

This box analyses the impact that a hypothetical rise in market interest rates would have on the income of Spanish general government, non-financial corporations and households.¹ For this purpose, a three-year horizon (2018-2020) is considered, on the basis of the data observed to March 2018, and a baseline scenario and three other alternatives – including various hypothetical situations involving market interest rate rises – are assessed. The exercises consider the impact on interest revenue and interest payments associated with the financial assets and liabilities, respectively, of the various sectors.

The baseline scenario envisages a gradual, moderate rise in market interest rates, in keeping with the expectations implicit in the yield

curves. This scenario coincides with the baseline projections of the latest macroeconomic scenario published by the Banco de España.² The alternative scenarios envisage an increase in market interest rates – merely for illustrative purposes – of 100 bp above the levels of the baseline scenario. In the first such scenario, the rise is confined to yields up to a term of one year; in the second, to the medium- and long-dated segments of the curve; and in the third, the entire yield curve is shifted upwards. To simplify the exercise, it is assumed in these three scenarios that the macrofinancial variables, such as GDP and the volume of debt or assets, are not affected by the interest rate shock, such that the levels of these variables remain at the same values as in the baseline scenario.

1 This box is an update of Box 1.3 of the *Annual Report, 2016*, Banco de España.

2 See “*Macroeconomic projections for the Spanish economy (2018-2020): the Banco de España’s contribution to the Eurosystem’s June 2018 joint forecasting exercise*”.

Chart 1
GENERAL GOVERNMENT. NET BURDEN (a)

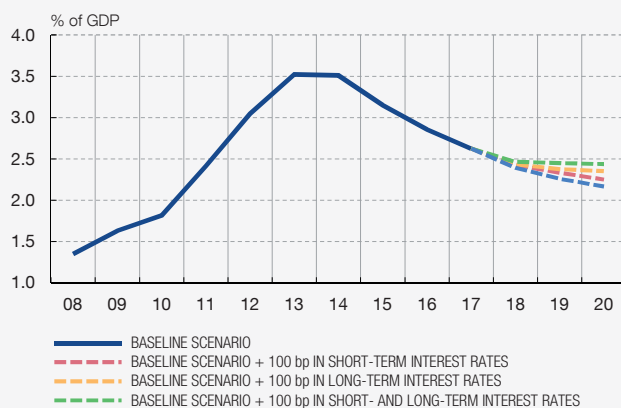


Chart 2
NON-FINANCIAL CORPORATIONS. NET BURDEN (a)

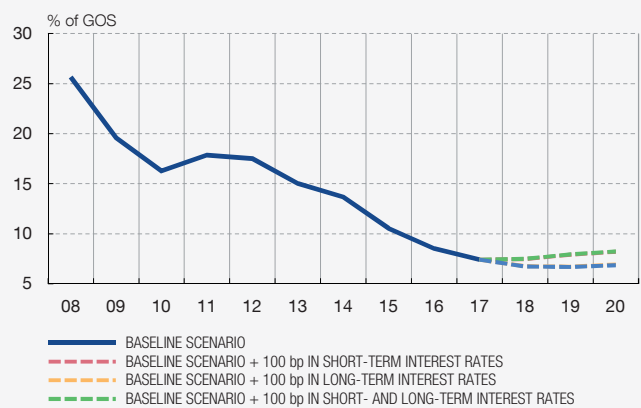


Chart 3
HOUSEHOLDS. NET BURDEN (a)

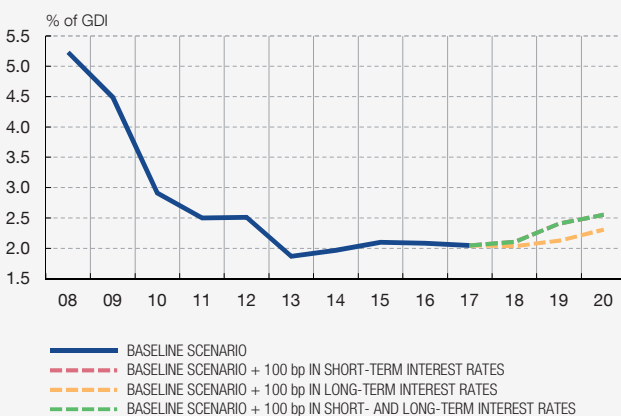
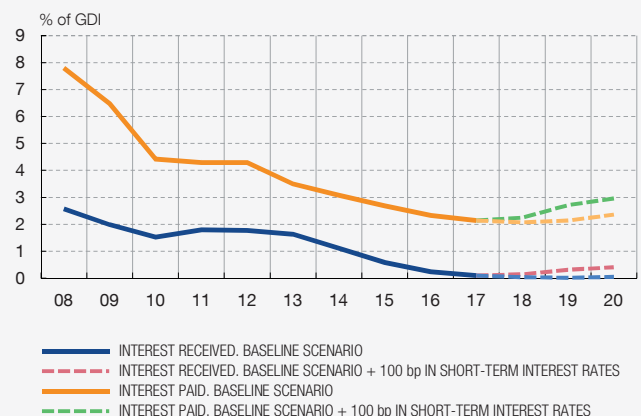


Chart 4
HOUSEHOLDS. FINANCIAL CHARGES AND REVENUE



SOURCES: INE and Banco de España.

a Interest paid on financing received less interest return on deposits.

To simulate the impact that market interest rate rises would have on economic agents' income, we estimated the behaviour of the fundamentals over the forecasting horizon under the various scenarios considered. Thus we estimated, firstly, the balances of certain financial assets (sight and fixed-term deposits) and liabilities (credit and debt securities) and, secondly, the interest rates linked to these instruments. Specifically, to determine the impact on the average return on deposits and the cost of households' and firms' outstanding loans, we used equations estimated from historical information that measure the habitual pass-through from market rates to these yields. In the case of debt securities issued by general government and firms, the maturity schedule for outstanding debt and future financing needs have been taken into account. Also, in new issues it was assumed that the proportion of short-term to long-term securities will be the same as that set by the Treasury for 2018, in the case of general government, and that observed in March 2018, in that of non-financial corporations.

Charts 1 to 3 present the results of the simulations for each of the three sectors analysed. For general government, given the predominance of long-term, fixed-rate financing, the impact of an interest rate rise on its net interest burden (difference between interest payments and interest revenue) is gradual and, comparatively, more marked when this rise is concentrated in the long-dated segment of the curve. The high inertia of interest payments in this sector, linked to the long duration of its liabilities, means that the net interest burden does not increase over the three-year horizon simulated under a scenario of moderately rising interest rates such as the baseline scenario, nor does it do so under the alternative scenarios. Regarding the effect of shocks, the results of the simulations show that a 100 bp increase in short-term interest rates would translate into a net interest burden that would be 0.1 pp higher in terms of GDP than under the baseline scenario at the end of the forecasting horizon (end-2020), while an increase of the same amount in long-term interest rates would mean a burden 0.2 pp higher. Under a scenario in which both rates increase simultaneously, general government net interest payments would rise by 0.3 pp of GDP compared with the baseline scenario. These effects are substantially larger than those estimated some years ago before the notable rise in general government debt, which has raised the sensitivity of the balance to changes in interest rates. The size of the effect is significant because, as disclosed when the Banco de España's most recent forecasts³ were published, the envisaged intensity of the process of budgetary consolidation over the period 2018-2020 is, given the expected favourable cyclical environment, modest.

As shown in Chart 2, the business sector's net interest burden is more sensitive to increases in the short-term segment of the yield

curve, which reflects the prevalence of financing with a near-dated maturity and at a floating rate. This same characteristic means that the pass-through of market interest rate movements to the average costs of outstanding balances is swifter than in the case of general government. Even under the baseline scenario, which, as noted above, envisages gradual, moderate rises in interest rates, the net interest burden would eventually stand above the level recorded at March 2018, which indicates that there is no room left now for lowering the average cost of financing. The simulations show that a 100 bp rise in short-term interest rates would result in an increase in the sector's gross interest burden of 1.4 pp relative to its gross operating surplus (GOS) at the end of the forecasting horizon, in comparison with the baseline scenario. In the case of a rise in long-term interest rates, the net interest burden would scarcely increase by 5 bp. Combining the two shocks, the net impact would be somewhat less than 1.5 pp (i.e. approximately 0.35% of GDP). These effects are quantitatively high, but more moderate than those estimated just before the last crisis as a result of the notable deleveraging of this sector in recent years.

In the case of households, given the prevalence of variable-rate financing and the short duration of deposits, their financial expenses and revenue are fundamentally linked to the changes in short-term interest rates and practically insensitive to changes in the long-dated segment of the yield curve. Specifically, the impact associated with a 100 bp increase in short-term interest rates on debt interest payments is estimated at 0.6 pp of gross disposable income (GDI) at the end of the horizon considered (see Chart 3). The impact in net terms is more moderate, at somewhat less than 0.2 pp of GDI, since, for the sector as a whole, the higher debt interest payments are largely offset by the increase in the return on the sector's deposits (nearly 0.5 pp of GDI) (see Chart 4). As in the case of firms, it can be seen how, even under the scenario envisaging a gradual, moderate rise in interest rates (baseline scenario), both the gross and the net interest burden tend to rise over the course of the forecasting horizon, which suggests that the scope for further decreases in these two variables has been exhausted. Furthermore, and again similar to what occurred with firms, the notable household deleveraging in recent years, along with the growing trend of household deposits, has contributed to substantially moderating the negative income effect associated with interest rate rises.

In conclusion, the results of this Box show to what extent the income of the three sectors considered would be negatively affected by interest rate rises, this effect differing in each sector. In the case of general government, the impact is comparatively slower and takes place basically as a consequence of increases in medium- and long-term yields. By contrast, for households and firms the effects are much more rapid and mainly result from rises in short-term interest rates. Of these latter two sectors, firms are comparatively more affected by these shocks owing to their higher net debt.

³ See "Macroeconomic projections for the Spanish economy (2018-2020): the Banco de España's contribution to the Eurosystem's June 2018 joint forecasting exercise".