar decline has been recorded in the last 17 years), while the combined shock (both a fall in profit and increase in borrowing costs) would only have been observed in 10% of firm-year observations. In any event, given the current environment of mounting uncertainty, analysis of this combined scenario of falling gross operating profit and rising borrowing costs is essential.

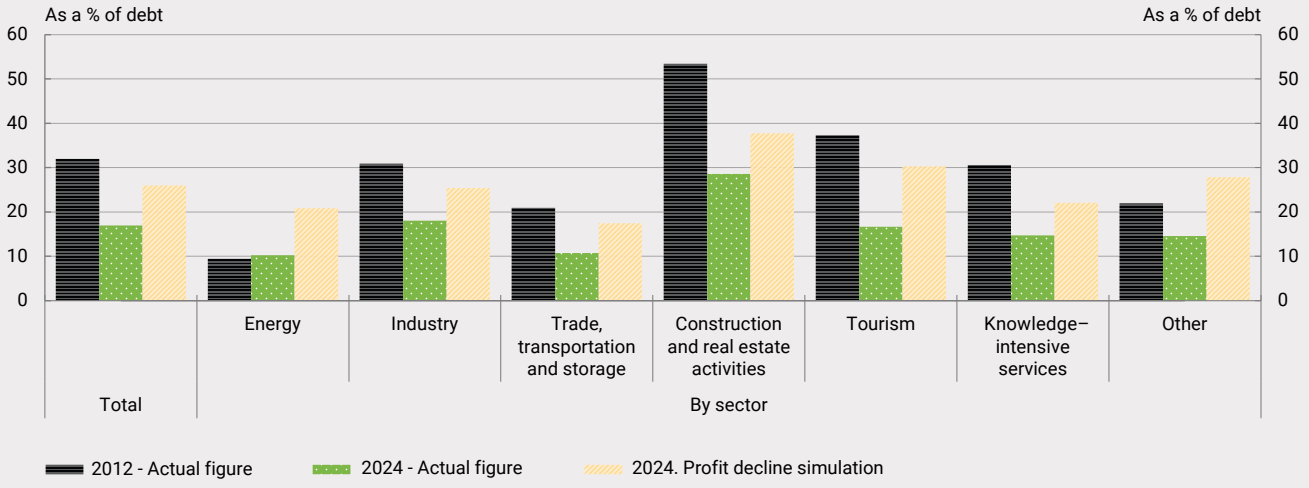
levels with those observed in previous episodes of heightened stress, such as the European debt crisis that followed the global financial crisis.

Under scenario 1, which envisages differentiated profit declines for each sector of activity and for each firm within each sector,[4] the share of each sector's total debt held by financially vulnerable firms would increase markedly. Nevertheless, this share would still be below the 2012 peak following the global financial crisis (Chart 1). All sectors would be affected, although the increase would be particularly pronounced in the energy sector (rising to 20.8%, double its level in 2024, the latest year for which the indicator is available), the tourism sector (where the percentage of vulnerable debt would also virtually double to around 30%) and in construction and real estate activities, which would record the highest share of vulnerable debt (38%). In any event, historical evidence indicates that rising energy input prices tend to be associated with higher profitability in the energy sector. Consequently, the probability of this adverse shock materialising for this aggregate would be low, mitigating its contribution to overall corporate sector vulnerability.

Under scenario 2, which simulates a 1 percentage point (pp) increase in the ratio of borrowing costs to average debt, debt held by firms under high financial pressure would also increase (Chart 2). However, it would do so less than under scenario 1. This moderate impact is largely explained by the Spanish corporate sector's deleveraging since the global financial crisis. Thus, increases in the average interest rates at which firms borrow are applied to a smaller stock of debt.

Third, when combining the two shocks, debt held by firms under high financial pressure would rise to 32.9%,

Chart 1
Debt of firms under high financial pressure: impact of a decline in corporate profits (a) (b)



SOURCE: Banco de España.

a Firms under high financial pressure are proxied as those whose profits are insufficient to cover borrowing costs. The decline in profit is equivalent to a standard deviation of average annual gross operating profit for each sector (at NACE Rev. 2 division level) between 2000 and 2024, excluding 2020, plus the average of 100 alternative simulations consistent with the distribution of gross operating profit at firm level in excess of the sectoral average and by size, in a year in which sectoral gross operating profit performed similarly to that imputed to the sector. Debt-free firms are excluded.
b See the notes to Table 1 for sector definitions.

4 The exercise is calibrated using information from the Banco de España's Integrated Central Balance Sheet Database, with 2024 being the last year available. First, the profit of each sector (at NACE Rev. 2 division level) is subject to an average reduction equivalent to a standard deviation of average annual gross operating profit between 2000 and 2024, excluding 2020. Second, 100 alternative simulations are conducted consistent with the distribution of gross operating profit at firm level in excess of the sectoral average and by size, in a year in which sectoral gross operating profit performed similarly to the outcome of applying the profit reduction in the first step to the average sectoral profit of 2024. In each simulation, each firm within a given sector thus receives an individual idiosyncratic shock to its profits, in addition to a common shock at the sectoral level. The results presented in terms of the share of firms under high financial pressure correspond to the average of these 100 simulations.

a level slightly above the 2012 peak (Chart 2). However, these results should be interpreted with caution, since, as mentioned above, the corporate sector has considerably less debt than in 2012.[5] Therefore, the same percentage of debt held by firms under high financial pressure would, in 2024, entail a lower absolute volume, which partially mitigates the financial stability implications.

Additionally, firms are either classified as being under high financial pressure or they are not. However, while the percentage of debt held by firms under high financial pressure under the combined scenario, when applied to the actual 2024 figure, is similar to that observed in 2012, it is necessary to assess whether the gap between earnings and borrowing costs is also similar. To do so, the aggregate difference between borrowing costs and earnings relative to total assets is compared for the firms under financial pressure. The results show that the combined shock simulated for 2024 would be comparable in size to the situation in 2012, when such ratio stood at 4.78%, versus the 4.68% estimated for 2024.[6]

At this stage, it is also useful to examine the impact in terms of assets, by measuring the assets of firms under high financial pressure as a percentage of total corporate assets, and rule out the possibility of indebted firms accounting for a low share of assets detracting from the results discussed. The results using this approach also confirm the severity of the shock (Chart 3), as these firms' share of total assets in 2024 would be comparable to the 2012 figure.

A more granular breakdown reveals that the increase in vulnerability under the combined scenario would be widespread across sectors. However, as is the case under scenario 1, energy, tourism and construction and real estate activities would once again be hardest hit (Chart 4). In the energy sector, debt held by firms under high financial pressure would amount to 23.6%, well above the 2012 figure (9.5%), while in tourism it would be close to

Chart 2
Debt of firms under high financial pressure. Impact of adverse shocks. Total indebted firms

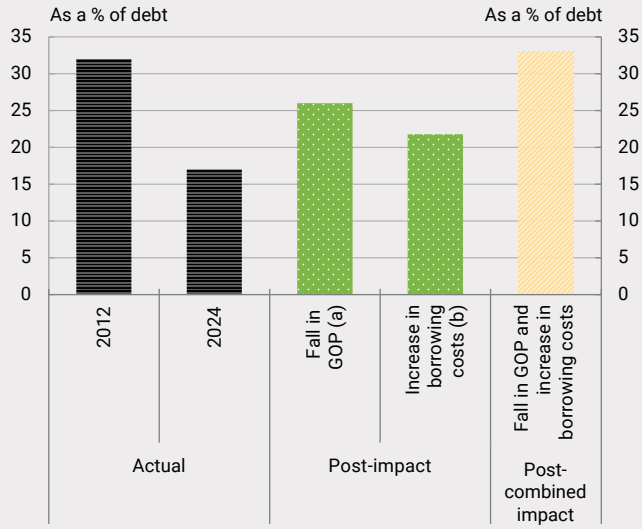
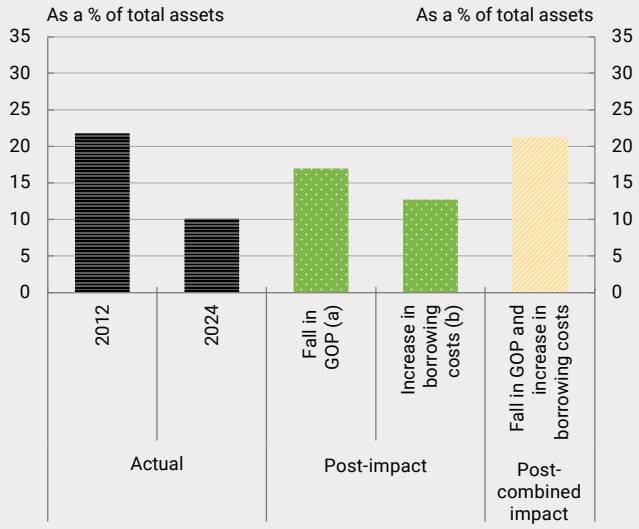


Chart 3
Assets of firms under high financial pressure. Impact of adverse shocks. Total indebted firms



SOURCE: Banco de España.

a See note (a) to Chart 1.
b A 1 pp increase in firms' borrowing costs is assumed. Borrowing costs are defined as the ratio of borrowing costs to average debt.

5 Indeed, under the combined scenario the debt ratio (total debt/assets) in 2024 of firms under high financial pressure is 12 pp lower than recorded in 2012.

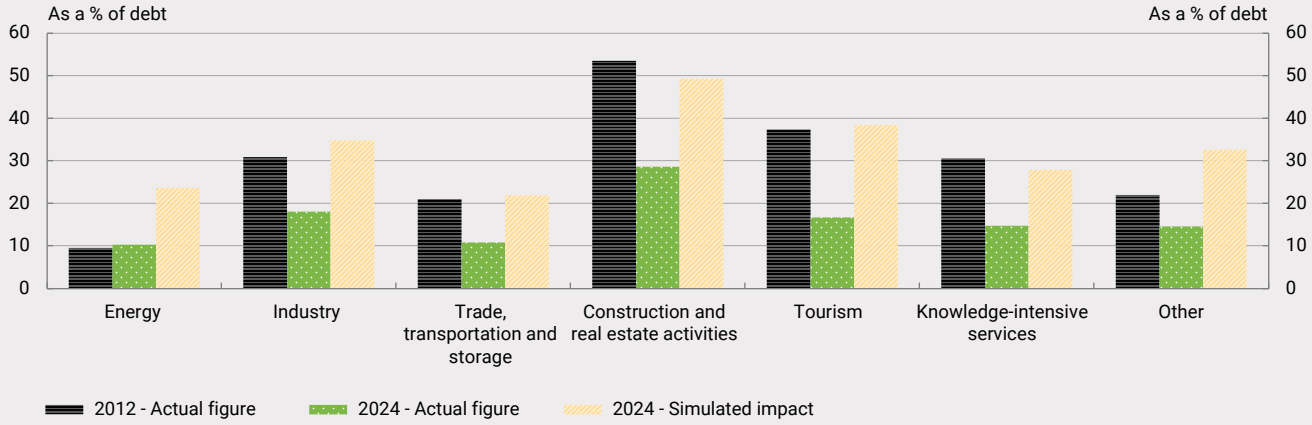
6 This is due to both a decline in earnings and an increase in borrowing costs for firms under high financial pressure, as the higher borrowing costs under this scenario would offset the positive effect of deleveraging.

40% and in construction and real estate activities firms under financial pressure would account for almost half the debt (49%).

Ultimately, it should be borne in mind that in these sensitivity exercises shocks are applied to firms assuming all other factors remain constant. This makes them somewhat detached from what would actually happen, as firms would likely respond to these adverse shocks by adopting decisions to mitigate the impact on their earnings (cutting costs, postponing investments or restructuring their financing, etc.). However, it is also true that these mitigating measures typically yield results at a lag.

Overall, the simulations conducted highlight that the Spanish corporate sector's financial vulnerability is highly sensitive to adverse shocks to earnings and financing conditions and that such sensitivity varies significantly across sectors. Under the baseline scenario of the macroeconomic projections,[7] corporate profitability in Spain is forecast to remain at favourable levels. However, the uncertainty prompted by the war in the Middle East makes the materialisation of these types of impacts more likely than in the recent past. The results therefore highlight the importance of considering the heterogeneity of the business sector when monitoring the risks to economic activity and financial stability in the current setting.

Chart 4
Debt of firms under high financial pressure (a). Impact of the fall in GOP and the increase in borrowing costs. Sectoral breakdown (b) (c)



SOURCE: Banco de España.

a See note (a) to Chart 1.
b A 1 pp increase in firms' borrowing costs is assumed. Borrowing costs are defined as the ratio of borrowing costs to average debt.
c Weight within each sector. See notes to Table 1 for sector definitions.

7 "Macroeconomic projections and quarterly report on the Spanish economy. March 2026".