Analysis

# New housing loans keep growing in size – increased share of longer-than-usual loans

Financial stability, Interest rates | 13 May 2022 | Ville Voutilainen, Hanna Putkuri


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In Finland, a new housing loan usually has a maturity of 25 years and an interest rate and monthly loan-servicing costs that change once a year according to the 12-month Euribor. The loan is typically close to four times the borrower's annual net income, and servicing expenditure takes up nearly one-fifth of net income. Housing loans have increased in size and the share of longer-than-usual loans is becoming ever larger. Borrowers should prepare for debt-related risks to ensure their financial margin can withstand higher interest rates and other costs.

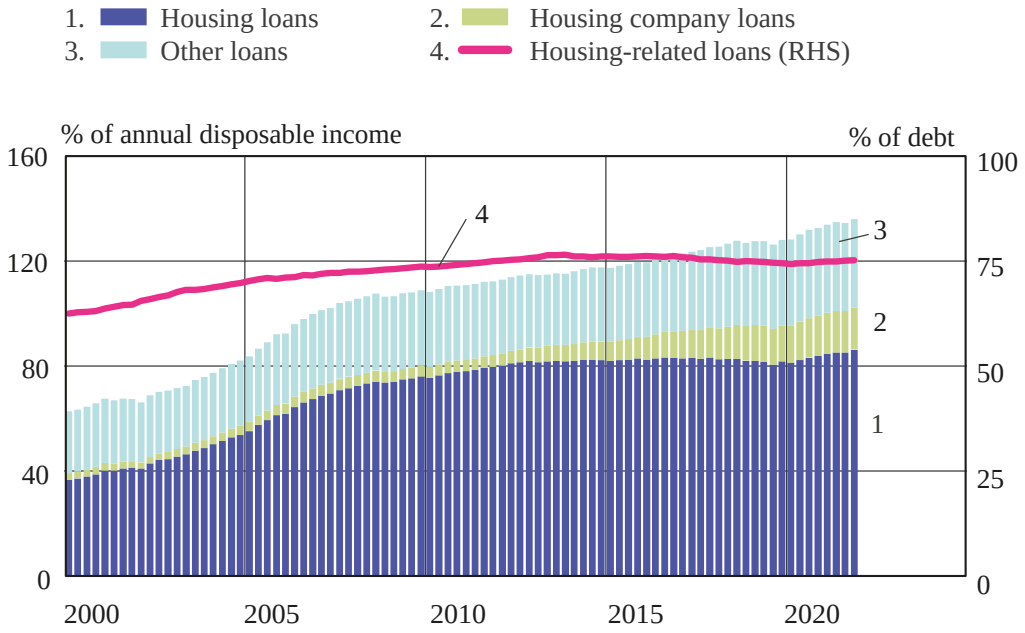



## Mortgage loans account for the majority of household debt

Housing loans account for the majority of Finnish households' new loans and total debts.[1] The significant increase in household indebtedness since the turn of the millennium has mostly been due to an increase in housing loans and housing company loans relative to households' annual net income (Chart 1). On average, loan sizes have increased, and their repayment periods have become longer. At the same time, house prices have increased, especially in growth centres, which has on one hand increased borrowers' need for debt, and on the other hand increased the value of households' housing wealth.

Chart 1.

Finnish households' housing-related indebtedness has been increasing for a long time




Sources: Statistics Finland and Bank of Finland.

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enables many households to acquire owner-occupied housing, smooth consumption expenditure over time and build up investment assets. At the same time, the high and growing household indebtedness is one of the main long-term vulnerabilities of the Finnish financial system. Household indebtedness does not pose an immediate threat to financial stability. However, it

exposes the financial system to significant risks over the longer term which, if realised, could jeopardise financial stability and have a far-reaching negative impact on the economy and the banks.

It is estimated that Russia's war in Ukraine will push up inflation and slow economic growth in Finland, too.[2] Households' essential outgoings increase as energy and raw material prices rise (see Financial stability assessment 2022). At the same time, market expectations of gradually increasing interest rates in the euro area have strengthened. This has been reflected in the heightened Euribor reference rates during spring 2022. The Euribor rates are determined daily on the money market and measure interest rates at which European banks lend money to each other without collateral.

This article examines the characteristics and terms of new housing loans and the loan-servicing-to-income (LSTI) and loan-to-income (LTI) ratios of borrowers at the time the loan is granted. Loan terms and the size of loan in relation to the borrower's repayment capacity affect the vulnerability of mortgage borrowers to various risks and shocks to their own finances. There are situations where risks related to debt-servicing ability may increase, such as an increase in the borrower's debt-servicing expenditure and/or essential consumption expenditure, temporarily reduced income or a fall in house prices and other asset prices.

Information on the characteristics and terms of new housing loans are based on statistics compiled by the Bank of Finland and data compiled by the Financial Supervisory Authority (FIN-FSA) from banks operating in Finland. The data compiled from banks are loan-specific and contain information on mortgage-borrowers' other debts and income at the time the mortgage loan was granted. The most recent data covers the period between July 2020 and September 2021 (hereinafter '2021'). The reference data was compiled in 2020 (covering the period between April 2019 and June 2020) and 2019 (covering the period between April 2018 and March 2019).[3]

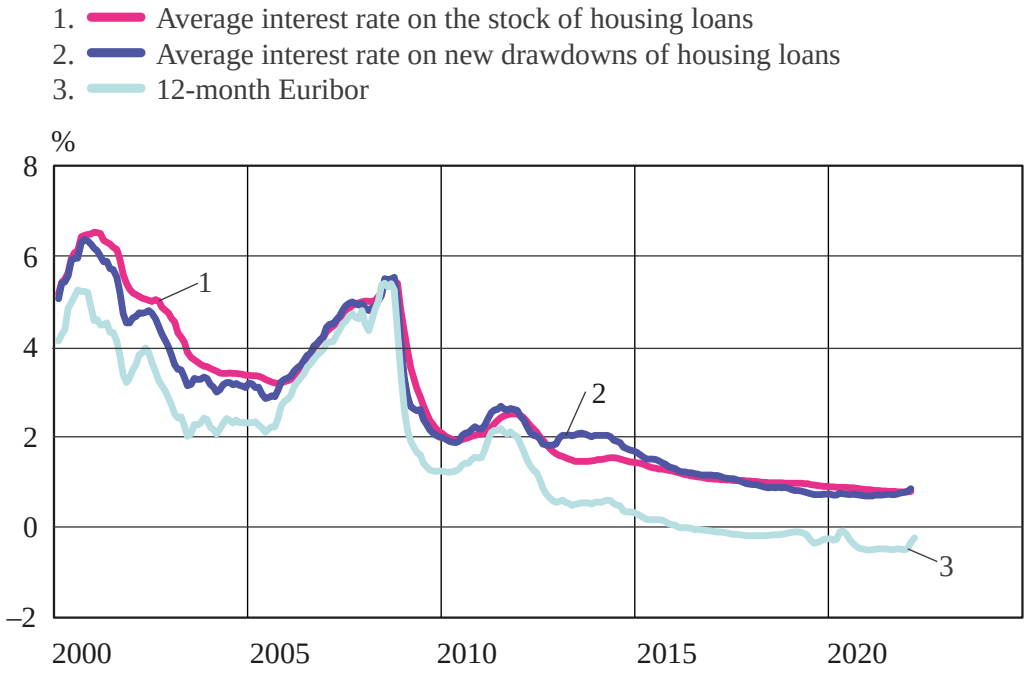
## Housing loans tied to variable interest rates, but some with interest rate hedging

Interest rates on housing loans have been historically low in recent years (Chart 2). If interest rate levels in the euro area were to rise, the impact on each borrower's loan-servicing costs would depend on how the interest rate and monthly payments of the loan are determined. The interest rate may be variable, in which case it consists of a reference interest rate and a fixed margin. This means that the interest rate on the loan increases or decreases from time to time with the reference rate. The interest rate on the loan may also be fixed for a certain period or over the full maturity of the loan. Alternatively, the loan may include a fixed-term interest rate hedge, such as

an interest rate cap, in which case the interest rate does not rise above the agreed rate.

Chart 2.

Interest rates on housing loans historically low in Finland

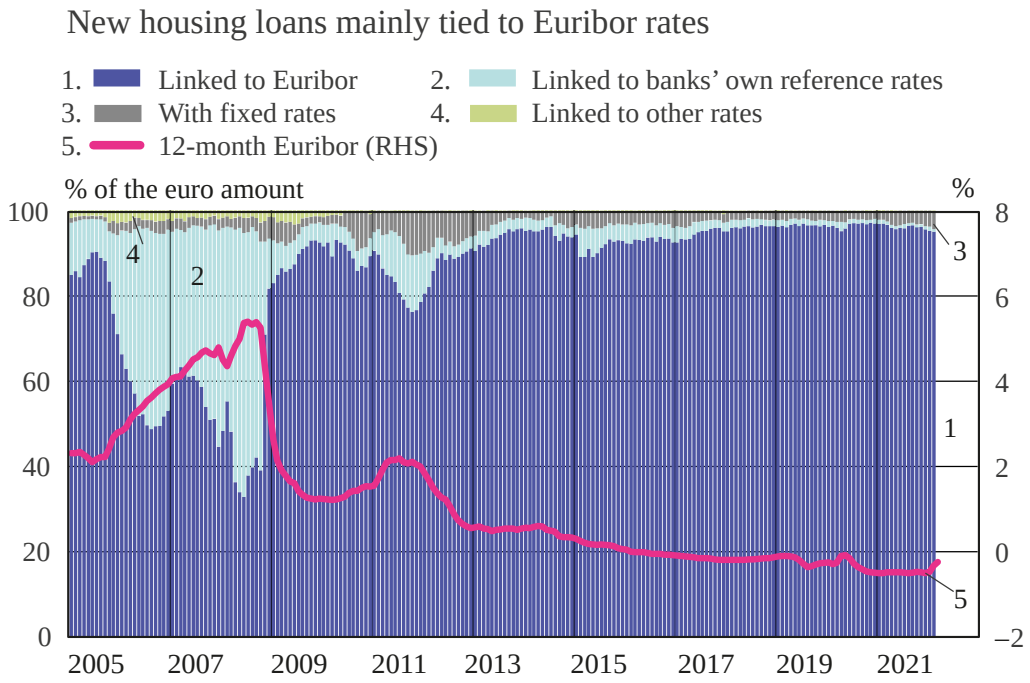



Sources: Bank of Finland and Thomson Reuters.

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The interest rates on new housing loans in Finland are almost exclusively variable, and, in recent years, interest rates on loans have been mainly tied to Euribor rates (Chart 3). The most common reference rate is the 12-month Euribor, which means that the bank revises the interest rate on the loan once every year. Variable interest rates on housing loans are used more widely in Finland than in other euro area countries or in Sweden and Denmark, for example. In recent years, average interest rates on housing loans have been significantly lower in Finland than in the rest of the euro area. Finnish mortgage borrowers have thus benefited from the low reference rates and the narrow loan margins in Finland.

Chart 3.




Sources: Bank of Finland and Refinitiv.

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Fixed-rate housing loans are rare in Finland. In recently granted fixed-rate housing loans, the interest rate is generally fixed for a period longer than 10 years. In Finland, however, it is more common to take a housing loan with a variable interest rate and interest hedging. Between July 2020 and September 2021 ('2021'), around 28% of the total amount of new mortgage loans was hedged against interest rate increases (Table 1). The typical length of the interest-rate hedge (mortgage-weighted median maturity of the hedge[4]) was 10 years, usually ranging from 5 to 14 years. In recent years, interest-rate hedges have been more common with first-home loans than with other new housing loans.

| Share of loans with interest hedging, % of the euro volume of new housing loans | | | |
|---|---|---|---|
| | 2019 | 2020 | 2021 |

*Of the euro volume of new mortgages in 2021 data, 26% were first-home loans, 66% loans for the purchase of subsequent homes, and 8% loans for dwellings for investment purposes.*
*Sources: FIN-FSA and calculations by the Bank of Finland.*

| Share of loans with interest hedging, % of the euro volume of new housing loans | | | |
|---|---|---|---|
| First-home loans | 23% | 34% | 35% |
| Loans for subsequent homes | 18% | 27% | 26% |
| Loans for dwellings for investment purposes | 13% | 22% | 22% |
| Total housing loans | 19% | 28% | 28% |

*Of the euro volume of new mortgages in 2021 data, 26% were first-home loans, 66% loans for the purchase of subsequent homes, and 8% loans for dwellings for investment purposes.*
*Sources: FIN-FSA and calculations by the Bank of Finland.*

The use of interest rate hedging may have increased markedly during spring 2022, as expectations of a gradual rise in interest rates have strengthened compared with 2021. Information and comments by some banks operating in Finland also indicate this.[5] The average imputed margin for new mortgage loans increased in February and March 2022, which may also indicate an increase in the use of interest rate hedges. Interest rate hedging is often reflected in pricing as a wider margin and thus as a higher initial interest rate on a loan.

## Most new housing loans are annuity loans

Most new housing loans are annuity loans (Table 2). An annuity loan is a loan where each instalment (repayment of principal and interest) is initially the same amount. If the interest rate on the loan increases (or decreases), the monthly instalment increases (or decreases) but the repayment period remains the same. The second most common way to repay housing loans is through fixed instalments. In a fixed-instalment loan, the repayment period will become longer (or shorter) if the interest rate on the loan increases (or decreases) but the size of the instalment remains the same throughout the repayment period. Regardless of chosen repayment method, any increase in the interest rate will increase the interest costs over the total loan period.[6]

| Share of different types of repayment methods, % of the euro volume of new housing loans | | | |
|---|---|---|---|
| | **2019** | **2020** | **2021** |

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

| Share of different types of repayment methods, % of the euro volume of new housing loans | | | |
|---|---|---|---|
| Annuity loans | 68% | 73% | 76% |
| Fixed-instalment loans | 20% | 15% | 11% |
| Fixed-period loans | 5% | 5% | 5% |
| Bullet loans | 7% | 7% | 8% |

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

New annuity loans have typically had longer maturities than fixed-instalment housing loans, which, by design, require that the initial repayment period can be extended if interest rates rise (Table 3). Interest rate hedging is most common in annuity loans, as it is the repayment method in which the monthly instalments are affected by increasing interest rates. Fixed-instalment housing loans tend to have higher margins than other housing loans. Bullet loans for housing purposes are typically granted with a one-year maturity and are rarely hedged against higher interest rates.

| Characteristics of new housing loans by repayment method | | | |
|---|---|---|---|
| | **Repayment period, weighted median** | **Share of euro volume of loans with interest rate hedging** | **Margin, weighted median** |
| Annuity loans | 25 years | 33% | 0,55 percentage points |
| Fixed-instalment loans | 20 years | 14% | 0,75 percentage points |
| Fixed-period loans | 20 years | 12% | 0,50 percentage points |
| Bullet loans | 1 year | 1% | 0,50 percentage points |
| All new housing loans | 25 years | 28% | 0,55 percentage points |

*Year 2021 data. Medians weighted by the size (euro volume) of the housing loan.*
*Sources: FIN-FSA and calculations by the Bank of Finland.*

## The size of new housing loans increased in relation to borrowers' income

The typical size of new housing loans has clearly grown in recent years, and growth has been substantial in the longer term as well. For the most part, first-home loans are significantly larger than loans for subsequent homes, whereas housing loans for investment purposes tend to be noticeably smaller than other new housing loans (Table 4 and Chart 4). However, compared with first-home borrowers, borrowers switching homes and residential investors have a higher debt burden caused by pre-existing other loans.[7]

**Median size of new housing loans**

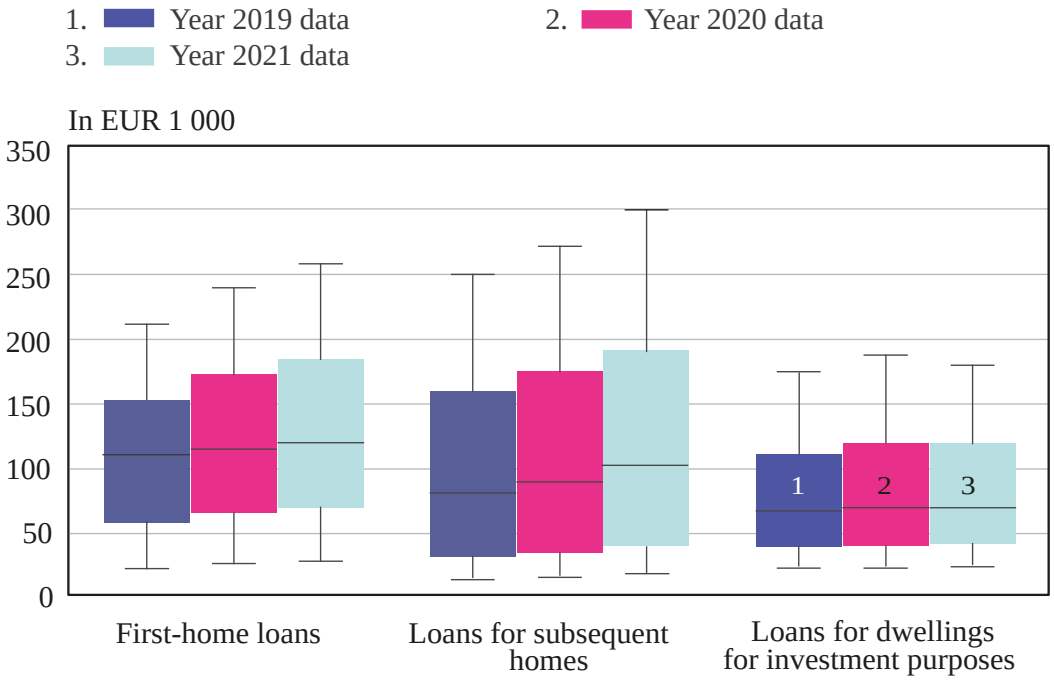
| | 2019 | 2020 | 2021 |
|---|---|---|---|
| First-home loans | EUR 110,000 | EUR 115,000 | EUR 120,000 |
| Loans for subsequent homes | EUR 81,000 | EUR 90,000 | EUR 99,000 |
| Loans for dwellings for investment purposes | EUR 68,000 | EUR 70,000 | EUR 70,000 |
| All new housing loans | EUR 88,000 | EUR 96,000 | EUR 100,000 |

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

The increase in housing loan sizes is also reflected in the size of the largest loans. In 2019, the highest decile of the size of new first-home loans[8] was approximately EUR 212,000, whereas in 2021 it was around EUR 258,000 (Chart 4). During the same period, the highest decile of the size of loans for subsequent homes increased from around EUR 250,000 to around EUR 300,000. There is greater variation in the size of loans for subsequent homes than in other new housing loans. Very large housing loans, such as those exceeding EUR 300,000, are usually loans for subsequent homes (as seen in the long tail of the highest decile of loans for subsequent homes, Chart 4).

Chart 4.

Distribution of housing loan size by purpose of borrowing




The box plot chart shows the distribution of the size of the loan. The box contains half of the loan observations, i.e. the observations between the lower and upper quartiles. The median size of the loan is marked in the box with a cross line. The whiskers on the box plots extend to the lowest and highest deciles, i.e. 20% of the observations fall outside the whiskers.

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

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In becoming home-owners, some borrowers also take on their part of a housing company loan. In this type of lending, a housing company loan included in the unencumbered price of the dwelling accounts for a part of the borrower's total housing-related credit. In the 2021 data, such cases accounted for approximately 8% of the euro volume of all new housing loans. In new housing loans for investment purposes, the share of such cases was significantly higher (29%) than in first-home loans (5%) or loans for subsequent homes (7%). Residential investors (private landlords) may deduct capital charges (repayments and interest on housing company loans) from taxable rental income if the capital charges are recorded as income on the housing company's books.

The size of new housing loans has also increased relative to borrowers' annual net income (Table 5).[9] First-home mortgages are larger than other housing loans both absolutely and relative to income. The smaller size of housing loans for investment purposes compared with other new housing loans is also reflected in residential investors' significantly lower loan-to-income ratios at the time the loan is granted. On the other hand, as pointed out above, borrowers switching homes and residential investors may have considerably higher pre-existing debt burdens that have not been considered in this comparison.

**Median size of new housing loans relative to the borrower's net income (LTI ratio), weighted by loan size**

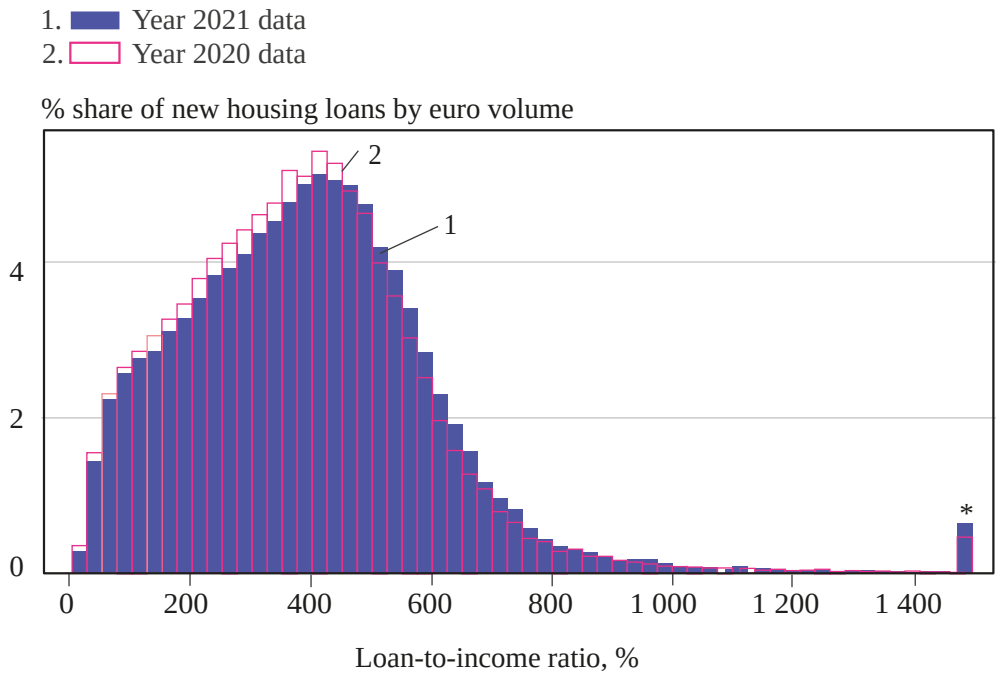
| | 2019 | 2020 | 2021 |
|---|---|---|---|
| First-home loans | 389% | 412% | 432% |
| Loans for subsequent homes | 360% | 372% | 387% |
| Loans for dwellings for investment purposes | 203% | 207% | 199% |
| All new housing loans | 358% | 373% | 387% |

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

Some of the new housing loans are significantly large in relation to the borrower's annual net income. In 2021, the size of a new housing loan was typically almost four times the borrower's annual net income (the median LTI ratio weighted by loan size was 387%). This means that half of the euro volume of new housing loans was granted with a loan-to-income ratio above 387%. The distribution has shifted to the right from the previous year, indicating a general increase in the size of new housing loans in relation to borrowers' income (Chart 5).

Chart 5.

New housing loans by borrower's loan-to-income ratio




* Outliers of the right-hand tail have been added to the haircut value 1 500%.

The loan-to-income (LTI) ratios have been calculated using loan-specific data. The LTI ratio describes loan size relative to the borrower's annual net income.

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

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## Loan-servicing burden not increased, but it may last longer

The typical servicing costs of new housing loans (repayments of principal, interest, and possible other costs) relative to borrowers' monthly net income have remained somewhat unchanged in recent years (Table 6). Therefore, the monthly loan-servicing burden (LSTI ratio) has not increased at the same rate as loan size relative to borrower income (LTI ratio, detailed above). The low reference rates, narrowing margins, lengthening repayment periods and favourable income developments have kept the monthly servicing costs of most new housing loans reasonable relative to the borrower's income.

| Median loan-servicing burden for new housing loans (LSTI ratio), weighted by loan size | | | |
|---|---|---|---|
| | 2019 | 2020 | 2021 |
| First-home loans | 18% | 18% | 19% |
| Loans for subsequent homes | 19% | 18% | 18% |
| Loans for dwellings for investment purposes | 13% | 12% | 11% |
| All new housing loans | 18% | 18% | 18% |

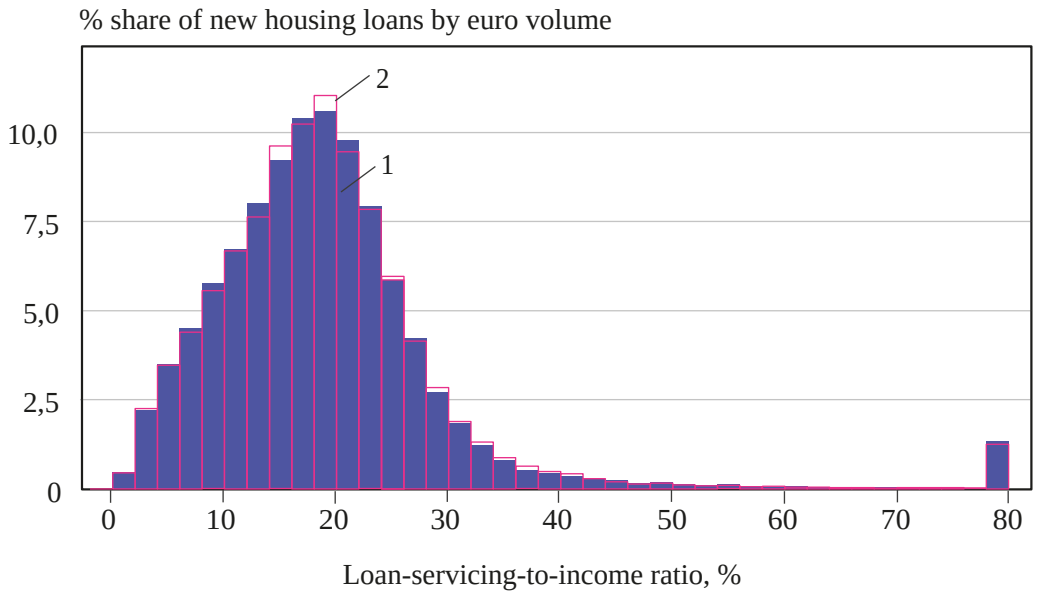
*Loan-servicing burden = the costs of servicing the loan relative to the borrower's net income.*
*Sources: FIN-FSA and calculations by the Bank of Finland.*

However, in some of the new housing loans, loan servicing costs are very large relative to the borrower's net income. In 2021, the loan servicing costs of a new housing loan were typically about a fifth of the borrower’s net income (the median LSTI ratio weighted by loan size was 18%). Half of the euro volume of new housing loans was granted with a higher loan-servicing-to-income ratio. Changes in the shape of the distribution from one year ago do not indicate very significant changes in the loan-serving burden of new borrowers (Chart 6).

Chart 6.

New housing loans by borrower's loan-servicing-to-income ratio

1. Year 2021 data
2. Year 2020 data




* Outliers of the right-hand tail have been added to the haircut value 80%.

The loan-servicing-to-income (LSTI) ratios have been calculated using loan-specific data. The LSTI ratio describes the monthly loan-servicing costs relative to the borrower's net income

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

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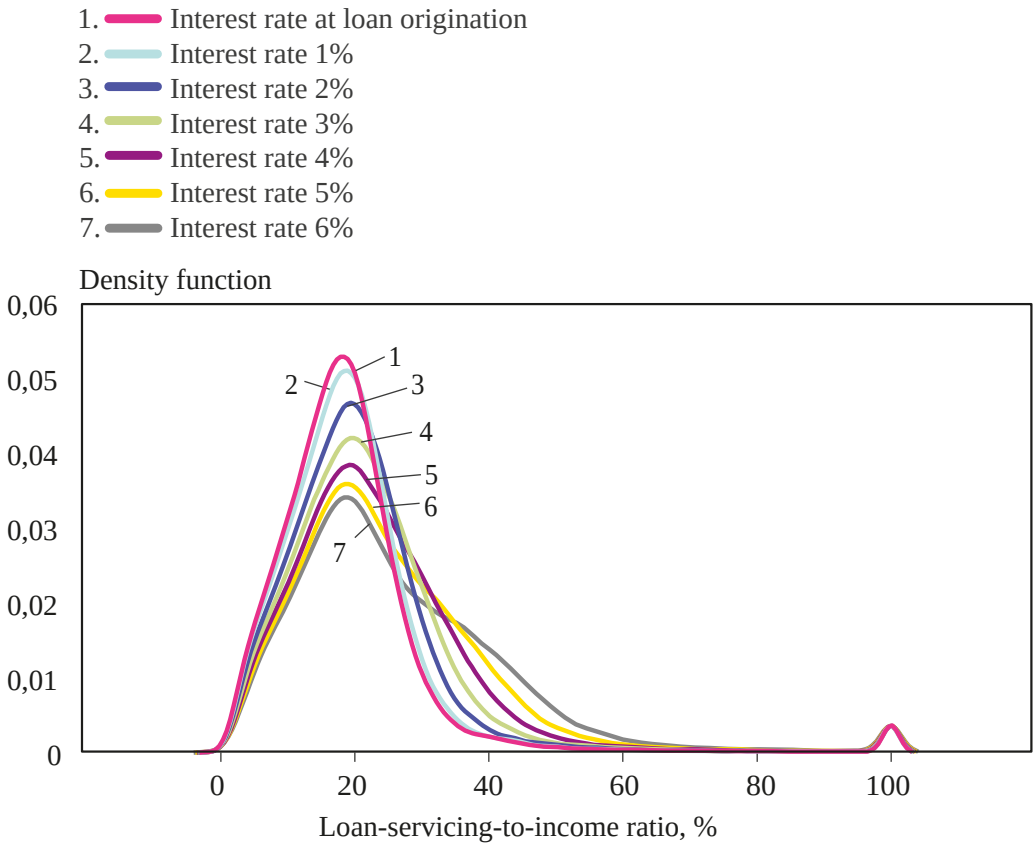
The following chart (Chart 7) presents an estimate of the impact of potentially increasing interest rates on the monthly loan-servicing costs of housing loans included in the 2021 data. In the estimate, the loan-servicing costs of loans protected with interest rate hedging at the time of granting, fixed-rate loans and fixed-instalment loans have been kept unchanged. These loans account for about 45% of the total euro volume of new housing loans. On other loans monthly interest costs and total payments are estimated to increase in the same way as those of annuity loans.

As the interest rate used in the calculation increases, the loan-servicing burden will grow more

substantial on an increasing proportion of housing loans (measured by euro volume). In Chart 7, this is depicted in the distribution of housing loans[10] as a fatter tail on the right-hand side. Rising interest rates will have the greatest impact on the loan-servicing burden of borrowers with a variable rate loan and a high loan-to-income ratio. In other words, as the interest rate rises, the higher the loan-to-income ratio, the larger the share of income used for servicing the loan.

Chart 7.

New housing loans by borrower's loan-servicing-to-income ratio at different interest rates




The loan-servicing-to-income (LSTI) ratios have been calculated using loan-specific data. The LSTI ratio describes the monthly loan-servicing costs relative to the borrower's net income. The loan-servicing costs of loans with fixed or hedged interest rates or with fixed-instalments are assumed to remain unchanged. The density function shows euro volume of new housing loans as a continuous distribution.

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

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The type of interest rate, repayment method and disposable income all affect the amount of financial leeway that a borrower should uphold to prepare for an unexpected increase in interest rate levels and consumption expenditure. In their loan decisions, banks may also consider other factors affecting the borrower's creditworthiness besides loan-servicing burden, such as expected

income development in the near future or liquid assets available for servicing the loan. In addition, the maximum loan-to-collateral (LTC) ratio for new housing loans (loan cap) limits the size of the loan in relation to the value of the collateral.

## Longer-than-usual housing loans and grace periods at loan origination have become more common

In recent years, the typical maturity for new housing loans has remained close to 25 years (Table 7), but at the same time, longer-term housing loans have become more common. At the start of 2022, new housing loans with maturities over 26 years accounted for some 15% of the euro volume of new housing loans, compared with around 8% two years earlier and around 4% three years earlier. The longer the maturity, the higher the total interest costs for the entire loan period. On the other hand, a slower repayment schedule may allow the borrower to invest more in other assets besides housing.

Typically, housing loans with very long maturities have been larger than other new housing loans. In the 2021 data, the median size of new housing loans with a maturity of around 25 years was approximately EUR 145,000, whereas the median size of loans with a maturity over 26 years was approximately EUR 225,000. In longer-term housing loans, the loan amount in relation to the borrower's income was also typically higher than in shorter loans. On the other hand, the monthly loan-servicing costs were equal. Loans with unusually long maturities are paid back over a longer period, and the average loan margins were lower than for loans with maturities of around 25 years.[11]

**Median repayment period for new housing loans, weighted by loan size**

| | 2019 | 2020 | 2021 |
|---|---|---|---|
| First-home loans | 25 years | 25 years | 25 years |
| Loans for subsequent homes | 21 years | 24 years | 25 years |
| Loans for dwellings for investment purposes | 20 years | 20 years | 20 years |
| All new housing loans | 23 years | 25 years | 25 years |

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

In a considerable share of new housing loans, borrowers have used grace periods at the start of the repayment period (Table 8). The instant use of interest-only periods has become slightly more common in recent years and has been more common with first-home loans and loans for subsequent homes than with loans for investment purposes. In the 2021 data, the typical grace period was 6 months and at most around 2 years.[12] In the early phase of the COVID-19 pandemic, the use of interest-only periods on old housing loans temporary increased but has since returned to normal.

**Share of loans with an interest-only period at the beginning of the repayment period, % of the euro volume of new housing loans**

| | 2019 | 2020 | 2021 |
|---|---|---|---|
| First-home loans | 36% | 39% | 43% |
| Loans for subsequent homes | 38% | 40% | 44% |
| Loans for dwellings for investment purposes | 27% | 27% | 28% |
| All new housing loans | 36% | 38% | 42% |

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

## There are many ways to prepare for debt-related risks

Finnish mortgage borrowers are vulnerable to interest rate increases and other changes affecting their own finances. Particular causes for vulnerability are a high debt burden in relation to income and to wealth and inadequate preparedness for interest-rate risks and other risk factors. Housing company loans are mainly tied to Euribor rates, and interest-rate hedges have been used less in housing company loans than in housing loans. Housing company loans are usually either fixed-period or annuity loans, so rising interest rates would increase the monthly loan-servicing costs, consequently increasing the capital charges paid by the homeowners.

The most important way to prepare for risks is to measure the amount of loan against the borrower's repayment capacity. The FIN-FSA has recommended that banks use an interest rate of at least 6% and a maximum repayment period of 25 years in assessing housing loan applicants' loan-servicing ability. The FIN-FSA has also recommended that banks consider the impact of

interest rates on capital charges in the assessment of the loan applicant's financial margin. In the assessment, the banks should also consider the expiration of potential grace periods for the housing company loans and the fact that flexibility in loan servicing is generally not granted for capital charges in the same way as for housing loans.[13]

According to a survey[14] commissioned by Finance Finland, saving has clearly remained the most common way for households to prepare for rising interest rates. Households' deposits and other financial assets have grown in recent years, as households have had the opportunity to save money left over after debt-servicing costs and consumption expenses, and investments have grown in value. This has increased the financial buffers of at least some borrowers. Another way to accumulate net wealth is to pay off loans at a faster rate. By shortening the loan period, the debt will accumulate less interest costs over the loan period.

Households' indebtedness has increased significantly during the period of low interest rates, increasing borrowers' sensitivity to rising interest rates. Going forward, another factor that may aggravate the impact on mortgage borrowers of increasing interest rates is the substantial cuts made to the tax deductibility of interest expenses on owner-occupied housing loans. In 2022, only 5% of these interest expenses are tax deductible, compared with 100% in 2011. According to the Government Programme, deductibility will be phased out completely in 2023.

## Notes

1. Housing loans account for around 63% of household debt; with housing company loans added, the combined share is around 75%. ↑
2. See https://www.bofbulletin.fi/en/2022/articles/war-in-ukraine-will-slow-finland-s-gdp-growth-and-increase-inflation/. ↑
3. The data and calculations of the article are loan-specific, meaning each new mortgage is examined independently. Therefore, the loan-to-income (LTI) ratios and the loan-servicing-to-income (LSTI) ratios presented in the article are underestimates of some of the actual borrower-specific ratios. In reality, some of the loans are granted to the same borrowers at the same or a different time and have been used in combination to finance a single housing project. ↑
4. Here, a typical observation refers to the median weighted by the size (euro volume) of the loan. The unweighted median describes the midpoint of the distribution when the observations are sorted from smallest to largest, meaning that there are an equal number of observations on both sides of the median. The median is less affected by outliers than the mean. When referring to mortgage-size-weighted median, half of the euro volume of the mortgages exceeds the median, while the other half of the euro volume is below the median. The distribution of the euro volume provides a better overall picture of housing lending than the distribution of the number of mortgages. ↑

5. See for example OP Financial Group press release (23 March 2022). ↑
6. In a fixed-period loan, all repayments of the loan principal are identical in size. However, each instalment (repayment of principal and interest) is smaller than the previous one, as interest expenses are reduced as the remaining loan principal decreases. If the interest rate on the loan increases (or decreases), the interest expenditure also increases (or decreases), while the repayment period remains the same. ↑
7. See https://www.bofbulletin.fi/en/2021/1/new-mortgage-borrowers-have-an-increasing-amount-of-debt-relative-to-income/. ↑
8. The ninth decile, the highest depicted in the chart, shows the euro volume above which 10% of new housing loans are situated (as measured by the number of loans). ↑
9. Bullet loans have not been considered in the calculation of loan-to-income (LTI) and loan-servicing-to-income (LSTI) ratios in this and the following section. ↑
10. The density function in Chart 7 shows the distribution of housing loans (euro volume) in order of loan-servicing burden (weighted by loan size). The density function describes virtually the same thing as the histograms in Charts 5 and 6, but as a continuous distribution without the housing loans being divided into categories according to loan-servicing burden. The area under each density function is equal to one, as the area represents the probability that the loan-servicing burden always falls within a given range. ↑
11. In the 2021 data, for housing loans with maturities of around 25 years the size of the loan in relation to the borrower's net income was typically around 435% (median LTI ratio weighted by loan size), whereas for loans with maturities of over 26 years, the corresponding ratio was approximately 531%. On the other hand, the typical loan-servicing-to-income (LSTI) ratio was around 19% in both groups (median weighted by loan size). ↑
12. However, the above calculations of the loan-servicing burden were made using the loan servicing costs for the first month when the repayment of principal was paid in full. ↑
13. FIN-FSA (2018) Management of credit risk and assessment of creditworthiness by supervised entities in the financial sector, Regulations and guidelines 4/2018. ↑
14. Finance Finland (2021) Saving, borrowing and payments. ↑

## Keywords

borrowing, financial stability, households, loan-servicing expenditure, mortgages