ARTICLE – How are household cashflows and consumption affected by rising interest rates?

Increasingly high household debt and the large proportion of mortgages taken out at variable interest rates have amplified the effects of monetary policy on households' disposable income. According to the Riksbank's forecast, the repo rate will be raised by about 1.5 percentage points over the next three years. This is expected to subdue disposable income by 1.3 per cent. The effects on total household consumption are expected to be relatively limited, due in part to households having prepared themselves to a certain extent for the forthcoming rate increases. But there is uncertainty over the total effect on consumption. Differences in propensity to consume between highly and lowly indebted households may play a part. In addition, housing prices are subdued when interest rates rise, which may make it more difficult to mortgage the home in order to increase consumption. The interest-rate sensitivity of households is a more important factor to take into consideration than before now when rate rises are coming to the fore. But the monetary policy assessment is ultimately steered by how the repo rate affects the entire macroeconomy and the prospects for inflation.

Households more sensitive to interest rate adjustments

According to classic economic theory, the real interest rate mainly affects household consumption by influencing the trade-off between current and future consumption. But the interest rate can also affect household consumption via other channels.

When the interest rate changes, a transfer of income occurs from borrower to lender **- a cashflow effect**. The extent to which consumption is affected depends on how borrowers' propensity to consume relates to that of lenders. If the borrowing households are highly indebted and have mortgages with short interest-rate fixation periods, the effects will be greater.[5]

As the interest rate affects housing prices, it can also affect the scope of households to consume by borrowing against their home as collateral - **a loan collateral effect**.[6] If households are highly indebted, this effect will also be greater.[7]

Cashflow effects subdue households' disposable income when the interest rate rises

Households' disposable income can be defined approximately as follows:

Disposable income ≈ wages + transfer payments + ***interest income*** *+ other capital income –* ***interest expenditure*** *– taxes*

One way of calculating how household cashflows are affected by rising interest rates is to use the Financial Accounts' measures of households' interest-bearing assets and liabilities as a basis.[8] As households' liabilities are approximately twice as large as their interest-bearing assets, a rate rise leads to a negative net effect on households' total disposable income.[9] This effect has increased over time as household indebtedness has grown.

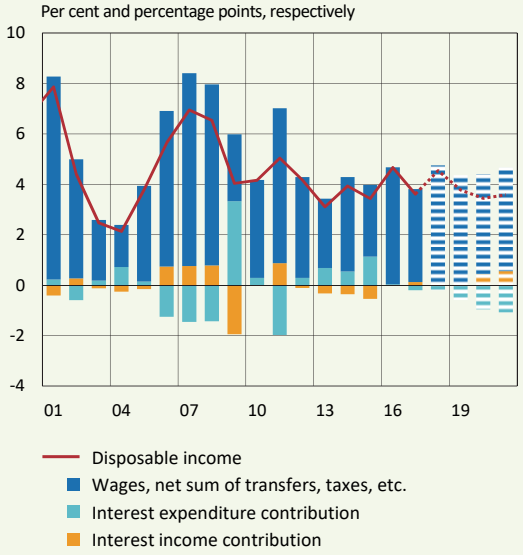
The Riksbank's forecast indicates that the repo rate will rise by 1.5 percentage points over the next three years.[10] The calculations assume that deposit and lending rates will initially rise somewhat more slowly than the repo rate.[11] Based on current levels of debt, interest-bearing assets and disposable income, it is possible to calculate the cashflow effect this repo rate rise would have. Such a calculation indicates that increased interest expenditure will subdue households' disposable income by 1.8 per cent while rising interest income will boost it by 0.5 per cent. In all, households' disposable income will hence decrease by 1.3 per cent.

[5] See P. Gustafsson, M. Hesselman, and B. Lagerwall, "How household cashflows and consumption are affected by higher interest rates?", Staff Memo, Sveriges Riksbank, 2017.
[6] See Walentin, K. (2014), "Housing Collateral and the Monetary Transmission Mechanism," *Scandinavian Journal of Economics*, pp. 635-668, 2016.
[7] See D. Finocchiaro, M. Jonsson, C. Nilsson and I. Strid, "Macroeconomic effects of reducing household debt", *Economic Review*, 2016:2, Sveriges Riksbank.
[8] These calculations are an update of the calculations presented one year ago. See the article "How are households affected by rising interest rates?" in Monetary Policy Report, December 2017.
[9] In addition to interest-bearing assets, households also have other financial assets in the form of, for example, shares and funds, as well as real assets in the form of property.
[10] This is slightly more than was presented in the Riksbank's calculations one year ago, when the repo rate was expected to rise by 1.25 percentage points over the next three years.
[11] The calculations are also based on everyone being able to utilise a 30-percent tax deduction for interest expenditure.

Effects on household consumption probably limited …

The cashflow effects of higher interest rates is one of several factors that will affect households' disposable income in the years ahead. Figure 1:15 shows the contributions of different components to the change in disposable income according to the Riksbank's forecast. Repo rate rises over the next three years will contribute to lower disposable income. This is illustrated by the broken turquoise columns under zero. The minor effects of rising interest income are shown by the broken yellow columns above zero. The high broken blue columns above zero illustrate the contribution from factors such as rising wages and will exceed the columns below zero by some considerable distance over the next three years.[12]

Figure 1:15. Contributions to households' disposable income
Per cent and percentage points, respectively



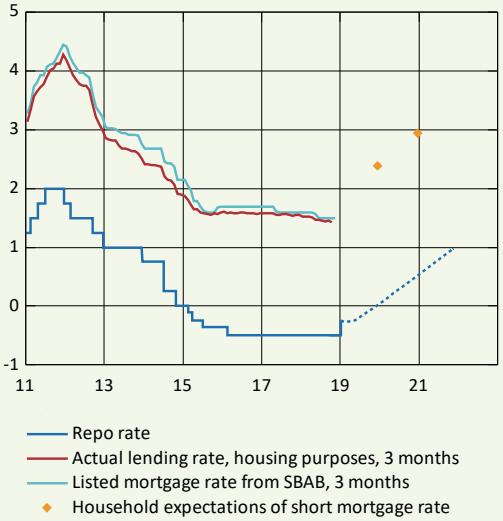
Note. Wages refers to payroll expenses. Net of transfer payments, taxes, etc., are a collective item that refers to the sum of all other income minus tax. Interest income and expenditure are inclusive of FISIM adjustment but before tax, in contrast to the calculations presented in the text.

Sources: Statistics Sweden and the Riksbank

It is also likely that households have to some extent allowed for coming rate rises, which is in part supported by their expectations of short-term mortgage rates (see Figure 1:16). This may by one explanation for why households have increased their saving to a historically high share of their income in recent years (see Figure 4:9).

These factors indicate that the cashflow effects from rising interest rates will have a relatively limited effect on household consumption in the years ahead.

Figure 1:16. Repo rate, household expectations and lending rate to households
Per cent



Note. Household expectations of the short mortgage rate are according to the Economic Tendency Survey for December.

Sources: National Institute of Economic Research, Macrobond, Statistics Sweden and the Riksbank

… but there are several uncertainty factors

The Riksbank's analysis of data on individual household debt indicates a wide variation in indebtedness among different groups.[13] This means that cashflow effects on disposable income will be significantly greater for the most indebted households than for the average indebted household. How saving and propensity to consume are distributed among highly and lowly indebted households will hence have a bearing on the total consumption effect. A study from IMF with data up to 2012 also suggests that household saving is very unevenly distributed.[14]

As described earlier, rising interest rates may also subdue housing prices and reduce the scope for taking further mortgages to maintain consumption, via a loan collateral effect. Many Swedish households are highly indebted in relation to the value of their home and risk having limited access to credit in the event of falling housing prices.[15]

Repo rate to be raised at a slow pace

The interest-rate sensitivity of households has become an increasingly important factor to consider in monetary policy. However, the Riksbank's repo rate path indicates that the rate will be increased at a slow pace, which suggests that the total effects on household cashflows will be limited. And ultimately, it is the total effect of the repo rate on the macroeconomy and inflation that guides monetary policy decisions.

[12] The forecast in Figure 1:15 does not tally exactly with the previous calculations, the aim of which was to capture the isolated effects of an interest rate adjustment. The forecast in Figure 1:15 takes into account that debts rise and that loans to households have different maturities.

[13] See K. Blom and P. van Santen (2017), "Theindebtedness of Swedish households – Update for 2017", *Economic Commentaries* No. 6, 2017, Sveriges Riksbank.

[14] Se IMF, "Sweden selected issues", 2017.

[15] About 20 per cent of new mortgage borrowers in the Finansinspektionen (FI) 2018 mortgage survey have mortgaged their homes to the maximum amount allowed by FI's mortgage cap, i.e. 85 per cent of the value of the home. These households are dependent on expensive unsecured loans if they want to take out new loans.