



REPORT

The Swedish Mortgage Market

28 March 2023



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Summary

Swedish households' loans have risen faster than household disposable income for a long time. This is partly due to low interest rates and rising housing prices. In 2022 and at the beginning of 2023, the economic and financial conditions changed dramatically. Inflation rose sharply, the mortgage rate more than doubled, and housing prices fell. Many forecasters predicted that an economic downturn was on its way. All of this impacted the situation for households, in particular those that bought a home.

This report analyses the development on the mortgage market using a sample of new mortgagors who took out a new mortgage early in the autumn in 2022 and where the property/housing transaction often was agreed on during the summer of 2022 or earlier. The sample thus reflects to some extent the dramatic shifts that occurred in the economy, but the situation has since continued to change. Interest rates have continued to rise, housing prices have continued to fall, and lending to households is increasing at a steadily slower rate.

Activity on the housing market declined in 2022, which was also evident in our sample as the number of new mortgagors in the sample was significantly lower than in previous years. At the same time, the number of first-time homebuyers increased. The share of first-time buyers in the sample rose back to the same level as in 2019, after having fallen during the pandemic years.

The 2022 sample otherwise is similar in many respects to the 2021 sample. New mortgagors bought homes that were equally expensive on average and borrowed on average as much in 2022 as they did in 2021. The average loan-to-value ratio was approximately the same in both years, and the loan-to-income ratio decreased slightly in the sample in 2022. In 2022, a somewhat smaller share of borrowers had a loan-to-income ratio of more than 450 per cent and a loan-to-value ratio of more than 70 per cent compared to the previous year.

Borrowers faced significantly altered conditions

Interest rates increased sharply in 2022. The average mortgage rate in the 2022 sample more than doubled compared to the previous year. For new mortgagors, a significantly larger share of their income went to servicing interest costs than in previous years. On average, this figure was approximately 10 per cent, which is more than twice as large as the previous year and the highest since Finansinspektionen (FI) began to gather data in 2012. At the same time, a significantly larger share of new borrowers chose variable mortgage rates than in 2021. The share with variable rates in 2022 was the largest since 2016.

Borrowers much more vulnerable than they were last year

High loan-to-value ratios and loan-to-income ratios mean that borrowers may be more vulnerable to various shocks. However, for a more complete assessment of this vulnerability, the data needs to be supplemented with borrower cash flows to illustrate income in relation to expenses. We therefore use a simplified calculation of cash flow in the report. New borrowers' surpluses were on average lower already when they took the loan compared to borrowers in 2021. This increased vulnerability is due primarily to higher interest rates and, to some extent, an increase in standardised costs. Many borrowers may therefore need to reduce their savings or adapt their consumption in response to altered financial conditions. Since new mortgagors tend to have larger loans and smaller margins than existing mortgagors, new mortgagors may be particularly vulnerable to higher inflation, higher rates and falling housing prices.

The deterioration in the borrowers' starting point compared to in 2021 also means that borrowers are more vulnerable due to the cost and interest rates increases that have since occurred. Their vulnerability to a drop in income has increased further. In the event of a loss of income, such as unemployment, between 12 and 17 per cent of the single-person borrowers in the sample would experience negative cash flows. This share tripled between 2021 and 2022 and is particularly concerning given the weaker outlook for the economy. Borrowers who buy or live in an existing tenant-owned apartment are also vulnerable to any potential fee increases.

Background

This report presents the results of the survey of new mortgagors in 2022. Housing market activity was lower than in previous years. On average, homebuyers bought homes costing a similar amount and borrowed the same amount as in 2021. The proportion of first-time buyers increased to about the same level as before the pandemic.

Buying a home is often the biggest investment a household ever makes. Households generally have to take out a mortgage to finance this purchase. That said, large loans may pose risks to individual borrowers, lenders, financial stability and the economy as a whole.

Household loans have been growing rapidly for a long time. The ratio of household loans to disposable income was about one at the end of 1997.¹ By the end of 2021, that ratio had doubled. Mortgages represent a majority of total household borrowing.² The reasons why Swedish households have been borrowing more and more include low mortgage rates and rapidly rising housing prices. The combination of good growth in household income and a growing population has increased the demand for housing. The low interest rates in recent years have also enabled people to take out larger loans at a lower cost. This has further increased the demand for housing and mortgages. Structural factors on the housing market have also contributed to the increase in demand for mortgages. This includes a poorly functioning rental market where factors such as conversions of rental housing to tenant-owned housing have led to long waiting times.

Starting in 2010, FI has implemented a number of measures – including introduction of loan-to-value caps³ and amortisation requirements – to reduce the vulnerabilities associated with large household loans. The purpose of these measures has primarily been to prevent mortgagors taking larger loans than their financial circumstances allow, and this in turn affecting the development of the mortgage and housing market as a whole. These measures have meant that new mortgagors have borrowed less and bought cheaper homes than they would have done without the measures. In particular, the proportion of new mortgagors taking out large loans relative to their income or the value of their home has slowed.⁴

¹ Refers to aggregated data from the national accounts, Statistics Sweden (SCB).

² In February 2023, housing loans accounted for 83 per cent of total loans to households. Refers to aggregated data from financial market statistics, SCB.

³ The term *mortgage caps* has been used in this report in previous years, but FI will now use the term *loan-to-value caps*.

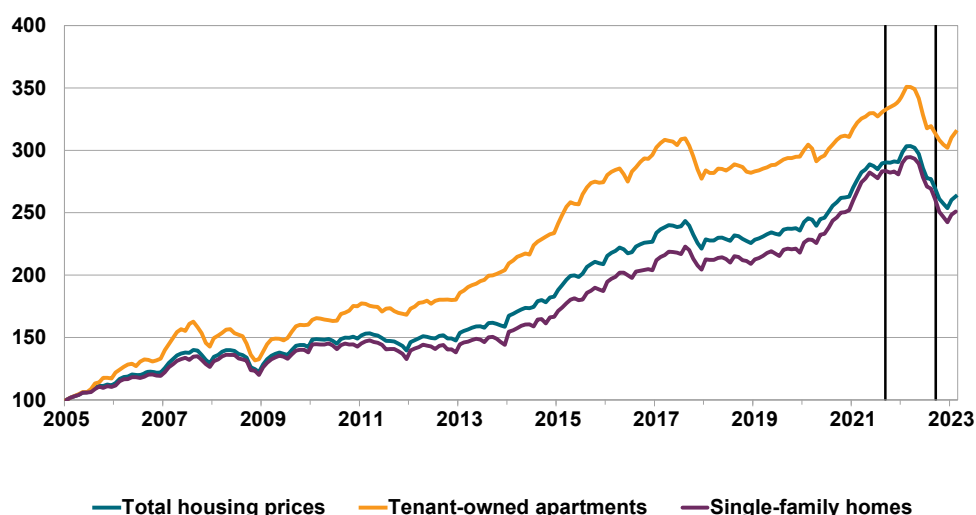
⁴ See *Samlad utvärdering av makrotillsynsåtgärder* [Collective evaluation of macroprudential measures], Finansinspektionen (2021).

Reduced demand for loans and housing has helped to slow both loan growth and the rise in housing prices.⁵

The situation for households has changed significantly since the beginning of 2022. Their cash flows have deteriorated due to high inflation, including high electricity prices, and rapidly rising interest rates. Housing prices peaked in March 2022 and have since fallen by 13.2 per cent (see Diagram 1).⁶ Household mortgages are still growing, but at a slower pace.⁷ Moreover, they are now growing more slowly than households' disposable income. All in all, mortgagors are under severe pressure and their financial conditions are deteriorating.

1. Housing price developments

Index, January 2005 = 100



Source: Valueguard.

Note: Seasonally adjusted data. The last observation is February 2023. The two vertical lines indicate the timing of the 2021 and 2022 samples. The mortgagors in the samples who bought their homes probably did so a number of months before.

The amortisation regulations allow lenders to provide mortgagors whose financial circumstances have deteriorated significantly with temporary exemption from

⁵ FI has also introduced, and then increased, a risk weight floor for mortgages in order to strengthen the resilience of banks.

⁶ Data is available until February 2023. In seasonally adjusted terms, prices for single-family homes peaked in February 2022 and have since fallen by around 15 per cent. Prices for tenant-owned housing peaked in March 2022 and have since fallen by approximately 10 per cent.

⁷ In February 2023, the annual growth rate for household mortgages from monetary financial institutions was 3.3 per cent. The growth rate has been falling since April 2022. Refers to aggregated data from financial market statistics, Statistics Sweden.

making amortisation payments.⁸ Deteriorating conditions may occur for various reasons. This may be due to loss of income on account of illness or unemployment, for example. But it may also be due to unpredictable increases in key expenditures, such as energy prices. It is up to the lender to decide whether to grant an exemption based on an individual assessment of the mortgagor's finances. The number of exemptions granted due to deteriorating economic conditions has increased in recent quarters. In total, around 15,000 exemptions were granted between September 2022 and February 2023 (see the appendix *Mortgagor margins and amortisation exemptions in early 2023*).

Although housing prices started to fall in April 2022, this followed a long period of price increases. Housing prices were therefore at about the same level in the summer of 2022, when many homebuyers in the 2022 sample were likely to buy their homes, as in the corresponding period in 2021.

Purpose and data

The purpose of this mortgage survey is to analyse the current situation for households that take out new mortgages. The survey contains information on both new mortgages and other loans that mortgagors already had.⁹ We use the information from the survey to assess the potential vulnerabilities associated with household mortgages. As part of this, we use borrowers' income and expenditure to perform a simplified cash flow calculation to test borrowers' payment ability at higher interest rates and in the event of loss of income. The survey is also important for our assessment of whether the rules in the mortgage market need to be changed. The information is also used to evaluate measures that have been introduced.

The survey includes data from the eight largest mortgage institutions. These accounted for approximately 93 per cent of the total mortgage volume in 2022. The mortgage survey consists of three parts:

- *Household sample (microdata)*. The sample is what mainly forms the basis of the analyses in this report. The sample covers all new mortgage agreements concluded during the periods 29 August – 5 September 2022 and 26 September – 3 October 2022. After processing, around 20,400 households remained in the survey.¹⁰ This information includes borrowers' income, total loan burden, loans

⁸ Section 11 of Finansinspektionen's regulations (FFFS 2016:16) on amortisation of loans secured on residential properties (the amortisation regulations) includes an exemption that gives mortgage lenders the opportunity to allow mortgagors to refrain from making amortisation payments for a time if there are specific reasons.

⁹ Existing mortgages for other collateral, non-property-backed loans for, for example, car loans and consumer credit such as unsecured loans and utilised credit card credit.

¹⁰ 'Processing' refers to the validation of reported data by FI, removing any inadequate and extreme observations.

secured on housing, agreed interest rates and amortisation payments for the mortgage and the market value of the housing. However, we do not receive information about borrowers' financial assets. This is the thirteenth time FI has collected a sample of new mortgagors. The previous samples were collected in 2009 and 2011–2021.

The data about new mortgages collected by FI in its mortgage survey does not only refer to new mortgages for purchasing a home. *New mortgages* also include extensions of existing mortgages (known as *equity withdrawal*). Households withdraw equity in order to consume, renovate their homes, repay other credit or for other purposes. Existing mortgages that the borrower has moved from one bank to another (known as *bank switchers*) are also recorded as new mortgages. Households can choose to switch banks in order to benefit from better lending conditions. When a household switches an existing mortgage to another bank, the new bank redeems the existing loan from the original bank.

- *Aggregate data.* FI also collects information about the banks' total lending to households for housing purposes. This information includes the total volume of new lending, the number of households, existing loans, amortisation payments and loan-to-value (LTV) ratios.
- *Qualitative data.* By answering a number of in-depth questions, the banks provide both general and detailed information about their current situation. These include banks' methods for valuing homes, their credit assessments of mortgagors and how they fulfil their consumer protection responsibilities when granting mortgages.

Mortgagors in the 2022 survey

The number of new borrowers was significantly lower in 2022 than in previous samples (see 0). Compared to 2021, the number of borrowers fell by around 25 per cent.

Table 1. New borrowers:

Number, SEK million, Per cent, SEK thousand

<i>Refers to the average</i>	2012	2017	2018	2019	2020	2021	2022
Number of households	24,113	27,793	24,093	25,362	26,980	27,292	20,435
Total loan burden (SEK m)	1.66	2.25	2.24	2.37	2.50	2.80	2.82
Since last year (%)		6.0	-0.4	5.6	5.8	12.1	0.5
Since 2012 (%)		35.6	35.0	42.6	50.8	69.0	69.9
Market value (SEK m)	2.22	3.27	3.12	3.28	3.39	4.01	3.98
Since last year (%)		7.3	-4.8	5.1	3.5	18.2	-0.6

Since 2012 (%)		47.4	40.4	47.5	52.7	80.4	79.4
Disposable income (SEK thousand/month)	42.5	44.7	46.0	47.7	49.0	51.1	52.1
Since last year (%)		3.9	2.9	3.8	2.6	4.4	1.9
Since 2012 (%)		13.3	16.6	21.0	24.2	29.6	32.1

Source: FI.

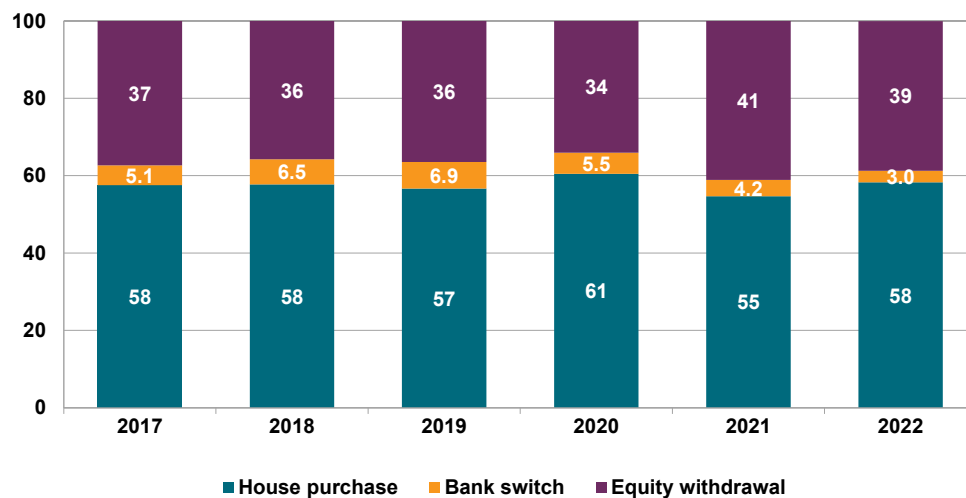
Note: Refers to home purchases, equity withdrawal and change of bank. Average total loan burden refers to all of the households' loans (mortgages, loans with collateral other than a residential property and loans without collateral). Average market value refers to the sum of mortgaged objects. The total loan burden is included in the calculation of the loan-to-income (LTI) ratio, and the market value is included in the calculation of the LTV ratio (see *New mortgagors' loans*). Single-person households, cohabitants and any borrowers outside the household are included in the income calculation.

For those borrowers who have bought a new home, the loan was disbursed on the date of occupancy. This means that the borrowers bought their properties some time before the sample period, probably in the summer of 2022. They faced changed economic conditions compared to the previous year. Inflation was high, central banks had started to raise their key interest rates, and interest rates were expected to continue to rise. Housing prices had also started to fall. This uncertainty contributed to a decline in the number of housing transactions that started in March 2022, compared with the previous year, and continued to decline for the rest of the year. The lower activity in the housing market is also reflected in the sample.

The survey provides a snapshot for equity withdrawal borrowers and bank switchers. These borrowers have chosen to withdraw equity or change banks during the sample period. For equity withdrawal borrowers, expectations of an upcoming recession may have reduced their willingness to borrow. At the same time, rising interest rates also made equity withdrawal more expensive and therefore less attractive. Moreover, when housing prices fall, the scope for households to expand an existing mortgage loan decreases in relation to the LTV ratio of the house. This may have dissuaded some people from withdrawing equity. The proportion of homebuyers, equity withdrawal borrowers and bank switchers in the 2022 survey was relatively unchanged from previous years (see Diagram 2).

2. New borrowers by purpose

Per cent

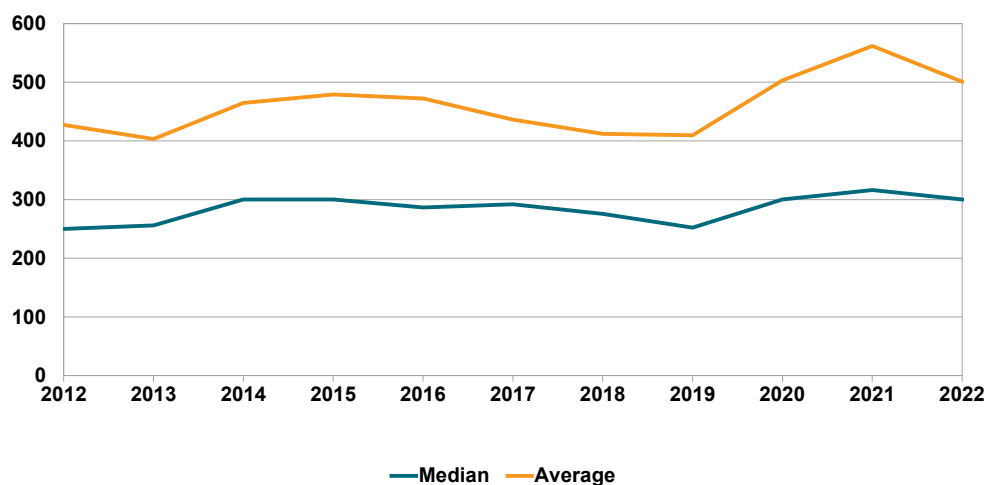


Source: FI.

Homebuyers in the 2022 sample bought property for more or less the same prices on average as in 2021. They also borrowed the same amount. Although the proportion of equity withdrawals remains relatively unchanged compared to 2021, the number of equity withdrawal borrowers fell by almost 30 per cent between 2021 and 2022. Mortgagors who increased their mortgage by withdrawing equity also borrowed slightly less on average than in 2021 (see Diagram 3). The extent of equity withdrawal was at about the same level as in 2020. The slightly higher level of equity withdrawal in 2021 may reflect a greater willingness to undertake more extensive housing renovations during the pandemic.

3. Size of increases in existing mortgages (equity withdrawal)

SEK thousand



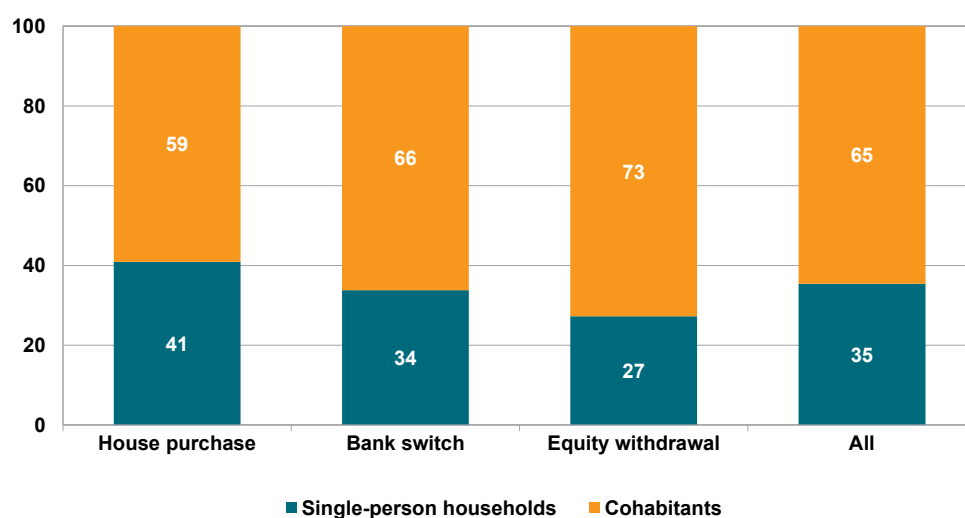
Source: FI.

Living alone more common among homebuyers

Around 35 per cent of new mortgages were taken out by people living alone (see Diagram 4). Among mortgagors who bought a home, the proportion of single-person households has remained at around 40 per cent between 2017 and 2022. The proportion is lower among those who switched banks or withdrew equity. Less than one per cent of mortgages in 2022 had more than two borrowers on the contract. In these cases, it was common for one of the co-signers not to share a household (residential address) with the primary borrower.

4. Proportion of borrowers living alone and cohabiting, 2022

Per cent



Source: FI.

Table 2. Geographic distribution of new borrowers in 2022

Per cent, SEK million, SEK thousand

<i>Refers to the average</i>	Stockholm	Gothenburg	Malmö	Other large cities	The rest of Sweden	Total
Proportion of households (%)	26	12	7	20	35	100
Proportion of volume of new loans (%)	39	14	8	18	22	100
Total loan burden (SEK m)	3.94	3.23	2.90	2.54	2.00	2.82
Single-person households	2.66	2.13	1.95	1.64	1.34	1.90
Cohabitants	4.75	3.81	3.44	2.98	2.35	3.32
Market value (SEK m)	5.85	4.80	4.18	3.45	2.60	3.98
Single-person households	4.13	3.41	2.97	2.45	1.85	2.86
Cohabitants	6.93	5.53	4.87	3.94	3.00	4.60
Disposable income (SEK thousand/month)	59.5	54.3	52.3	50.5	46.9	52.1
Single-person households	37.3	33.3	32.4	30.9	29.6	32.6
Cohabitants	73.3	65.3	63.6	60.2	56.1	62.8

Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. Average total loan burden refers to all of the households' loans (mortgages, loans with collateral other than a residential property and loans without collateral). Any borrowers outside the household are included in the income calculation. Stockholm, Gothenburg and Malmö refer to metropolitan regions.

0 shows new mortgagors in this year's sample, by region. The distribution was almost unchanged compared to 2021. The age distribution was also roughly the same. The youngest borrowers (under 30) accounted for around 20 per cent of new mortgagors, while the oldest (over 65) accounted for 7 per cent (see 0).

Table 3. Age distribution of new borrowers in 2022

Per cent, SEK million, SEK thousand

<i>Refers to the average</i>	18–30	31–50 years old	51–65	65+	Total
Proportion of households (%)	19	51	23	7	100
Proportion of volume of new loans (%)	22	57	18	4	100
Total loan burden (SEK m)	2.18	3.18	2.87	1.80	2.82
Single-person households	1.50	2.15	2.03	1.41	1.90
Cohabitants	2.80	3.63	3.35	2.01	3.32
Market value (SEK m)	2.61	4.35	4.37	3.85	3.98
Single-person households	1.96	3.05	3.45	3.14	2.86
Cohabitants	3.21	4.92	4.90	4.22	4.60
Disposable income (SEK thousand/month)	40.8	56.0	56.2	42.5	52.1
Single-person households	26.9	35.0	36.0	28.5	32.7
Cohabitants	53.4	65.1	67.7	50.0	62.8

Source: FI.

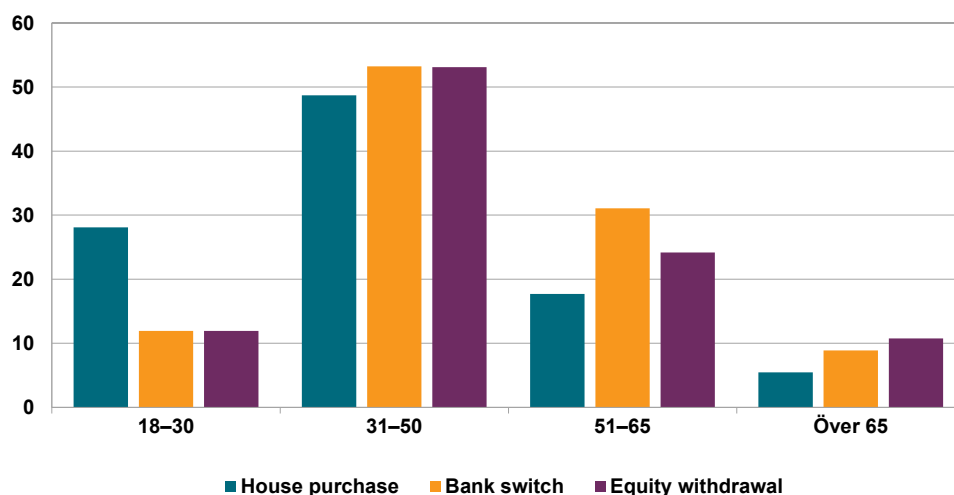
Note: Refers to home purchases, equity withdrawal and change of bank. Average total loan burden refers to all of the households' loans (mortgages, loans with collateral other than a residential property and loans without collateral). Any borrowers outside the household are included in the income calculation. The age distribution is based on the age of the primary borrower at the time of the loan.

Higher proportion of young people among homebuyers

The age distribution differed between those who bought a new home and those who switched banks or withdrew equity. In 2022, 28 per cent of homebuyers were aged between 18 and 30, compared with just over 10 per cent for bank switchers and equity withdrawal borrowers (see Diagram 5).

5. Age distribution by type of mortgage

Per cent



Source: FI.

Note: The age distribution is based on the age of the primary borrower at the time of the loan.

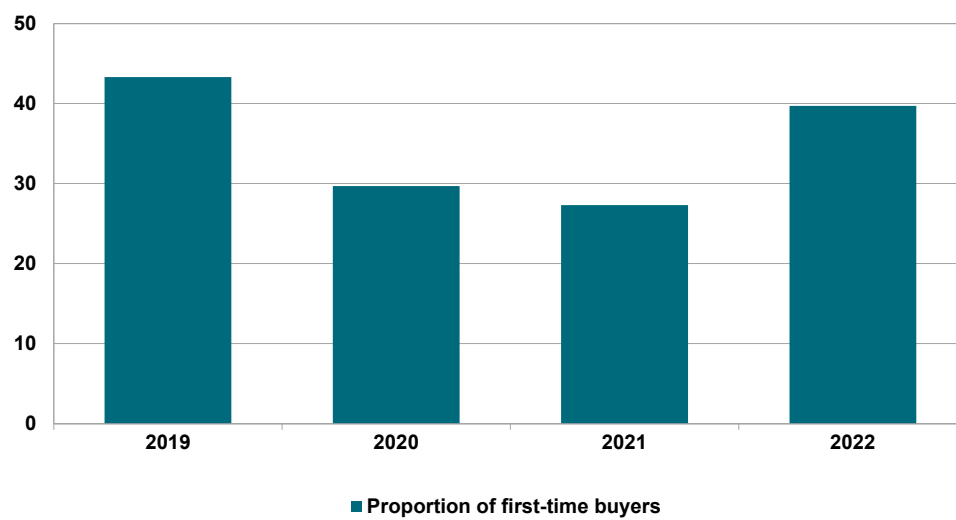
Proportion of first-time buyers increased after the pandemic

The proportion of first-time buyers, i.e. borrowers who took a mortgage to buy a home for the first time, increased in 2022 (see Diagram 6).¹¹ The proportion was highest for households where the primary borrower was aged between 18 and 30 when the mortgage was taken out. 62 per cent of people in that age group were first-time buyers in 2022. The corresponding proportion was only around 28 per cent in 2021.

¹¹ It is not possible to identify first-time buyers in the samples before 2019. To identify first-time buyers, we look at whether the borrowers in the household had mortgages before and at the time the new loan was granted. If they did not, they are classified as first-time buyers. This means that borrowers who had an unmortgaged property and have taken out a new mortgage are also included. It also means that anyone who had previously had a mortgage but had subsequently lived in a rented property, for example, is also included. These individuals are not first-time buyers, but are classified as such under this method. Our classification differs from the assessment in the report *Startlån till förstagsstagångsköpare av bostad* (Start-up loans for first-time homebuyers), which notes that anyone who has not owned a primary residence in the last 10 years should be considered a first-time buyer (SOU 2022:12).

6. Proportion of first-time buyers increased in 2022

Per cent



Source: FI.

Note: Refers to housing purchases.

New mortgagors' loans

Sharply rising interest rates resulted in significantly higher interest payments as a proportion of income in 2022 compared to previous years. The average LTI ratio among new mortgagors decreased slightly in 2022, after having increased for several years. At the same time, the average LTV ratio remained unchanged from previous years.

Ability to repay crucial to resilience

Borrowers' debt repayment ability is the starting point in our assessment of the vulnerability of households with mortgages. The size of the loan that borrowers can take depends on how the lender assesses their financial circumstances. Large-scale borrowing is therefore not necessarily, in itself, a problem for borrowers, lenders or – ultimately – for financial stability. What is more important is how the size of the loan affects borrowers, especially if their personal finances deteriorate. This relates to whether borrowers can continue to make interest and amortisation payments on their loans, but also the extent to which they can maintain their consumption when incomes fall, or prices and interest rates rise.

One way of identifying groups that may be more vulnerable than others is to view loans and loan payments in relation to other variables. This also makes comparisons between different borrowers and comparisons over time more relevant. This may involve analysing loans in relation to the value of the property (LTV ratio) or relative to borrowers' income (LTI ratio).¹² It may also involve analysing loan payments (interest and amortisation payments) in relation to borrowers' income (interest-to-income ratio and debt service ratio, DSR).¹³

This chapter presents the calculated LTV ratios and LTI ratios in this year's survey. We calculate the LTV ratio as the size of the loans that a borrower has taken out to finance the purchase of a home divided by the value (price) of the property.¹⁴ The

¹² The LTI ratio in this report refers to the LTI ratio based on gross household income unless otherwise specified.

¹³ The interest-to-income ratio and the debt service ratio measure interest expense and interest expense and amortisation payments, respectively, as a percentage of disposable income. For the purposes of this report, interest expense is defined as the interest expense after interest deductions. The possibility of a full interest deduction may be reduced if the borrower has interest expenses exceeding SEK 100,000 per person per year or has interest income. In cases where the household does not adjust its interest expenses for mortgages and other loans, this means that the actual monthly payment in Swedish kronor is higher.

¹⁴ These loans include mortgages and unsecured housing loans (simply, unsecured loans) taken by borrowers with the same bank, when purchasing a home. Unsecured loans granted for the purchase of homes are also formally recognised as housing loans (or mortgages) if they are intended for residential purposes. We assume that all unsecured loans disbursed in connection with mortgages have that purpose. Any unsecured loans that the borrower has

so-called mortgage cap introduced by FI in 2010 implies that lenders should limit the size of mortgages that households can take out to 85 per cent of the value of the home.¹⁵ The remaining 15 per cent must be funded by other means, such as personal savings or unsecured loans.¹⁶ A higher LTV ratio therefore means that the borrower is less resilient to falling housing prices. The loans may exceed the value of the house if housing prices fall. The LTV ratio also determines the size of amortisation payments mortgagors need to pay under the first amortisation requirement introduced in 2016. This requirement means that households taking out a mortgage with an LTV ratio of between 50 and 70 per cent must make amortisation payments of at least one per cent of the loan per year. Borrowers with an LTV ratio above 70 per cent must make amortisation payments amounting to at least 2 per cent of the loan per year.¹⁷

Another measure of vulnerability presented in this chapter is the LTI ratio. We calculate the LTI ratio as the size of all loans that the borrower or borrowers jointly had when the new mortgage was taken out in relation to their income. The debt burden is related to the household's income before and after tax (gross LTI ratio and net LTI ratio, respectively).¹⁸ A higher LTI ratio may mean that the borrower will need to spend a larger proportion of their income on interest payments at a given interest rate. Rising interest rates and falling incomes have a greater impact on cash flow for borrowers with a high LTI ratio. Therefore, a higher LTI ratio indicates lower resilience. The LTI ratio, measured as total mortgages relative to annual gross income, is the basis for the stricter amortisation requirement introduced in 2018. This requirement means that borrowers with a high LTI ratio, consisting of mortgages of more than 450 per cent of income before tax, need to make amortisation payments amounting to an additional one per cent of the loan per year, in addition to the amortisation payments required by the first amortisation requirement.

The current economic situation, with high inflation and rising interest rates, means that mortgagors are under pressure from several directions. When wage growth does not keep pace with inflation, real wages fall and households' real disposable

taken at another time or with another bank are not included in the LTV ratio, as we cannot assume that the purpose was to fund the purchase of a home.

¹⁵ The mortgage cap limits the proportion of the loan that can use the home as collateral to 85 per cent of the value of the home. See Finansinspektionen's general guidelines (FFFS 2016:33) on limiting credit against collateral in the form of mortgages.

¹⁶ Such an unsecured loan is known as an unsecured housing loan as it helps finance the purchase of a home.

¹⁷ The LTV ratio under the amortisation regulations is calculated only for secured housing loans (mortgages).

¹⁸ The LTI ratio includes all loans that new mortgagors had at the time the new mortgage was taken, i.e.: mortgages, unsecured loans, loans against other collateral and utilised credit card credit.

income decreases.¹⁹ If the household also suffers a loss of income – due to unemployment, for example – the income falls further. Higher interest rates, in turn, increase expenditure. All this can make it more difficult for borrowers to meet their loan payments. Even households with better financial conditions are seeing their margins shrink, which, together with falling housing prices, may mean that borrowers are adjusting by reducing their consumption. Lower consumption dampens growth and can lead to higher unemployment.

If the proportion of mortgagors with high LTV ratios and LTI ratios increases, an increasing number of mortgagors may become vulnerable to economic shocks. However, the LTV ratio and the LTI ratio only provide a certain amount of information about the vulnerability of borrowers. To gain a more complete picture, it is also important to analyse the borrowers' payment capacity in stressed situations (see the chapter Borrowers' cash flows). Households' financial wealth also plays an important role in their resilience, but FI cannot measure this dimension due to a lack of data.

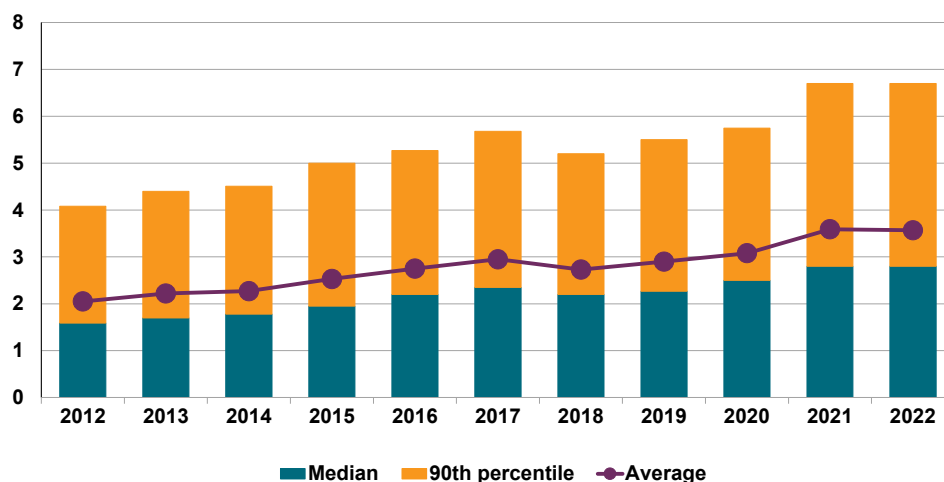
Unchanged LTV ratios among homebuyers

While housing prices have risen in recent years, the trend reversed in 2022 and at the time of the survey, housing prices were at about the same level as in the previous year. The average market valuation of new mortgagors' homes was also largely unchanged between the 2021 and 2022 samples. As in previous years, the market value differed between those who bought a new home and those who withdrew equity. Homebuyers, i.e. those who bought a new home, bought a home for an average of SEK 3.6 million, also unchanged from 2021 (see Diagram 7). For equity withdrawal borrowers, the market value of the property that constituted the collateral was SEK 4.5 million on average. This was slightly higher than in 2021.

¹⁹ In 2022, real wages (cyclical wages deflated by the consumer price index with a fixed interest rate, CPIF) fell by 5.1 per cent, and households' real disposable income decreased by 0.5 per cent. See *Konjunkturläget* (The Swedish economy), National Institute of Economic Research, December 2022.

7. Market values for new homebuyers

SEK million



Source: FI.

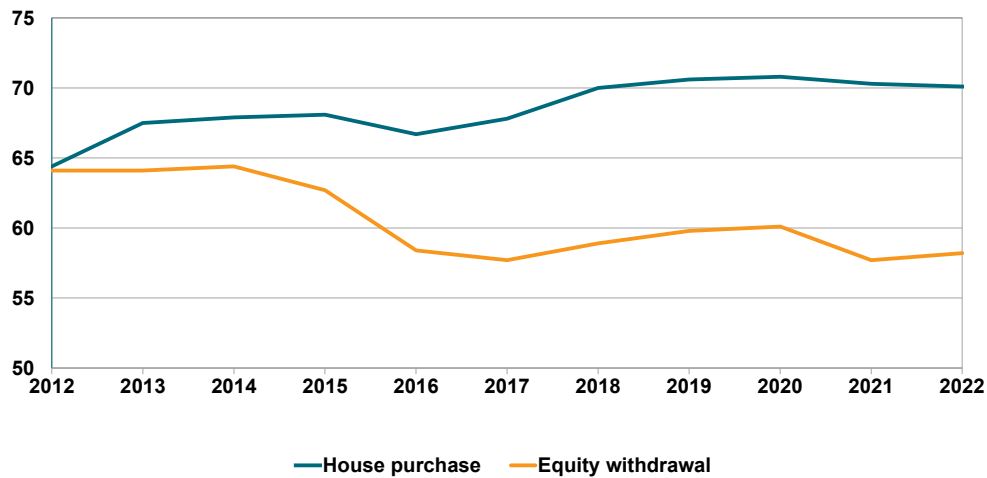
Note: Refers to housing purchases.

The average LTV ratio for new mortgagors in 2022 was 65 per cent, which was similar to the previous year. This was largely unchanged in all regions compared to the previous year. The LTV ratio increased slightly compared to 2021 for single-person households. As in previous years, there was a clear difference in the average LTV ratio between borrowers who bought a new home and those who withdrew equity (see Diagram 8).²⁰ Equity withdrawal borrowers had more expensive homes on average, while also having lower LTV ratios. As in the 2021 sample, their mortgage was 58 per cent of the value of the home on average, after the equity withdrawal. This compares to 70 per cent for homebuyers in 2022.

²⁰ When the increase in the mortgage is included in the LTV ratio for equity withdrawal borrowers.

8. Average LTV ratio by type of mortgage

Per cent



Source: FI.

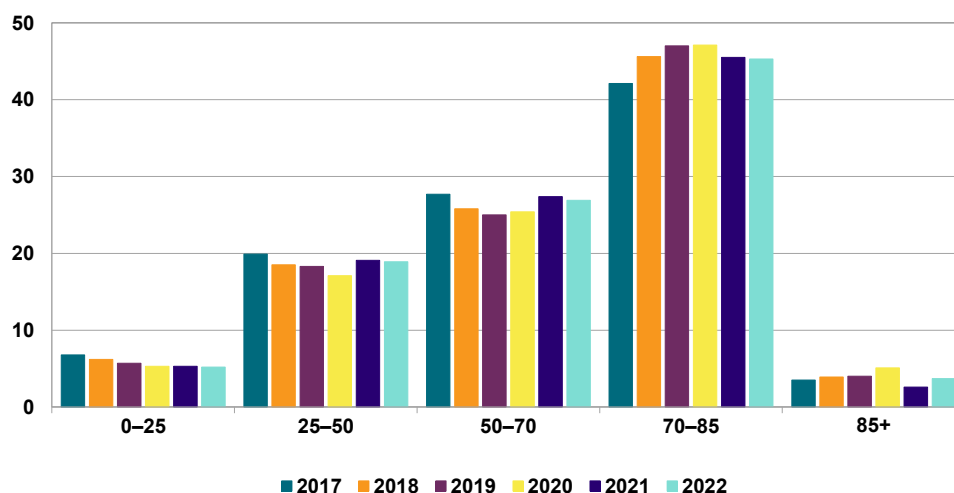
Note: The LTV ratio includes unsecured loans taken in connection with the mortgage with the same lender.

Approximately half of new mortgagors had an estimated LTV ratio above 70 per cent in 2022. This is about the same proportion as in previous years. The proportion of new borrowers with LTV ratios above 85 per cent increased by around one percentage point in 2022 (see Diagram 9).²¹ Of those who bought a new home, around six out of ten borrowers had an LTV ratio of more than 70 per cent. For equity withdrawal borrowers, the corresponding proportion was three out of ten.

²¹ The loan-to-value ratio includes mortgages and unsecured loans taken by borrowers with the same bank, when purchasing a home.

9. New mortgagors by LTV ratio

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank.

Young homebuyers continue to have the highest LTV ratios

New mortgagors in the youngest age group (under 30) had an average LTV ratio of 78 per cent in 2022. This was about 10 percentage points higher than the 31–50 age group, and almost twice as high as the oldest age group (over 65). This is because young borrowers are more likely to be homebuyers compared to other age groups, where bank switchers and equity withdrawal borrowers are more common. The LTV ratio remained roughly the same as in 2021 in almost all age groups, but for the over 65 age group it increased slightly.

The distribution of LTV ratios for different age groups is related to the purpose of the mortgage. As in previous years, most of those in the age group under 30 were homebuyers. At the same time, the proportion of older mortgagors who bought a home in 2022 increased by 6 percentage points to 46 per cent, meaning that the proportion of equity withdrawal borrowers among older people was lower than in 2021. Mortgagors who bought a new home generally had higher LTV ratios than those who chose to withdraw equity on an existing home, and so this contributes to an overall higher LTV ratio for the age group under 30. The fact that the LTV ratio then decreases with age may be due to the fact that borrowers at the beginning of their housing and professional careers often have limited savings to use as a downpayment and thus need to borrow more. Older borrowers have often made gains on previous house sales (due to value increases), made amortisation payments on previous loans, and have had more time to build up other savings.

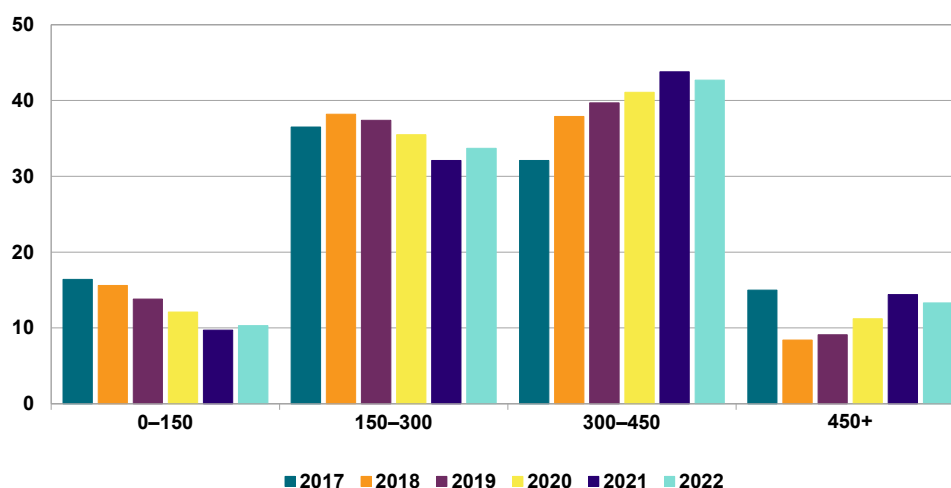
Lower LTI ratios after a long period of growth

The stricter amortisation requirement acts as a brake, aiming to prevent rising LTI ratios.²² While new mortgagors borrowed on average the same amount in 2022 as in the previous year, their incomes were higher on average.²³ Therefore, the average LTI ratio for new borrowers decreased from 327 per cent in 2021 to 321 per cent in 2022. This remains a high level from a historical perspective.

In the 2022 sample, the proportion of new borrowers with an LTI ratio above 450 per cent was slightly lower than in 2021 (see Diagram 10). Higher interest rates and an increase in the cost of living since the spring of 2022 may have affected how much households can – and want to – borrow. This may be one reason why borrowers have adjusted the size of their loans to expected future increases in interest rates and lower housing prices going forward.

10. New mortgagors by LTI ratio

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. The LTI ratio is calculated using gross income and total borrowing, including unsecured loans, loans with collateral other than a residential property, and utilised credit card credit and overdrafts.

The LTI ratio decreased regardless of the purpose of the loan

The average LTI ratio differed between homebuyers and equity withdrawal borrowers. The LTI ratio has been higher on average for homebuyers since 2017. The LTI ratio decreased in 2022 for both groups, but decreased more for borrowers

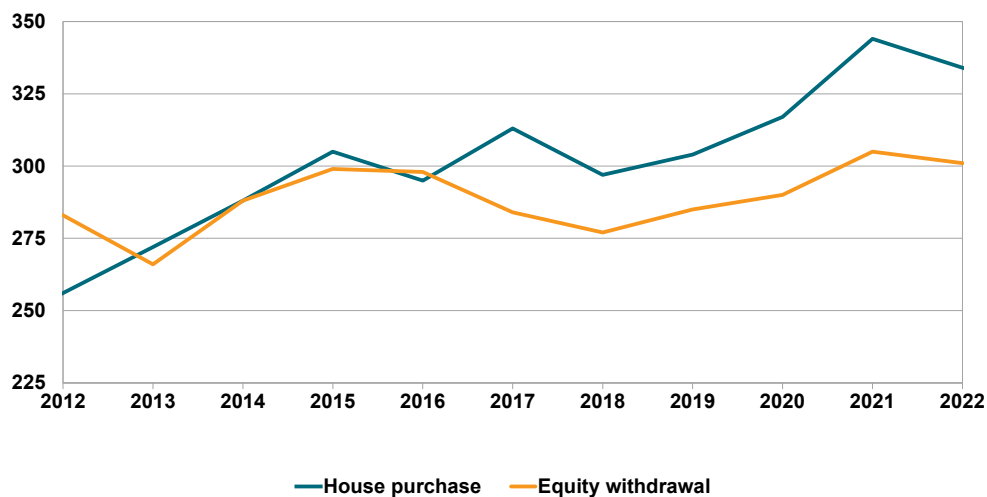
²² See Andersson, M. and Aranki, T. (2019) *Fewer Vulnerable Households after Stricter Amortisation Requirement*, FI Analysis 17, Finansinspektionen.

²³ This applied to both net (after tax) and gross (before tax).

who bought a new home. For these borrowers, the LTI ratio was around 334 per cent in 2022, compared to 344 per cent in 2021 (see Diagram 11).

11. Average LTI ratio by type of mortgage

Per cent



Source: FI.

Note: Refers to the gross LTI ratio.

The LTI ratio decreased most in Stockholm

The average LTI ratio increased in all regions between 2018 and 2021. However, the LTI ratio decreased slightly in all parts of Sweden in 2022. It decreased the most in the Greater Stockholm area, from 397 per cent in 2021 to 387 per cent in 2022. Although LTI ratios generally remained higher in the Greater Stockholm area than in the rest of Sweden, the proportion of new mortgagors with an LTI ratio above 450 per cent has decreased. Around 27 per cent of new mortgagors in the Greater Stockholm area had an LTI ratio above 450 per cent in 2022. The corresponding proportion in other regions was between 5 and 17 per cent.

The LTI ratio decreased in all age groups

After having increased for several years, the average LTI ratio decreased slightly in all age groups between 2021 and 2022. In particular, the average LTI ratio fell in the under 30 and the 51–65 age groups. It was also in these age groups that the LTI ratio increased the most over the 2018–2021 period. Young borrowers generally have higher LTI ratios than older borrowers, as they often have lower incomes and fewer savings toward a downpayment.²⁴ However, young borrowers' LTI ratios have also increased more rapidly than those of older borrowers over the last ten

²⁴ Even among those withdrawing equity, young borrowers have a higher LTI ratio on average compared to older borrowers because they have not had as long a period of income growth, nor have they had time to make amortisation payments on their loans to the same extent as older borrowers.

years. One reason for this is that housing prices have risen sharply in recent years. Borrowers buying a home for the first time need to fund a larger proportion of their purchase with loans compared to people who already own their home. Compared to other groups, young adults may therefore have to take increasing financial risks to buy a home.²⁵ As a result, LTI ratios have increased more for young borrowers than for other groups.

Slightly fewer highly leveraged households

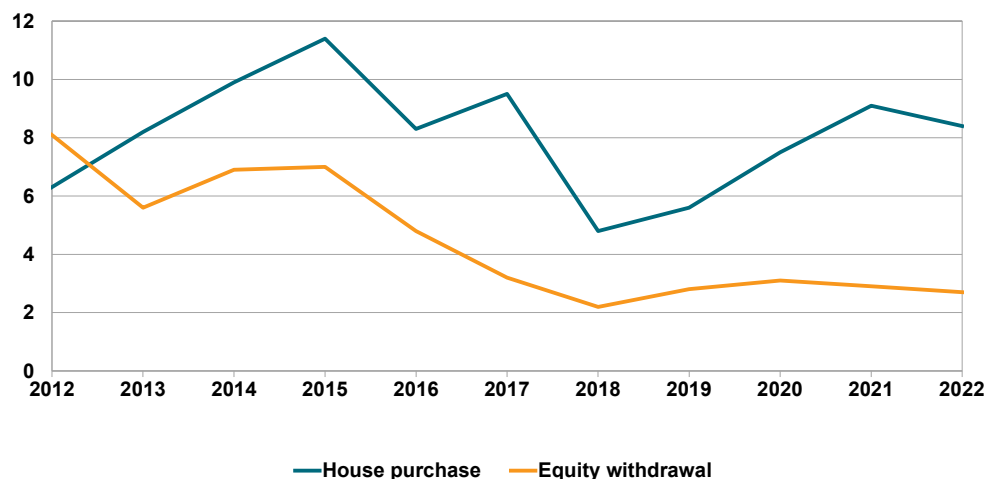
To summarise, the average LTV ratio for new mortgagors remained unchanged compared with 2021, while the average LTI ratio decreased slightly. The proportion of borrowers with both high LTI and high LTV ratios decreased slightly in 2022. Around 6 per cent of borrowers had both an LTV ratio above 70 per cent and an LTI ratio above 450 per cent.

Among homebuyers, the proportion with an LTI ratio above 450 per cent and an LTV ratio above 70 per cent increased over the 2012–2015 period, before the introduction of the first amortisation requirement in 2016 (see Diagram 12). This proportion then decreased and was further reduced by the stricter amortisation requirement. The proportion of new borrowers with an LTI ratio above 450 per cent and an LTV ratio above 70 per cent started to increase again from 2019. However, it decreased slightly between 2021 and 2022. The proportion in the 2022 sample was just over 8 per cent. The highest proportion of households with both an LTV ratio above 70 per cent and an LTI ratio above 450 per cent was noted in the Greater Stockholm area, where the proportion was just over 12 per cent in 2022. As in previous years, the proportion of highly leveraged people was highest among single-person households, under the age of 30. Among people living alone who bought a new home in 2022, just over 7 per cent had an LTI ratio above 450 per cent and an LTV ratio above 70 per cent. The corresponding proportion among cohabitants was just over 5 per cent.

²⁵ See Olsén Ingefældt, N. and Thell, V. (2019) *Young adults and the housing market*, FI Analysis 19, Finansinspektionen.

12. Proportion of borrowers with an LTV ratio of more than 70 per cent and an LTI ratio of more than 450 per cent, by mortgage type

Per cent



Source: FI.

Higher proportion of new homebuyers with variable interest rates

Borrowers can protect themselves against higher interest rates by fixing the interest rate on all or part of their mortgage. This provides greater predictability regarding future loan payments. The shortest fixed interest period, usually referred to as variable, is three months. The most common fixed interest periods offered by lenders are variable, as well as 1, 2, 3 and 5 years. The borrower can choose different fixed interest periods if the mortgage is divided into several parts. A weighted fixed interest period is calculated for each new mortgagor on the basis of all loan components.

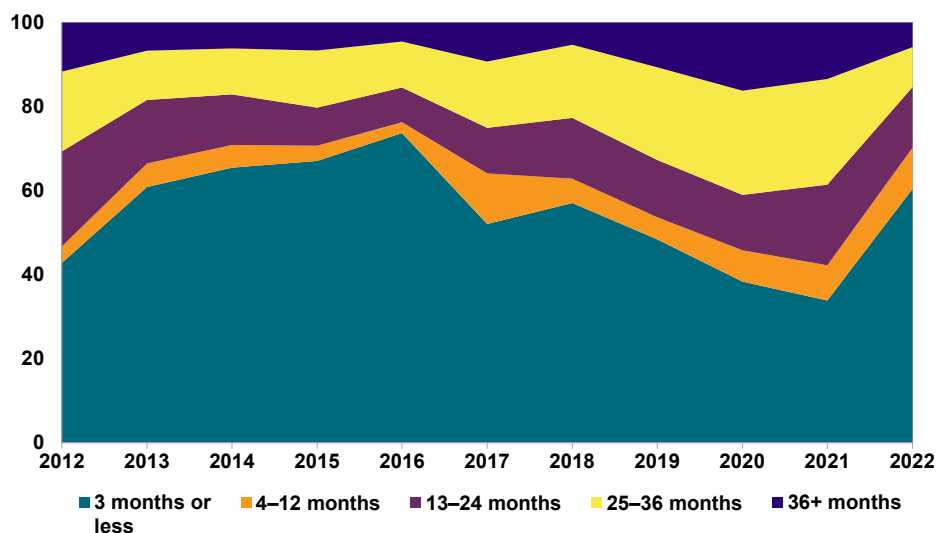
Among mortgagors who were homebuyers in 2022, 6 out of 10 had split their mortgage into more than one loan component. The proportion of borrowers whose mortgages are split into several parts has increased in recent years. The volume-weighted fixed interest period for the entire mortgage has been calculated using the size of each component for homebuyers.²⁶ Among homebuyers in the 2022 sample, 60 per cent had an estimated fixed interest period of 3 months (see Diagram 13). This was almost twice as high a share as in 2021. One possible explanation for why more people chose rates with shorter maturities may be that variable mortgage rates have recently been lower than mortgage rates with longer fixed interest periods. In addition, uncertainty about future interest rate rises due to high inflation means that

²⁶ There is not enough data available to calculate the corresponding fixed interest period for equity withdrawal borrowers.

fewer borrowers are choosing to fix their mortgage rate for longer when there are likely scenarios where interest rates will start to fall towards the end of the year.

13. Fixed interest period for new mortgages among homebuyers

Per cent



Source: FI.

Note: Refers to housing purchases. The fixed interest period is weighted (volume-weighted) for all loan components of the new mortgage.

The proportion of homebuyers with fully variable interest rates on their mortgages was around 60 per cent in 2022. This means that all loan components had a fixed interest period of 3 months. At the same time, the proportion of homebuyers with their entire mortgage fixed fell from 50 per cent to 20 per cent between 2021 and 2022. Around 20 per cent of borrowers had partially fixed their mortgages. This proportion has remained relatively unchanged in recent years.

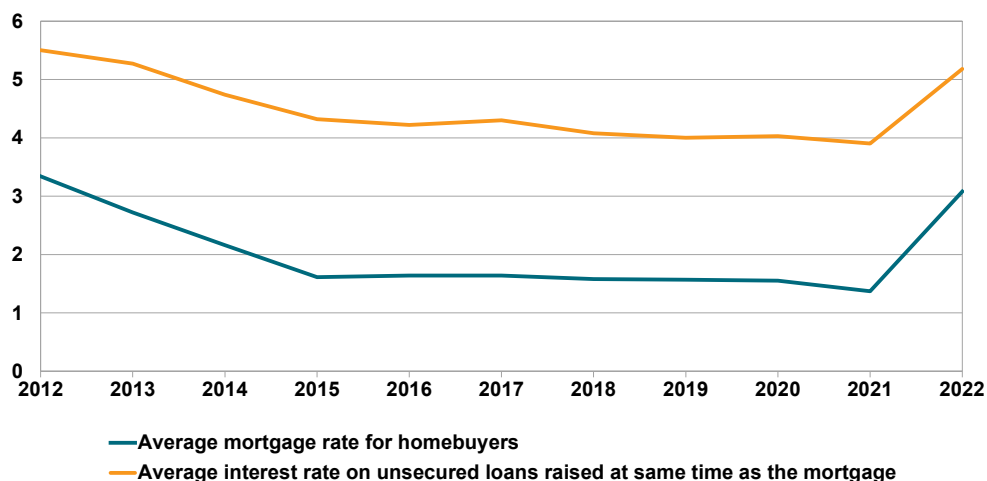
The average mortgage rate doubled

The average mortgage rate for homebuyers was 3.1 per cent in 2022 (see Diagram 14). This was more than double the value in 2021, when the average interest rate was 1.4 per cent. Compared to bank switchers, homebuyers had a slightly higher interest rate on average.²⁷ This may be due to the fact that bank switchers are often less leveraged in relation to the value of their home. A lower LTV ratio may result in better interest rate conditions with some lenders because of lower risk. For equity withdrawal borrowers, only the interest rate for the increase in the mortgage is available, meaning that it is not directly comparable to the interest rates for homebuyers and bank switchers.

²⁷ For equity withdrawal borrowers, the interest rate refers to the equity withdrawal itself and not to the mortgage as a whole, which does not make them directly comparable.

14. Average interest rates for mortgages and unsecured loans for new homebuyers

Per cent



Source: FI.

Note: Refers to housing purchases.

Higher share of income spent on interest payments

One way of measuring a borrower's payment capacity is to calculate how much of their disposable income they use to service their loans. This section presents loan payments in relation to borrowers' income. The interest-to-income ratio measures interest costs (after interest deductions) as a proportion of disposable income.²⁸ The average interest-to-income ratio for new mortgagors fell between 2012 and 2015. The ratio includes both mortgage interest costs and interest costs of other loans such as unsecured loans. The decline was mainly due to lower interest rates. The interest-to-income ratio since 2015 has remained relatively unchanged until 2021 (see Diagram 15). Interest rates rose sharply in 2022, meaning that borrowers have had to spend a larger proportion of their income on interest payments.²⁹ In 2022, the interest-to-income ratio was just under 10 per cent on average. This is more

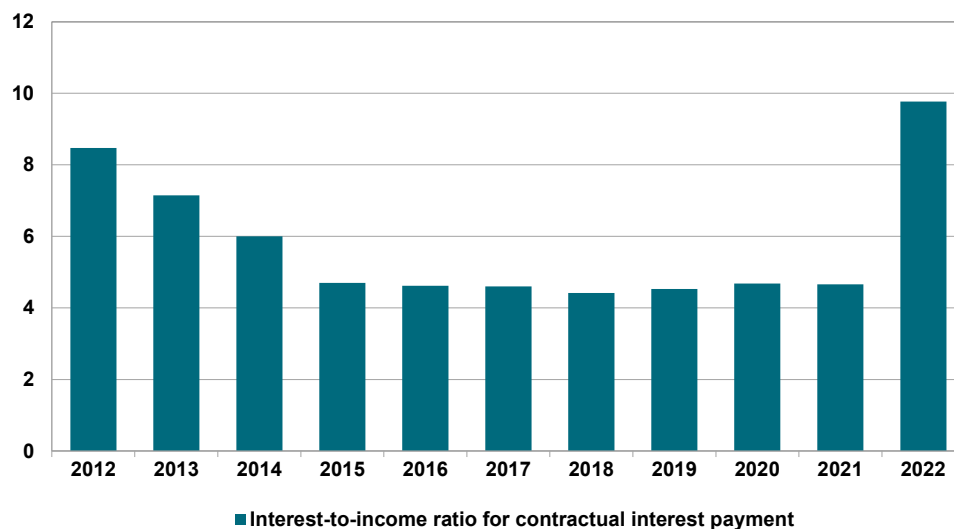
²⁸ A borrower can make an interest deduction for a loan's interest costs. The interest deduction is 30 per cent up to a capital income deficit (i.e. the difference between capital income and interest expenses) of SEK 100,000, and thereafter 21 per cent on the excess amount. Borrowers can make deductions for the standard nominal interest payments that are made during the year. For a review of interest deductions, see Almenberg, J. and Andersson, M. (2020) *Interest rate deductions and households' loans*, FI Analysis 25, Finansinspektionen.

²⁹ The interest deduction is affected when interest rates rise, as it is reduced from 30 to 21 per cent on interest expenses above SEK 100,000. We do not have data on household capital income and are therefore unable to calculate exactly how mortgagors are affected in the new interest rate environment. If we only consider information about the loans in the survey, the proportion of mortgagors at risk of hitting the ceiling for the interest deduction has increased from just under an estimated 4 per cent in 2021 to 31 per cent in 2022.

than twice the amount compared to 2021, and the highest average interest-to-income ratio since FI started the survey.

15. Average interest-to-income ratio for mortgages and other loans

Per cent



Source: FI.

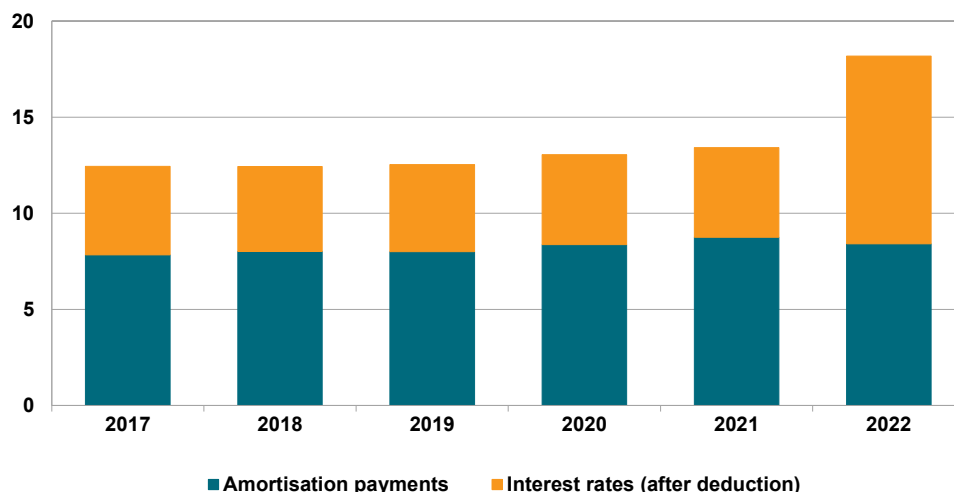
Note: Refers to home purchases, equity withdrawal and change of bank. The interest-to-income ratio includes interest costs (after interest deductions) for total loans as a proportion of the borrowers' disposable income.

The calculated debt service ratio (DSR) estimates the proportion of income that the borrower pays in interest and amortisation payments.³⁰ The average debt service ratio among new mortgagors in 2022 was just over 18 per cent (see Diagram 16). This is an increase of almost 5 percentage points compared to 2021. The proportion of borrowers with an estimated DSR above 30 per cent of disposable income increased from just under 3 per cent in 2021 to just over 9 per cent in 2022. In a similar way to the interest-to-income ratio, this is due to the higher interest rates in 2022.

³⁰ The debt service ratio would be lower in cases where borrowers are granted an amortisation exemption. For instance, the interest-to-income ratio and the DSR are the same for borrowers who do not make amortisation payments on their loans.

16. Average DSR for mortgages and other loans, split into interest and amortisation payments

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. The DSR includes interest payments on total loans, actual amortisation payments on the new mortgage in the sample, and amortisation payments on other loans according to standardised calculations, as a proportion of borrowers' disposable income. The DSR does not include repayments on additional mortgages to the ones included in the sample.

Proportion of unsecured loans for house purchases still low, but loans slightly higher

Some lenders allow borrowers with new mortgages to take out an unsecured loan at the same time as the mortgage. Since the purpose of this unsecured loan is to partially finance the purchase of the home, it is in fact an unsecured housing loan.³¹

Around 4 per cent of new homebuyers in 2022 supplemented their mortgage with an unsecured loan from the same lender (see Diagram 17). This was about the same proportion as in 2021, but lower than in 2012–2020, when the proportion averaged just over 7 per cent. The proportion of unsecured loans among young homebuyers was almost 5 per cent in 2022. Among homebuyers identified as first-time buyers, the proportion with unsecured loans fell from 8 per cent in 2021 to 5 per cent in 2022.

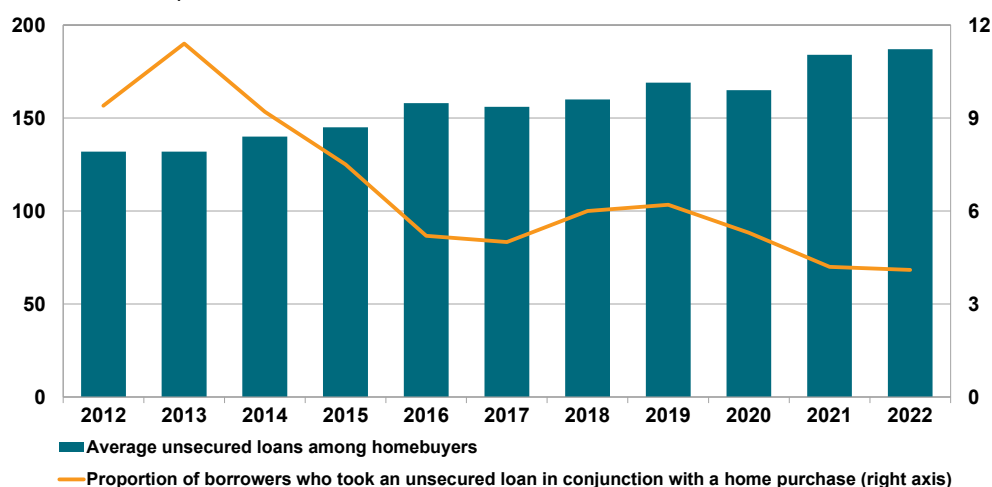
The fact that fewer people took unsecured loans from the mortgage bank does not necessarily mean that fewer borrowers are using unsecured loans to partially finance the purchase of a home. Borrowers may have increasingly taken out an unsecured loan for a home purchase from another lender, for example, a specialised

³¹ As unsecured loans from the same lender can be traced to the specific mortgage, they are included in the calculation of the borrower's LTVratio.

bank. Our surveys of Swedish consumer loans show that many borrowers take large, unsecured loans that may have been used to buy a home.³²

The average loan was around SEK 187,000 in 2022 among homebuyers who took unsecured loans in connection with the new loan for a house purchase.³³ Compared to 2012, when FI began the survey, the average unsecured loan – in SEK – was 42 per cent larger in 2022.

17. Unsecured loans taken at the same time as making a house purchase SEK thousand, per cent



Source: FI.

Loans in tenant-owner associations affect borrowers

Since 2017, FI has been collecting data on the loans of tenant-owner associations (TOAs) for new mortgagors who have taken out a mortgage with a tenant-owned apartment as collateral. These associations' loans represent indirect debts for owners of tenant-owned housing.³⁴ The new interest rate environment also affects the finances of tenant-owner associations. With higher interest rates, these

³² See the report *Swedish Consumer Credit 2022*, December 2022, FI, for a description of the Swedish consumer loan market, including the market shares of niche banks over time. An English translation of the summary is available at www.fi.se.

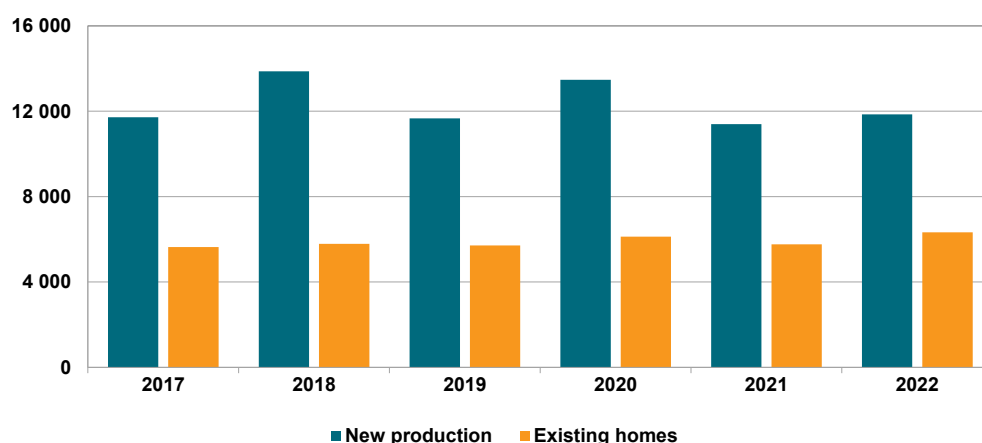
³³ The median loan was SEK 162,500 and 10 per cent of the loans exceeded SEK 342,250.

³⁴ Several amendments to the Tenant-Ownership Act (1991:614) entered into force on 1 January 2023. The purpose of these amendments is to strengthen legal protection for people who buy or own tenant-owned housing: see the Government bill Tryggare bostadsrätt 2021/22:171 (Securer tenant-owned housing 2021/22:171). These amendments require the annual reports of TOAs to contain specific information that is useful to the association's stakeholders and tighten the requirements for the financial plan and the certifiers who review the plan (applicable starting in 2024).

associations' interest expenses will increase.³⁵ This means that some associations may need to increase their fees in order to meet the interest payments on their loans, while also keeping the same maintenance standards and amortisation rates.³⁶ Just under 4 per cent of mortgagors in tenant-owned housing mortgaged an apartment in a newly produced tenant-owner association in 2022. This is the same proportion as in 2021.

Loans among tenant-owner associations have remained stable over the years during which FI has collected data, averaging around SEK 6,000 per square metre. The average in 2022 was SEK 6,600 per square metre, representing an increase of just under 10 per cent from 2021. Borrowers in newly formed TOAs had about twice as much debt per square metre on average compared with TOAs in existing stock (see Diagram 18).

18. The average debt of tenant-owner associations per square metre SEK



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank for borrowers in tenant-owned housing.

We estimate borrowers' proportion of the associations' debt using a simplified method. The result is included in the calculation of borrowers' LTI ratio.³⁷ The average LTI ratio for borrowers in existing associations rose by about 15 per cent in 2022 when the association's loans are included in the LTI ratio for owners of tenant-owned housing. In newly formed associations, the gross LTI ratio increased by 39 per cent on average when indirect liabilities are included. This is because the

³⁵ The size of the increase in interest expenses depends on what proportion of the associations' loans are variable or fixed.

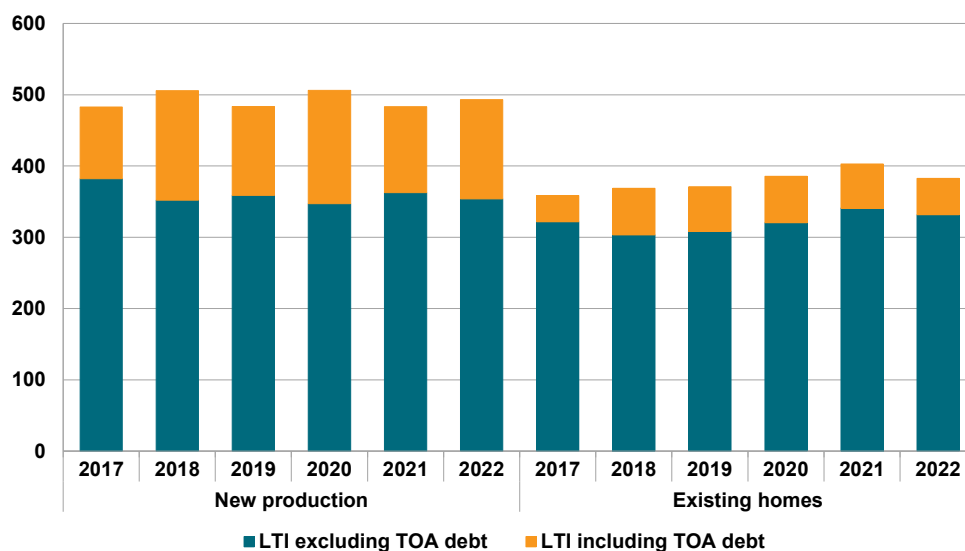
³⁶ Mortgage interest costs are deductible for individual mortgagors. Tenant-owner associations may not deduct their interest costs.

³⁷ Information on the TOA's interest-bearing assets and liquid assets is unavailable in our sample, as is the tenant-owned housing's participatory share of fees to the association. Therefore, the calculation uses only the product of the reported debt per square metre and the area of the home as an estimate of the tenant-owner's indirect debt.

debt per square metre in such associations is significantly higher on average (see Diagram 19).

19. LTI ratio for owners of tenant-owned housing, including the proportion of the association's debts, by new builds and existing stock

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank for borrowers in tenant-owned housing. The debt to the TOA is a simplified calculation.

Fact box – Higher housing costs may affect housing prices

Last year's mortgage report *Den svenska bolånemarknaden 2022* (The Swedish mortgage market 2022) provided a description of how a user cost model can be adapted to our household data from the mortgage survey. The price a household is willing to pay for a home is expressed as:

$$(1) \text{ Price} = \frac{\text{Housing cost}}{\text{User cost}}$$

The price is determined by the costs incurred by the household in owning the home (user cost) and the proportion of disposable income that the household spends on housing (housing cost). This price is affected when the user cost changes. The size of such a price effect is dependent on the extent to which the household simultaneously chooses to change the proportion of income spent on the housing cost. For a constant user cost, the housing price also varies if households' preference for the proportion of income spent on housing changes. Households are assumed to be rational and forward-looking, and plan to use their home for a long time when calculating the cost of buying a home. The user cost should therefore reflect households' long-term expectation of the housing cost.

We have calculated the user cost and the housing cost for individual households from the 2011–2022 mortgage surveys, using a total of 166,000 households. In 2022, the user cost and the housing cost increased significantly for households that bought housing. This was mainly due to sharply rising interest rates and interest rate expectations, but also due to high electricity prices to some extent. Thus the proportion of income that households needed to spend on housing costs increased from 28 per cent in 2021 to 39 per cent in 2022. This was by far the highest proportion during the period we used in our calculations. As households chose to increase their housing costs, major elements of the price decline that a higher user cost would otherwise have led to were dampened according to equation (1). We are setting up three possible scenarios to test the effects of possible future developments on the price households are able to pay for housing, using the user cost model.

Scenario 1: In our model, households' expectation of the long-term mortgage rate in 2022 was 4.1 per cent on average. Here, we assume that each household's expectation increases by a further 1 percentage point. It is also assumed that households cannot increase the proportion of income spent on housing still further. The entire cost of the higher interest rate thus falls on the price that households are willing to pay for a house.

Scenario 2: Household expectations of long-term electricity prices are increased by 25 per cent.³⁸ Again, we assume that households cannot increase the housing cost so that the entire cost falls on the price of the home.

Scenario 3: The user cost for housing remains unchanged at the 2022 level. Generally high and persistent inflation means that households will have to reduce the proportion of income spent on housing to the proportion spent on housing in 2021.

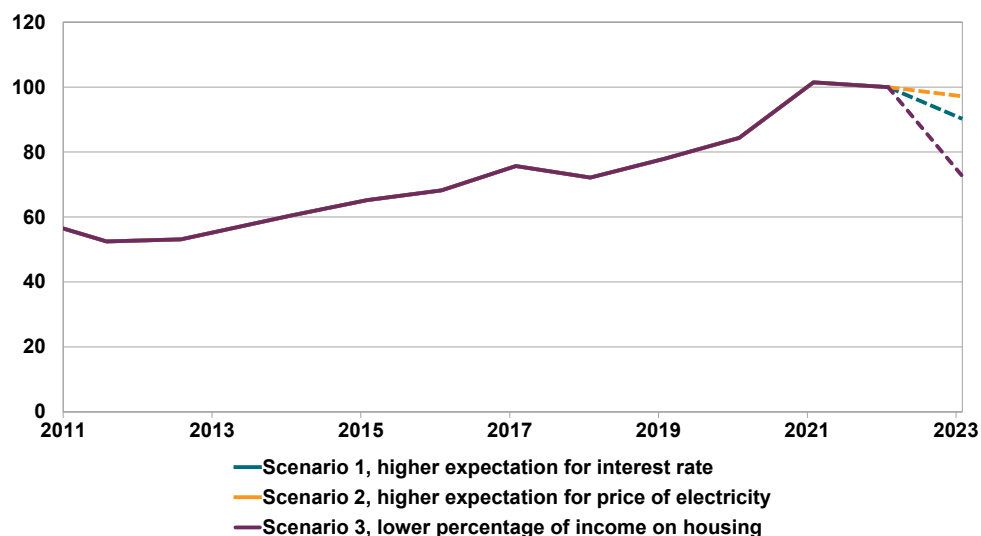
Developments in the scenarios are shown in Diagrams 20 and 21 as an average for all households included in the calculations. Historical price developments are represented by average housing prices in the mortgage survey, and we designate the outcome period for the scenarios as 2023. In the model, the higher interest rate expectation leads to households being prepared to pay almost 10 per cent less for a home, for both single-family homes and tenant-owned housing. A higher expectation of the future price of electricity means that households buying a single-family home are expected to pay around three per cent less, while the impact on the price of tenant-owned housing is small at -0.4 per cent. This is natural as the cost of electricity is a larger part of the user cost for single-family homes than for tenant-owned housing. The largest price effect occurs when we reverse the proportion of income that households spend on housing costs back to the 2021 level. Households wanting to buy single-family homes would then have to reduce the price they can pay by 27 per cent, and households looking for tenant-owned housing would have to reduce the price they can pay by almost 17 per cent.

³⁸ This means that the price increases to SEK 1.82 per kWh and SEK 2.40 per kWh in electricity zones 3 and 4 respectively.

The households considered here generally bought their homes in the second quarter of 2022 or at the beginning of the third quarter. Therefore, mid-2022 can be seen as a starting point for the price effects we have calculated. Prices of single-family homes fell by 13 per cent and prices of tenant-owned housing by 8 per cent between mid-2022 and year-end 2022/2023.³⁹

20. Outcome scenarios, single-family homes

Per cent, Index 2022 = 100

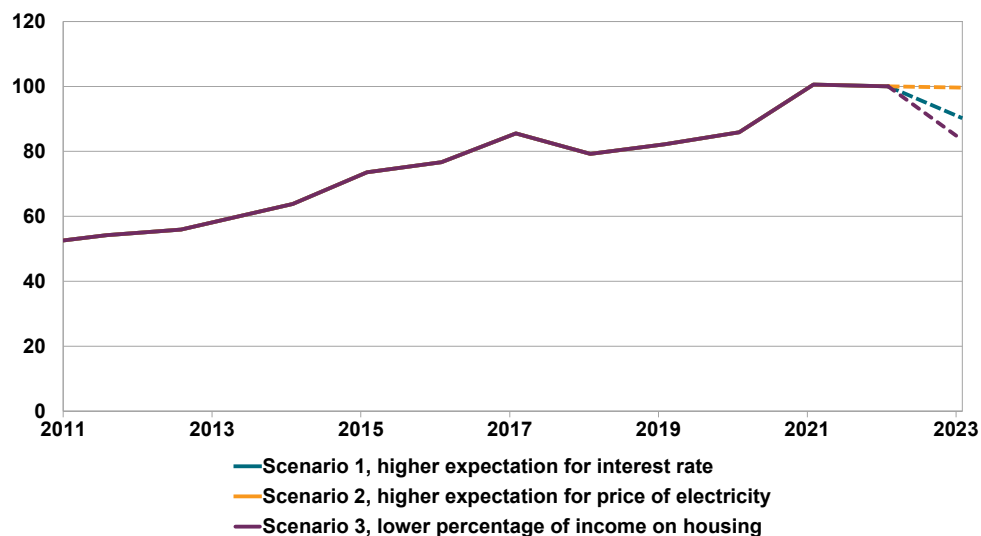


Source: FI.

Note: Historical price development according to average prices in the mortgage survey.

21. Outcome scenarios, tenant-owned housing

Per cent, Index 2022 = 100



Source: FI.

³⁹ According to the Valueguard index.

Note: Historical price development according to average prices in the mortgage survey.

Amortisation payments

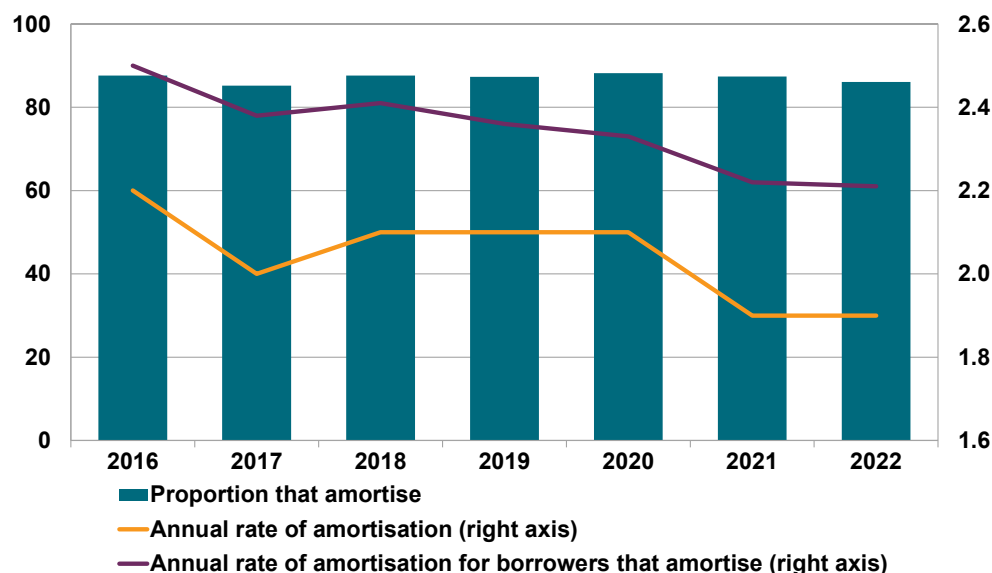
Borrowers gradually reduce their loans by making amortisation payments on them. This reduces the LTV ratio and the LTI ratio. The proportion of new mortgagors who make amortisation payments has increased since FI introduced its amortisation requirements. In 2022, the proportion of new mortgagors who made amortisation payments was almost unchanged compared to 2021. The average amortisation rate also remained unchanged between the years.

Amortisation rate remains unchanged

Just over 86 per cent of new borrowers in 2022 made amortisation payments on their mortgages (see Diagram 22).⁴⁰ The average amortisation rate for all new mortgagors was 1.9 per cent. This is the same level as in 2021, but slightly lower than in previous years. One explanation for this is that a slightly smaller proportion of new mortgagors made amortisation payments in 2022. The average amortisation rate among mortgagors who made amortisation payments was 2.2 per cent in 2022, and about half made amortisation payments of 2 per cent or more.

22. Proportion of new mortgagors who make amortisation payments, and annual amortisation payments

Per cent, Per cent



Source: FI.

⁴⁰ This proportion relates to mortgagors who have agreed on amortisation payments. The other 14 per cent may choose to make lump sum amortisation repayments on loans without a fixed term, but we cannot measure this.

Note: Refers to home purchases, equity withdrawal and change of bank. The amortisation rate refers to borrowers' total amortisation payments on mortgages in the sample.

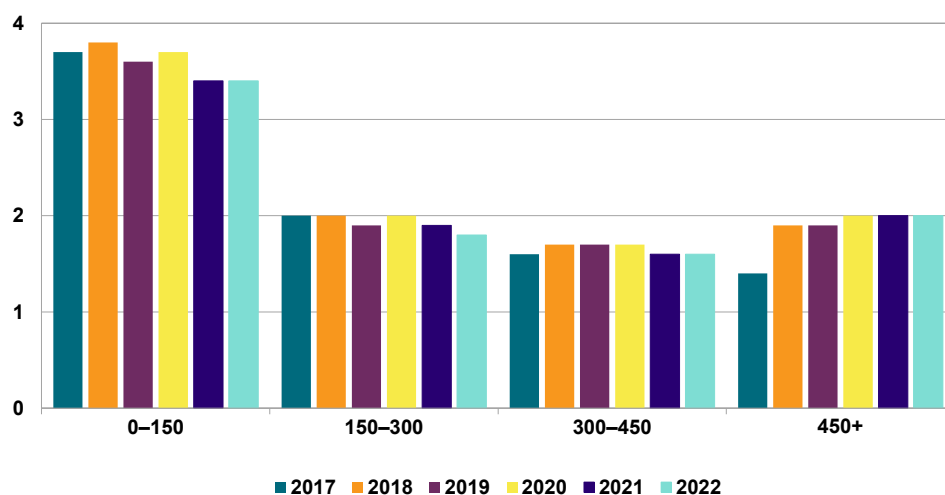
New, low leveraged mortgagors are not covered by the amortisation requirements. And among mortgagors subject to the amortisation requirements, some may have been granted an exemption by their bank under the existing exemption rules.⁴¹

Borrowers with a low LTI ratio had the highest amortisation rate

Borrowers with the lowest LTI ratio, below 150 per cent of gross income, had the highest amortisation rate on average (see Diagram 23). At the same time, just over 23 per cent of mortgagors in this group did not make amortisation payments at all. Although the amortisation rate for this group was higher, amortisation payments measured in SEK were not higher. In the group with an LTI ratio above 450 per cent, the average amortisation rate in 2022 was around 2 per cent. In this group, around 93 per cent of borrowers made amortisation payments.

23. Amortisation rate as a proportion of loans, by LTI ratio

Per cent



Source: FI.

⁴¹ Households that would normally make amortisation payments in accordance with the amortisation requirement because of their loan-to-value ratio or loan-to-income ratio, or both, may be exempt from amortisation payments based on the exemption rules set out in the amortisation requirement. This exemption is available to borrowers with new loans that are created when an existing loan is switched from one bank to another. In this case, the borrower is able to keep their original amortisation terms and conditions. A borrower who acquires a new build can have a break from amortisation payments for five years, provided that this is approved by the lender. Banks also have the option of granting exemptions from the amortisation requirements for equity withdrawal that were issued before 1 March 2018. The borrower then makes amortisation payments on at least 10 per cent of the amount of the equity withdrawal rather than making amortisation payments on the entire loan in accordance with the amortisation requirements.

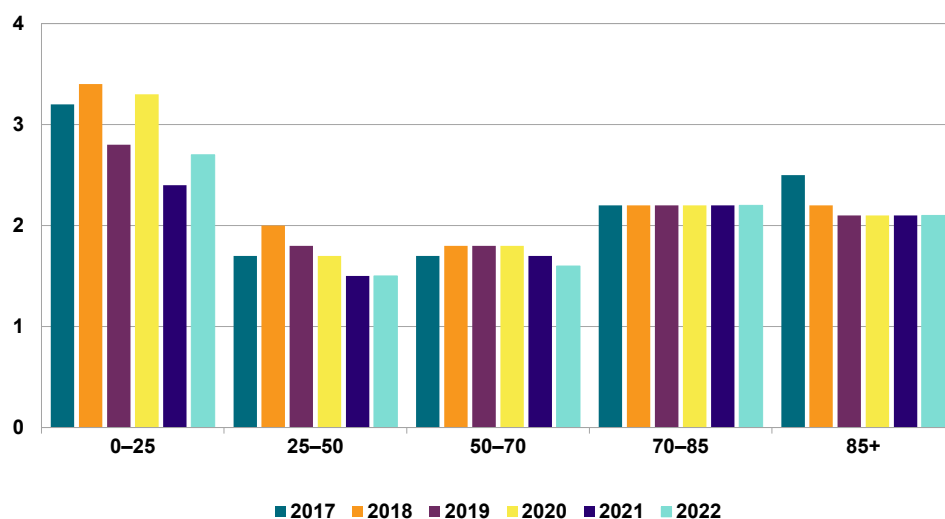
Note: Refers to home purchases, equity withdrawal and change of bank. The amortisation rate refers to borrowers' total amortisation payments on mortgages in the sample. The LTI ratio is calculated using gross income. Mortgagors who did not make amortisation payments are also included in the calculation of the average amortisation rate.

Few borrowers with low LTV ratios made amortisation payments

The average amortisation rate remained highest for the group of borrowers with the lowest LTV ratio (see Diagram 24). The high amortisation rate among people who made amortisation payments can be explained – in the same way as for the LTI groups – by the fact that the amortisation payments are large in relation to the size of the loan. About half of new mortgagors had an LTV ratio of 70 per cent or more. Almost all borrowers in this group made amortisation payments. The average amortisation rate was just over 2 per cent and has remained so in recent years.

24. Amortisation rate as a proportion of loans, by LTV ratio

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. The amortisation rate refers to borrowers' total amortisation payments on mortgages in the sample. Mortgagors who did not make amortisation payments are also included in the calculation of the average amortisation rate.

Amortisation payments more common among young mortgagors

The average amortisation rate among new mortgagors in the 18–30 age group was slightly higher than in other age groups. This is because almost all of the youngest borrowers made amortisation payments. Among older mortgagors, a higher proportion did not make amortisation payments. If we compare the amortisation rate for mortgagors who actually made amortisation payments, the average amortisation rate was instead highest among borrowers aged 50 and over. This is

because these age groups often have both smaller mortgages and lower LTV and LTI ratios, which results in a higher amortisation rate in cases where the borrower makes amortisation payments. The size of repayments relative to income was highest for the youngest borrowers. The proportion was just over 8 per cent on average in 2022 standing at between 1 and 3 percentage points higher than in other age groups. The proportion is higher among younger people, as a higher proportion of borrowers make amortisation payments. Young people also have lower incomes, and a higher proportion of young people live alone compared to other age groups.

Mortgagors with high LTI ratios made the most amortisation payments in relation to their income

The average monthly amortisation payment among borrowers who made amortisation payments was just under SEK 4,000 in 2022. This figure is roughly the same as in 2021.⁴² The median amortisation payment was SEK 3,100, and one in ten new mortgagors made amortisation payments of more than SEK 7,300 per month.

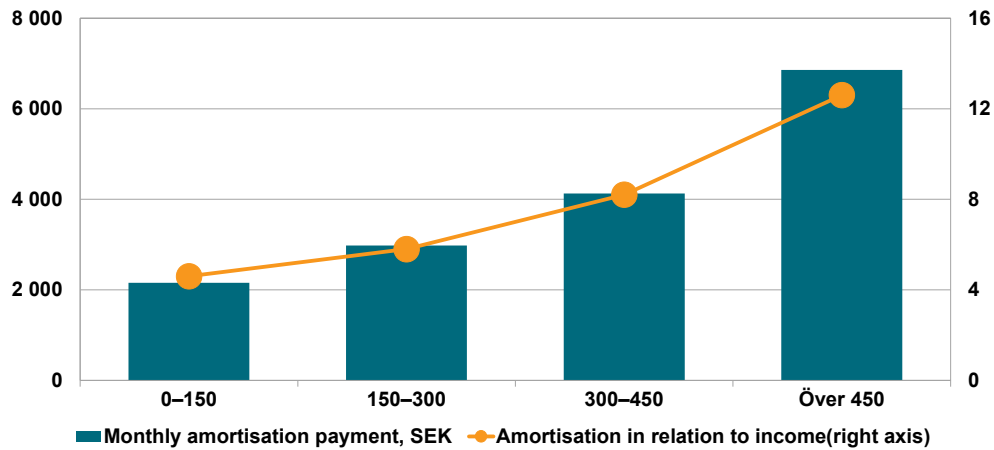
On average, amortisation payments for new mortgagors amounted to 6.6 per cent of disposable income in 2022. This was 0.4 percentage point lower than in 2021. Excluding mortgagors who made no amortisation payments, the average amortisation payment in relation to income was just under 8 per cent in 2022.

The average amortisation payment was just over SEK 6,800 in the group of borrowers with an LTI ratio above 450 per cent (see Diagram 25). In relation to borrowers' income, this corresponded to around 13 per cent. This is a higher amortisation payment both in Swedish kronor and as a proportion of income compared to households with smaller loans in relation to their income. Amortisation payments as a proportion of income also increased slightly for borrowers with higher LTV ratios.

⁴² When mortgagors with SEK 0 in amortisation payments are excluded.

25. Amortisation payments and amortisation rate as a proportion of loans,
by LTI ratio

SEK, per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. Refers to the average of new borrowers' total mortgage amortisation payments on the mortgage in the sample.) Mortgagors who made amortisation payments of SEK 0 are excluded.

Borrowers' cash flows

Higher interest rates and rising costs mean that borrowers who took out mortgages in 2022 had a smaller monthly surplus than those who took out their loans in previous years. The worsened initial position also means that these borrowers are more vulnerable to subsequent increases in costs and interest rates. Economic developments also mean that vulnerability to loss of income has increased. Between 13 and 17 per cent of borrowers living alone are expected to experience negative cash flows in the event of a loss of income.

If their financial circumstances deteriorate, mortgagors' margins between income and payments decrease. For some, it decreases so much that their income is insufficient. Borrowers with deficits may find it difficult to repay their loans unless they have other assets. We assess borrowers' ability to pay using a simplified cash flow calculation based on their income after tax. From income, we deduct loan payments (amortisation payments plus interest after tax deductions) for existing and new loans, as well as living and housing costs on the basis of standardised figures (see Appendix 1. Cash flow calculation for a more detailed explanation). Our calculation does not show the mortgagor's actual expenses at the time they took out the loan, but an estimate of certain expenses.

If borrowers run a deficit and stop paying their loans, this can ultimately lead to banks incurring credit losses. A deficit in our calculations does not necessarily mean credit losses for the banks. Borrowers may, for instance, use any savings they may have, be granted a temporary break from amortisation payments or choose to live more frugally for a period. Conversely, even borrowers without a deficit may have to make significant adjustments in worsening economic situations, such as by reducing their savings or consumption. Our cash flow calculation does not consider such effects, but focuses solely on the ability of new mortgagors to pay interest and make amortisation payments.

As for last year, we have excluded households with co-signers who are not part of the household itself. We also exclude people who have borrowed to buy a holiday home, as we do not know the costs for the primary residence when they purchased the holiday home.

More mortgagors with deficits than last year

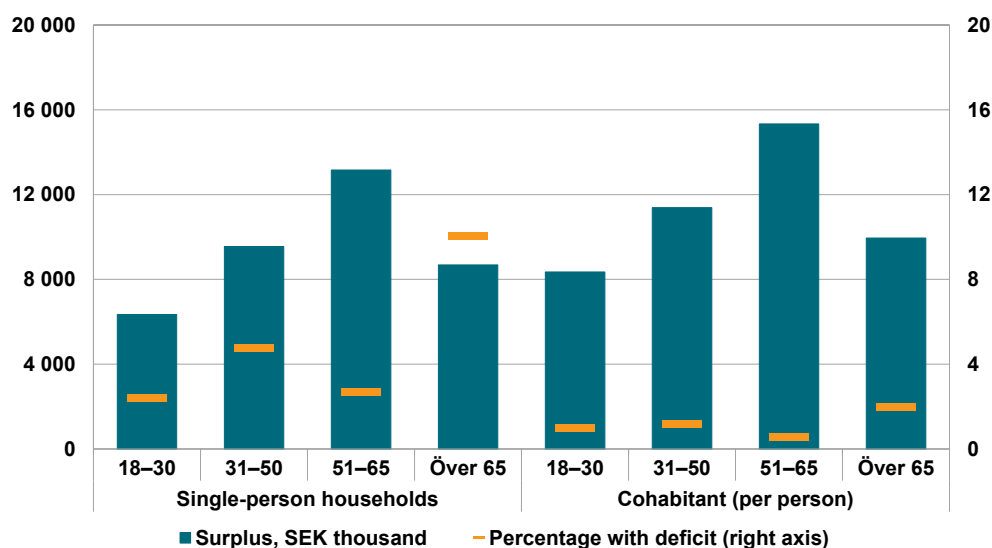
Mortgagors' monthly surplus is very much reliant on the number of people in the household. For instance, a household with two adults usually has two incomes but not twice the expenses. Our simplified cash flow calculation shows that the average surplus increased year on year between 2017 and 2021, for both people living alone and cohabitants. This trend was bucked in 2022, when the average surplus

decreased instead. This is mainly because the standardised costs, which are adjusted for CPIF⁴³ inflation, and contractual interest rates were higher than in previous years. As in previous years, the youngest and oldest borrowers – among both people living alone and cohabitants – had the lowest average monthly surpluses (see Diagram 26). This is because they often have lower incomes. Although surpluses were lower in 2022 compared to the previous year, our simplified cash flow calculations suggest that mortgagors generally still had a margin that would allow them to cope with unexpected expenses.

According to our estimates, the proportion of mortgagors in deficit was higher in 2022 compared to the previous year. The highest proportion of deficits for both people living alone and cohabitants was in the group aged 65 and over. And the biggest increase was in the group of people living alone aged 65 and over – from 4 to 10 per cent.

26. Monthly surplus per person in different age groups for people living alone and cohabitants

SEK and per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. Refers to the average monthly surplus at different interest rate levels for borrowers' total loans.

Fact box – Changes in standardised costs and stressed mortgage rates

As part of the survey, we ask banks to answer in-depth questions about mortgagor credit checks. Banks perform a discretionary income calculation as part of the credit check process. The discretionary income calculated by banks is based on actual income and expenditure as far as possible. Banks also use standardised

⁴³ Consumer price index with a fixed interest rate

figures to estimate certain costs, such as the cost of living and running the property. Standardised figures vary between banks, particularly for the individual components. There is less difference between the banks if all cost components used by the banks are taken into consideration. Banks use a stressed mortgage rate that is higher than the agreed interest rate in order to ensure that the borrower is able to cope with higher interest costs. Until recently, the average variable interest rate for new mortgages has been around 1.5 per cent in recent years. During the same period, the average stressed mortgage rate has been between 6 and 7 per cent, i.e. significantly higher than the actual mortgage rate faced by new mortgagors.⁴⁴

Mortgage rates have risen rapidly in the latter part of 2022. At the same time, the sharp rise in inflation has led to higher living costs for households. High electricity prices are also driving up operating costs, particularly for homeowners. Borrowers' ability to pay can be affected when the economic situation changes. The banks may therefore need to review their credit checks of new mortgagors by adjusting standardised figures and stressed mortgage rates, for example.

All lenders included in the survey have increased the standardised amounts for living or operating costs in 2022. Half of the lenders report that they have implemented increases beyond the annual review due to the current economic situation.⁴⁵ At the same time, 5 out of 8 lenders indicate that they intend to make further adjustments to the standardised costs in early 2023. All banks increased the standardised figures for the cost of living in the course of 2022. Half of the banks increased the standardised operating figure for single-family homes. Among these, the average cost increased by just over SEK 500 per month, or 14 per cent. 5 out of 8 banks increased the standardised operating figure for tenant-owned housing. Among these, the average cost rose by SEK 260, or 53 per cent.⁴⁶

The majority of lenders state that the stressed mortgage rate has been revised as a result of the change in interest rates in the mortgage market. 5 out of 8 lenders have increased their stressed mortgage rate in 2022. The average stressed mortgage rate among the banks in the survey was 6.4 per cent, an increase of 0.4 percentage point compared to the previous year. Despite the increases, the average stressed mortgage rate is still lower than in 2015–2020, when it was closer to 7 per cent.

⁴⁴ Instead, the difference between the stressed interest rate and the actual contracted interest rate was historically low in the latter part of 2022.

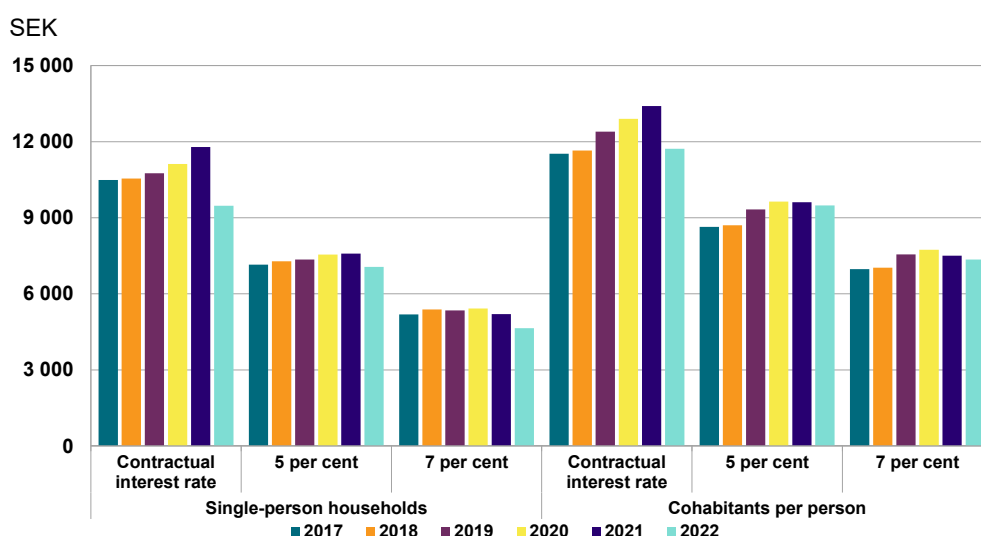
⁴⁵ Banks generally review their standardised costs annually, regardless of the economic situation.

⁴⁶ The large percentage increase for tenant-owned housing is due to the small sums, as well as the fact that one institution has introduced a standardised operating figure for tenant-owned housing in 2022.

Lower surplus at contractual interest rate

To assess borrowers' resilience, we calculate the cash flow situation at different interest rate levels.⁴⁷ We see that the average surplus for both people living alone and cohabitants was lower at the contractual interest rate, i.e. the interest rate applicable at the time the contract was signed (see Diagram 27). At the same time, the surpluses at 5 and 7 per cent interest rates remain relatively unchanged from last year. This is to be expected, as mortgagors are very similar to last year's sample in terms of income and loan size. The deterioration in the initial monthly surpluses is mainly due to higher interest rates, therefore.

27. Monthly surplus per person for people living alone and cohabitants at different interest rate levels



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. Refers to the average monthly surplus at different interest rate levels for borrowers' total loans.

Higher proportion of mortgagors with deficits in 2022

The proportion of mortgagors who would have a deficit at the agreed mortgage rate was just under 4 per cent for people living alone in 2022 (see Diagram 28). This was about 2 percentage points more than last year. And for cohabitants, the proportion with a deficit was 1 per cent. In both cases, this was double the proportion of last year. The higher proportion of people with deficits who live alone or are cohabiting is due to higher standardised costs and higher contractual interest rates.

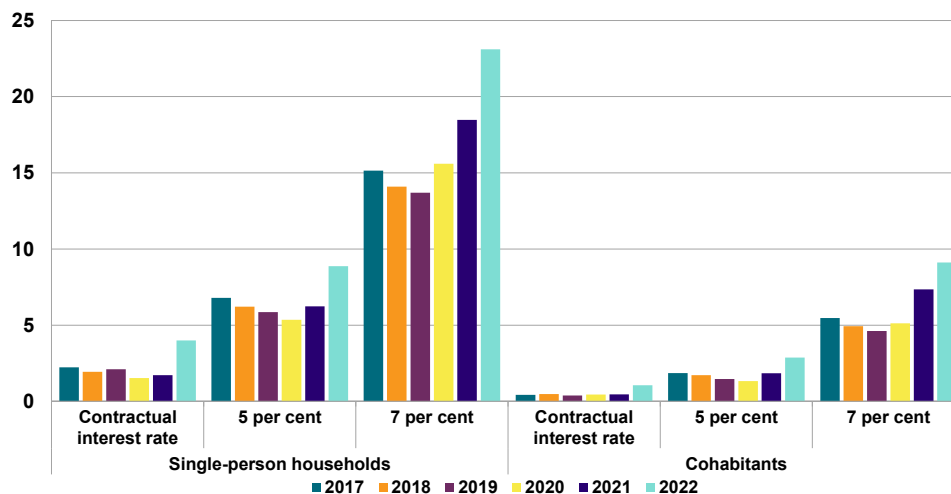
At a mortgage rate of 5 and 7 per cent, the proportion of people with deficits who live alone would be around 7 and 23 per cent respectively. For cohabitants, the

⁴⁷ We have not taken into account the fact that a large proportion of mortgagors fix their interest rates. The cash flow test therefore does not provide a snapshot of the number of borrowers that would actually have a deficit. However, the analysis shows how much margin borrowers will have if their interest rates increase.

corresponding proportions were around 3 and 9 per cent respectively. The higher proportion of deficits compared to last year is due to the higher standardised costs.

28. Proportion of borrowers with deficits at different mortgage rates (people living alone and cohabitants)

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank.

Many tenant-owners face deficits in the event of a large increase in mortgage rates and an increase in fees to the tenant-owner association

Fees in a tenant-owner association can be increased for various reasons, such as increased operating costs and interest costs for the tenant-owner association.⁴⁸ If the interest rate for a tenant-owner association's loan is increased by 1 percentage point, the increase in interest costs corresponds to an increase in the fee of just over 9 per cent on average.⁴⁹ We have calculated three different scenarios – 10, 25 and 50 per cent higher fees – to see how resilient borrowers who buy, or live in, existing tenant-owned housing are to possible fee increases.

If tenant-owner associations did not increase their fees (0 per cent), we see that the proportion of mortgagors with a deficit at the agreed interest rate would be around 1 per cent in 2018–2021 (see Table 4). In 2022, the proportion of borrowers facing a deficit doubled to just over 2 per cent. This is due to the higher standardised costs and the higher contractual interest rates. When we calculate what would happen if

⁴⁸ The average monthly fee paid by tenant-owner associations was slightly higher in this year's sample than in the previous year (see the section "Loans in tenant-owner associations affect borrowers"). Given the economic developments in the autumn, many associations may have increased their fees later in the year, after the time of our sample.

⁴⁹ We have calculated this as shown below:

$$\frac{0,01 \times (\text{area} \times \text{debt per sq. meter}) / 12}{\text{monthly fee}}$$

the fee had been increased by 10 per cent in 2022, the proportion of borrowers in deficit would have been just under 2.5 per cent. And if the fee had been increased by 50 per cent, just over 6 per cent of borrowers would have had a deficit. The results suggest that borrowers in general had some resilience that allowed them to cope with a large increase in fees at the agreed interest rate.

The proportion of mortgagors who would have had a deficit in 2022 at a mortgage rate of 7 per cent and a 12 per cent interest rate on other loans was significantly higher than at the agreed mortgage rate. If fees had remained unchanged, almost one in six borrowers would have had a deficit. If the fee had been increased by 25 per cent, more than one in five borrowers would have had a deficit. And a 50 per cent increase would leave almost one in three borrowers with a deficit. The results suggest that many mortgagors were vulnerable to a large increase in mortgage rates combined with a large increase in fees.

Tabell 1. Proportion of deficits under different fee increases

Per cent

Mortgage interest rate	Fee increase as a percentage	2018	2019	2020	2021	2022
Contractual interest rate	0	1.0	0.9	0.7	0.8	1.8
	10	1.2	1.2	0.9	0.9	2.4
	25	1.7	1.6	1.3	1.2	3.6
	50	3.4	2.8	2.6	2.3	6.2
7 per cent	0	9.4	8.8	10.8	13.4	16.1
	10	11.8	11.1	13.2	15.6	18.6
	25	15.6	14.7	17.1	19.4	22.2
	50	22.6	22.1	24.0	26.3	28.6

Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank.

Almost one in six mortgagors living alone face deficits if they become unemployed and have no income protection insurance

We have also analysed borrowers' ability to manage their interest payments and other expenses if they become unemployed and receive less income.

Unemployment reduces borrowers' income. People without income protection insurance are particularly hard hit. In the event of unemployment, income is reduced by at least 20 per cent; or possibly considerably more, as the maximum unemployment benefit is SEK 26,400 after tax.⁵⁰ If the borrower has income

⁵⁰ We have used the old compensation level of SEK 16,000 for 2019 and beyond.

protection insurance, their income is reduced by 20 per cent regardless of the original salary level.

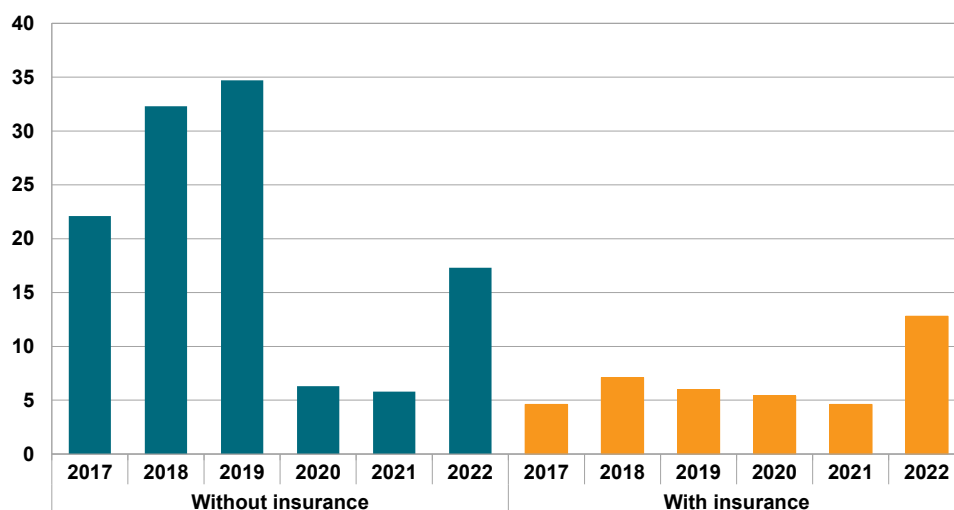
In both scenarios, we have performed calculations for mortgagors living alone and mortgagors cohabiting. When there are two borrowers in the household, we assume that only one becomes unemployed. We then calculate how many borrowers are in deficit in our simplified cash flow calculation. It is unlikely that all borrowers in the sample will be unemployed at the same time. However, this stress test shows the proportion of borrowers who can cope with an unforeseen loss of income. Mortgagors can apply for a break from amortisation payments if they become unemployed. Giving borrowers a temporary break from amortisation payments when they become unemployed reduces the proportion of people with deficits, which in turn makes them less vulnerable. We disregard amortisation payments in the cash flow calculation.

Just over 17 per cent of people living alone with new mortgages and who become unemployed without income protection insurance and who are granted a break from amortisation payments would have a deficit in our cash flow calculation in 2022 (see Diagram 29). This is three times the proportion of mortgagors with deficits compared to the previous year. The fact that more borrowers are in deficit compared to the previous year is due to the higher interest costs. If these borrowers had income protection insurance, about 13 per cent would experience a deficit. The large change between 2019 and 2020 in the proportion of people living alone and with a deficit is due to the change in the level of unemployment benefits.

Cohabiting borrowers (with two incomes) are more resilient to a loss of income. Without income protection insurance and granting breaks from amortisation payments, only one per cent of cohabiting borrowers would have a deficit in their monthly calculations. And if borrowers had income protection insurance, the proportion of deficits was the same.

29. Proportion of people living alone with deficits in the event of loss of income

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank. Total loans are calculated with the agreed mortgage rate and without amortisation payments.

Many new mortgagors with loans larger than the value of their home if housing prices fall by 35 per cent

In our cash flow calculations, we see that some mortgagors would have a deficit at higher interest rate levels and in the event of a loss of income. In such a situation, borrowers could – for example – reduce consumption to a lower level than our standardised figures or use existing savings to offset the negative cash flow. In a worse scenario, borrowers may have to sell their property. In this situation, highly leveraged borrowers are vulnerable to falls in housing prices, as the value of the house may be lower than the loans associated with the purchase of the house. Housing prices as a whole peaked in March 2022 and have since fallen by 13.2 per cent.⁵¹

According to our calculations, just over 2 per cent of borrowers would have an LTV ratio above 100 per cent in the event of a 10 per cent fall in housing prices (see Diagram 30).⁵² This is roughly the extent by which tenant-owned housing prices have fallen since they peaked in February 2022. The proportion that would have an LTV ratio above 100 per cent is marginally higher than in the previous year. If housing prices were to fall by 25 and 35 per cent respectively, many more people would not be able to repay their loans simply by selling their homes.

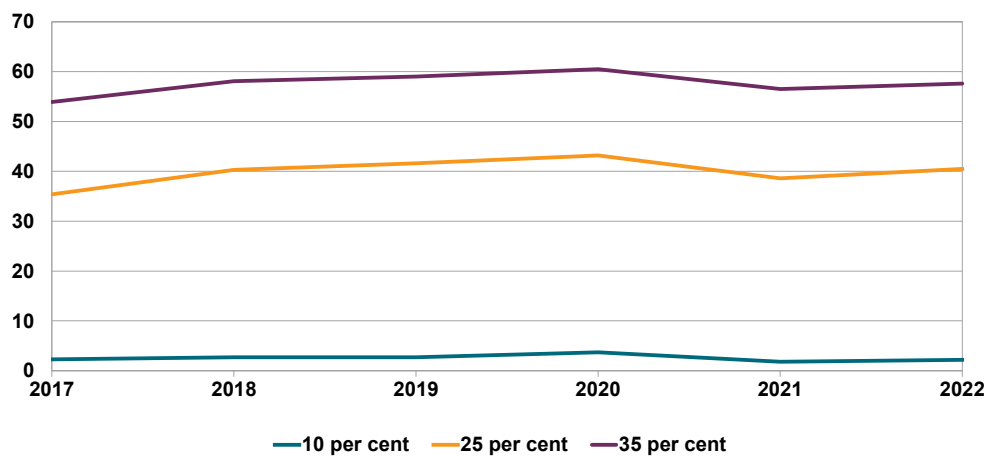
⁵¹ Refers to seasonally adjusted data until February 2023: see *Background*.

⁵² The price drop refers to the market value that the mortgagor would have received if the home had been sold at market value during the sample period.

Around 40 and 58 per cent of new mortgagors would have loans larger than the value of their home. This is marginally more than the previous year. Slightly more cohabitants than people living alone would have an LTV ratio above 100 per cent. For those borrowers who would have a deficit with a mortgage rate of 7 per cent, almost 70 per cent would have an LTV ratio above 100 per cent if the value of their homes were to fall by 35 per cent. This corresponds to just over 9 per cent of all mortgagors in 2022, and is about 2 percentage points higher than the previous year.

30. Proportion of mortgagors with an LTV ratio above 100 per cent in the event of different housing price drops

Per cent



Source: FI.

Note: Refers to home purchases, equity withdrawal and change of bank.

Appendix 1. Cash flow calculation

Banks' assessment of payment ability

Before the banks in the sample grant a mortgage, they assess the borrower's finances and payment ability through a so-called discretionary income calculation. These calculations play a key role in the banks' risk management and, by extension, financial and macroeconomic stability. They are also important to help provide good consumer protection. When a borrower applies for a mortgage, the bank asks for information about factors such as the borrower's income and debt. A bank deducts estimated expenses from the borrower's income as part of the discretionary income calculation. These expenses include taxes, housing-related expenses, operating expenses, interest costs (using a stressed mortgage rate that is higher than the agreed rate) and amortisation payments. The banks also deduct standardised amounts for living costs. Borrowers normally must not have a deficit in their calculations if they are to be approved for a mortgage by the bank. In some cases, however, banks can grant loans even if the borrower has a deficit. This is usually because the borrower has good financial conditions that are not evident in the calculation. Other reasons may be that part of the loan is temporary (what is known as a bridging loan).⁵³

FI's simplified cash flow calculation

We perform our own simplified cash flow calculations of borrowers' monthly surpluses. These simplified cash flow calculations are inspired by the banks' discretionary income calculations. However, they should not be interpreted as a calculation in order to assess repayment capacity in connection with a credit check. We calculate a borrower's disposable income by deducting tax from the gross income and supplementing the income with child allowance and large family supplements.⁵⁴ As FI does not have complete information about the borrower's situation, we use standardised figures for operating costs and living costs. This enables us to treat all borrowers equally. The standardised costs depend on the number of borrowers, any children and the type of home a borrower has.⁵⁵ The standardised costs are an estimate, not the actual expenses of the household at the

⁵³ A bridging loan is a temporary loan that is granted for the period between the time when a household has paid for its new home, but has not yet received payment for the old home that it has sold or intends to sell.

⁵⁴ Tax is calculated using the average municipal and county council tax throughout Sweden. State income protection tax, austerity tax (before 2020), tax-free allowances and earned income tax credit are then taken into consideration.

⁵⁵ The standardised costs only take into account the type of home, and not its size. As the size of a home can have a major bearing on costs, for example for heating, FI's calculations are not as precise for individual borrowers as the banks' own calculations.

time of the loan.⁵⁶ FI's calculations therefore do not capture that households may be forced to reduce their consumption to be able to continue paying their loans. FI's standardised figures are based on the banks' average standardised costs that the banks use when they do not have data about the borrower. The standardised costs used by the banks have increased over time. Standardised costs fell between 2015 and 2016, and also decreased slightly after 2018. When assessing household resilience, we have chosen to use the living costs for 2015. The costs for previous and later years have been calculated using the Consumer Price Index with a fixed interest rate (CPIF). The reason why FI has chosen CPIF is to avoid counting interest expenses twice. For 2022, FI is using the standardised costs according to 0. Since 2018, the actual level of the fees for owners of tenant-owned housing has also been used.

Table X. FI's standardised costs in the monthly calculation

SEK per month

Living costs	2020	2021	2022
Single-person households	9,909	10,147	10,940
Cohabitants	17,157	17,570	18,942
Per child	3,678	3,767	4,061
Accommodation costs			
Operating cost Single-family houses	3,919	3,919	4,209
Fee Tenant-owned housing (if no actual fee)	3,086	3,086	3,213

We also use the interest rate that applied at the time the loan was taken. The borrower's resilience to rising interest rates is analysed at different interest rates, after interest deductions. We use two scenarios where the interest rate levels are 5 and 7 per cent for mortgages. We assume that the interest rates for other loans (loans with other collateral and loans without collateral) are 10 and 12 per cent respectively in these two different scenarios.

⁵⁶ The banks have access to more detailed information about borrowers and can therefore use borrower-specific data on operating costs for single-family homes. The banks can then take into account any car or other transport costs as well. FI uses standardised costs instead, as we do not have access to sufficiently detailed data about the borrowers. This means that FI's calculations are not as precise for individual borrowers as the banks' calculations. The banks can also take into consideration the borrowers' financial assets when assessing their payment capacity. As FI does not have this kind of data, it is not possible to include it in the analysis. The banks' methods for assessing the borrowers' payment capacity differ between the banks. By using a standardised calculation that is the same for all banks, FI is able to provide consistent comparisons between the banks and over time. Deficits in FI's cash flow calculations do not necessarily mean that the borrowers will have a deficit in the banks' calculations. Similarly, a surplus in the calculation does not mean that the borrowers will have a surplus in their actual living costs.

Table X. FI's standardised interest rates for mortgages and other loans

Per cent

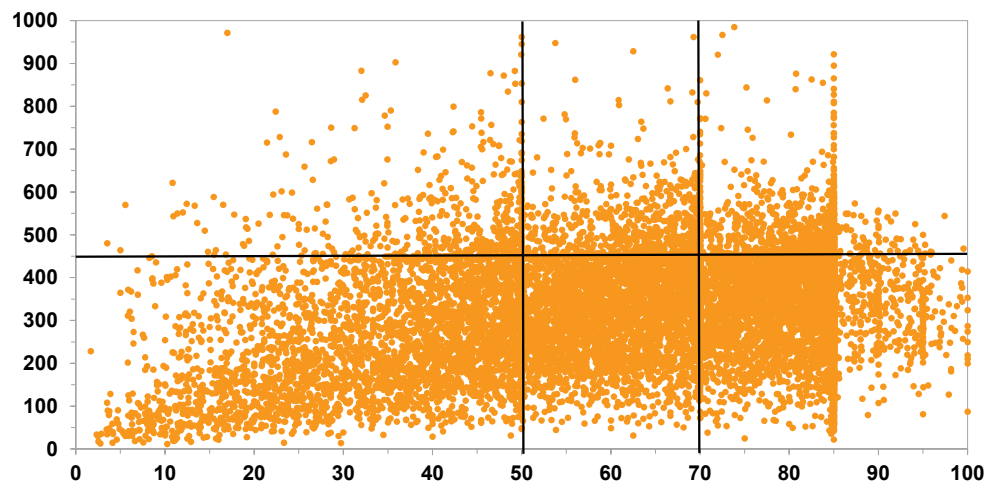
Living costs	Contractual interest rate	Scenario 5 per cent	Scenario 7 per cent
Mortgages	Contractual*	5	7
Other loans	Contractual and 6.7	10	12

Note: We use an interest rate of 6.7 per cent at the contractual rate for existing other loans.

Appendix 2. Households with new mortgages – LTV ratio and LTI ratio

31. Sample mortgage survey 2022, gross income

Per cent

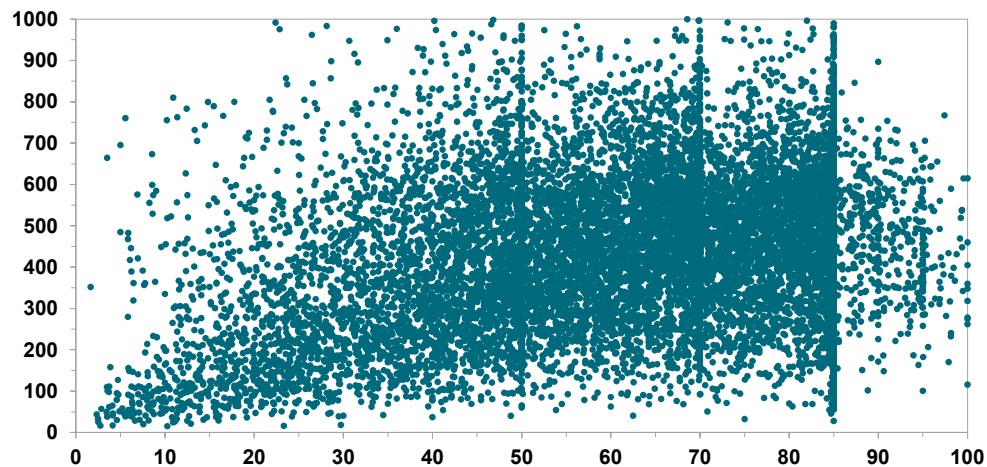


Source: FI.

Note: Gross LTI ratio and LTV ratio.

32. Sample mortgage survey 2022, net income

Per cent



Source: FI.

Note: Net LTI ratio and LTV ratio.