ANALYSIS

Strong rise in interest rates puts strain on mortgage borrowers

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The long-continued growth in household indebtedness came to a halt at the end of 2022. Households were borrowing less as a result of the rapid rise in interest expenses and the cost of living, together with uncertainty about the economic outlook. Household debt is nevertheless still at a very high level. The majority of new mortgages are variable rate loans, and a modest amount of these are taken out with interest rate hedging. Interest rate hedging is used least by the highly indebted. The increase in households' debt servicing expenditure and the higher cost of living has meant that more and more households are having to think carefully about ways to balance their finances.

The surge in inflation since the start of 2021 and the subsequent hikes in interest rates that began in 2022 are causing difficulties for many households and borrowers. Inflation was pushed higher by the increase in oil prices, pandemic-related factors[1] and Russia's war in Ukraine. The availability of energy weakened because of the sanctions imposed on Russia, and at the same time the prices of energy and raw materials rose sharply. The cost of living for households increased considerably. To curb the surge in inflation, the European Central Bank began to put up interest rates in summer 2022. In anticipation of the ECB's rate rise, market rates had already been increased before this.

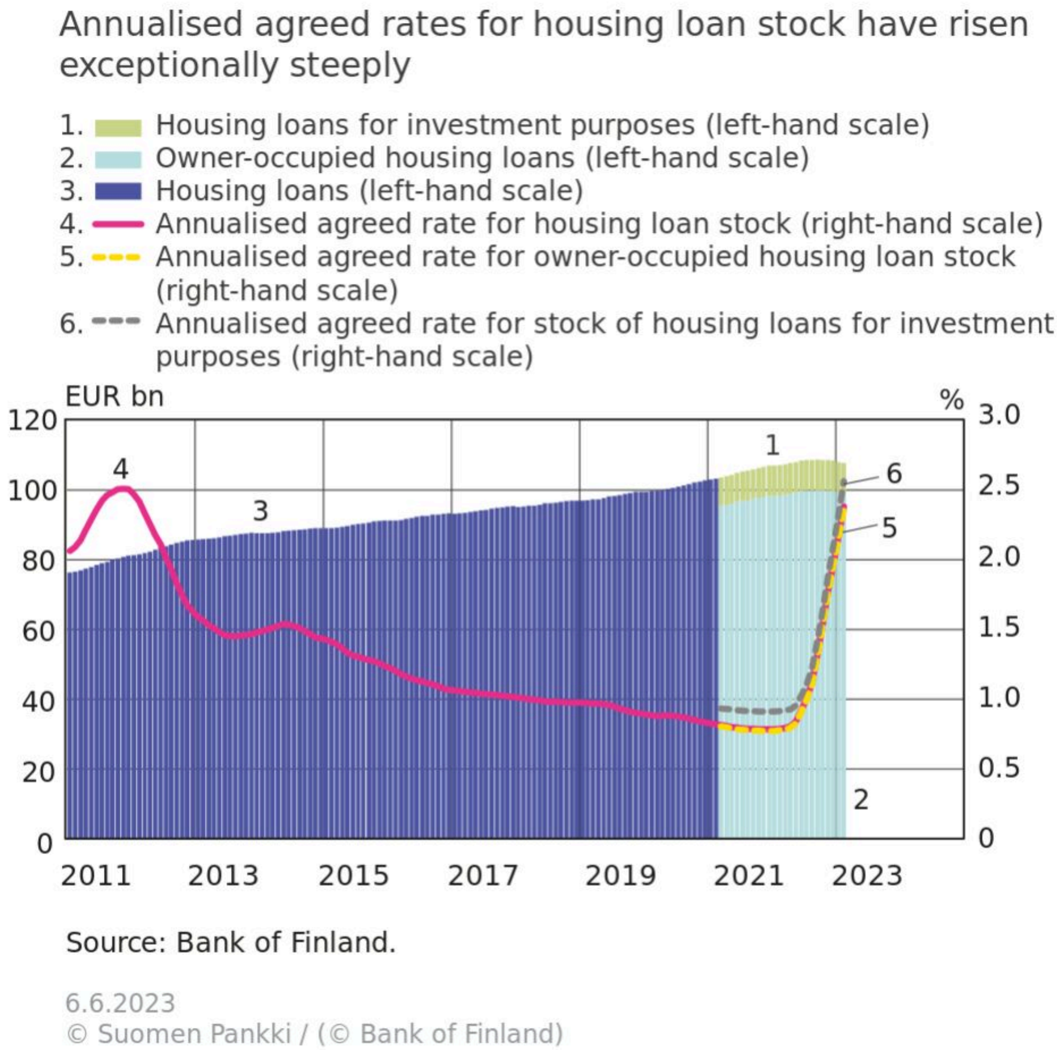
A rise in market interest rates in Finland is swiftly reflected in lending rates. Most (more than 90%) household loans are variable rate loans, with the rate varying according to changes in reference rates. Although the surge in market rates has been exceptionally strong, interest rates are still significantly below the peak they reached in the decade to 2010. Nevertheless, for many mortgage borrowers the level is clearly higher than anything experienced before. In the financial margin assessments for housing loan applicants, efforts are nevertheless made to prepare the applicants for possible interest rate rises. Since 2010 the Financial Supervisory Authority (FIN-FSA) has recommended that banks ensure borrowers can manage their debts even when interest rates are higher than now (6%) and can pay off their loan at those rates within a 25-year period.

This article examines household indebtedness and debt sustainability, especially from the perspective of mortgage lending. The calculations and assessments made are largely based on the FIN-FSA's data on new housing loans collected from the banks.[2]

Most new housing loans have no hedging products

The average annual interest rate for the housing loan stock indicates the level of households' interest expenses for all existing mortgages. The average interest rate for the housing loan stock has risen exceptionally steeply since spring 2022 (Chart 1). In January 2023 it was 2.2%, while just a year earlier it was 0.8%. The last time the rate was so high was in May 2012. The average interest rate for the housing loan stock is expected to rise further due to new housing loans being taken out at the highest interest rates and existing loans undergoing interest rate resets. The rise in interest rates on housing loans in Finland has also been rapid compared to other European countries, where it is more common to tie mortgages to fixed or longer term interest rates.

Chart 1.



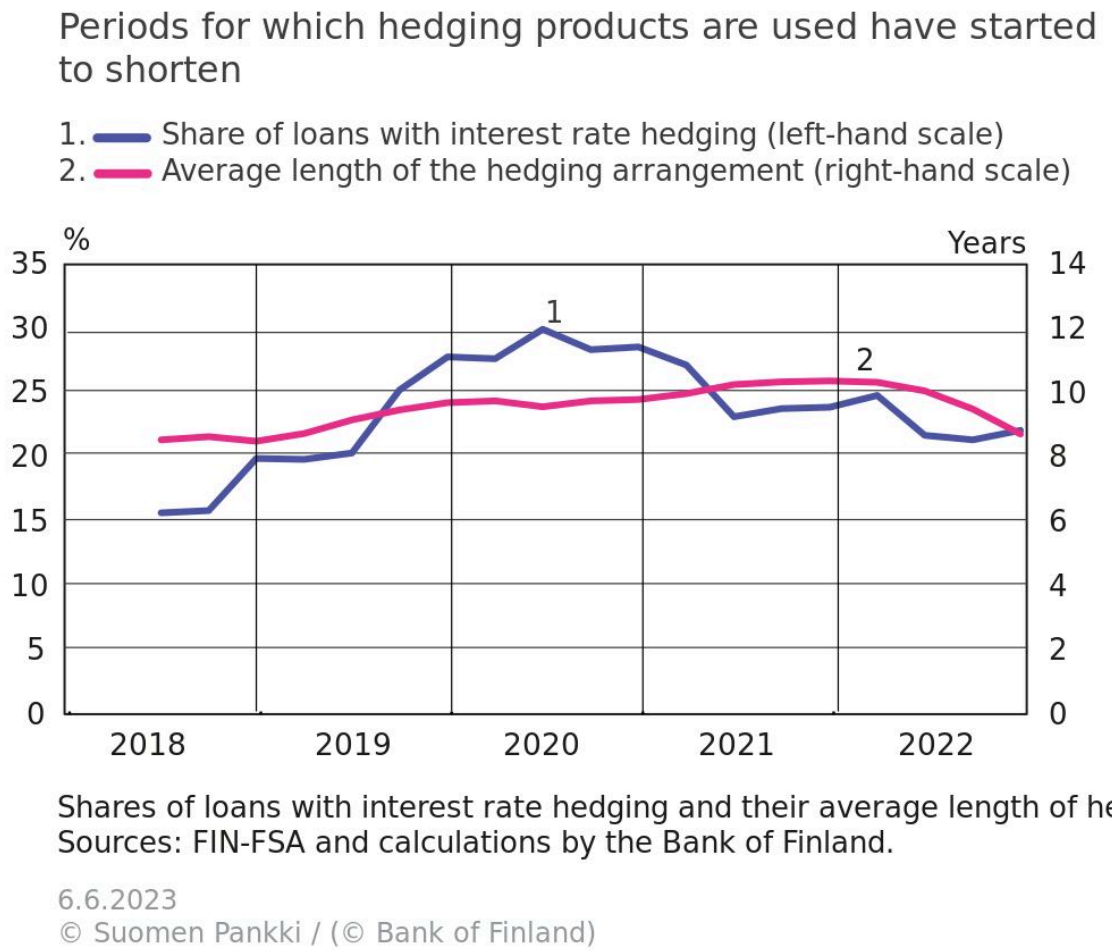
Some mortgage borrowers have sought protection against increased interest rates with hedging products or by taking fixed rate loans, though the popularity of the latter has been low in Finland. It is more common for variable rate loans to be accompanied by a hedging product (for which a fee is charged), such as an interest rate collar or cap. The immediate interest rate risk to households is also lowered by the fact that some housing loans are repaid in fixed instalments. With a fixed instalment loan, the repayment period depends on interest rate movements: it is longer when interest rates rise, and shorter when they fall. Although borrowers will not see the effect of higher interest rates immediately in their monthly loan servicing costs, the interest expenses paid over the entire repayment period will nevertheless rise if interest rates go up (Table 1).

Share of different repayment methods for new mortgages and respective proportions that are hedged, by euro volume		
	Share of loans	**Hedged**
Annuity loans	76.2%	26.5%
Bullet loans	10.5%	0.3%
Fixed instalment loans	9.4%	12.1%
Fixed-period loans	3.8%	9.1%
All new housing loans	100.0%	22.4%

New housing loans granted in 2022
Hedging includes hedging products for which a fee is charged, such as an interest rate collar or cap
Sources: FIN-FSA and calculations by the Bank of Finland.

Approximately 22% (by euro volume) of new mortgages granted in 2022 were taken out with interest rate hedging. This percentage shows a clear decline since the peak in 2020 (Chart 2). The rise in interest rates in 2022 did not result in any significant decrease in the popularity of hedging products. However, the periods for which these products have been used have started to shorten. This may well be explained by the rise in the cost of hedging products. The use of hedging products is slightly more common with loans to first-time buyers than with other new mortgages, although the proportion (by euro volume) of loans with interest rate hedging arrangements has clearly decreased compared to previous years. In the last quarter of 2020, just over 38% of new first-home loans measured by euro volume were hedged against a rise in interest rates, whereas in the corresponding period in 2022 only around 28% were hedged.

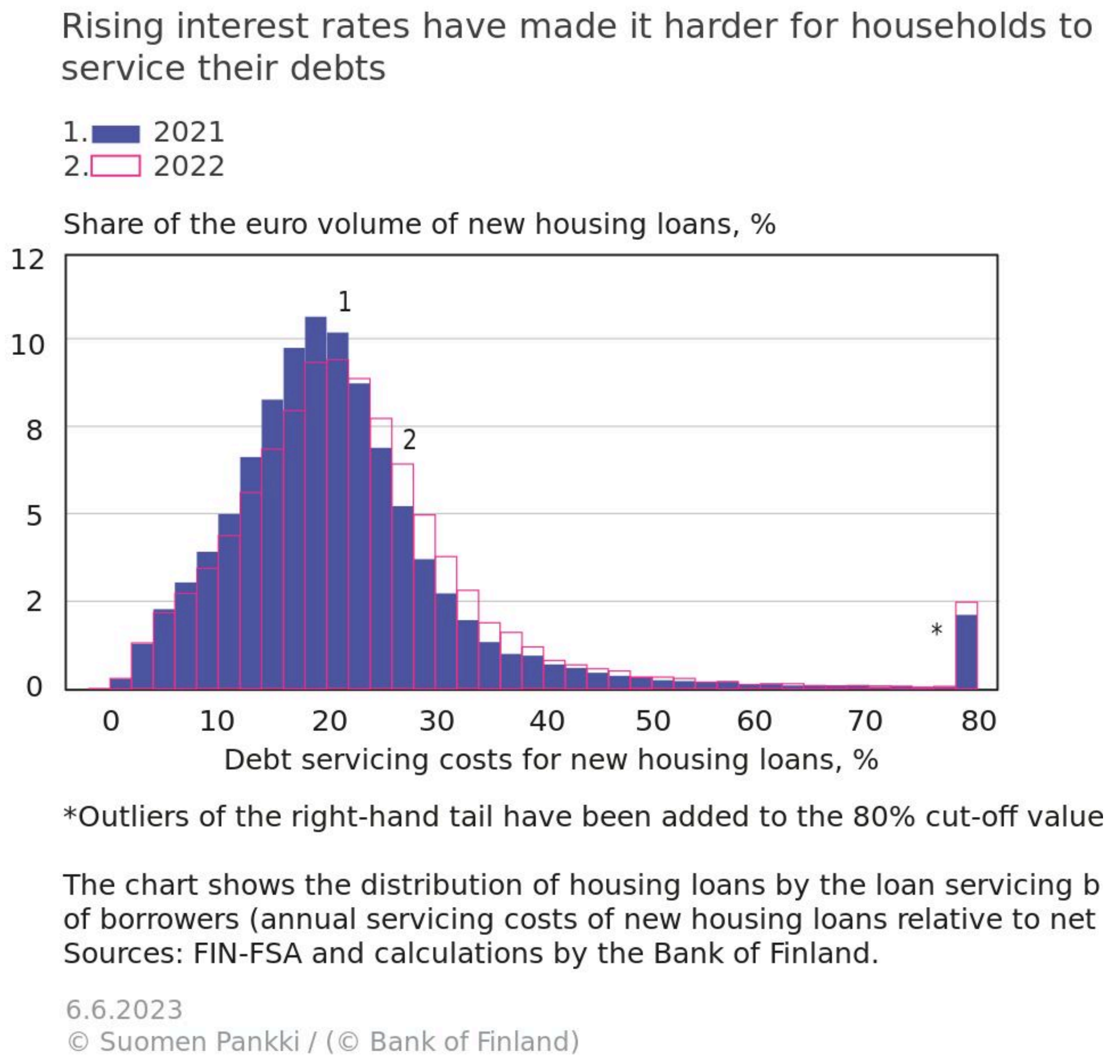
Chart 2.



Rising interest rates have made it harder for households to service their debts

The debt servicing costs associated with new mortgages taken out by households in 2022 in relation to the borrower's income increased from the previous year. It increased especially towards the end of 2022: in the last quarter of 2022 the typical (median) debt servicing costs in connection with a new mortgage were 19% of the borrower’s net income, whereas in the last quarter of 2021 this figure was 17%. The debt servicing burden distribution (Chart 3) illustrates the increased costs of servicing a loan in relation to the net income of borrowers between 2021 and 2022.

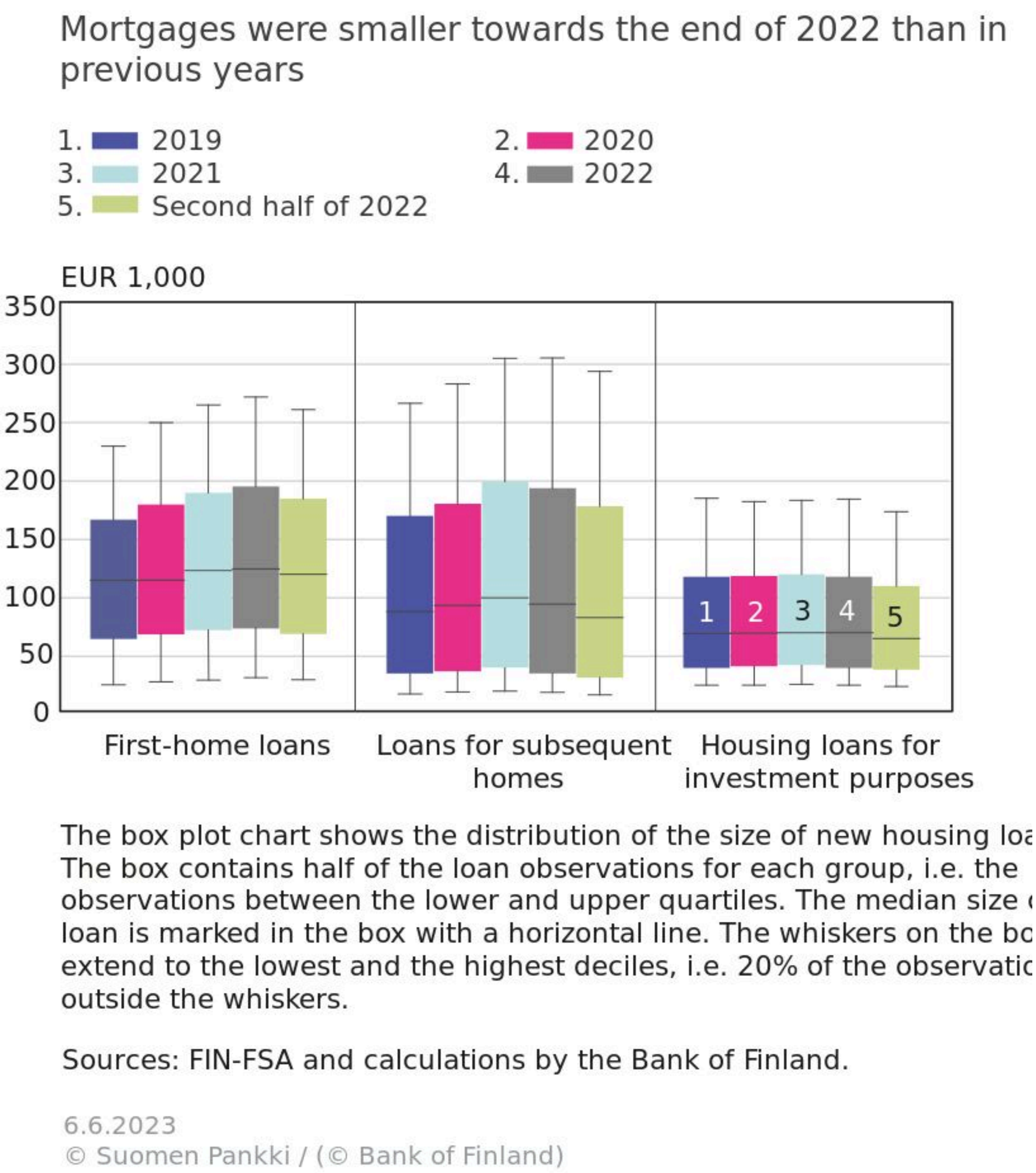
Chart 3.



Debt servicing expenditure increased in 2022, particularly on account of the rise in reference rates, since housing loan margins remained more or less the same as the previous year. The increase was moderated by the fact that repayment periods were extended. Although a typical repayment period for a housing loan is still close to 25 years, periods longer than this have clearly become more common. The rise in debt servicing costs for first-time buyers was also limited by the fact that the average size of mortgages taken out by households did not grow, but in fact fell slightly compared to the previous year.

The average size of mortgages granted to non-first-time buyers fell (Chart 4). The decrease in the size of individual mortgages accelerated during the second half of 2022. The typical size (median) of a mortgage at that time was EUR 92,000, which is around 10% less than for the same period a year earlier. The slowdown in the housing market is thus evident not just in the reduced total number of mortgages taken out compared with recent years, but also in the smaller sizes of individual mortgages.

Chart 4.



Despite the rise in loan servicing expenditure, the ability of households to manage their mortgage costs remained good on the whole in 2022, according to the statistics. The proportion of non-performing loans in the loan stock fell during almost the entire year. Losses and impairments recorded for mortgages also remained at a minimum. The volume of renegotiated loan agreements is an indicator of how active households are in discussing interest-only periods for their existing loans. In 2022, this volume was no higher than usual. Favourable developments in the labour market also helped to maintain the repayment capacity of households.

Although households have managed to service their loans adequately so far, the rise in interest rates and the cost of living has meant that the risk of not being able to manage this has grown.[3] Households are also more concerned now about the state of their finances. This is evident from a survey[4], which revealed that households' confidence in the current state of their finances and the prospects for the immediate future is at an all-time low.

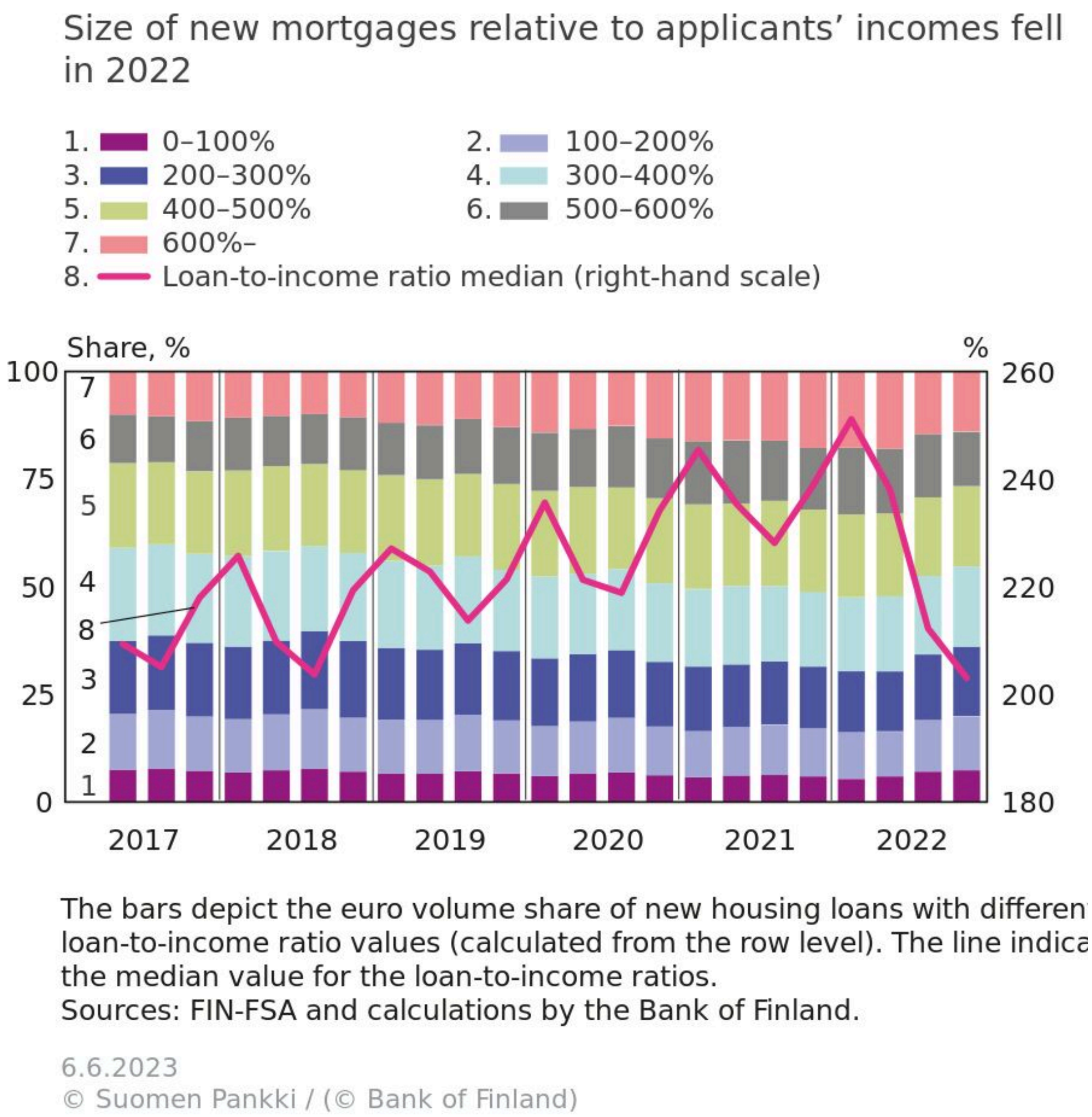
Growth in indebtedness of new mortgage borrowers comes to a halt

Uncertainty about the economic outlook, accelerated inflation and the rise in interest rates had the effect of reducing household borrowing and slowed the growth of loan stocks in 2022. The long-continued increase in household indebtedness came to a halt in 2022. Relative to disposable income, household indebtedness stood at 133.1% in the last quarter of 2022.

One of the principal reasons for the halt was the significant slowdown in the housing market and therefore in mortgage lending in the last half of 2022 and at the start of 2023. In December 2022, the value of new housing loans was approximately EUR 1.1 billion, which is around 40% less than the year before and only slightly more than at the time of the global financial crisis in 2008. In early 2023 the volume of mortgages taken out has continued to remain small.

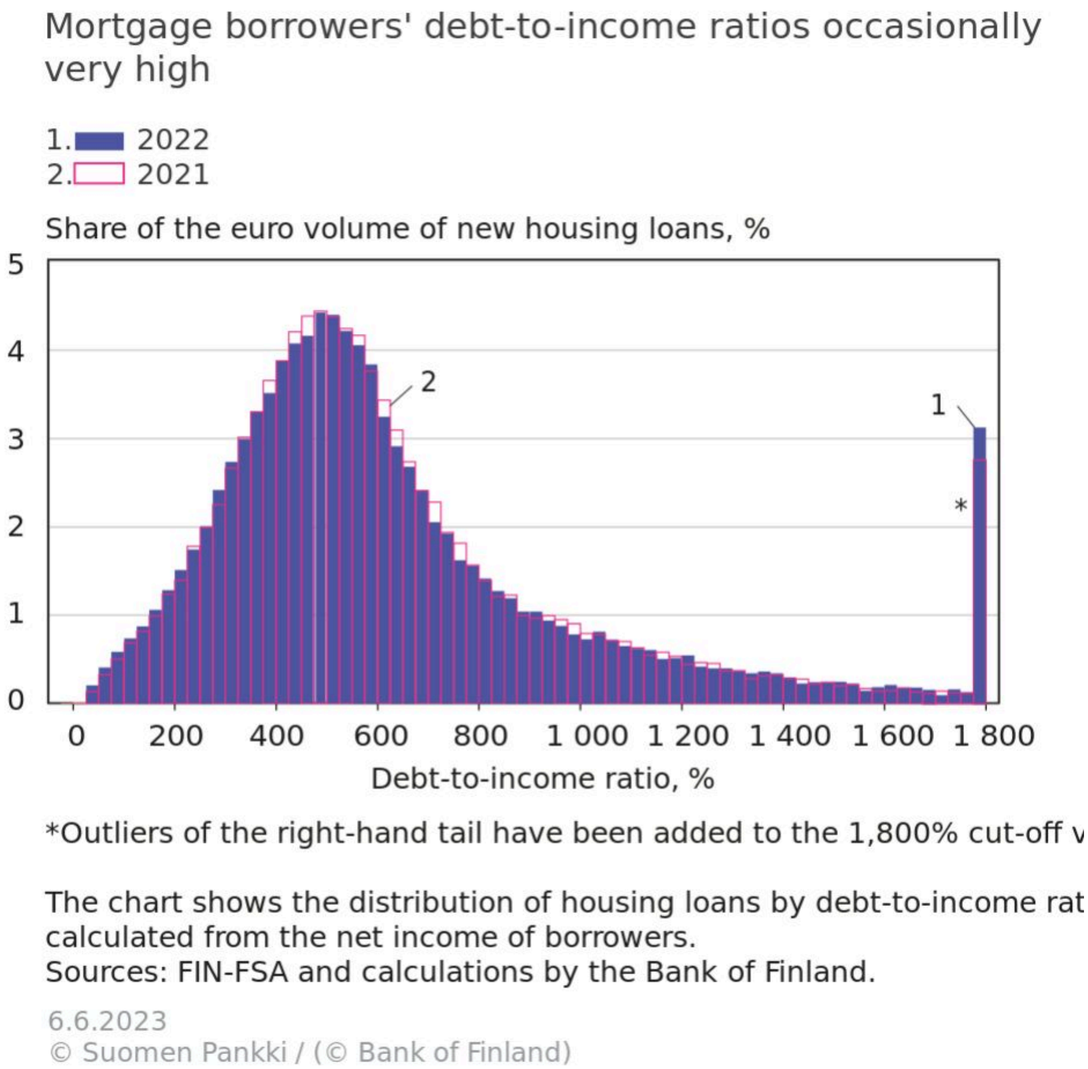
A clear turnaround in indebtedness was also evident in the latter half of 2022 in the loan-to-income ratios for individual loans calculated for borrowers taking out new mortgages. The sizes of new mortgages relative to borrowers’ incomes have increased steadily in recent years. This is because new housing loans have increased in size faster than the increase in income. In the last half of 2022, however, the trend was reversed and the loan-to-income ratio for mortgage borrowers diminished as loans became smaller (Chart 5).

Chart 5.



Despite the rise in indebtedness coming to a halt, the indebtedness of new mortgage borrowers relative to income has remained high. The total debt of new mortgage borrowers relative to annual net income in 2022 was typically around 546% (median weighted by loan size), which is virtually the same as the year before (548%). A significant number of loans were granted to applicants who had a very high ratio of total debt to disposable income (Chart 6).

Chart 6.



Highly indebted are least protected from rises in mortgage interest rates

Households are more vulnerable to the shocks associated with rises in interest rates and with other aspects of their finances the greater their debt-to-income ratio or the less they have other financial buffers available to them, such as other sources of wealth or assets. Protecting loans from rises in interest rates through hedging reduces the interest rate risk of households and therefore also their vulnerability.

Below we use two indicators to examine the indebtedness of households that are considered the most vulnerable based on new housing loans taken out in 2022.

- The first indicator (Indicator 1) describes the *debt-to-income ratio* for new mortgage customers estimated from their net income. On the basis of this indicator, those categorised as vulnerable are borrowers whose debt-to-income ratio (see Chart 6 above) is over 800%. Around 23% of new mortgages exceed this threshold, measured by euro volume.
- The second indicator (Indicator 2) describes the *stressed debt-service-to-income (DSTI) ratio*, in line with the Financial Supervisory Authority (FIN-FSA) recommendation.[5,6] According to this indicator, those categorised as vulnerable are borrowers whose stressed ratio of debt servicing costs to net income exceeds the 60% threshold recommended by the FIN-FSA Board in 2022.[7] Around 16% of new mortgages exceed the stressed DSTI threshold, measured by euro volume.

When it comes to guarding against interest rate risks, it is concerning that the most highly indebted new mortgage borrowers have made less use of hedging products than those who are not so highly indebted (Table 2). According to Indicator 1, in 2022 only around 10% (by euro volume) of the mortgages of those who were vulnerable in terms of their debt-to-income ratios were hedged, whereas the corresponding figure among those categorised as less indebted was much greater, at 27%. Besides the standard hedging products, fixed rate and fixed instalment loans may be thought of as coming under a broader definition of 'hedging'. If these are also included in the analysis, the share of loans protected against interest rate hikes increases significantly. Even under this broader definition, however, the heavily indebted have hedged their loans against interest rate rises to a smaller extent then the less indebted. In determining the vulnerability of households, the calculations only take account of the size of mortgage granted, any other loans already taken out and the borrower's net income They do not take into consideration the borrower's other sources of wealth or assets.

Debt-to-income ratios and hedging arrangements for new housing loans by euro volume

Debt-to-income ratio, interval	Separately purchased hedging products for which a fee is charged (weighted)	'Broader definition' hedging products (weighted)*
Under 800%	27%	38%
Over 800%	10%	23%

New housing loans granted in 2022
*Includes both standard hedging products and fixed rate and fixed instalment loans.
Sources: FIN-FSA and calculations by the Bank of Finland.

If a comparison is made by borrower type, when interest rates rise, the most vulnerable according to Indicator 2 are mainly borrowers who have taken out a housing loan for investment purposes and non-first-time buyers (Table 2). First-time buyers typically have a lower amount of existing debt, which reduces the overall debt burden of such households compared to other mortgage borrowers.

The most vulnerable to increased interest rates also include mortgage borrowers residing in the Greater Helsinki area or in coastal regions, by comparison with those who live elsewhere in Finland. The debt burdens resulting from mortgages in particular are huge in the Greater Helsinki area, because housing is more expensive there and the mortgages are bigger than in other parts of Finland. Among the other most vulnerable groups are students, entrepreneurs and borrowers in higher income brackets, as these groups had relatively higher stressed DSTI ratios than the other groups examined.[8] With respect to high income earners, however, it is worth noting that the vulnerability indicator used in the calculations does not take into account the larger amount of disposable income that this group has after essential outgoings, compared with those in other income brackets.[9]

Newly granted housing loans by group and the proportions of vulnerable borrowers

Group	New housing loans (EUR million)	Vulnerable borrowers, %*
All housing loans	17,964	16.4%
Subsequent home purchasers	11,637	18.8%
First-time buyers	5,026	8.2%
Purchases of a property for investment purposes	1,301	26.3%
High earners**	5,860	22.0%

New housing loans granted in 2022.

- *Vulnerable borrowers are those whose debt servicing costs relative to their net income exceed the 60% threshold recommended by the FIN-FSA Board in 2022.*

** The observations fall into three income brackets – high, middle and low – as follows.
The low-income group is the lowest quintile of net income.
The middle-income group is the middle three quintiles.
The high-income group is the uppermost quintile.
Sources: FIN-FSA and calculations by the Bank of Finland.

Newly granted housing loans by group and the proportions of vulnerable borrowers		
Middle-income earners**	10,251	13.4%
Low-income earners**	1,853	14.9%
Wage earners	14,706	14.7%
Entrepreneurs	2,488	24.8%
Pensioners	555	16.8%
Students	109	31.0%

New housing loans granted in 2022.

- *Vulnerable borrowers are those whose debt servicing costs relative to their net income exceed the 60% threshold recommended by the FIN-FSA Board in 2022.*

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Sources: FIN-FSA and calculations by the Bank of Finland.

Various ways to guard against risk

In Finland, borrowers had benefited from a long period of exceptionally low interest rates, which kept down their debt servicing costs. These low debt servicing costs enabled households to consume more than before, but also to increase their savings and other assets. On the other hand, during the time of low interest rates, many households may also have taken out a larger loan than they would otherwise have done if interest rates had been higher.[10]

The calculations presented here raise the concern as to whether indebted households have protected themselves sufficiently against the risk of rising interest rates. The use of hedging products has declined, and they are used least by those who are heavily indebted. Tying a mortgage to a fixed interest rate is even rarer than the use of hedging products. The calculations given here, however, only take account of the income data provided at the time the loan was granted and therefore ignore any other sources of wealth or assets that borrowers may have, such as savings or capital income. According to a survey commissioned by Finance Finland, savings are clearly the most common way for households to prepare for rising interest rates.

Housing costs and the exceptionally high increase in the cost of living have made life hard for many households and borrowers, and serve as a reminder of how important it is to have a good level of financial risk tolerance. For many households and borrowers, the rise in interest expenses and in other housing costs may still be to come if a reset date for their mortgage is due or if there are pressures to raise housing company management charges. The situation has therefore changed, and many households are having to think carefully about ways to balance their finances.

Notes

1. Oinonen, S. and Pönkä, H. (2022). Koronapandemiasta toipuminen kiihdytti inflaatiota, mutta inflaation ennustetaan tasaantuvan. Bank of Finland. ('Inflation driven up by pandemic recovery but now projected to level off') ↑
2. The data collected from the banks concern housing loans but also contain information on the borrowers' other debts and their income at the time the loan was granted. Some of the data is available up to the end of 2022. If borrowers have a share of housing company loans, these are included in the borrowers' overall debt burden. ↑
3. Kauko, Karlo (2023) Asuntolainoja, korkoriskejä ja sähkökriisi – Kuinka Suomen kotitaloudet selviytyisivät iskuista? Bank of Finland. ('Housing loans, interest rate risks and the electricity crisis – How would Finnish households survive the shocks?') ↑
4. Statistics Finland: Consumer confidence very weak – slow rise continued in March 2023. ↑
5. We use the first indicator to estimate the proportions of hedged mortgages, because the hedges with the DSTI indicator are already taken into account as a mitigating circumstance, which would confuse the comparison. ↑
6. According to the FIN-FSA recommendation, the DSTI ratio refers to a borrower's entire debt servicing costs relative to net income. Debt servicing costs under the recommendation should, as a rule, be no more than 60% of the loan applicant's net income. This 60% threshold is calculated as the stressed DSTI ratio, i.e. the servicing costs for a loan are calculated with a considerably higher rate of interest than now. Under the FIN-FSA recommendation, an interest rate of 6% is applied to loans. ↑
7. In the calculations, an interest rate of 6% and a 25-year repayment period were applied to new mortgages. More details can be found in this article (in Finnish). ↑
8. There may be some uncertainty regarding the income data associated with specific loans that the calculations are based on where this concerns, for example, students and entrepreneurs. The income data used are the data that is logged in the banks' systems when loans are granted and do not necessarily take into consideration a student's future increased income level or all elements of an entrepreneur's income. ↑
9. Kauko, Karlo (2023) Asuntolainoja, korkoriskejä ja sähkökriisi – Kuinka Suomen kotitaloudet selviytyisivät iskuista? Bank of Finland. ('Housing loans, interest rate risks

and the electricity crisis – How would Finnish households survive the shocks?’) ↑
10. Nyholm. J. and Silvo, A. (2022) Finnish household debt accumulation follows economic cycle. Bank of Finland. ↑

Key words

borrowing, financial stability, households, interest rates, mortgages