

Box 3

AN APPROACH TO THE POSSIBLE IMPACT OF THE RISE IN INTEREST RATES ON FIRMS' FINANCIAL POSITION

Maristela Mulino

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The strong inflationary pressures seen in the euro area in recent quarters have caused the process of monetary policy normalisation to gather pace, leading to a very sharp rise in reference interest rates on the financial markets. For instance, between 31 December 2021 and 12 September 2022, the 12-month EURIBOR rose by 258 basis points (bp), to 2.08%, while the 10-year OIS rate¹ climbed by 208 bp.

Such interest rate rises will progressively pass through to the average cost of debt for firms, but also to the average remuneration of some of their financial assets (such as deposits and loans), thereby pushing up their financial costs and revenues. This box aims to estimate the impact that different hypothetical increases in market interest rates would have on firms' debt burden, defined as the ratio of financial costs to the sum of operating income and financial revenue. It also assesses the effect that this would have on the share of aggregate employment and volume of corporate debt represented by firms under high financial pressure.²

The exercise envisaged in this box draws on granular information, covering around 800,000 firms, from the Central Balance Sheet Data Office integrated database for 2019 and 2020³ (the latest available). It considers increases of 200 bp, 300 bp and 400 bp in market interest rates, which are fully passed through to the cost and average remuneration of certain debt and loans.⁴ In the case of deposits, a partial pass-through is assumed, in line with that historically observed.⁵ It is assumed that the other income statement items are unaffected by the higher interest rates. In this respect, the estimates shown below should be interpreted as an initial approach to the impact that the rise in interest rates could have on the financial position of firms operating in Spain, as these estimates are made in *ceteris paribus* terms (i.e. without

taking into account how the increase in interest rates, or the macroeconomic context prompting it, could affect key variables on firms' balance sheets, such as sales and labour or supply costs). Further, the exercise estimates this impact essentially over a short time horizon, as it ignores, for example, the effects associated with the possible rollover of fixed-interest debt maturing in the long term.

When passing through the increase in interest rates to the balance sheet items whose cost and remuneration are affected by such an increase (based on the foregoing considerations), a further assumption must be made as regards what happens to debt and loans with a short-term maturity. In this respect, the results presented below envisage two extreme cases:

- *No short-term debt rollover*: it is assumed that short-term debt and loans are not renewed upon maturity and, consequently, their cost and remuneration are unaffected by the shock. By contrast, the market interest rate increases are passed through to the cost of debt and the remuneration of loans in the case of long-term operations at a floating rate⁶ and to sight deposits and time deposits with a maturity of up to one year. Since this assumption does not take into account that firms may have to refinance part of their debt maturing in the short term at a higher cost, the results presented would provide a lower bound for the impact to be estimated.
- *With short-term debt rollover*: it is assumed that short-term debt and loans are fully rolled over at maturity. Market rate hikes are therefore passed through to these items in this case. Since firms tend to refinance a significant part of their financing maturing in the short term, this scenario would be somewhat more realistic than that presented above. However, given

1 The 10-year Overnight Index Swap (OIS) rate is considered the benchmark rate for euro area long-term risk-free interest rates. The OIS rate is the fixed leg of an interest rate swap contract where the floating leg is the 1-day euro short-term rate (€STR).

2 For the purposes of this box, a firm is understood to be under high financial pressure when its financial costs exceed its income from ordinary activities (gross operating profit and financial revenue).

3 In the case of gross operating profit, the 2019 figure is used, as earnings in 2020 are distorted by the impact of the COVID-19 crisis, and the data for 2019 are considered more representative of how firms' activity may potentially perform over the coming years.

4 It is assumed that all interbank market rates increase by these amounts. These rates are the most relevant for this exercise, as the intention is to estimate mainly the short-term effects of the rise in interest rates (both those linked to the rollover of short-term debt and loans and those associated with the revision of the benchmarks for assets and liabilities at a floating rate).

5 A pass-through of 15% is assumed for sight deposits and of 76% for fixed-term deposits. These percentages are obtained from equations estimated using historical data that proxy the long-term relationship between the 12-month EURIBOR and deposit interest rates.

6 The proportion of long-term debt and loans at a floating rate has been proxied, for each firm, using data from the Banco de España's Central Credit Register.

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that firms would not necessarily refinance all of this funding, the results under this scenario would represent an upper bound for the impact being estimated.

EURIBOR has increased by between 200 bp and 300 bp since the start of the year, the impacts estimated in the chart for these two shocks provide an approximate range for the increase that the interest rate rise so far would cause in firms' median debt burden ratio in the short term. If short-term debt and loan refinancing is not considered, this increase would range from 1.9 pp to 2.6 pp. Assuming

Chart 1 presents the impact of higher interest rates on indebted firms' median debt burden ratio. As the 12-month

Chart 1
Estimated increase in the median debt burden as a result of higher interest rates (a) (b)

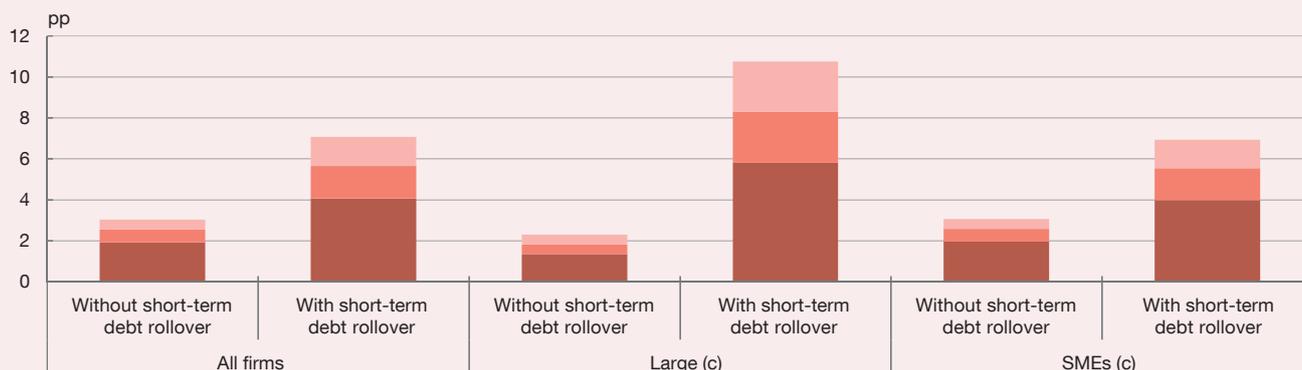


Chart 2
Estimated increase in the share of employment in firms under high financial pressure as a result of higher interest rates (b) (d)

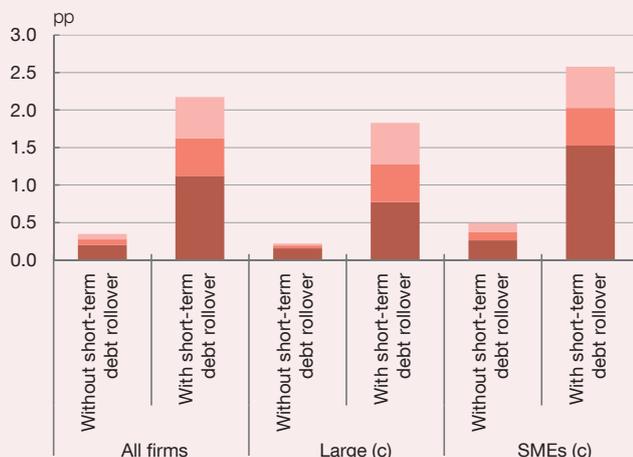
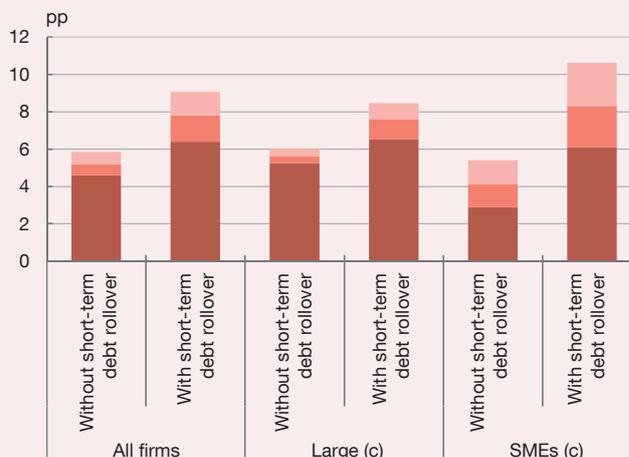


Chart 3
Estimated increase in the share of debt in firms under high financial pressure as a result of higher interest rates (b) (d)



+200 bp +300 bp +400 bp

SOURCE: Banco de España.

- a The debt burden is defined as Financial costs / (Gross operating profit + Financial revenue). Firms with no financial costs are excluded from this calculation.
- b In the case where no short-term debt rollover is assumed, the interest rate rise is fully passed through to long-term floating-rate debt and loans. A pass-through of 15% is considered for sight deposits and of 76% for time deposits with a maturity of up to one year. The case with short-term rollover differs from the foregoing case in that the interest rate rise is passed through also to short-term debt and loans.
- c Size is defined in accordance with Recommendation 2003/361/EC.
- d Firms under high financial pressure are defined as those which have a ratio of (Gross operating profit + Financial revenue) / Financial costs lower than one.

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that these items are fully refinanced, the median debt burden ratio would increase by between 4.1 pp and 5.6 pp. Further, should market interest rates increase by as much as 400 bp, the debt burden ratio would rise by 3 pp without short-term debt rollover and 7.1 pp with full short-term debt rollover. To set these impacts in context, it should be borne in mind that indebted firms' median debt burden ratio stood at 11.6% before the shock. The breakdown by firm size shows that, when short-term debt and loan rollover is considered, the effect would be greater for large firms than for SMEs, which is consistent with their higher indebtedness.

Chart 2 shows that the impact of these shocks on the share of employment in firms under high financial pressure would be relatively moderate. In particular, if the refinancing of short-term debt and loans is considered, this share, which stood at 9.1% at the outset, could increase by between 1.1 pp and 1.6 pp, assuming interest rate

increases of 200 bp and 300 bp, respectively. However, assuming a 400 bp increase in interest rates, the impact would stand at just over 2 pp. In all these cases, the share of employment in vulnerable firms would grow more among SMEs, since their profitability before interest is lower than that of large firms, meaning they would have less room to cope with a rise in financial costs.

Chart 3 shows that the impact of an interest rate rise in terms of the proportion of debt accumulated by vulnerable firms would be substantially more acute.⁷ Thus, assuming short-term debt and loans are fully rolled over, the share of these firms' debt in total corporate debt, which stood at 14.1% at the outset, would rise by 6.4 pp, 7.8 pp and 9.1 pp considering interest rate rises of 200 bp, 300 bp and 400 bp, respectively. By firm size, as in the case of employment, these increases tend to be larger for SMEs than for large firms, especially when sharper interest rate hikes are considered.

⁷ Note that the effects illustrated in this chart show a very marked non-linearity. In particular, the impact associated with a 200 bp interest rate rise is substantially higher than that of a further 200 bp increase. This is because the initial 200 bp rise pushes some very large firms (which therefore have a high debt volume) over the threshold determining high financial pressure, resulting in a jump in the indicator, which is measured in terms of firms' debt. An additional 200 bp rise, however, leads to a more moderate increase in the indicator, as the firms it would push into a situation of vulnerability do not include such large companies.