Box 6 Assessing the interest rate sensitivity of household mortgage debt in the euro area

The ability of the household sector to adapt to changing interest payments over the interest rate cycle can have potentially important consequences for financial stability. In simple terms, at an aggregate level, household exposures to changes in interest rates depend upon the share of outstanding debt whose contracted rate of interest will be subject to adjustment in the short run.[1] The higher the share of such debt in the total, the larger the effect on interest payments. In the absence of any offsetting growth in households' disposable income, an interest rate rise would have a negative impact on the sustainability of housing debt. This Box assesses the sensitivity of household mortgage debt in the euro area, going beyond a simple fixed versus floating distinction concerning the structure of mortgage contracts in individual countries.

It is important to distinguish between mortgages where the household sector bears the interest risk in the short run (defined here as up to and including one year) and mortgages where the household sector is protected from interest rate changes in the medium term. In particular, account should be taken of the fact that not all contracts that are usually described as being contracted "at variable rates" imply interest risk in the near future. This is because the concept

1 The evolution of interest rates (as well as expectations of future changes) can influence the type of contract chosen by new borrowers, thereby modifying the debt structure. Indeed, most borrowers would tend to chose short-term variable rates when interest rates fall and are expected to fall further, and fixed contracts when the rates are anticipated to have bottomed out. Other factors might play a role, including the level of financial education of borrowers, and the marketing policy of lenders (see for instance in Miles, D. (2004), *"The UK Mortgage Market: Taking a Longer-term View"*, March).

of "variability" has different meanings across Europe. Nevertheless, all types of mortgage contracts combine two key elements. First, there is an Initial Period of Fixation (IPF). This is the period of time during which the interest rate paid by the borrower is fixed and known in advance (with the time ranging between zero – in the case of a strictly variable-rate contract – and the whole duration of the loan – in the case of a purely fixed-rate contract). Second, there is a period of variability following the IPF (zero in the case of a purely fixed-rate contract), where variability could be more favourable either to the lender or to the borrower. The terms of the contracted mortgage interest rate can also take three forms. First, there are *referenced rates*. In such contracts, the mortgage rate follows an official index that is set in advance in the contract. Second, there are *renegotiable rates*, where the interest rate charged can be changed following bilateral negotiations between the lender and the borrower. The predetermined points in time when negotiation can occur are fixed within the loan contract. Third, there are *reviewable rates*. These are mortgage rates that can be changed at the initiative of the lender, not necessarily following a homogeneous rule. This all means that the impact of any rate change on repayment burdens will depend on the length of the IPF (up to or above one year), and the conditions under which the IPF rate will roll over to the new rate. For instance, loan contracts that include a switch to a predetermined rate or a series of rates agreed in advance would not be affected by a change in interest rate conditions.

Based on the limited data available[2], complemented by national sources and other evidence, a first estimate suggests that the share of outstanding mortgage debt that would be exposed in the short run to a change in interest rates represented around one-third of the total stock in the euro area in the second quarter of 2004. Of the remainder, the category of loans with an IPF of ten years appears to be of particular importance at a euro area level, reflecting the fact that this type of contract exists in many countries and is particularly important in Germany, France, Belgium and the Netherlands. Finally, the share of loans that are "locked in" to purely fixed rates throughout the loan duration (at all maturities) seems limited. However, when taking fixed-rate contracts with a long maturity (ten years and above) together with contracts with an IPF of ten years or above (the terms of which are rather similar in the short run), the estimated total share of quasi-fixed-rate mortgages rises to around 50%. This notwithstanding, these shares can differ widely across individual euro area countries. Moreover, given the important caveats with regard to data, these results should only be considered as a benchmark indicator.

Other characteristics of mortgage contracts can play an important role in dampening the overall sensitivity of household debt to interest rates. Variable-rate contracts may include a cap on the mortgage rate, defining an upper limit for the variation of the rate, which could be up to 1, 2 or 5 percentage points above the initial rate – which is the case in Belgium, France and to some extent in the Netherlands as well. Furthermore, the existence of prepayment options – repaying the loan before the maturity – with a low penalty provides households with the opportunity to take advantage of a more favourable interest rate environment (see Box 14). Some contracts allow households that are indebted at variable rates to modify the size of monthly repayments and/or the duration of the loan, in order to smoothen out the effects of a rate increase. This option could be used by some households to build up a prepayment buffer, allowing them to be "ahead" of their mortgage payments, if they perceive a low interest rate environment as being temporary.

2 The two main data sources centred on the IPF categories available at the euro area level (ECB and the European Mortgage Federation) present important limitations with respect to this analysis: they refer to new contracts, not to outstanding debt, recorded by original maturity/IPF. Information on the residual maturity of the outstanding contracts, which represents a central element of the interest rate sensitivity assessment, is not available.

In a study of the UK mortgage market, Miles (2004) presents evidence of UK borrowers myopic behaviour, who may be unaware of the risks involved with different mortgages. For example, many households, mostly first-time buyers, may tend to focus on the initial monthly repayment rather than on the long-term affordability. Given such myopia, borrowing at variable rates, they could behave as if the interest rate prevailing at the beginning of the mortgage was to be "fixed" over the entire duration of the contract, regardless of the current position in the interest rate cycle.

All in all the interest rate sensitivity of household mortgage debt cannot be gauged in a straightforward way. Quantitative estimates can complement qualitative information on the features of mortgage contracts, in order to provide a broader picture of exposures of mortgage debt to interest rate risk across euro area countries. It is clear that changes in interest rates will have different effects across countries. If mortgage debt-to-GDP ratios are high, but the typical contract includes a long period during which the interest rate is fixed, then a change in interest rates will have a relatively weak impact. By contrast, a high mortgage debt ratio combined with a high proportion of outstanding loans that are sensitive to changes in interest rates would present more risks. However, even then, if national consumer protection has resulted in favourable features in mortgage contracts, this could have a dampening effect.